

Economic and Workforce Development Program

Appendix B: Employment Data by Sector and Region

This appendix was developed in support of the Economic and Workforce Development (EWD) program annual report to the California Legislature. The annual report summarizes the EWD approach, investments, and outcomes through 2021.

In this appendix:

- [Industry Employment](#)
- [Select Occupations by Sector](#)
- [Regional Profiles](#)

Industry Employment in Priority Sectors

In the table below, industry employment data details the current number of jobs in the state for eight of the 10 sectors as well as the growth or decline in jobs in the past five years (2017 through 2022). Sectors are sorted in descending order by net change in jobs over the period. All priority sectors, except one experienced net growth. The only sector to record net loss was Retail, Hospitality and Tourism; this is more than likely attributable to the labor shock of the COVID-19 pandemic.¹

Also shown are the most recent total earnings per worker – an estimate of annual average earnings across the industry groupings – as well as the same estimates adjusted for cost of living (COL) in California, and the estimated numbers of establishments (firms) in 2022.²

For community college planning, it is important to remember that industry employment data, such as that below, while an important measure of size and strength in a region or state economy, reflects job growth or decline across all jobs in the industry. As such, it is not as relevant as occupation-specific employment data which estimates job change overall as well as replacement needs (an estimate of the number of current workers who will vacate an occupation annually). These are more comparable for assessing the need for occupational training programs.

Table 1. Industry Employment and Earnings by Priority Sector

EWD Sector	Current Employment (2022)	Historical Change (2017-2022)	5-yr % Change	Earnings per worker ³	COL Earnings per worker ⁴	Firms
Health	1,835,325	183,362	18%	\$101,857	\$75,338	66,306
Information and Communications Technology/Digital Media	1,206,065	118,164	10%	\$226,583	\$167,591	62,630
Energy, Utility and Construction	1,626,016	105,643	7%	\$127,465	\$94,279	112,958

¹ All employment data in this report provided by Lightcast International (formerly EMSI), 2023.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment or firms in California. Lightcast’s 2023.2 count of firms reflects Quarterly Census of Employment and Wages (QCEW) totals for the first three quarters of 2022.

² Lightcast’s 2023.2 count of firms reflects Quarterly Census of Employment and Wages (QCEW) totals for the first three quarters of 2022.

³ Also called “Wages Salaries & Proprietor Earnings”, average annual earnings is the result of total pre-tax industry earnings divided by same-year industry employment. Earnings are defined as labor-related personal income—that is, income from work. Income from stock dividends or interest, rents, Social Security and other non-work sources are not included.

⁴ Lightcast’s total earnings, adjusted by the C2ER Cost of Living Index (COLI). The Cost of Living index is based off a 100 base scale, so to adjust the earnings, Lightcast first divides their total earnings estimate by the COLI and then multiplies the result by 100.

EWD Sector	Current Employment (2022)	Historical Change (2017-2022)	5-yr % Change	Earnings per worker ³	COL Earnings per worker ⁴	Firms
Advanced Transportation & Logistics	1,208,589	81,481	8%	\$79,388	\$58,719	55,795
Life Sciences/Biotechnology	971,975	75,638	8%	\$140,038	\$103,579	24,738
Advanced Manufacturing	1,372,841	20,725	2%	\$140,404	\$103,849	45,239
Agriculture, Water and Environmental Technologies	655,003	11,533	2%	\$64,187	\$47,476	32,170
Retail, Hospitality & Tourism	3,767,468	(129,372)	(3%)	\$49,754	\$36,800	230,446

Non-Traditional Priority Sector: Global Trade & Logistics

California exports to more than 227 foreign markets. California's top five export markets in 2022 were Mexico, Canada, China, Japan and South Korea. In 2022, California ranked second among U.S. states and territories in total exports – valued at \$185.5 billion, an increase of 6% from 2021.

- In 2022, California exports accounted for 9% of the U.S. total.
- California accounted for 17.8% of U.S. exports of computer and electronic product manufacturing.
- The top six export industries in California accounted for 68% of all export trade value – computer and electronic products, machinery, chemical, transportation equipment, miscellaneous, and crop production.

California is the country's largest agricultural exporting state, shipping \$22.5 billion in domestic agricultural exports abroad in 2021 (latest year available) – an increase of more than 20% since 2012. Top valued agricultural exports are almonds, dairy, pistachios and wine.

Non-Traditional Priority Sector: Business & Entrepreneurship⁵

In the third quarter of 2022, there were more than 1.7 million non-farm businesses in California, supporting close to 18 million employees.

- Of these, 91% or about 1.5 million reported employing fewer than 20 employees. In total, firms with fewer than 20 employees accounted for approximately 4.5 million jobs and supported about 18% of all payroll generated in California.
- In the smallest firm category (fewer than five employees), 1.2 million businesses represented about 1.6 million jobs throughout the state.

⁵California Employment Development Department, Labor Market Information Division's Size of Business Data for California, Third Quarter, 2019. Online at: http://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data.html/.

Occupational Employment in California (2017-2022): Select Occupations by Sector

In the section to follow, **select occupations** are profiled for the 2017-2022 period – these are examples of occupations generally associated with the priority sectors and that have established community college application. Occupations are arranged by sector, then in descending order by annual openings. Although chosen for their relevance to one sector, the following data represents employment and wages for the occupation across all industries.

Table 12. Select Occupations by EWD Sector, 2017-2022

Occupational Title	2017 Jobs	5-yr Total Openings	Avg. Annual Openings	Median Annual Earnings ⁶
Agriculture, Water and Environmental Technologies				
Veterinary Technologists and Technicians	9,255	7,079	1,416	\$45,420
Environmental Science and Protection Technicians, Including Health	5,924	4,755	951	\$48,731
Agricultural Technicians	2,266	3,170	634	\$42,565
Agricultural Inspectors†	2,539	2,669	534	\$47,709
Environmental Engineering Technologists and Technicians	2,936	1,728	346	\$64,652
Advanced Transportation & Logistics				
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	44,865	51,303	10,261	\$59,082
Automotive Service Technicians and Mechanics	81,675	49,520	9,904	\$47,658
First-Line Supervisors of Mechanics, Installers, and Repairers	42,091	30,882	6,176	\$78,351
Logisticians†	20,684	22,350	4,470	\$81,165
Bus and Truck Mechanics and Diesel Engine Specialists	24,731	14,687	2,937	\$59,453
Business & Entrepreneurship				
Customer Service Representatives	216,255	180,420	36,084	\$38,767
Bookkeeping, Accounting, and Auditing Clerks	207,647	141,067	28,213	\$47,914
First-Line Supervisors of Office and Administrative Support Workers	175,842	103,736	20,747	\$62,064
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	137,831	90,731	18,146	\$62,710
Sales Managers†	79,250	58,971	11,794	\$126,838
Payroll and Timekeeping Clerks	24,218	15,111	3,022	\$56,389
Life Sciences/Biotechnology				
Environmental Engineering Technologists and Technicians	2,936	1,728	346	\$64,652
Clinical Laboratory Technologists and Technicians	29,709	12,826	2,565	\$61,709

⁶ Occupational wage data come from the BLS's OES dataset. It is collected from the employer's perspective, meaning earnings data is pre-tax (individual employees' tax withholdings will vary, so earnings are reported pre-tax). Occupation earnings include the following: base rate, commissions, cost of living allowances, deadheading pay, guaranteed pay, hazard pay, incentive pay, longevity pay, over-the-road pay, piece rates, portal-to-portal rates, production bonuses, and tips.

Occupational Title	2017 Jobs	5-yr Total Openings	Avg. Annual Openings	Median Annual Earnings ⁶
Life, Physical, and Social Science Technicians, All Other	8,874	10,673	2,135	\$56,290
Biological Technicians†	11,329	8,733	1,747	\$50,149
Chemical Technicians	6,747	6,361	1,272	\$48,131
Energy, Utility and Construction				
Carpenters	149,693	85,575	17,115	\$56,555
Electricians	78,747	54,701	10,940	\$68,562
Construction Managers†	52,515	37,459	7,492	\$86,331
Plumbers, Pipefitters, and Steamfitters	55,032	31,988	6,398	\$60,364
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	31,770	28,002	5,600	\$58,458
Telecommunications Line Installers and Repairers	13,758	10,534	2,107	\$76,950
Global Trade and Logistics*				
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	167,740	89,886	17,977	\$62,779
Market Research Analysts and Marketing Specialists†	100,293	81,277	16,255	\$76,442
Project Management Specialists†	55,746	68,316	13,663	\$99,611
Shipping, Receiving, and Inventory Clerks	87,627	62,023	12,405	\$37,788
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products†	47,065	26,037	5,207	\$102,844
Health				
Registered Nurses	301,311	137,726	27,545	\$124,984
Nursing Assistants	116,462	89,054	17,811	\$37,352
Medical Assistants	92,841	81,372	16,274	\$38,765
Dental Assistants	53,462	42,903	8,581	\$47,110
Licensed Practical and Licensed Vocational Nurses	73,035	37,975	7,595	\$61,492
Radiologic Technologists and Technicians	17,966	7,769	1,554	\$95,887
Information and Communications Technology/Digital Media				
Office Clerks, General	351,743	235,903	47,181	\$38,723
Computer User Support Specialists	80,131	43,253	8,651	\$62,688
Information Security Analysts†	9,184	18,284	3,657	\$128,833
Network and Computer Systems Administrators†	41,537	14,164	2,833	\$99,677
Web Developers†	13,639	10,386	2,077	\$78,914
Web and Digital Interface Designers†	12,643	9,612	1,922	\$90,602
Computer Network Support Specialists	18,609	7,901	1,580	\$69,780
Manufacturing				
Welders, Cutters, Solderers, and Brazers	30,689	25,484	5,097	\$48,221
Machinists	36,601	22,060	4,412	\$47,733

Occupational Title	2017 Jobs	5-yr Total Openings	Avg. Annual Openings	Median Annual Earnings ⁶
Industrial Machinery Mechanics	25,702	16,226	3,245	\$60,925
Electrical and Electronics Repairers, Commercial and Industrial Equipment	6,761	3,704	741	\$70,658
Industrial Engineering Technologists and Technicians	4,192	2,836	567	\$61,500
Calibration Technologists and Technicians	549	621	124	\$61,657
Retail, Hospitality & Tourism				
General and Operations Managers†	258,676	203,513	40,703	\$107,315
First-Line Supervisors of Retail Sales Workers	163,845	98,405	19,681	\$44,183
Human Resources Specialists†	70,783	69,650	13,930	\$76,320
Food Service Managers	48,627	54,811	10,962	\$55,523
Buyers and Purchasing Agents†	51,687	30,467	6,093	\$71,350
Meeting, Convention, and Event Planners†	17,679	14,394	2,879	\$60,619

†The typical entry level education needed for these occupations is a Bachelor’s degree. Other pathways are always possible; however, a large proportion of workers currently in the occupation over the age of 25 report having attained a Bachelor’s degree or higher.

*Within traditional occupations, some portion of each may support global trade or require global trade expertise. Related job titles found within these occupations include accounting analysts, import clerks, public relations specialists, social media specialists, financial analysts, e-commerce managers, customs brokers, social media managers and international banking specialists.

Regional Profiles

In the section to follow, employment data for the eight EWD sectors are detailed for the seven macro-regions. Use the hyperlinks to jump directly to regional page. Data and charts derived from companion Excel file.

- [San Diego-Imperial Region](#)
- [Los Angeles & Orange County Region](#)
- [Inland Empire/Desert Region](#)
- [South Central Coast Region](#)
- [Central Valley/Mother Lode Region](#)
- [Bay Region](#)
- [North Far North Region](#)

San Diego-Imperial Region

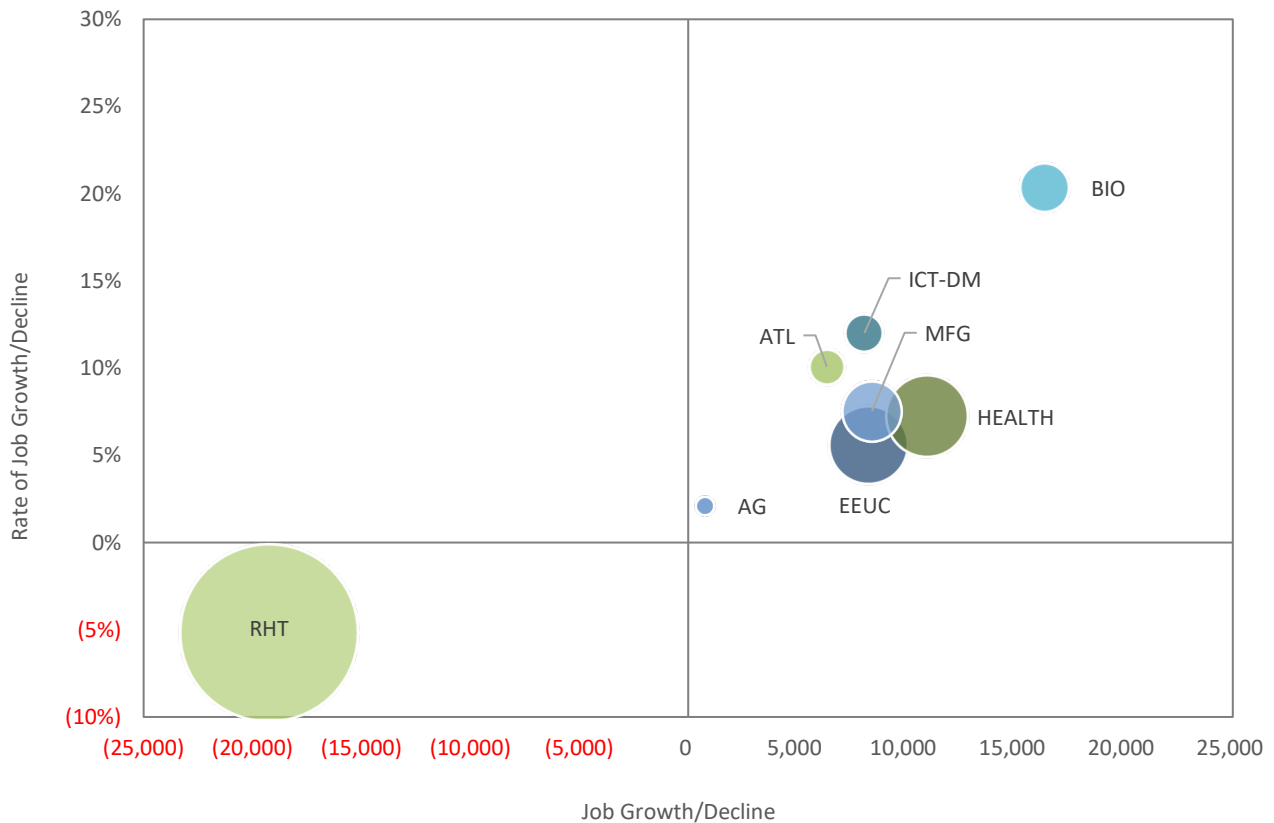
In the San Diego-Imperial region, the eight NAICS-defined EWD sectors account for approximately 57% of all jobs in the two counties.⁷ To compare these eight sectors, the bubble chart below shows each in relationship to three measures:

- Number of existing jobs or size of current employment (2022) is displayed as the size of each bubble.
- Rate of job growth or decline from 2017-2022 is shown on the vertical axis.
- Size of job growth or decline for the same period is mapped on the horizontal axis.

In San Diego-Imperial, the data isolate the retail, hospitality and tourism sector (RHT) from the other seven EWD sectors. This is a result of the impact of the pandemic on employment and employment outlook, which has disproportionately affected this sector. Although it remains the largest employer of the sector groups, RHT employment is still 5% (or 19,260 jobs) below where it was in 2017.

The remaining EWD sectors all showed growth in employment through 2022, ranging from 2% (AgWET) to 20% (BIO).⁸ The most job growth occurred in LS/Biotech (up 16,350 jobs), followed by Health (10,960 jobs) and MFG (8,430 jobs).

Exhibit A: SDI Employment by EWD Sectors, 2017-2022



⁷ All employment data in this report provided by Lightcast International (EMSI), 2023.2– QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment in California. Health and LS/Biotech sectors overlap causing duplication in the counts and other industry categories are not included in the eight EWD sector definitions.

⁸ See previous footnote re: overlap in count of jobs between LS/Biotech and Health sectors.

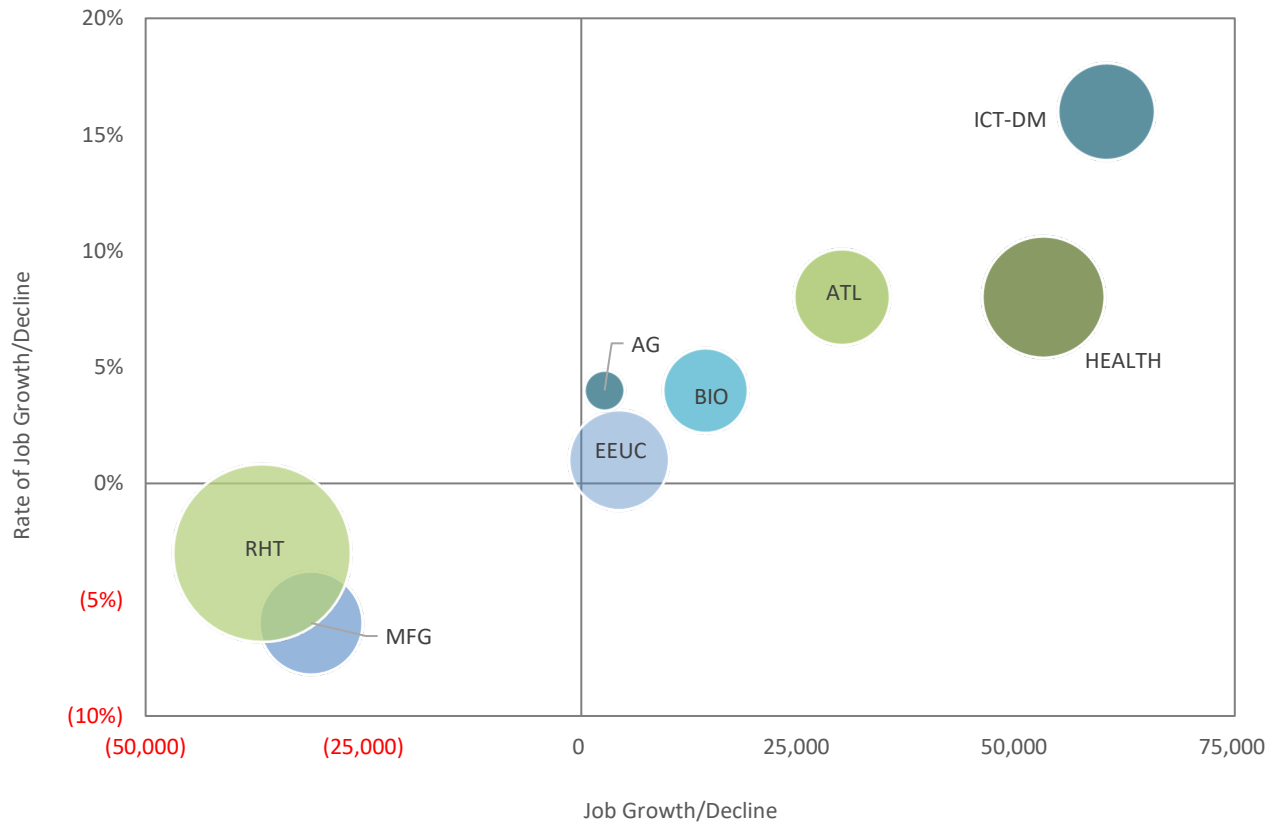
Los Angeles & Orange County Region

In the Los Angeles & Orange County region (LAOC), the eight NAICS-defined EWD sectors account for approximately 58% of all jobs in the region.⁹ To compare these eight sectors, the bubble chart below shows each in relationship to three measures:

- Number of existing jobs or size of current employment (2022) is displayed as the size of each bubble.
- Rate of job growth or decline from 2017-2022 is shown on the vertical axis.
- Size of job growth or decline for the same period is mapped on the horizontal axis.

In LAOC, the data isolate retail, hospitality and tourism (RHT) and manufacturing (MFG) sectors from the other EWD sectors. In RHT, this is a result of the impact of the pandemic on employment and employment outlook, which has disproportionately affected this sector. Although RHT is the largest employer of the sector groups, the sector is still 3% or about 37,000 jobs behind its 2017 position. Manufacturing employment also declined over the period – a contraction of about 31,000 jobs or -6%. The remaining EWD sectors experienced growth through 2022, ranging from 1% (EEUC) to 16% (ICT-DM). The most job growth occurred in ICT-DM (up 60,330 jobs since 2017).

Exhibit A: LAOC Employment by EWD Sectors, 2017-2022



⁹ All employment data in this report provided by Lightcast International (EMSI), 2023.2– QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment in California. Health and LS/Biotech sectors overlap causing duplication in the counts and other industry categories are not included in the eight EWD sector definitions.

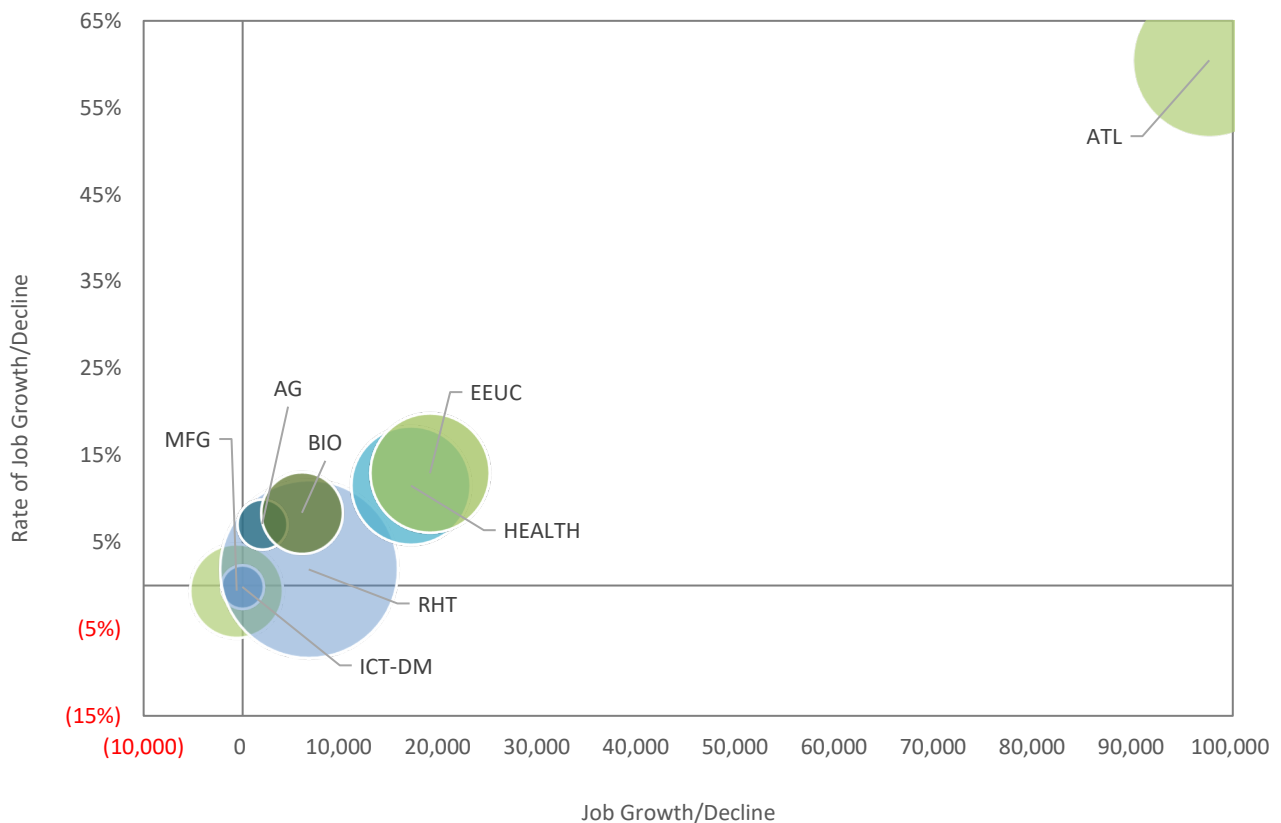
Inland Empire/Desert Region

In the Inland Empire/Desert region (IE/Desert), the eight NAICS-defined EWD sectors account for approximately 65% of all jobs in the region.¹⁰ To compare these eight sectors, the bubble chart below shows each in relationship to three measures:

- Number of existing jobs or size of current employment (2022) is displayed as the size of each bubble.
- Rate of job growth or decline from 2017-2022 is shown on the vertical axis.
- Size of job growth or decline for the same period is mapped on the horizontal axis.

In IE/Desert, the data isolates the manufacturing (MFG) from the other eight EWD sectors. The sector declined slightly over the five years (-1% or 600 jobs). ICT-DM employment is also negatively forecast over the period – contraction of about 4,790 jobs or -5%. The remaining EWD sectors recorded job growth over the period, ranging from 2% (RHT) to 60% (AT&L). The most job growth occurred in AT&L (up 97,620 jobs).

Exhibit A: IE/Desert Employment by EWD Sectors, 2017-2022



¹⁰ All employment data in this report provided by Lightcast International (EMSI), 2023.2– QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment in California. Health and LS/Biotech sectors overlap causing duplication in the counts and other industry categories are not included in the eight EWD sector definitions.

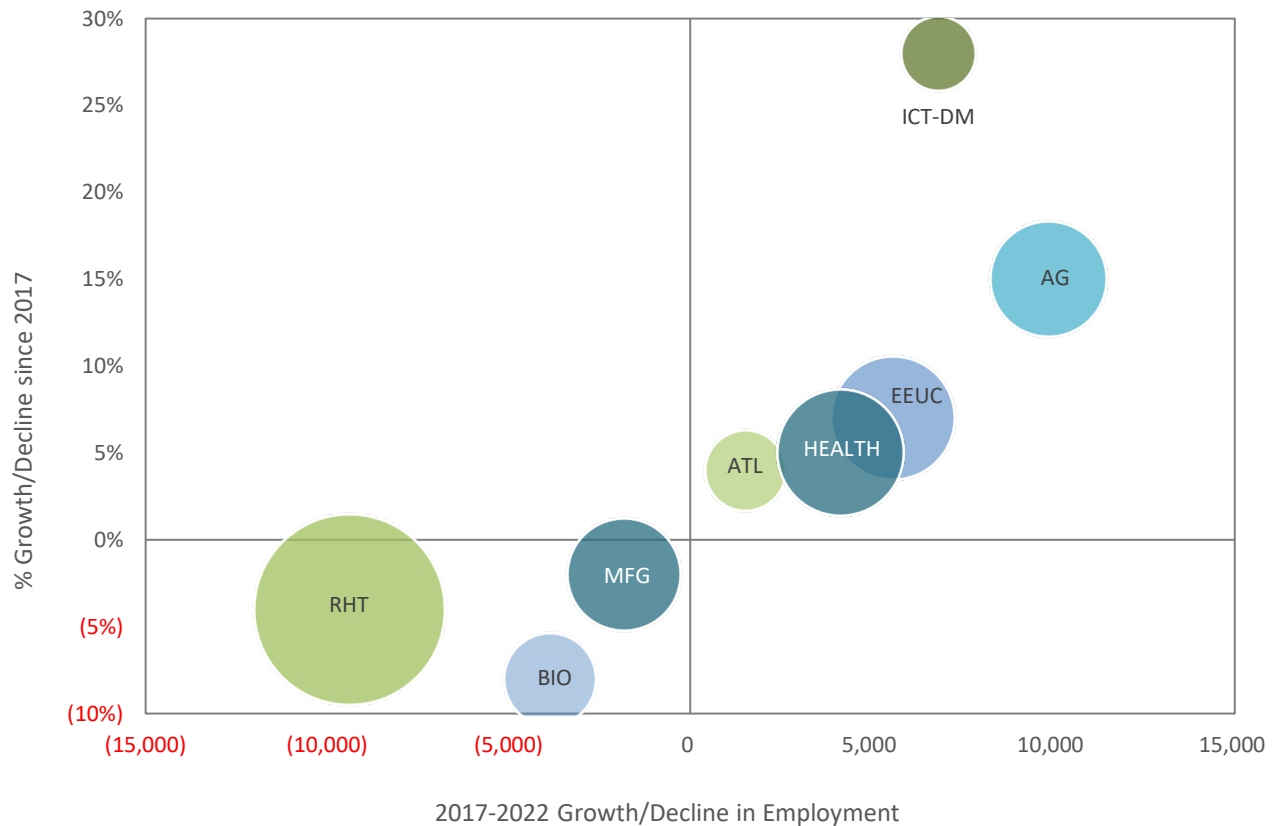
South Central Coast Region

In the South Central Coast region (SCC), the eight NAICS-defined EWD sectors account for approximately 66% of all jobs in the region.¹¹ To compare these sectors, the bubble chart below shows each in relationship to three measures:

- Number of existing jobs or size of current employment (2022) is displayed as the size of each bubble.
- Rate of job growth or decline from 2017-2022 is shown on the vertical axis.
- Size of job growth or decline for the same period is mapped on the horizontal axis.

In SCC, the data highlight recent losses in the retail, hospitality and tourism (RHT), life science/biotechnology (BIO), and manufacturing sectors (MFG). Although still responsible for the largest concentration of jobs across the eight sectors, RHT employment in 2022 is 4% below where it was in 2017. BIO dropped about 8% or 3,800 jobs during the same period and MFG contracted by 1,800 jobs or -2%. The remaining five sectors posted growth in jobs through 2022, ranging from 4% (ATL) to 28% (ICT-DM). The most net job growth is projected for AG (up 9,876 jobs).

Exhibit A: SCC Employment by EWD Sectors, 2017-2022



¹¹ All employment data in this report provided by Lightcast International (EMSI), 2023.2– QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment in California. Health and LS/Biotech sectors overlap causing duplication in the counts and other industry categories are not included in the eight EWD sector definitions.

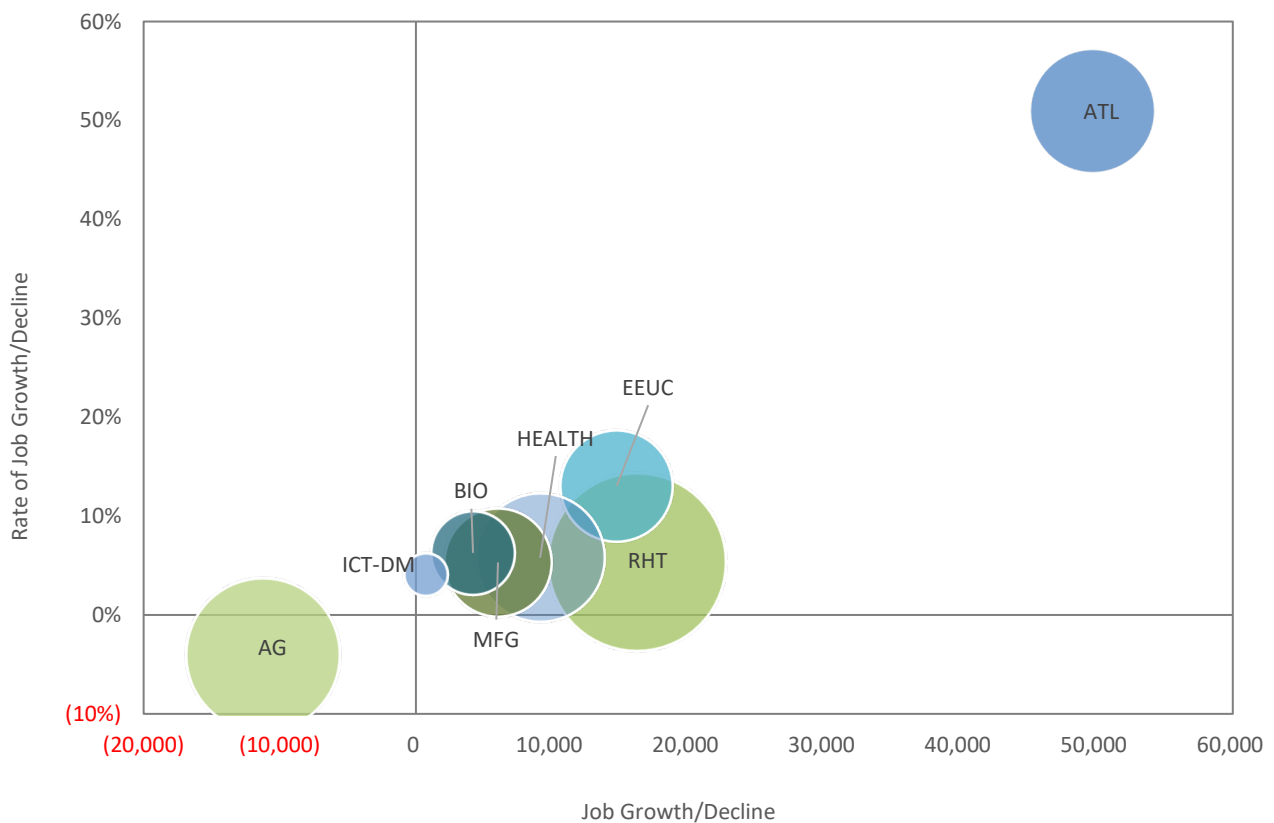
Central Valley/Mother Lode Region

In the Central Valley/Mother Lode region (CVML), the eight NAICS-defined EWD sectors account for approximately 69% of all jobs in the region.¹² To compare these eight sectors, the bubble chart below shows each in relationship to three measures:

- Number of existing jobs or size of current employment (2022) is displayed as the size of each bubble.
- Rate of job growth or decline from 2017-2022 is shown on the vertical axis.
- Size of job growth or decline for the same period is mapped on the horizontal axis.

In CVML, the data highlight the second-largest employer in the region - agriculture, water and environmental technologies sector (AG) - as it contracted by about 4% or 11,200 jobs since 2017. The remaining seven sectors all posted growth during the period, ranging from 4% (ICT-DM) to 51% (ATL). The most net job growth is projected for ATL (up 49,700 jobs), followed by RHT (5% growth or 16,215 jobs).

Exhibit A: CVML Employment by EWD Sectors, 2017-2022



¹² All employment data in this report provided by Lightcast International (EMSI), 2023.2– QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment in California. Health and LS/Biotech sectors overlap causing duplication in the counts and other industry categories are not included in the eight EWD sector definitions.

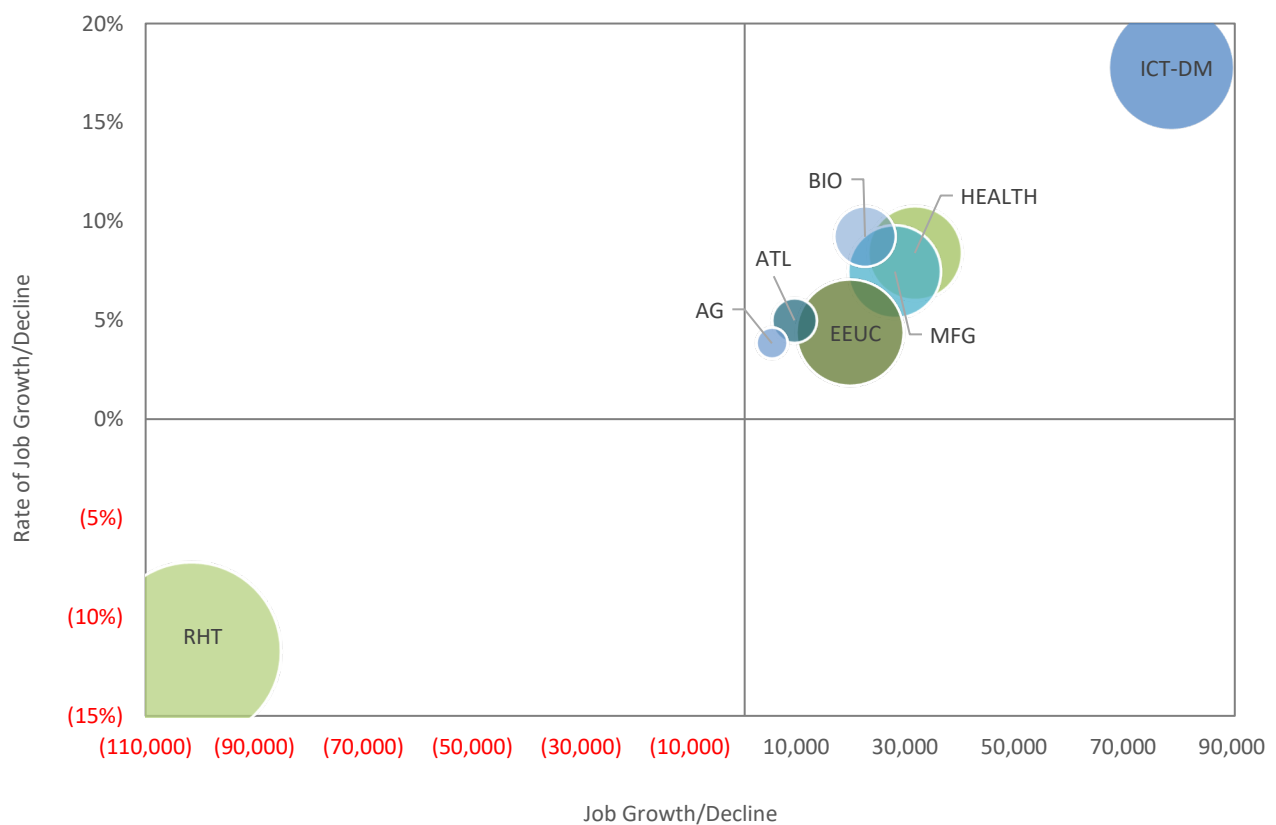
Bay Region

In the Bay Region (Bay), the eight NAICS-defined EWD sectors account for approximately 68% of all jobs in the region.¹³ To compare these eight sectors, the bubble chart below shows each in relationship to three measures:

- Number of existing jobs or size of current employment (2022) is displayed as the size of each bubble.
- Rate of job growth or decline from 2017-2022 is shown on the vertical axis.
- Size of job growth or decline for the same period is mapped on the horizontal axis.

In the Bay, the data highlight the retail, hospitality and tourism sector (RHT) and the impact of the pandemic on employment and employment, which has disproportionately affected this sector. Although the largest employer of the sector groups, the sector contracted 12% during the period, remaining 101,500 jobs short of its 2017 employment level. The remaining EWD sectors posted growth through 2022, ranging from 4% (AG) to 18% (ICT-DM). The most job growth occurred in ICT-DM (up 78,400 jobs), followed by Health (8% growth or 31,230 jobs).

Exhibit A: Bay Region Employment by EWD Sectors, 2017-2022



¹³ All employment data in this report provided by Lightcast International (EMSI), 2023.2– QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment in California. Health and LS/Biotech sectors overlap causing duplication in the counts and other industry categories are not included in the eight EWD sector definitions.

North Far North Region

In the North Far North region (NFN), the eight NAICS-defined EWD sectors account for approximately 59% of all jobs in the region.¹⁴ To compare these eight sectors, the bubble chart below shows each in relationship to three measures:

- Number of existing jobs or size of current employment (2022) is displayed as the size of each bubble.
- Rate of job growth or decline from 2017-2022 is shown on the vertical axis.
- Size of job growth or decline for the same period is mapped on the horizontal axis.

In the NFN region, the data highlight the retail, hospitality and tourism sector (RHT). Although the largest employer of the sector groups, RHT remains slightly behind its 2017 employment levels by about 300 jobs. The remaining sectors all posted growth in jobs through 2022, ranging from 4% (AG) to 24% (ATL). The most net job growth is projected for EEUC (up 27,300 jobs), followed by ATL (24% growth or 15,370 jobs).

Exhibit A: NFN Employment by EWD Sectors, 2017-2022



¹⁴ All employment data in this report provided by Lightcast International (EMSI), 2023.2– QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment in California. Health and LS/Biotech sectors overlap causing duplication in the counts and other industry categories are not included in the eight EWD sector definitions.