

Hawaii's Targeted & Emerging Industries

2015 Update Report



Department of Business, Economic Development and Tourism
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This publication is produced by the Research and Economic Analysis Division (READ) of the Department of Business, Economic Development & Tourism (DBEDT), State of Hawaii which is responsible for its content and presentation.



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Table of Contents

EXECUTIVE SUMMARY	4
INTRODUCTION	7
Defining Targeted Industries	7
The Targeted Industry Portfolio	7
Measuring Targeted Industries	8
Data Sources	9
TECHNOLOGY SECTOR	10
Size and Growth	10
Competitive metrics	12
Overall Performance	13
CREATIVE SECTOR	14
Size and Growth	14
Competitive metrics	16
Overall Performance	17
AGRIBUSINESS	18
Size and Growth	18
Competitive metrics	19
Overall Performance	20
HEALTH AND WELLNESS	21
Size and Growth	21
Competitive metrics	22
Overall Performance	23
EDUCATION	24
Size and Growth	24
Competitive metrics	25
Overall Performance	25
OTHER TARGETED INDUSTRIES (Apparel & Call Centers)	26
Size and Growth	26
Competitive metrics	27
Overall Performance	27
PERFORMANCE BY COUNTY	28
City & County of Honolulu	29
Hawaii County	31
Maui County	33
Kauai County	35
CONCLUSIONS	37

EXECUTIVE SUMMARY

In late 2009 DBEDT Research compiled and published a performance review of Hawaii's targeted industry portfolio.¹ 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. Based on a review of regional economic methods, each activity was measured between 2002 and 2008 for both its contribution to job growth in Hawaii's economy and also how well the activity performed relative to its national counterpart. This period corresponded closely to the expansion phase of the most recent economic cycle for Hawaii and the U.S. in terms of employment.

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 Hawaii'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 Hawaii 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 the projected data for 2015. Table S-1 provides a comprehensive overview of performance among activities in the Targeted Industry Portfolio over the 2005 to 2015 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. Key observations from the updated examination of the portfolio are:

- Ten 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 Cultural Activities, Music, Farm Production, Agriculture Processing, Alternative Power Generation, Art Education, Hospitals & Nursing Facilities, Agriculture Inputs, Other Technology Manufacturing, and Chemical & Pharmaceutical Manufacturing.
- The high-performing activities in the target industry portfolio (Base-growth and Emerging) accounted for about 48,454 jobs or 5.8% of all civilian jobs in 2015. However, between 2005 and 2015 those activities generated 10.5% of the total gain in jobs for the civilian economy, or about 6,800 new jobs.
- Among the best performing activities, Alternative Power Generation and Cultural Activities grew jobs over 5% per year during the 2005 to 2015 period.
- Adjusting for overlaps, total targeted jobs reached 152,324 jobs in 2015, increased 14,666 jobs from 2005.

¹ Benchmarking Hawaii's Emerging Industries, DBEDT, December 2009, <http://dbedt.hawaii.gov/economic-reports-studies/emerging-industries/>

TABLE S-1. OVERALL PERFORMANCE OF THE TARGETED INDUSTRY PORTFOLIO

INDUSTRY GROUPS	JOBS IN HAWAII		AVG. ANN. JOB GROWTH (2005-2015 ^P)		CONCENTRATION OF INDUSTRY IN HAWAII COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^P)	
	2015 ^P	CHANGE 2005-2015 ^P	HAWAII	U.S.	2015 ^P	% Point CHNG 2005-2015 ^P	HAWAII	U.S.
TOTAL CIVILIAN JOBS	840,967	64,334	0.8%	1.0%	100%	0%	\$53,325	\$54,026
TOTAL TARGETED JOBS WITHOUT OVERLAP	152,324	14,666	1.0%	1.5%	81%	-2%	\$55,100	\$65,511
Base-Growth Activities								
Cultural Activities	3,463	1,961	8.7%	2.8%	393%	172%	\$45,022	\$51,249
Music	1,550	483	3.8%	2.3%	181%	27%	\$27,787	\$42,433
Emerging Activities								
Farm Production	14,009	1,233	0.9%	0.3%	99%	8%	\$27,409	\$28,042
Agric. Processing	7,112	536	0.8%	0.4%	98%	5%	\$45,984	\$55,035
Alternative Power Generation	275	201	14.1%	-4.7%	94%	79%	\$94,174	\$155,302
Art Education	773	193	2.9%	2.9%	76%	1%	\$13,884	\$13,894
Hospitals & Nursing Facilities	20,082	1,947	1.0%	1.0%	69%	2%	\$77,020	\$61,994
Agric. Inputs	383	18	0.5%	0.4%	34%	1%	\$78,839	\$67,241
Other Technology Mfg	631	159	2.9%	-0.2%	11%	3%	\$67,472	\$107,192
Chemical & Pharmaceutical Mfg	176	38	2.4%	-0.1%	9%	2%	\$94,579	\$136,456
Transitioning Activities								
Agric. Support Services	1,397	253	2.0%	2.0%	55%	1%	\$45,700	\$49,897
Pharmacies	3,774	46	0.1%	0.2%	117%	1%	\$45,464	\$46,789
Higher Education	5,689	835	1.6%	1.7%	65%	0%	\$34,113	\$50,616
Specialty Education	5,438	1,532	3.4%	3.5%	95%	0%	\$29,282	\$29,721
Engineering and Related Serv.	6,042	315	0.5%	0.8%	85%	0%	\$87,437	\$89,859
Business Consulting	5,077	1,287	3.0%	3.3%	61%	-1%	\$61,343	\$76,091
Engineering and Research & Development	5,474	362	0.7%	1.2%	76%	-2%	\$93,401	\$106,260
Design Services	2,026	239	1.3%	1.9%	95%	-4%	\$28,412	\$36,527
Specialty Health Care Services	10,015	3,425	4.3%	5.0%	87%	-5%	\$46,031	\$40,868
Information & Telecom Tech.	5,499	16	0.0%	0.9%	63%	-5%	\$89,408	\$114,833
Marketing, Photography & Related	10,724	846	0.8%	1.7%	91%	-7%	\$25,416	\$46,918
Health Practitioners	22,394	2,538	1.2%	2.2%	95%	-8%	\$79,494	\$77,426
Technical Consulting Services	4,362	1,083	2.9%	4.1%	61%	-6%	\$62,429	\$75,788
Medical Labs, Diagnostic and Imaging Centers*	1,697	104	0.6%	2.3%	135%	-21%	\$63,715	\$69,862
Computer Sys. Design & Related	6,261	131	0.2%	3.4%	60%	-21%	\$81,915	\$102,744
Computer Services and Software Publishers	4,614	121	0.3%	3.8%	43%	-17%	\$88,044	\$111,670
Declining Activities								
Performing and Creative Arts	8,795	-227	-0.3%	2.3%	114%	-30%	\$16,389	\$26,573
Biotechnology	570	-19	-0.3%	1.6%	79%	-15%	\$75,734	\$152,862
R&D Services (exc. Biotech.)	1,569	-114	-0.7%	1.3%	65%	-13%	\$84,833	\$121,393
Architecture	1,893	-214	-1.1%	-0.9%	134%	1%	\$71,932	\$66,018
Technology Equipment Distr.	736	-139	-1.7%	-0.3%	31%	-4%	\$103,112	\$113,408
Radio and Television Broadcasting	1,157	-221	-1.7%	-0.2%	94%	-13%	\$65,400	\$80,368
Fishing, Forestry & Hunting	1,488	-303	-1.8%	-1.4%	331%	-9%	\$18,400	\$35,131
Apparel	1,049	-304	-2.5%	-3.8%	143%	20%	\$36,711	\$41,472
Film, TV, Video Production/Distrib	1,199	-516	-3.5%	-0.3%	70%	-25%	\$55,146	\$98,690
Call Centers	280	-175	-4.7%	3.7%	11%	-15%	\$22,552	\$36,767
Agric. Packaging & Warehsg	232	-147	-4.8%	0.2%	29%	-19%	\$58,059	\$51,378
Publishing & Information	1,904	-1,206	-4.8%	-1.2%	54%	-23%	\$57,473	\$104,181

Source: DBEDT based on data from Economic Modeling Specialists, Inc. (EMSI). Estimates for 2015 are based on early 2015 data from EMSI ("P" designates projection). The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

*The 1,697 jobs in this industry were allocated to both the Technology and Health and Wellness Sector.

- About 45% of the high-performing activities had average annual earnings that exceeded \$67,000 in 2015. Alternative Power Generation had the highest average earnings at \$94,174. By comparison, the average earnings for the civilian economy in 2015 was \$53,325 based on the projected 2015 estimate.
- Sixteen activities, about 100,483 jobs in 2015, 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 - Specialty Health Care Services, Specialty Education, Business Consulting, Technical Consulting Services, Agric. Support Services, Higher Education, Design Services, Health Practitioners, and Marketing, Photography & Related - 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 49% of jobs in Transitioning category had average earnings over \$79,000 in 2015. The concern those activities were not as competitive as the same activities at the national level.
- Twelve activities in the portfolio fell into the Declining industry category as the result of net job losses for the 2005 to 2015 period. Notable among these were Publishing & Information, Apparel, Fishing, Forestry & Hunting, Film, TV, Video Production/Distribution, and Call Centers.
- Except for Call Centers, Performing and Creative Arts, Biotechnology, R&D Services (exc. Biotech.), and Agriculture Packaging & Warehousing, the Declining activities also lost jobs at the U.S. level, suggesting that there were some national forces influencing the declines. However, the competitive measures show that the losses were generally more severe for Hawaii than nationally.
- Jobs in the Declining industry group totaled an estimated 20,871 in 2015 (2.5% of all civilian jobs), representing a loss of about 3,584 jobs from 2005. About 44.4% of the jobs in the Declining industry group had above average earnings in Hawaii.
- 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 like tourism and defense activity and may be reflecting the ups and downs in 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 help economic developers and policy makers understand which targeted industries are achieving the expected potential and which are not.

INTRODUCTION

In 2009, DBEDT Research 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 sixth report that updates the review of targeted industry performance at the state level to 2015 (projected data). In this study, the targeted industry performance at the county level are also examined.

Defining Targeted Industries

Act 148 (2007) directed DBEDT to identify and measure systematically the performance of *emerging* industries in Hawaii'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 1 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 1. TARGETED INDUSTRY PORTFOLIO

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

Measuring Targeted Industries

In this updated report, the industry groups of the targeted industry portfolio are presented by the major sectors shown in Table 1. The performance measures are the same as those developed for the 2009 report. However they are presented in a slightly different way that will, hopefully, be more clear 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 Hawaii's competitiveness and concentration of activities compared to the nation overall. If the respective activity is growing faster in Hawaii 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 Hawaii 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 Hawaii's well educated youth in the state.

By combining these performance measures, we attempt to group the portfolio activities into four performance categories as in Table 2. 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 fast 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 state, 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 2. 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 Hawaii than nationally	➡	Positive job growth Increasing competitive national market share (outperforming the same activity nationally) Higher concentration in Hawaii 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 Economic Modeling Specialists, Inc. (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.

TECHNOLOGY SECTOR

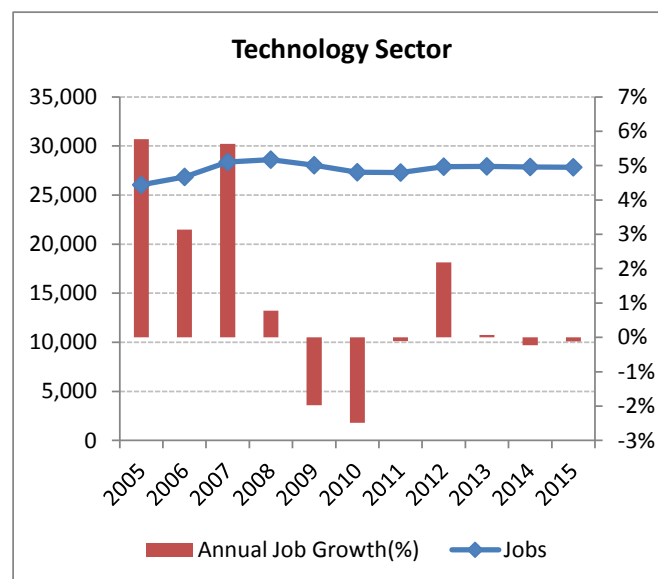
A joint project in 2008 between DBEDT, the Hawaii Science and Technology Association (HiSciTech) and other stakeholders, updated the definition of the technology sector for Hawaii and established baseline measurements.² The project adopted a definition for technology established by the U.S. Bureau of Labor Statistics (BLS).³ 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 followed the earlier definition with a few adjustments that were necessary due to changes in new NAICS coding system. 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 2012 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 27,818 jobs in 2015, or 3.3% of all civilian jobs in Hawaii including self-employed and sole proprietors. For the 2005 to 2015 period, the technology sector had an annual average 0.7% gain in jobs, 0.1 of a percentage point lower than the average annual growth for the civilian economy.

The 2015 projected estimate shows that the technology sector lost 34 jobs or 0.1% in 2015 from 2014. Information & Telecom Technology added 223 jobs, followed by Technical Consulting (54 jobs). The major categories with job losses in 2015 were Computer System Design and Related (lost 140 jobs) and Engineering and Related Services (lost 119 jobs).

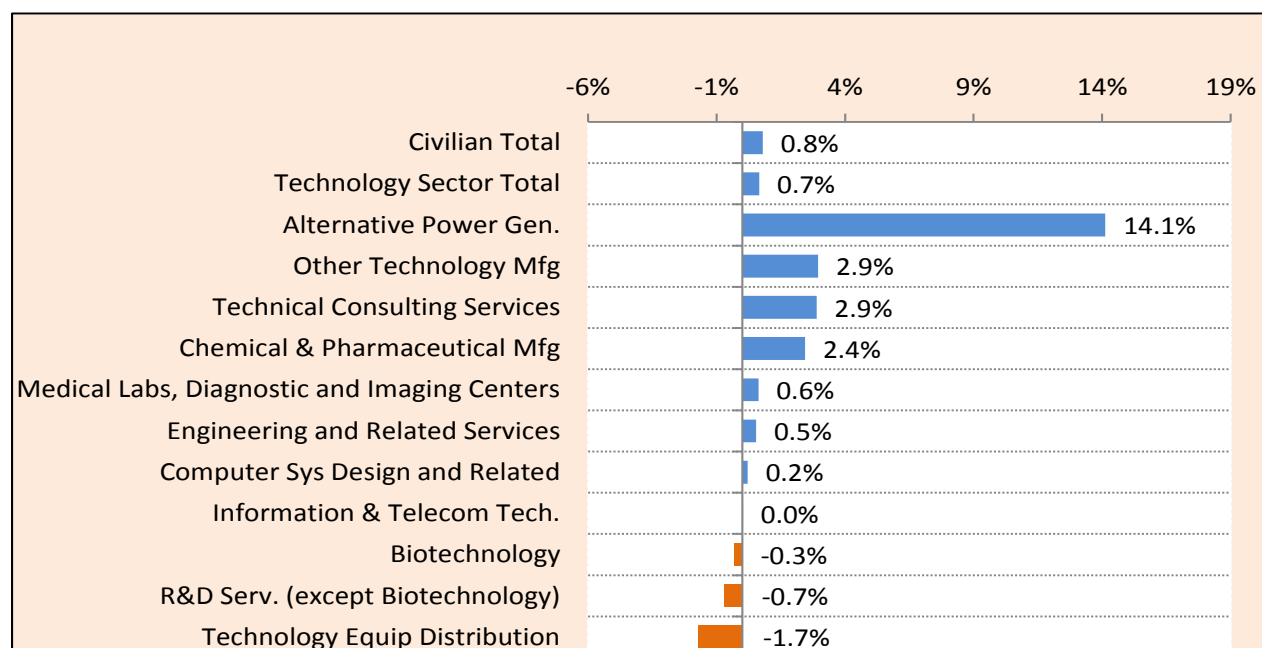


For the 2005 to 2015 period, Alternative Power Generation had the strongest job growth among the technology industry groups. Other high-performing activities in the technology sector were Other Technology Mfg., Technical Consulting Services, and Chemical & Pharmaceutical Mfg.

The three technology industry groups that did not have job growth during the 2005 to 2015 period were Technology Equipment Distribution, Biotechnology, and R&D Services.

² Hawaii Science & Technology Institute, *Innovation and Technology in Hawaii: An Economic and Workforce Profile*, October 2008.

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

TABLE 3. JOBS¹ IN TECHNOLOGY SECTOR, AVERAGE ANNUAL GROWTH OVER 2005-2015

	Annual Job Growth				Jobs in 2015p
	2005-2015p	2005-2007	2007-2010	2010-2015p	
Civilian Total	0.8%	2.7%	-1.6%	1.5%	840,967
Technology Sector Total	0.7%	4.4%	-1.2%	0.4%	27,818
Alternative Power Gen.	14.1%	44.4%	-4.8%	15.8%	275
Other Technology Mfg	2.9%	0.7%	7.3%	1.3%	631
Technical Consulting Services	2.9%	8.7%	1.2%	1.7%	4,362
Chemical & Pharmaceutical Mfg	2.4%	-11.9%	5.2%	7.1%	176
Medical Labs, Diagnostic and Imaging Centers	0.6%	3.9%	-0.4%	0.0%	1,697
Engineering and Related Services	0.5%	4.4%	-1.8%	0.4%	6,042
Computer Sys Design and Related	0.2%	2.2%	0.2%	-0.6%	6,261
Information & Telecom Tech.	0.0%	4.3%	-5.5%	1.8%	5,499
Biotechnology	-0.3%	6.7%	-0.7%	-2.8%	570
R&D Serv. (except Biotechnology)	-0.7%	8.3%	-0.7%	-4.1%	1,569
Technology Equip Distribution	-1.7%	-5.0%	0.5%	-1.7%	736

¹Includes wage & salary, sole proprietors & self-employed.

Source: DBEDT based on data from Economic Modeling Specialists, Inc. (EMSI). "P" designates "projection for 2015 based on early 2015 actual data and EMSI estimates.

Competitive Metrics

The sixth column of Table 4 shows the difference in percentage points between job growth in Hawaii and the U.S. for the technology sector industry groups. Overall, Hawaii's technology sector grew jobs slightly less than the same activities in the nation.

Except for Technology Consulting Services, most fast growing activities in the technology sector outperformed their national counterparts during the 2005-2015 period. Among these, Alternative Power Generation and Other Technology Manufacturing had the most significant gains, averaging 18.9 and 3.1 percentage points, respectively.

TABLE 4. HAWAII TECHNOLOGY SECTOR PERFORMANCE COMPARED WITH NATION

	Jobs per Estab. Avg. Annual Earnings			Avg. Ann. Job Growth		When U.S.=100%		
	Jobs (2015p)	Estab. (2015p)	Earnings (2015p)	2005-2015p	above or below U.S.	Concentration ¹	Jobs per Estab.	Avg. Ann. Earning
Total Civilian	840,967	18.8	53,325	0.8%	-0.2%	100%	93%	99%
TECHNOLOGY SECTOR	27,818	12.4	80,901	0.7%	-0.9%	58%	81%	79%
Alternative Power Generation	275	10.6	94,174	14.1%	18.9%	94%	23%	61%
Other Technology Mfg	631	14.8	67,472	2.9%	3.1%	11%	30%	63%
Technical Consulting Services	4,362	16.0	62,429	2.9%	-1.2%	61%	166%	82%
Chemical & Pharmaceutical Mfg	176	10.6	94,579	2.4%	2.6%	9%	14%	69%
Medical Labs, Diagnostic and Imaging Centers	1,697	15.7	63,715	0.6%	-1.7%	135%	103%	91%
Engineering and Related Serv.	6,042	11.4	87,437	0.5%	-0.2%	85%	80%	97%
Computer Sys. Design & Related	6,261	12.2	81,915	0.2%	-3.2%	60%	123%	80%
Information & Telecom Tech.	5,499	11.2	89,408	0.0%	-0.9%	63%	45%	78%
Biotechnology	570	13.2	75,734	-0.3%	-2.0%	79%	57%	50%
R&D Services (exc. Biotech.)	1,569	11.8	84,833	-0.7%	-2.0%	65%	42%	70%
Technology Equipment Distr.	736	9.7	103,112	-1.7%	-1.4%	31%	67%	91%

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

Source: see Table 3 for data source.

Although they had positive job growth over the 2005 to 2015 period, Computer System Design & Related Services, Engineering & Related Services, and Information & Telecom all lost competitive ground to their national counterparts. It is important to note these were all large groups with over 5000 jobs.

Technology Equipment Distribution, R&D Services, and Biotechnology jobs declined in Hawaii during the 2005-2015 period. Although Technology Equipment Distribution jobs also declined in the nation, the decline in Hawaii was higher. Information Technology jobs experienced the lowest positive growth from 2005 to 2015 in Hawaii's technology sector. Three forces may have influenced this slow growth. First, the inclusion of wired telecom service, an activity with declining demand, could be a lag for overall job growth this category. Second, productivity gains in information technology may have reduced the labor required to produce the same output of services. Third, in recent years there has been a consolidation of internet services, especially web hosting, into fewer providers around the country that serve national markets. It is difficult for local internet services to compete with the economies of scale of these large internet service companies.

In terms of concentration, most of Hawaii's technology industry groups are still a relatively small percentage of Hawaii's total economy, compared with the technology industry groups at the national level. In 2015, Hawaii'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 35% more concentrated in Hawaii than the nation overall.

The average earnings in Hawaii's technology sector was relatively high, at \$80,901 in 2015. As a group, it was 52% higher than the average for Hawaii's economy. Average earnings of the eleven technology industry groups all exceeded the average for Hawaii's economy. However, workers in most of the Hawaii technology sector groups were not paid as much as the U.S. average for the same activities. The average earnings in Hawaii's technology sector, as a whole, was only 79% of the average earnings paid nationally. The largest earnings gaps between Hawaii and the U.S. were found in Biotechnology, Alternative Power Generation, Other Technology Manufacturing, 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 2.

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 three industry groups were Alternative Power Generation, Other Technology Manufacturing, and Chemical & Pharmaceutical Manufacturing. 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.

Five groups in the technology sector were in the Transitioning category for the 2005 to 2015 period. Including the four big activities in the technology sector – Technical Consulting Services, Computer System Design & Related Services, Information & Telecom Technology, and Engineering & Related Services. While job growth was positive in these industry groups, they still lost some competitive shares to the national industry groups.

Technology Equipment Distribution, Biotechnology, and R&D Services (exc. Biotech) fell into the Declining category for 2005 to 2015 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 Other Technology Mfg Chemical & Pharmaceutical Mfg	
Declining Activities	Transitioning Activities
Biotechnology R&D Services (exc. Biotech.) Technology Equipment Distr.	Engineering and Related Serv. Information & Telecom Tech. Technical Consulting Services Medical Labs, Diagnostic and Imaging Centers Computer Sys. Design & Related

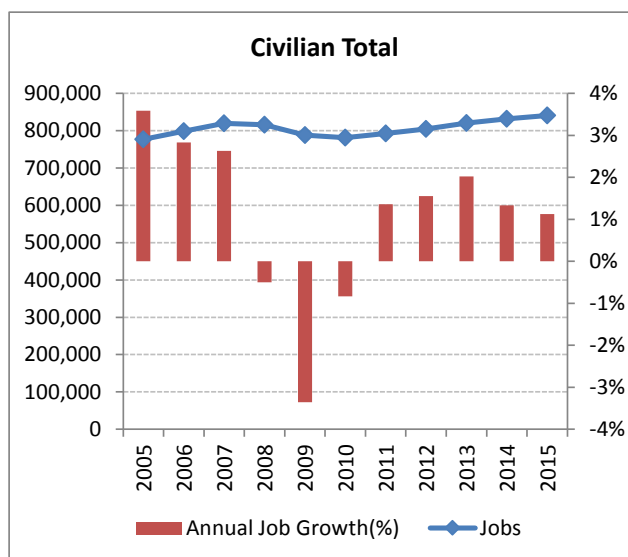
CREATIVE SECTOR

In 2010, 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.⁴ 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 48,649 jobs in 2015, 5.8% of all civilian jobs in Hawaii. Marketing/Photograph & Related, and Performing/Creative Arts were the two largest groups in the sector, accounting for about 40.1% of jobs in the sector.

As a group, the creative sector job growth was slightly lower than the state civilian economy over the 2005 to 2015 period at 0.7% per year. It grew jobs faster than Hawaii's civilian economy during the 2005 to 2007 expansion phase, and the impact of the 2007-2010 recession was felt less in the sector. However, the growth rate of the creative sector from 2010 to 2015 was lower than that of the state civilian economy.



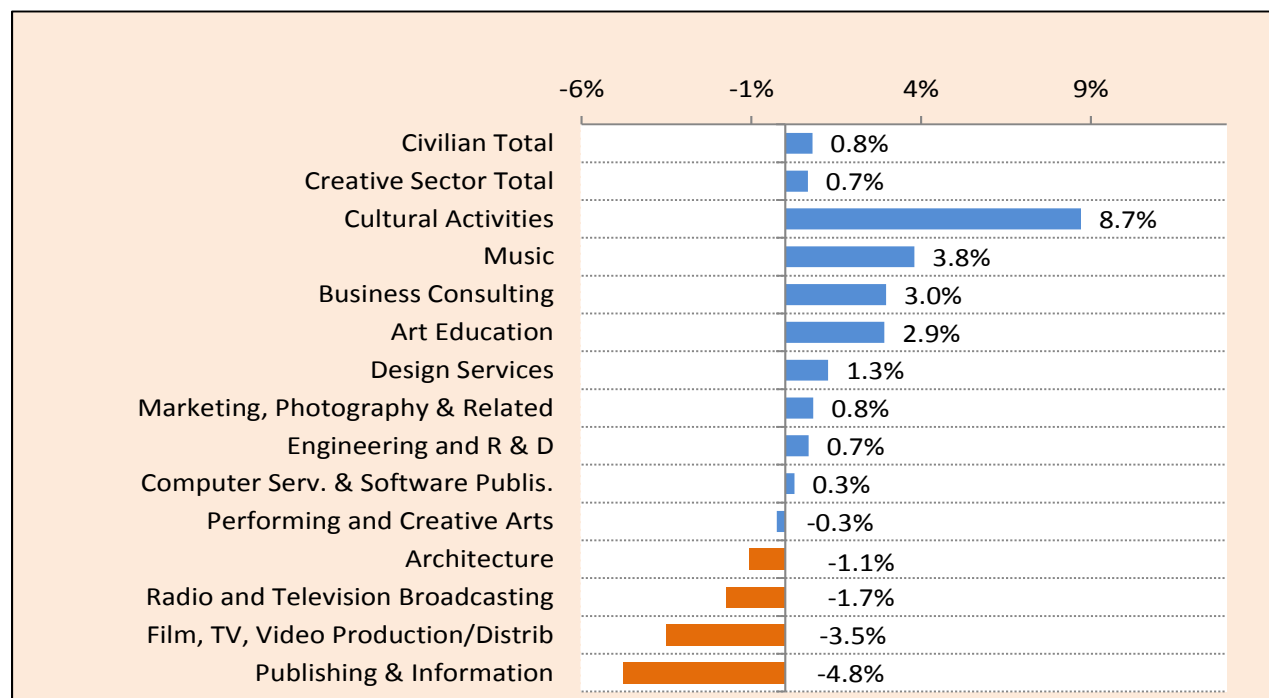
Cultural Activities grew jobs the most over the 2005 to 2015 period, 8.7% per year on average. Most job growth in Cultural Activities was achieved in the Museum category. Jobs in this category increased from 705 in 2005 to 2,051 in 2015. Music showed the second highest job growth with a 3.8% average annual increase in jobs for the period.

Film/TV Production varied widely depending on the number of productions filmed during the year. With many new productions filmed in Hawaii in late 2010, the number of 2010 jobs more than doubled from the 2009 level. However, during the overall 2010 to 2015 period, the number of jobs in Film/TV Production decreased from 2,638 jobs to 1,199 jobs.

Five groups in the sector, Performing and Creative Arts, Architecture, Radio/TV Broadcasting, Film, TV, Video Production/Distribution, and Publishing & Information failed to gain jobs over the 2005 to 2015 period. These groups experienced a sharp decline in jobs during the contraction period. With the closing of the Honolulu Advertiser in 2010, jobs in Publishing & Information decreased from 3,173 in 2007 to 1,904 in 2015.

⁴ DBEDT, *Hawaii's Creative Industries: Update Report 2010*, June 2010. http://dbedt.hawaii.gov/economic/reports_studies/hawaii-creative-report/

TABLE 5. JOBS IN CREATIVE SECTOR: AVERAGE ANNUAL GROWTH OVER 2005-2015



	Annual Job Growth				Jobs in 2015p
	2005-2015p	2005-2007	2007-2010	2010-2015p	
Civilian Total	0.8%	2.7%	-1.6%	1.5%	840,967
Creative Sector Total	0.7%	4.1%	-1.4%	0.5%	48,649
Cultural Activities	8.7%	5.9%	-1.1%	16.2%	3,463
Music	3.8%	6.4%	-6.1%	9.2%	1,550
Business Consulting	3.0%	7.1%	2.2%	1.8%	5,077
Art Education	2.9%	5.1%	-2.6%	5.5%	773
Design Services	1.3%	8.2%	-3.4%	1.4%	2,026
Marketing, Photography & Related	0.8%	3.6%	-0.9%	0.8%	10,724
Engineering and R & D	0.7%	5.9%	-0.6%	-0.6%	5,474
Computer Serv. & Software Publis.	0.3%	2.7%	-0.7%	-0.1%	4,614
Performing and Creative Arts	-0.3%	4.5%	-3.8%	0.0%	8,795
Architecture	-1.1%	4.3%	-4.2%	-1.2%	1,893
Radio and Television Broadcasting	-1.7%	0.7%	-6.3%	0.1%	1,157
Film, TV, Video Production/Distrib	-3.5%	-3.8%	18.4%	-14.6%	1,199
Publishing & Information	-4.8%	1.0%	-8.6%	-4.7%	1,904

Source: see Table 3 for data source ("P" designates projection)

Competitive Metrics

Many activities in the creative sector lost competitive share to the U.S. economy over the 2005 to 2015 period. Only three among the thirteen groups in this sector outperformed their national counterparts during this period. In addition to Cultural Activities that had the highest growth, Music, and Art Education also outperformed their national counterpart during the 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 almost four times as concentrated in Hawaii. Music, Performing and Creative Arts, and Architecture 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 Hawaii than the same industries nationally.

With an average annual earnings of \$47,284 in 2015, the activities in the creative sector were making a little less than the average for the overall Hawaii economy. Compared with the same activities nationally, the average earnings in Hawaii was only 65% of the national average. The lower earnings in Hawaii 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 were paid higher in Hawaii than the nation overall. The activities that showed significant earnings gaps between Hawaii and the U.S. include Film/TV Production, Publishing & Information, Computer Services & Software Publishers, and Marketing/Photography & Related.

TABLE 6. HAWAII'S CREATIVE SECTOR – PERFORMANCE COMPARED WITH THE NATION

	Jobs (2015p)	Jobs per Estabs (2015p)	Avg. Annual Earnings (2015p)	Avg. Ann. Job Growth		When U.S.=100%		
				2005- 2015p	above or below U.S.	Concen- tration ¹	Jobs per Estabs	Avg. Ann. Earning
Total Civilian	840,967	18.8	53,325	0.8%	-0.2%	100%	93%	99%
CREATIVE SECTOR	48,649	21.1	47,284	0.7%	-1.3%	83%	140%	65%
Cultural Activities	3,463	22.2	45,022	8.7%	5.9%	393%	149%	88%
Music	1,550	36.0	27,787	3.8%	1.5%	181%	234%	65%
Business Consulting	5,077	16.3	61,343	3.0%	-0.3%	61%	173%	81%
Art Education	773	72.0	13,884	2.9%	0.0%	76%	379%	100%
Design Services	2,026	35.2	28,412	1.3%	-0.6%	95%	271%	78%
Marketing, Photography & Related	10,724	39.3	25,416	0.8%	-0.9%	91%	204%	54%
Engineering and Research & Development	5,474	10.7	93,401	0.7%	-0.5%	76%	60%	88%
Computer Services and Software Publishers	4,614	11.4	88,044	0.3%	-3.5%	43%	107%	79%
Performing and Creative Arts	8,795	61.0	16,389	-0.3%	-2.6%	114%	161%	62%
Architecture	1,893	13.9	71,932	-1.1%	-0.1%	134%	129%	109%
Radio and Television Broadcasting	1,157	15.3	65,400	-1.7%	-1.5%	94%	47%	81%
Film, TV, Video Production/Distrib	1,199	18.1	55,146	-3.5%	-3.2%	70%	105%	56%
Publishing & Information	1,904	17.4	57,473	-4.8%	-3.5%	54%	86%	55%

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

Source: see Table 3 for data source.

Overall Performance

Based on the performance metrics above, the creative industry groups are placed into the performance categories as below. Three groups, Cultural Activities, Music, and Art Education are rated as high performing for growth and competitiveness, compared with the same activities nationally.

Five other groups – Business Consulting, Engineering and R&D, Design Services, Marketing, Photography & Related, and Computer Services & Software Publishing - grew jobs over the period but came up short competitively, compared with the performance of the same industry group nationally over the 2005 to 2015 period.

Performing and Creative Arts, Architecture, Radio/TV Broadcasting, Film, TV, Video Production and Distribution, and Publishing & Information were in the lowest performance group. All lost jobs over the 2005 to 2015 period.

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

AGRIBUSINESS

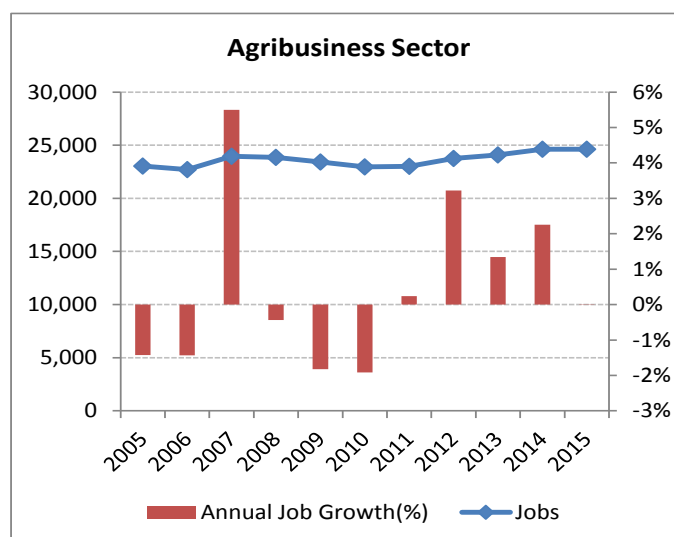
In 2015, the 24,620 jobs in Agribusiness were found in a range of inter-related industry groups that support the core farm sector. Most of the agribusiness jobs, including self-employed, are in actual farm production (57%). The second largest industry group in the sector was Agricultural Processing at 29% of the sector's jobs.

A breakdown of employment for the Farm Production by individual crop and livestock activities, that includes self-employed and proprietors, is not available. However, agricultural values show that seed crops, primarily corn seed research and development, were the largest component in terms of value at 41.4% in 2010 (latest data available).⁵ This production value of seed corn was more than double of its value in 2006. Hawaii's two other major agricultural products, sugarcane and coffee, accounted for 11.7% and 5.6% respectively of the total value of agriculture production in 2010.

Size & Growth

The agribusiness sector as a whole was able to achieve a positive job growth over the 2005 to 2015 period. Although two of the six Agribusiness industry groups lost jobs over the period, job gains among four other groups exceeded the losses.

The largest activity in the agribusiness sector is Farm Production. Although it lost some jobs during the recession, Farm Production maintained moderate job growth throughout the 2005 to 2015 period. Prior to 2007, Farm Production was a declining sector for an extended period of time; and then in 2007, the sector increased jobs by over 8.6% over the previous year.



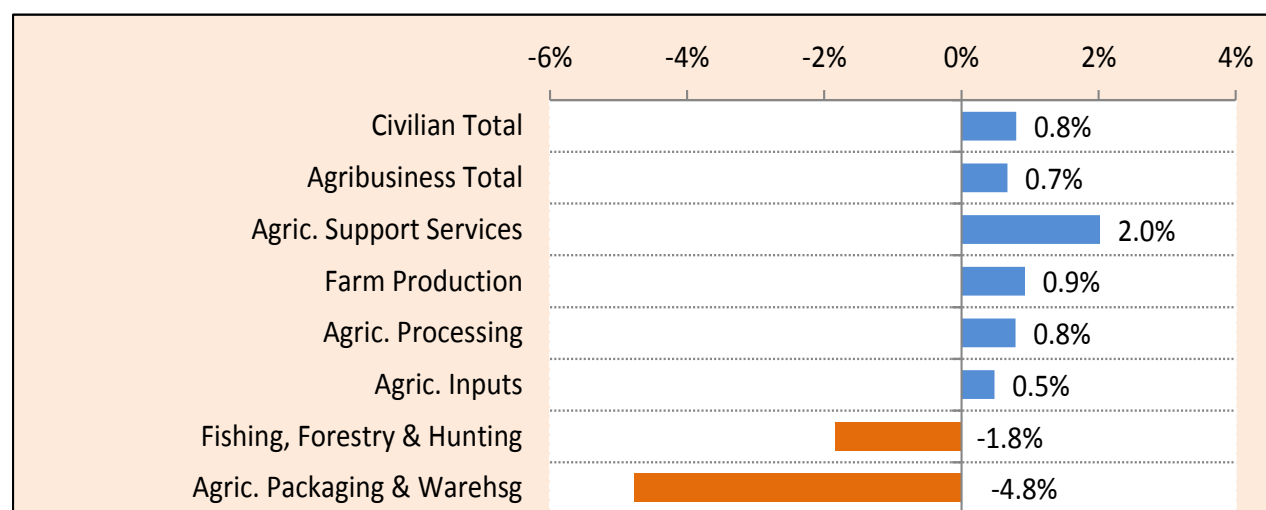
The best performing agribusiness industry group over the 2005 to 2015 cycle was the Agricultural Support Services, with a 2.0% average annual increase in jobs.

Other high-performing groups in agribusiness, during the 2005 to 2015 period, were Farm Production, Agricultural Processing, and Agricultural Inputs. Job growth in these groups averaged 0.9%, 0.8%, and 0.5% per year, respectively, over this period.

Fishing & Forestry/Hunting and Agricultural Packaging & Warehousing both lost jobs over the 2005 to 2015 period. During the same period, Job growth in these groups averaged a negative 1.8% and a negative 4.8% per year, respectively.

⁵ Source: U.S. Department of Agriculture, National Agricultural Statistical Service. The most recent data may be found at http://www.nass.usda.gov/Statistics_by_State/Hawaii/Publications/Annual_Statistical_Bulletin/index.asp

TABLE 7. JOBS IN AGRIBUSINESS SECTOR: AVERAGE ANNUAL GROWTH OVER 2005-2015



	Annual Job Growth				Jobs in 2015p
	2005-2015p	2005-2007	2007-2010	2010-2015p	
Civilian Total	0.8%	2.7%	-1.6%	1.5%	840,967
Agribusiness Total	0.7%	2.0%	-1.4%	1.4%	24,620
Agric. Support Services	2.0%	3.7%	1.1%	1.9%	1,397
Farm Production	0.9%	3.5%	-0.6%	0.9%	14,009
Agric. Processing	0.8%	0.0%	-3.4%	3.7%	7,112
Agric. Inputs	0.5%	7.5%	1.0%	-2.5%	383
Fishing, Forestry & Hunting	-1.8%	-2.5%	0.2%	-2.8%	1,488
Agric. Packaging & Warehsg	-4.8%	-4.5%	-17.8%	3.9%	232

Source: see Table 3 for data source ("P" designates projected estimate)

Competitive Metrics

Competitive metrics show that the comparable U.S. agricultural sector also experienced a slight job gain over the 2005 to 2015 period.

Three of the four groups that gained jobs over the 2005 to 2015 period outperformed the same activities in the nation. Among these, Agricultural Inputs gained jobs at 0.5% annually, while its national counterpart gained 0.4% annually. Farm Production and Agricultural Processing outperformed the same activities for the nation overall by 0.6% and 0.4% per year, respectively. Fishing, Forestry & Hunting and Agricultural Packaging & Warehousing lost jobs over the period and the decrease exceeded the same category nationally.

TABLE 8. HAWAII AGRIBUSINESS SECTOR PERFORMANCE COMPARED WITH NATION

	Jobs (2015p)	Jobs per Estabs (2015p)	Avg. Annual Earnings (2015p)	Avg. Ann. Job Growth		When U.S.=100%		
				2005- 2015p	above or below U.S.	Concen- tration ¹	Jobs per Estabs	Avg. Ann. Earning
Total Civilian	840,967	18.8	53,325	0.8%	-0.2%	100%	93%	99%
AGRIBUSINESS	24,620	29.1	34,356	0.7%	0.2%	94%	86%	86%
Agric. Support Services	1,397	21.9	45,700	2.0%	0.0%	55%	158%	92%
Farm Production	14,009	36.5	27,409	0.9%	0.6%	99%	92%	98%
Agric. Processing	7,112	21.7	45,984	0.8%	0.4%	98%	40%	84%
Agric. Inputs	383	12.7	78,839	0.5%	0.1%	34%	80%	117%
Fishing, Forestry & Hunting	1,488	54.3	18,400	-1.8%	-0.4%	331%	183%	52%
Agric. Packaging & Warehsg	232	17.2	58,059	-4.8%	-5.0%	29%	48%	113%

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

Source: see Table 3 for data source.

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

Overall Performance

From an overall performance standpoint, four groups – Agricultural Inputs, Farm Production, Agriculture Support Services, and Agricultural Processing – were in the high performance Base-Growth or Emerging categories for the 2005 to 2015 period.

Farm Production, which was categorized as a declining sector previously, climbed into the Emerging category for the 2005 to 2015 period by adding about 1,092 jobs in 2007. The 2007 job gain in the sector took place mostly in Crop Production.

Farm Production in Hawaii is made up of a number of very disparate industry groups, with some like seed corn production showing exceptional growth in recent years, while others like pineapple production have been in sharp contraction. For this reason, the interpretations of performance in Farm Production should be made cautiously. It is beyond the scope of this report to delve into the various components of Farm Production. The dynamics of Hawaii farming activity make it difficult to effectively monitor Farming performance, especially with the sketchiness of jobs data for key areas like seed corn and other crop areas.

Fishing, Forestry & Hunting and Agricultural Packaging & Warehousing fell into the Declining category, declining 1.8% and 4.8% per year respectively over the 2005 to 2015 period.

Emerging Activities	Base-Growth Activities
Farm Production	
Agric. Processing	
Agric. Support Services	
Agric. Inputs	
Declining Activities	Transitioning Activities
Fishing, Forestry & Hunting	
Agric. Packaging & Warehsg	

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 Hawaii 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.

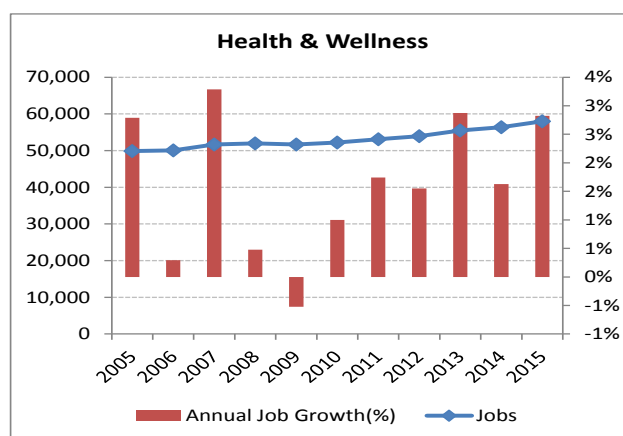
Recuperation and rejuvenation services have also been proposed as potential export activities that could utilize Hawaii's beauty and calming environment. In recent years, spas and similar, non-medical treatment services have been integrated into the hotel industry and serve a specialized tourism market. 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 Kauai for that county's Comprehensive Economic Development Strategy in 2005.⁶ This definition identifies the major industry groups of Hawaii's health care sector.

Size & Growth

The Health and Wellness Sector accounted for an estimated 57,962 jobs in 2015. About 73.3% of the jobs were among Health Care Practitioners and in Hospital & Nursing Facilities. All of the industry groups in Health and Wellness grew jobs over the 2005 to 2015 period.

Overall, the Health and Wellness sector grew faster than the rest of the economy during the 2005-2015 period. Even during the period of 2007-2010 that covers the recession, this sector showed job growth.



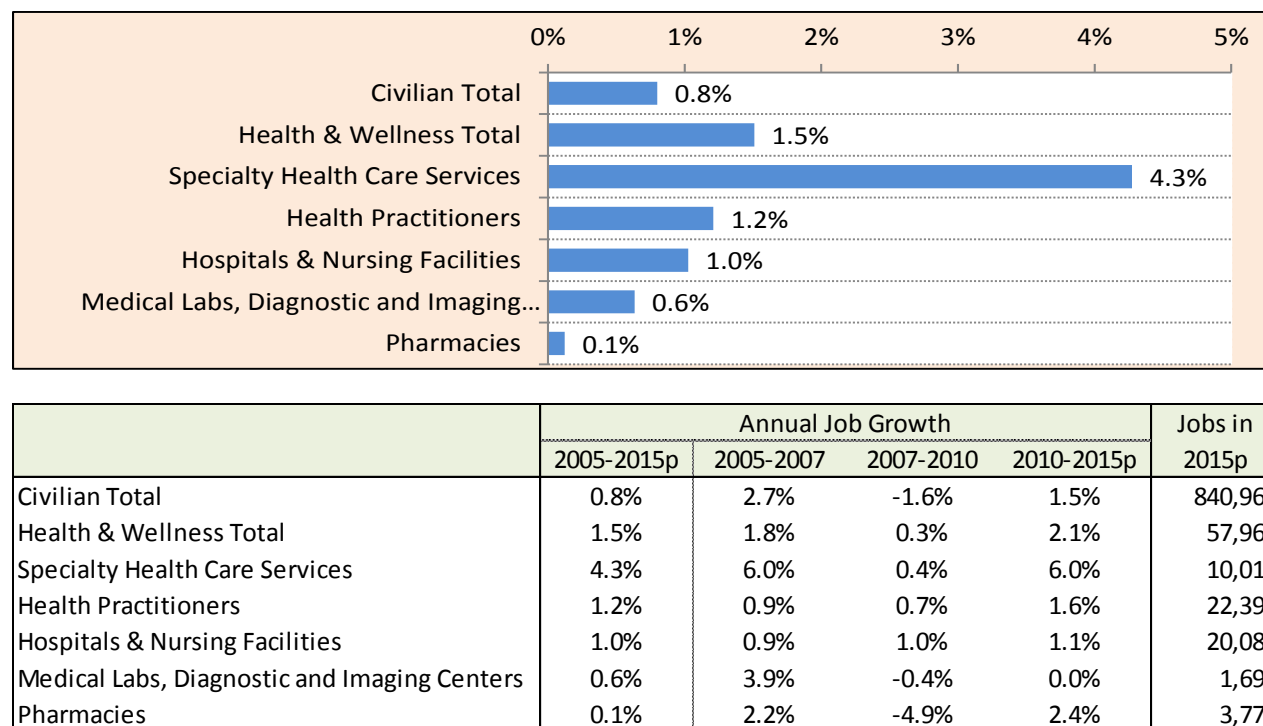
Pharmacies (a retailing industry which includes drug stores) expanded jobs moderately in the 2005 to 2007 expansion phase but experienced a sharp decline during the 2007-2010 contraction period. Pharmacies lost 550 jobs in the 3 year period. The reason for the decline is not clear. However, the filling of prescriptions through the internet, rather than in pharmacies has become a more common practice in recent years.

Health Practitioners, that had lost jobs until 2006, showed a modest growth since then including the contraction period, bringing up the overall job growth to an average 1.2% per year for the 2005 to 2015 period.

⁶ Hawaii Office of Planning, *Hawaii 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>

The highest job growth was observed in Specialty Health Care, a relatively small industry group. Except for a modest job loss in 2008, this industry group achieved high growth during the 2005-2015 period. This subsector gained jobs at an annual average rate of 4.3% during the period.

TABLE 9. JOBS IN HEALTH AND WELLNESS: AVERAGE ANNUAL GROWTH OVER 2005-2015



Source: see Table 3 for data source ("P" designates projection)

Competitive Metrics

Overall, the growth in Hawaii's health and wellness sector was below the national growth, resulting in the loss of competitive share for the 2005 to 2015 period. This was due mainly to anemic job growth in the Health Practitioners and Pharmacies.

Only one industry group, Hospitals & Nursing Facilities, show concentrations above national levels.

TABLE 10. HAWAII HEALTH AND WELLNESS SECTOR PERFORMANCE COMPARED WITH NATION

	Jobs (2015p)	Jobs per Estabs (2015p)	Avg. Annual Earnings (2015p)	Avg. Ann. Job Growth		When U.S.=100%		
				2005- 2015p	above or below U.S.	Concen- tration ¹	Jobs per Estabs	Avg. Ann. Earning
Total Civilian	840,967	18.8	53,325	0.8%	-0.2%	100%	93%	99%
HEALTH & WELLNESS	57,962	14.2	70,178	1.5%	-0.4%	84%	60%	111%
Specialty Health Care Services	10,015	21.7	46,031	4.3%	-0.7%	87%	52%	113%
Health Practitioners	22,394	12.6	79,494	1.2%	-1.0%	95%	115%	103%
Hospitals & Nursing Facilities	20,082	13.0	77,020	1.0%	0.1%	69%	5%	124%
Medical Labs, Diagnostic and Imaging Centers	1,697	15.7	63,715	0.6%	-1.7%	135%	103%	91%
Pharmacies	3,774	22.0	45,464	0.1%	-0.1%	117%	191%	97%

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

Source: see Table 3 for data source.

At \$70,178, the average earnings for the health & wellness sector, as a whole, exceeded the national average in 2015 by about 11%. This is 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 groups in the sector had earnings either similar to or higher than the U.S. average.

Overall Performance

Among the health & wellness industry groups, Hospitals & Nursing Facilities performed the best in terms of growth and competitiveness. However, this group didn't exceed the national level in terms of industry concentration.

All other four industry groups were in the Transitioning category. These groups grew jobs but lost competitive national share due to better growth at the U.S. level.

Emerging Activities	Base-Growth Activities
Hospitals & Nursing Facilities	
Declining Activities	Transitioning Activities
	Pharmacies Specialty Health Care Services Health Practitioners Medical Labs, Diagnostic and Imaging Centers

EDUCATION

The private education sector, which includes private colleges and specialty schools, is an important segment of Hawaii's economy. One area of particular interest for economic development is the number of foreign students in Hawaii. There is strong potential for Hawaii's higher education system to attract more students from around the world. However, while the number of foreign students in the U.S. overall has been increasing, the number of Hawaii foreign students has been decreasing. In 2015, Hawaii had an estimated 4,035 foreign students, including both public and private institutions, and this was a 19.3 % decrease from the 2010 estimated number of 5,000 foreign students.⁷ In contrast to Hawaii's decline, the number of foreign students in the U.S. overall increased 41.1%, from 690,923 students in 2010 to an estimated 974,926 students in 2015. While the topic of foreign students is outside of the main focus of this section, it is an area that should be examined in the future. 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 Hawaii accounted for 11,127 jobs in 2015. These sectors together performed better than the rest of the Hawaii economy. Jobs grew 2.4% annually, adding 2,366 new jobs to the economy over the past ten years.

The main contributor to the job gains in the sector was Specialty Education. Higher Education job growth was below the rest of the economy during the 2005-2007 expansion period. During the 2007-2010 contraction period, in contrast to a majority of the other sectors, both Specialty Education and Higher Education grew jobs more than 4.0% annually. This reflects the tendency for educational enrollments to increase during economic declines.

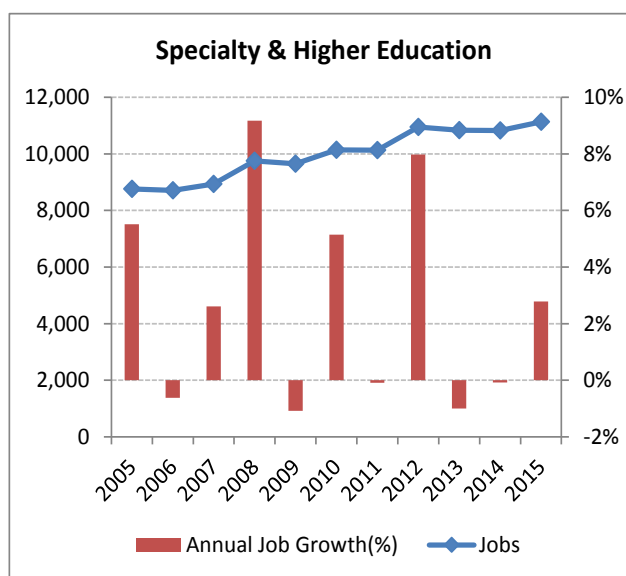
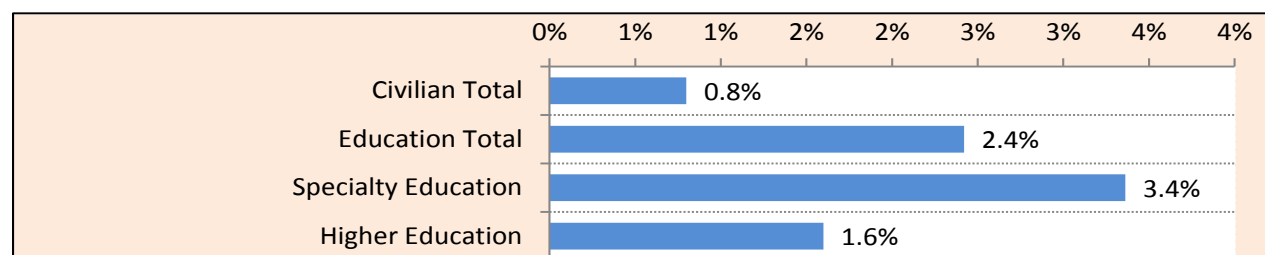


TABLE 11. JOBS IN HIGHER AND SPECIALTY EDUCATION: AVERAGE ANNUAL GROWTH OVER 2005-2015



⁷ Institute of International Education, Open Doors Fact Sheet 2015 and 2010.

	Annual Job Growth				Jobs in 2015p
	2005-2015p	2005-2007	2007-2010	2010-2015p	
Civilian Total	0.8%	2.7%	-1.6%	1.5%	840,967
Education Total	2.4%	1.0%	4.3%	1.9%	11,127
Specialty Education	3.4%	2.0%	4.7%	3.1%	5,438
Higher Education	1.6%	0.2%	4.1%	0.7%	5,689

Source: see Table 3 for data source ("P" designates projection)

Competitive Metrics

Despite the high growth in private education jobs over the 2005 to 2015 period, it came up short compared with the performance of the same activities nationally. As a result, the Hawaii sector lost some national competitive share.

However, the sector increased in terms of concentration. In 2005 the private Higher and Specialty Education activities together were about 75% as concentrated as the same activities nationally. By 2015, that concentration had increased to 77% of the national level.

The annual earnings of Specialty Education in Hawaii averaged \$29,282 in 2015, which was about 55% of the earning average of civilian jobs in Hawaii. This level of earnings was similar to the national level for the same group. The average earnings in Hawaii Higher Education was higher than Specialty Education, but was 33% lower than national earnings for the same activities in 2015.

TABLE 12. HAWAII PRIVATE EDUCATION SECTOR PERFORMANCE COMPARED WITH NATION

	Jobs per Avg. Annual			Avg. Ann. Job Growth		When U.S.=100%		
	Jobs (2015p)	Estabs (2015p)	Earnings (2015p)	2005-2015p	above or below U.S.	Concentration ¹	Jobs per Estabs	Avg. Ann. Earning
Total Civilian	840,967	18.8	53,325	0.8%	-0.2%	100%	93%	99%
EDUCATION (PRIVATE)	11,127	31.5	31,752	2.4%	0.0%	77%	75%	75%
Specialty Education	5,438	34.2	29,282	3.4%	-0.2%	95%	184%	99%
Higher Education	5,689	29.3	34,113	1.6%	-0.1%	65%	13%	67%

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

Source: see Table 3 for data source.

Overall Performance

Due to the overall job growth combined with a loss of national competitive share, both Higher Education and Specialty Education were in the Transitioning category over the 2005 to 2015 period. They achieved a positive job growth over the period, but not as fast as the same activities nationally.

Transitioning Activities
Higher Education
Specialty Education

OTHER TARGETED ACTIVITIES

Apparel and Call Centers have been pursued as sources of economic diversification. Apparel was promoted based on Hawaii'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 Hawaii but manufactured elsewhere. Call Centers were promoted based on Hawaii's developing communications technology capacity, its mid Pacific location and multi-lingual resources.

Size & Growth

Apparel Manufacturing in Hawaii continued to lose jobs throughout the 2000s. Jobs in Apparel decreased from 1,353 in 2005 to 1,049 in 2015.

Call Center activity expanded in the early 2000s, increasing jobs from 210 in 2002 to 485 in 2004. The activity sustained this level of jobs for several years until 2006 and then continued to contract until recently. The current level of jobs for Call Center activity is only about 58% of the peak year.

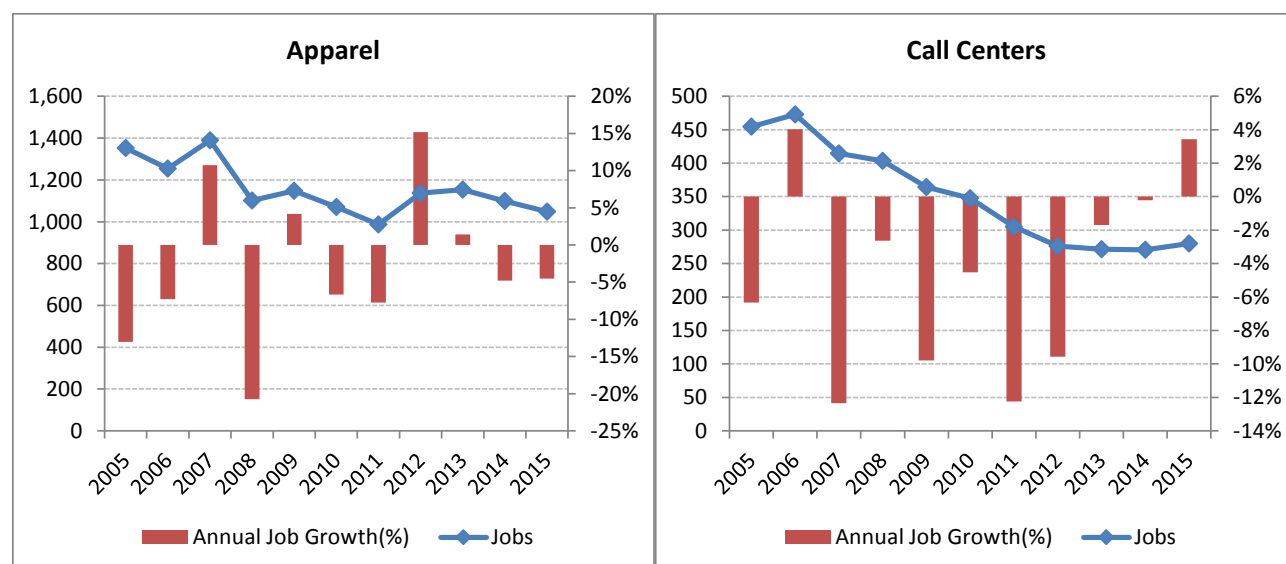
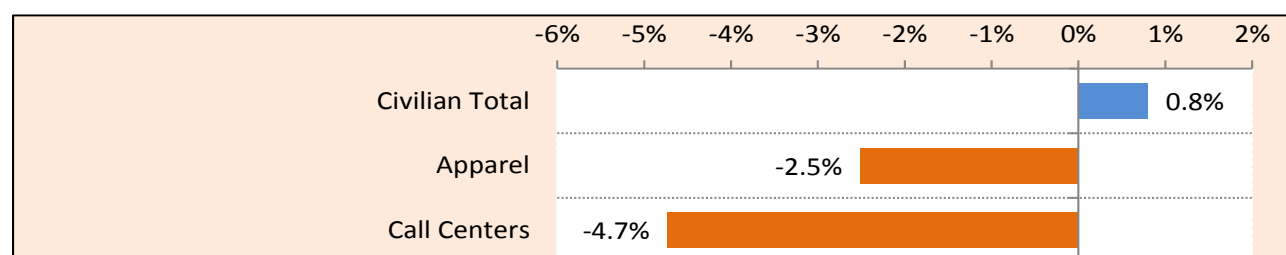


TABLE 13. JOBS IN APPAREL AND CALL CENTERS: AVERAGE ANNUAL GROWTH OVER 2005-2015



	Annual Job Growth				Jobs in 2015p
	2005-2015p	2005-2007	2007-2010	2010-2015p	
Civilian Total	0.8%	2.7%	-1.6%	1.5%	840,967
Apparel	-2.5%	1.3%	-8.3%	-0.4%	1,049
Call Centers	-4.7%	-4.5%	-5.7%	-4.2%	280

Source: see Table 3 for data source ("P" designates projection)

Competitive Metrics

In terms of job growth, Apparel decreased both in Hawaii and in the nation. During the 2005-2015 period, Apparel in Hawaii lost 2.5% of its jobs annually, while the U.S. apparel industry lost 3.8% of its jobs annually. This partially reflects the trend of outsourcing manufacturing to abroad.

During the 2005 to 2015 period, nationally, the Call Center industry had a steady job increase of 3.7% per year. In contrast, the Call Center industry in Hawaii experienced an average job decrease of 4.7% per year, during the same period.

The concentration level of Apparel in 2015 was 43% above the national level. In contrast, Call Centers had a very low job concentration in Hawaii's economy compared to the activity nationally. The concentration of Call Centers in Hawaii was only 11% of the national level in 2015, down from 26% in 2005.

The annual average earnings for Apparel and Call Center were \$36,711 and \$22,552 respectively in 2015. These earning levels were about 89% for Apparel and 61% for Call Centers of the average earnings nationally, suggesting that these sectors are predominantly part time activities in Hawaii.

TABLE 14. HAWAII APPAREL AND CALL CENTERS PERFORMANCE COMPARED WITH NATION

	Jobs per Avg. Annual			Avg. Ann. Job Growth		When U.S.=100%		
	Jobs (2015p)	Estabs (2015p)	Earnings (2015p)	2005-2015p	above or below U.S.	Concentration ¹	Jobs per Estabs	Avg. Ann. Earning
Total Civilian	840,967	18.8	53,325	0.8%	-0.2%	100%	93%	99%
Apparel	1,049	27.2	36,711	-2.5%	1.3%	143%	113%	89%
Call Centers	280	44.3	22,552	-4.7%	-8.5%	11%	71%	61%

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

Source: see Table 3 for data source.

Overall Performance

During the 2005 to 2015 period, the Call Center category fell into the declining category, with an average job loss of 4.7% per year. Apparel also fell into the declining category, losing jobs at an average rate of 2.5% per year. The visitors who buy Hawaiian apparel often prefer made in Hawaii brands and the loss of the local manufacturing of these brands could have a negative impact on sales.

PERFORMANCE BY COUNTY

The following tables summarize the 2005 to 2015 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 Hawaii's targeted & emerging industries without overlaps was 152,324 in 2015. Honolulu accounted for about 71%, followed by Hawaii County at 14%, Maui at 10%, and Kauai at 5%. From 2005 to 2015, adjusting for overlaps, total jobs in the targeted & emerging industries increased by 14,666 jobs. Honolulu added 9,031 jobs, followed by Hawaii at 4,114 jobs, Kauai at 943 jobs, and Maui at 579 jobs.

TABLE 15. JOBS AND JOB CHANGES FROM 2005 TO 2015 BY COUNTY

	2015 Jobs				
	State	Honolulu	Hawaii	Maui	Kauai
Total Civilian	840,967	595,457	99,403	102,285	43,822
Total Targeted w/o Overlap	152,324	108,370	20,939	15,820	7,196
TECHNOLOGY SECTOR	27,818	22,506	2,406	1,938	967
CREATIVE SECTOR	48,649	35,195	4,859	6,203	2,393
AGRIBUSINESS	24,620	9,993	8,824	3,894	1,908
HEALTH & WELLNESS	57,962	45,276	5,765	4,636	2,286
EDUCATION (PRIVATE)	11,127	9,672	752	487	216
OTHERS	1,329	1,107	75	101	45
	% in State 2015 Jobs				
	State	Honolulu	Hawaii	Maui	Kauai
Total Civilian	100%	71%	12%	12%	5%
Total Targeted w/o Overlap	100%	71%	14%	10%	5%
TECHNOLOGY SECTOR	100%	81%	9%	7%	3%
CREATIVE SECTOR	100%	72%	10%	13%	5%
AGRIBUSINESS	100%	41%	36%	16%	8%
HEALTH & WELLNESS	100%	78%	10%	8%	4%
EDUCATION (PRIVATE)	100%	87%	7%	4%	2%
OTHERS	100%	83%	6%	8%	3%
	Job Changes 2005-2015				
	State	Honolulu	Hawaii	Maui	Kauai
Total Civilian	64,334	44,017	9,284	8,247	2,786
Total Targeted w/o Overlap	14,666	9,031	4,114	579	943
TECHNOLOGY SECTOR	1,774	1,079	476	-10	230
CREATIVE SECTOR	3,109	1,698	748	337	326
AGRIBUSINESS	1,590	16	1,628	-196	143
HEALTH & WELLNESS	8,060	6,317	1,169	394	180
EDUCATION (PRIVATE)	2,366	1,873	332	63	98
OTHERS	-479	-575	26	50	19

Source: see Table 3 for data source.

City & County of Honolulu

Adjusting for overlaps, Honolulu accounted for 108,370 of the state's targeted & emerging industry jobs in 2015, a 0.9% annual increase from 2005. As shown in Table 16, among the six major groups, no group was high performing in Honolulu County in the 2005 to 2015 period. Five groups were in the Transitioning category, and one group lost jobs.

Table 16. Performance of the Major Groups of Honolulu Targeted Industry Portfolio

INDUSTRY GROUPS	JOBS IN HONOLULU		AVG. ANN. JOB GROWTH (2005-2015 ^P)		CONCENTRATION OF INDUSTRY IN HONOLULU COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^P)	
	CHANGE				% Point			
	2015 ^P	2005-2015 ^P	HONOLULU	U.S.	2015 ^P	CHNG 2005-2015 ^P	HONOLULU	U.S.
TOTAL CIVILIAN JOBS	595,457	44,017	0.8%	1.0%	100%	0%	\$54,018	\$54,026
TOTAL TARGETED JOBS W/O OVERLAP	108,370	9,031	0.9%	1.5%	81%	-3%	\$60,666	\$65,511
Transitioning Activities								
EDUCATION (PRIVATE)	9,672	1,873	2.2%	2.4%	94%	0%	\$32,101	\$42,364
HEALTH & WELLNESS	45,276	6,317	1.5%	2.0%	93%	-2%	\$72,697	\$63,156
CREATIVE SECTOR	35,195	1,698	0.5%	1.9%	85%	-11%	\$52,972	\$72,749
TECHNOLOGY SECTOR	22,506	1,079	0.5%	1.5%	66%	-6%	\$83,707	\$102,626
AGRIBUSINESS	9,993	16	0.0%	0.5%	54%	-1%	\$41,828	\$40,054
Declining Activities								
OTHERS	1,107	-575	-4.1%	1.4%	48%	-34%	\$32,780	\$37,837

Source: see Table 3 for data source ("P" designates projection). The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

Table 17 shows the performance of detailed targeted & emerging industry groups in Honolulu. Among the 39 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 32,612 jobs or 5.5% of all civilian jobs in 2015. Between 2005 and 2015, those groups generated 14.5% of the total gain in jobs for the civilian economy, or about 6,146 new jobs.

About 57% of the high-performing activities had average annual earnings that exceeded \$71,000 in 2015. By comparison, the average earnings for the civilian economy in 2015 was \$54,018 by the projected 2015 estimate.

In 2015, twelve activities, which included 63,293 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, eight 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 2005 to 2015 period. Jobs in the Declining industry groups totaled an estimated 26,473 in 2015, representing a loss of 4,110 jobs from 2005.

Table 17. Performance of the Detailed Honolulu Targeted Industry Portfolio

INDUSTRY GROUPS	JOBS IN HONOLULU		AVG. ANN. JOB GROWTH (2005-2015 ^P)		CONCENTRATION OF INDUSTRY IN HONOLULU COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^P)	
	2015 ^P	CHANGE 2005-2015 ^P	HONOLULU	U.S.	2015 ^P	% Point CHNG 2005-2015 ^P	HONOLULU	U.S.
Base-Growth Activities								
Cultural Activities	3,263	1,949	9.5%	2.8%	523%	251%	\$45,713	\$51,249
Agric. Processing	5,227	560	1.1%	0.4%	102%	9%	\$46,069	\$55,035
Emerging Activities								
Hospitals & Nursing Facilities	17,751	1,939	1.2%	1.0%	86%	3%	\$79,011	\$61,994
Art Education	597	150	2.9%	2.9%	82%	2%	\$13,403	\$13,894
Alternative Power Generation	160	139	22.5%	-4.7%	77%	71%	\$86,360	\$155,302
Business Consulting	4,008	1,105	3.3%	3.3%	68%	1%	\$65,240	\$76,091
Agric. Support Services	898	187	2.4%	2.0%	50%	3%	\$45,307	\$49,897
Agric. Inputs	177	7	0.4%	0.4%	22%	1%	\$111,589	\$67,241
Other Technology Mfg	531	111	2.4%	-0.2%	13%	3%	\$71,402	\$107,192
Transitioning Activities								
Engineering and Related Serv.	5,155	331	0.7%	0.8%	103%	1%	\$91,340	\$89,859
Higher Education	5,609	825	1.6%	1.7%	90%	1%	\$34,111	\$50,616
Pharmacies	2,647	18	0.1%	0.2%	116%	1%	\$46,120	\$46,789
Engineering and Research & Development	4,361	301	0.7%	1.2%	86%	-2%	\$96,420	\$106,260
Specialty Education	4,063	1,048	3.0%	3.5%	100%	-3%	\$29,325	\$29,721
Specialty Health Care Services	7,821	2,744	4.4%	5.0%	96%	-4%	\$46,475	\$40,868
Technical Consulting Services	3,400	944	3.3%	4.1%	67%	-4%	\$66,882	\$75,788
Information & Telecom Tech.	4,441	37	0.1%	0.9%	72%	-5%	\$92,239	\$114,833
Design Services	1,315	104	0.8%	1.9%	87%	-8%	\$29,440	\$36,527
Health Practitioners	15,685	1,485	1.0%	2.2%	94%	-10%	\$83,713	\$77,426
Medical Labs, Diagnostic and Imaging Centers*	1,372	130	1.0%	2.3%	154%	-18%	\$65,791	\$69,862
Marketing, Photography & Related	7,424	272	0.4%	1.7%	89%	-11%	\$28,614	\$46,918
Declining Activities								
Performing and Creative Arts	4,832	-32	-0.1%	2.3%	88%	-21%	\$14,909	\$26,573
Computer Sys. Design & Related	5,381	-97	-0.2%	3.4%	73%	-29%	\$83,043	\$102,744
Computer Services and Software Publishers	3,837	-79	-0.2%	3.8%	50%	-23%	\$90,106	\$111,670
Architecture	1,549	-147	-0.9%	-0.9%	155%	4%	\$78,080	\$66,018
R&D Services (exc. Biotech.)	984	-127	-1.2%	1.3%	57%	-15%	\$85,405	\$121,393
Farm Production	2,873	-384	-1.2%	0.3%	29%	-4%	\$29,541	\$28,042
Technology Equipment Distr.	696	-159	-2.0%	-0.3%	42%	-7%	\$105,628	\$113,408
Radio and Television Broadcasting	940	-217	-2.1%	-0.2%	108%	-19%	\$69,309	\$80,368
Music	674	-158	-2.1%	2.3%	111%	-58%	\$39,030	\$42,433
Fishing, Forestry & Hunting	616	-252	-3.4%	-1.4%	193%	-39%	\$31,476	\$35,131
Film, TV, Video Production/Distrib	1,066	-489	-3.7%	-0.3%	87%	-33%	\$58,118	\$98,690
Apparel	866	-398	-3.7%	-3.8%	167%	4%	\$35,832	\$41,472
Agric. Packaging & Warehsg	202	-103	-4.0%	0.2%	36%	-18%	\$61,784	\$51,378
Biotechnology	351	-196	-4.3%	1.6%	68%	-54%	\$71,924	\$152,862
Call Centers	241	-177	-5.4%	3.7%	14%	-20%	\$21,818	\$36,767
Publishing & Information	1,329	-1,060	-5.7%	-1.2%	54%	-30%	\$61,617	\$104,181
Chemical & Pharmaceutical Mfg	35	-35	-6.7%	-0.1%	2%	-2%	\$125,475	\$136,456

Source: see Table 3 for data source ("P" designates projection)

Hawaii County

Adjusting for overlaps, Hawaii County accounted for 22,939 of the state's targeted & emerging industry jobs in 2015, a 2.2% annual increase from 2005. As shown in Table 18, among the six major groups, five group were high performing in Hawaii County in the 2005 to 2015 period. One group was in the Transitioning category and no group lost jobs.

Table 18. Performance of the Major Groups of Hawaii County Targeted Industry Portfolio

INDUSTRY GROUPS	JOBS IN HAWAII COUNTY		AVG. ANN. JOB GROWTH (2005-2015 ^P)		CONCENTRATION OF INDUSTRY IN HAWAII COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^P)	
	2015 ^P	CHANGE 2005-2015 ^P	HAWAII COUNTY	U.S.	2015 ^P	% Point CHNG 2005-2015 ^P	HAWAII COUNTY	U.S.
TOTAL CIVILIAN JOBS	99,403	9,284	1.0%	1.0%	100%	0%	\$40,716	\$54,026
TOTAL TARGETED JOBS W/O OVERLAP	20,939	4,114	2.2%	1.5%	94%	6%	\$37,557	\$65,511
Base-Growth Activities								
AGRIBUSINESS	8,824	1,628	2.1%	0.5%	284%	41%	\$23,992	\$40,054
Emerging Activities								
EDUCATION (PRIVATE)	752	332	6.0%	2.4%	44%	13%	\$32,308	\$42,364
OTHERS	75	26	4.3%	1.4%	20%	5%	\$58,763	\$37,837
HEALTH & WELLNESS	5,765	1,169	2.3%	2.0%	71%	2%	\$57,829	\$63,156
TECHNOLOGY SECTOR	2,406	476	2.2%	1.5%	42%	3%	\$66,591	\$102,626
Transitioning Activities								
CREATIVE SECTOR	4,859	748	1.7%	1.9%	70%	-2%	\$32,918	\$72,749

Source: see Table 3 for data source ("P" designates projection). The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

Table 19 shows the performance of detailed targeted & emerging industry groups in Hawaii County. Among the 39 detailed industry groups, 24 groups were high performing. The high-performing activities in the target industry portfolio accounted for about 14,566 jobs or 14.7% of all civilian jobs in 2015. Between 2005 and 2015, those groups generated 38.6% of the total gain in jobs for the civilian economy or about 3,588 new jobs.

About 11.5% of the high-performing activities had average annual earnings that exceeded \$71,000 in 2015. By comparison, the earnings average for the civilian economy in 2015 was \$40,716 by the projected 2015 estimate.

In 2015, nine activities with 6,893 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, seven of those activities grew faster in terms of jobs than the civilian economy as a whole.

Seven activities in the portfolio fell into the Declining industry category, as the result of net job losses for the 2005 to 2015 period. Jobs in the Declining industry groups totaled an estimated 1,040 in 2015, representing a loss of 168 jobs from 2005.

Table 19. Performance of the Detailed Hawaii County Targeted Industry Portfolio

INDUSTRY GROUPS	JOBS IN HAWAII COUNTY		AVG. ANN. JOB GROWTH (2005-2015 ^p)		CONCENTRATION OF INDUSTRY IN HAWAII COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^p)	
	2015 ^p	CHANGE 2005-2015 ^p	HAWAII COUNTY	U.S.	2015 ^p	% Point CHNG 2005-2015 ^p	HAWAII COUNTY	U.S.
Base-Growth Activities								
Farm Production	7,040	1,509	2.4%	0.3%	420%	80%	\$21,222	\$28,042
Music	165	111	11.9%	2.3%	163%	96%	\$22,069	\$42,433
R&D Services (exc. Biotech.)	411	88	2.4%	1.3%	143%	15%	\$84,113	\$121,393
Pharmacies	447	101	2.6%	0.2%	118%	24%	\$42,019	\$46,789
Design Services	287	67	2.7%	1.9%	114%	9%	\$22,479	\$36,527
Agric. Processing	912	84	1.0%	0.4%	107%	6%	\$46,027	\$55,035
Specialty Education	691	316	6.3%	3.5%	102%	24%	\$32,185	\$29,721
Emerging Activities								
Specialty Health Care Services	1,254	487	5.0%	5.0%	92%	0%	\$42,080	\$40,868
Architecture	149	12	0.8%	-0.9%	89%	14%	\$52,438	\$66,018
Marketing, Photography & Related	1,216	298	2.8%	1.7%	87%	9%	\$16,283	\$46,918
Agric. Inputs	111	19	1.9%	0.4%	84%	12%	\$32,939	\$67,241
Apparel	65	28	5.7%	-3.8%	75%	46%	\$64,112	\$41,472
Engineering and Research & Development	628	137	2.5%	1.2%	74%	9%	\$80,552	\$106,260
Information & Telecom Tech.	496	138	3.3%	0.9%	48%	10%	\$74,852	\$114,833
Engineering and Related Serv.	371	61	1.8%	0.8%	44%	4%	\$64,761	\$89,859
Chemical & Pharmaceutical Mfg	104	65	10.4%	-0.1%	44%	28%	\$73,934	\$136,456
Biotechnology	33	17	7.3%	1.6%	39%	16%	\$75,815	\$152,862
Film, TV, Video Production/Distrib	53	8	1.6%	-0.3%	26%	5%	\$24,841	\$98,690
Agric. Packaging & Warehsg	23	4	2.2%	0.2%	24%	4%	\$40,813	\$51,378
Higher Education	61	17	3.2%	1.7%	6%	1%	\$33,686	\$50,616
Other Technology Mfg	40	22	8.2%	-0.2%	6%	3%	\$43,774	\$107,192
Technology Equipment Distr.	10	2	2.3%	-0.3%	4%	1%	\$89,122	\$113,408
Transitioning Activities								
Health Practitioners	2,847	560	2.2%	2.2%	103%	0%	\$65,955	\$77,426
Art Education	55	13	2.7%	2.9%	45%	-1%	\$15,698	\$13,894
Agric. Support Services	252	38	1.7%	2.0%	84%	-3%	\$44,404	\$49,897
Hospitals & Nursing Facilities	1,035	41	0.4%	1.0%	30%	-2%	\$62,679	\$61,994
Computer Services and Software Publishers	263	65	2.9%	3.8%	21%	-2%	\$77,288	\$111,670
Business Consulting	489	86	2.0%	3.3%	50%	-7%	\$39,897	\$76,091
Computer Sys. Design & Related	287	47	1.8%	3.4%	23%	-4%	\$73,829	\$102,744
Performing and Creative Arts	1,226	58	0.5%	2.3%	134%	-26%	\$13,732	\$26,573
Technical Consulting Services	440	71	1.8%	4.1%	52%	-13%	\$40,531	\$75,788
Declining Activities								
Fishing, Forestry & Hunting	487	-26	-0.5%	-1.4%	916%	76%	\$9,421	\$35,131
Medical Labs, Diagnostic and Imaging Centers	183	-20	-1.0%	2.3%	123%	-49%	\$50,466	\$69,862
Call Centers	10	-2	-1.8%	3.7%	3%	-2%	\$23,806	\$36,767
Cultural Activities	77	-18	-2.0%	2.8%	74%	-46%	\$28,089	\$51,249
Publishing & Information	199	-52	-2.3%	-1.2%	48%	-5%	\$45,501	\$104,181
Alternative Power Generation	31	-14	-3.6%	-4.7%	90%	10%	\$108,946	\$155,302
Radio and Television Broadcasting	53	-36	-5.1%	-0.2%	37%	-24%	\$30,720	\$80,368

Source: see Table 3 for data source ("P" designates projection)

Maui County

Adjusting for overlaps, Maui accounted for 15,820 of the state's targeted & emerging industry jobs in 2015, a 0.4% annual increase from 2005. As shown in Table 20, among the six major groups, only one group was high performing in Maui County in the 2005 to 2015 period. Three groups were in the Transitioning category and two groups lost jobs.

Table 20. Performance of the Major Groups of Maui County Targeted Industry Portfolio

INDUSTRY GROUPS	JOBS IN MAUI		AVG. ANN. JOB GROWTH (2005-2015 ^p)		CONCENTRATION OF INDUSTRY IN MAUI COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^p)	
	2015 ^p	CHANGE 2005-2015 ^p	MAUI	U.S.	2015 ^p	% Point CHNG 2005-2015 ^p	MAUI	U.S.
TOTAL CIVILIAN JOBS	102,285	8,247	0.8%	1.0%	100%	0%	\$55,618	\$54,026
TOTAL TARGETED JOBS W/O OVERLAP	15,820	579	0.4%	1.5%	69%	-7%	\$44,471	\$65,511
Emerging Activities								
OTHERS	101	50	7.1%	1.4%	26%	11%	\$20,376	\$37,837
Transitioning Activities								
EDUCATION (PRIVATE)	487	63	1.4%	2.4%	28%	-2%	\$26,873	\$42,364
HEALTH & WELLNESS	4,636	394	0.9%	2.0%	56%	-5%	\$63,115	\$63,156
CREATIVE SECTOR	6,203	337	0.6%	1.9%	87%	-11%	\$32,223	\$72,749
Declining Activities								
TECHNOLOGY SECTOR	1,938	-10	-0.1%	1.5%	33%	-5%	\$67,847	\$102,626
AGRIBUSINESS	3,894	-196	-0.5%	0.5%	122%	-10%	\$39,372	\$40,054

Source: see Table 3 for data source ("P" designates projection). The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

Table 21 shows the performance of detailed targeted & emerging industry groups in Maui. Among the 39 detailed industry groups, 13 groups were high performing. The high-performing activities in the target industry portfolio accounted for about 2,897 jobs or 2.8% of all civilian jobs in 2015. Between 2005 and 2015, those groups generated 14.2% of the total gain in jobs for the civilian economy or about 1,175 new jobs.

About 32% of the high-performing activities had average annual earnings that exceeded \$71,000 in 2015. By comparison, the earnings average for the civilian economy in 2015 was \$55,618 by the projected 2015 estimate.

In 2015, nine activities with 8,960 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, five 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 2005 to 2015 period. Jobs in the Declining industry groups totaled an estimated 5,310 in 2015, representing a loss of 1,212 jobs from 2005.

Table 21. Performance of the Detailed Maui County Targeted Industry Portfolio

INDUSTRY GROUPS	JOBS IN MAUI		AVG. ANN. JOB GROWTH (2005-2015 ^p)		CONCENTRATION OF INDUSTRY IN MAUI COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^p)	
	2015 ^p	CHANGE 2005-2015 ^p	MAUI	U.S.	2015 ^p	% Point CHNG 2005-2015 ^p	MAUI	U.S.
Base-Growth Activities								
Music	654	524	17.5%	2.3%	628%	473%	\$19,325	\$42,433
Alternative Power Generation	46	40	23.6%	-4.7%	128%	119%	\$105,014	\$155,302
Pharmacies	481	11	0.2%	0.2%	123%	2%	\$44,322	\$46,789
Design Services	317	59	2.1%	1.9%	122%	4%	\$28,363	\$36,527
Emerging Activities								
Apparel	80	46	8.9%	-3.8%	90%	64%	\$19,655	\$41,472
Radio and Television Broadcasting	116	46	5.2%	-0.2%	78%	33%	\$39,410	\$80,368
Agric. Support Services	182	39	2.4%	2.0%	59%	3%	\$43,382	\$49,897
Cultural Activities	58	18	3.9%	2.8%	54%	6%	\$44,176	\$51,249
Computer Sys. Design & Related	456	188	5.5%	3.4%	36%	7%	\$74,531	\$102,744
Computer Services and Software Publishers	396	158	5.2%	3.8%	30%	4%	\$78,049	\$111,670
Chemical & Pharmaceutical Mfg	37	8	2.3%	-0.1%	15%	3%	\$121,473	\$136,456
Technology Equipment Distr.	24	12	7.4%	-0.3%	9%	5%	\$68,162	\$113,408
Other Technology Mfg	49	25	7.4%	-0.2%	7%	4%	\$51,215	\$107,192
Transitioning Activities								
Farm Production	2,709	23	0.1%	0.3%	157%	-1%	\$38,445	\$28,042
Health Practitioners	2,875	297	1.1%	2.2%	101%	-10%	\$71,120	\$77,426
Call Centers	21	4	2.4%	3.7%	7%	-1%	\$23,173	\$36,767
Marketing, Photography & Related	1,358	32	0.2%	1.7%	94%	-14%	\$20,041	\$46,918
Specialty Education	474	68	1.6%	3.5%	68%	-13%	\$26,537	\$29,721
Specialty Health Care Services	666	172	3.0%	5.0%	48%	-9%	\$47,827	\$40,868
Business Consulting	410	49	1.3%	3.3%	41%	-8%	\$55,443	\$76,091
Art Education	79	5	0.7%	2.9%	64%	-14%	\$16,569	\$13,894
Technical Consulting Services	367	26	0.7%	4.1%	42%	-16%	\$53,680	\$75,788
Declining Activities								
Medical Labs, Diagnostic and Imaging Centers	92	-2	-0.2%	2.3%	60%	-16%	\$62,246	\$69,862
Fishing, Forestry & Hunting	231	-20	-0.8%	-1.4%	423%	29%	\$9,395	\$35,131
Agric. Inputs	69	-8	-1.0%	0.4%	51%	-7%	\$77,080	\$67,241
Performing and Creative Arts	2,049	-299	-1.4%	2.3%	218%	-91%	\$22,630	\$26,573
Hospitals & Nursing Facilities	520	-83	-1.5%	1.0%	15%	-4%	\$55,998	\$61,994
Engineering and Related Serv.	345	-59	-1.6%	0.8%	40%	-10%	\$59,803	\$89,859
Publishing & Information	274	-68	-2.2%	-1.2%	64%	-5%	\$50,177	\$104,181
Agric. Processing	699	-199	-2.5%	0.4%	79%	-26%	\$48,233	\$55,035
Architecture	145	-49	-2.9%	-0.9%	84%	-17%	\$39,223	\$66,018
Information & Telecom Tech.	412	-143	-2.9%	0.9%	39%	-18%	\$74,822	\$114,833
Engineering and Research & Development	301	-111	-3.1%	1.2%	34%	-18%	\$71,278	\$106,260
Higher Education	13	-5	-3.5%	1.7%	1%	-1%	\$39,309	\$50,616
Biotechnology	6	-3	-4.3%	1.6%	7%	-6%	\$75,815	\$152,862
Film, TV, Video Production/Distrib	46	-29	-4.8%	-0.3%	22%	-12%	\$36,468	\$98,690
R&D Services (exc. Biotech.)	104	-102	-6.6%	1.3%	35%	-43%	\$64,263	\$121,393
Agric. Packaging & Warehsg	4	-32	-19.7%	0.2%	4%	-33%	\$18,389	\$51,378

Source: see Table 3 for data source ("P" designates projection)

Kauai County

Adjusting for overlaps, Kauai County accounted for 7,196 of the state's targeted & emerging industry jobs in 2015, a 1.4% annual increase from 2005. As shown in Table 22, among the six major groups, four groups were high performing in Kauai County in the 2005 to 2015 period. Two groups were in the Transitioning category and no group lost jobs.

Table 22. Performance of the Major Groups of Kauai County Targeted Industry Portfolio

INDUSTRY GROUPS	JOBS IN KAUAI		AVG. ANN. JOB GROWTH (2005-2015 ^P)		CONCENTRATION OF INDUSTRY IN KAUAI COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^P)	
	2015 ^P	CHANGE 2005-2015 ^P	KAUAI	U.S.	2015 ^P	% Point CHNG 2005-2015 ^P	KAUAI	U.S.
TOTAL CIVILIAN JOBS	43,822	2,786	0.7%	1.0%	100%	0%	\$65,494	\$54,026
TOTAL TARGETED JOBS W/O OVERLAP	7,196	943	1.4%	1.5%	73%	2%	\$44,615	\$65,511
Base-Growth Activities								
AGRIBUSINESS	1,908	143	0.8%	0.5%	139%	9%	\$33,377	\$40,054
Emerging Activities								
TECHNOLOGY SECTOR	967	230	2.8%	1.5%	39%	5%	\$71,348	\$102,626
EDUCATION (PRIVATE)	216	98	6.3%	2.4%	29%	9%	\$25,729	\$42,364
OTHERS	45	19	5.8%	1.4%	27%	10%	\$30,950	\$37,837
Transitioning Activities								
CREATIVE SECTOR	2,393	326	1.5%	1.9%	78%	-1%	\$28,544	\$72,749
HEALTH & WELLNESS	2,286	180	0.8%	2.0%	64%	-5%	\$65,211	\$63,156

Source: see Table 3 for data source ("P" designates projection). The sum of the individual industries does not add up to the total due to adjusting for overlaps among sectors.

Table 23 shows the performance of detailed targeted & emerging industry groups in Kauai. Among the 38 detailed industry groups with jobs in 2015, 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 4,320 jobs or 9.9% of all civilian jobs in 2015. Between 2005 and 2015, those groups generated 38.6% of the total gain in jobs for the civilian economy or about 1,076 new jobs.

In 2015, about 34% of the high-performing activities had average annual earnings that exceeded \$71,000, based on projected estimates; by comparison, the earnings average for the overall civilian economy was lower at \$65,494. Seven activities with 2,123 jobs fell into the Transitioning category for 2015. 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. All the seven 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 2005 to 2015 period. Jobs in the Declining industry groups totaled an estimated 1,322 in 2015, representing a loss of 261 jobs from 2005.

Table 23. Performance of the Detailed Kauai County Targeted Industry Portfolio

INDUSTRY GROUPS	JOBS IN KAUAI		AVG. ANN. JOB GROWTH (2005-2015 ^p)		CONCENTRATION OF INDUSTRY IN KAUAI COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^p)	
	2015 ^p	CHANGE 2005-2015 ^p	KAUAI	U.S.	2015 ^p	% Point CHNG 2005-2015 ^p	KAUAI	U.S.
Base-Growth Activities								
Biotechnology	180	164	27.4%	1.6%	476%	427%	\$82,585	\$152,862
Alternative Power Generation	38	36	34.1%	-4.7%	247%	239%	\$90,513	\$155,302
Farm Production	1,386	85	0.6%	0.3%	188%	12%	\$32,844	\$28,042
Marketing, Photography & Related	727	244	4.2%	1.7%	118%	28%	\$15,745	\$46,918
Emerging Activities								
Apparel	37	19	7.8%	-3.8%	96%	66%	\$32,479	\$41,472
Health Practitioners	987	196	2.2%	2.2%	81%	3%	\$75,723	\$77,426
Art Education	42	25	9.6%	2.9%	79%	39%	\$13,308	\$13,894
Agric. Processing	274	91	4.1%	0.4%	73%	24%	\$40,176	\$55,035
Specialty Education	210	100	6.6%	3.5%	70%	20%	\$25,502	\$29,721
R&D Services (exc. Biotech.)	69	27	5.0%	1.3%	54%	18%	\$103,122	\$121,393
Engineering and Research & Development	183	35	2.2%	1.2%	49%	6%	\$74,978	\$106,260
Business Consulting	170	48	3.4%	3.3%	39%	1%	\$46,961	\$76,091
Technology Equipment Distr.	5	5	0.0%	-0.3%	4%	4%	\$106,410	\$113,408
Other Technology Mfg	12	1	1.3%	-0.2%	4%	1%	\$61,464	\$107,192
Transitioning Activities								
Hospitals & Nursing Facilities	775	51	0.7%	1.0%	51%	0%	\$64,499	\$61,994
Technical Consulting Services	155	42	3.2%	4.1%	42%	-2%	\$47,554	\$75,788
Cultural Activities	66	11	1.8%	2.8%	143%	-10%	\$35,228	\$51,249
Design Services	108	8	0.8%	1.9%	97%	-7%	\$29,617	\$36,527
Music	56	6	1.2%	2.3%	126%	-11%	\$14,739	\$42,433
Performing and Creative Arts	688	45	0.7%	2.3%	171%	-23%	\$12,190	\$26,573
Specialty Health Care Services	274	22	0.8%	5.0%	46%	-21%	\$47,433	\$40,868
Declining Activities								
Call Centers	8	0	-0.2%	3.7%	6%	-3%	\$24,001	\$36,767
Agric. Inputs	26	-1	-0.3%	0.4%	45%	-1%	\$52,947	\$67,241
Fishing, Forestry & Hunting	154	-5	-0.3%	-1.4%	655%	86%	\$8,997	\$35,131
Computer Sys. Design & Related	137	-8	-0.5%	3.4%	25%	-11%	\$69,096	\$102,744
Medical Labs, Diagnostic and Imaging Centers	50	-4	-0.8%	2.3%	77%	-24%	\$55,922	\$69,862
Information & Telecom Tech.	151	-16	-1.0%	0.9%	33%	-6%	\$93,286	\$114,833
Engineering and Related Serv.	171	-18	-1.0%	0.8%	46%	-7%	\$50,660	\$89,859
Film, TV, Video Production/Distrib	34	-5	-1.3%	-0.3%	38%	-3%	\$37,805	\$98,690
Agric. Support Services	65	-10	-1.5%	2.0%	49%	-19%	\$66,784	\$49,897
Higher Education	6	-1	-1.6%	1.7%	1%	0%	\$33,686	\$50,616
Computer Services and Software Publishers	117	-23	-1.7%	3.8%	21%	-14%	\$67,228	\$111,670
Publishing & Information	103	-26	-2.2%	-1.2%	56%	-4%	\$52,045	\$104,181
Radio and Television Broadcasting	47	-14	-2.5%	-0.2%	74%	-17%	\$75,014	\$80,368
Pharmacies	199	-85	-3.5%	0.2%	119%	-49%	\$42,762	\$46,789
Architecture	50	-30	-4.5%	-0.9%	69%	-28%	\$34,438	\$66,018
Agric. Packaging & Warehsg	3	-16	-15.9%	0.2%	8%	-39%	\$17,056	\$51,378

Source: see Table 3 for data source ("P" designates projection)

CONCLUSIONS

This report is the sixth update of the performance measures of Hawaii'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 2010 - 2014 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 2015 projected data to illustrate how targeted industries have been performing after the recovery period of the recession.

Table 24 summarizes the best performing target industry groups for the 2005 to 2015 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 ten best performing industry groups, five groups had average earnings above the average for Hawaii's economy.

TABLE 24. HIGHEST PERFORMING TARGETED ACTIVITIES, 2005 TO 2015

INDUSTRY GROUPS	JOBS IN HAWAII		AVG. ANN. JOB GROWTH (2005-2015 ^p)		CONCENTRATION OF INDUSTRY IN HAWAII COMPARED TO U.S.		AVG ANNUAL EARNINGS (2015 ^p)	
	2015 ^p	CHANGE 2005-2015 ^p	HAWAII	U.S.	2015 ^p	% Point CHNG 2005-2015 ^p	HAWAII	U.S.
TOTAL CIVILIAN JOBS	840,967	64,334	0.8%	1.0%	100%	0%	\$53,325	\$54,026
TOTAL TARGETED JOBS WITHOUT OVERLAP	152,324	14,666	1.0%	1.5%	81%	-2%	\$55,100	\$65,511
Base-Growth and Emerging Activities								
Above Average State Earnings								
Chemical & Pharmaceutical Mfg	176	38	2.4%	-0.1%	9%	2%	\$94,579	\$136,456
Alternative Power Generation	275	201	14.1%	-4.7%	94%	79%	\$94,174	\$155,302
Agric. Inputs	383	18	0.5%	0.4%	34%	1%	\$78,839	\$67,241
Hospitals & Nursing Facilities	20,082	1,947	1.0%	1.0%	69%	2%	\$77,020	\$61,994
Other Technology Mfg	631	159	2.9%	-0.2%	11%	3%	\$67,472	\$107,192
Below Average State Earnings								
Agric. Processing	7,112	536	0.8%	0.4%	98%	5%	\$45,984	\$55,035
Cultural Activities	3,463	1,961	8.7%	2.8%	393%	172%	\$45,022	\$51,249
Music	1,550	483	3.8%	2.3%	181%	27%	\$27,787	\$42,433
Farm Production	14,009	1,233	0.9%	0.3%	99%	8%	\$27,409	\$28,042
Art Education	773	193	2.9%	2.9%	76%	1%	\$13,884	\$13,894

* For definition and data source, see Table 3