



CENTER OF EXCELLENCE
FOR LABOR MARKET RESEARCH
CENTRAL VALLEY/MOTHER LODE

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GOOD JOBS AND EQUITY ASSESSMENT

CENTRAL VALLEY/
MOTHER LODE
REGION



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EXECUTIVE SUMMARY

Community colleges play a pivotal role in preparing the workforce for high-quality, middle-skill jobs, thanks to their accessibility, affordability, and partnerships with regional employers. This study highlights the opportunities for these institutions to address labor market demand and bridge equity gaps in the Central Valley/Mother Lode (CVML) region's workforce by aligning educational pathways with labor market needs. Specifically, this report identifies "Good Jobs" and examines the demographic disparities among workers in these jobs, as well as students in vocational programs designed to prepare them for these jobs. The goal is to identify Good Jobs, as well as equity gaps in representation within both the workforce and educational pipeline, providing a foundation for targeted interventions.

Key Findings

Good Jobs

Across the Central Valley/Mother Lode region, there are 50 occupations that meet the criteria to be considered Good Jobs. Collectively, these Good Jobs:

- Accounted for nearly 182,600 jobs throughout the region in 2023
- Are projected to grow 8% through 2028
- Are projected to have nearly 18,000 annual job openings per year between 2023 and 2028
- Have typical entry-level wages of \$34.62, which is above the CVML regional living wage of \$25.12
- Span eight occupational sectors, with Health accounting for the most Good Jobs (10)

Race and Ethnicity

When analyzing race and ethnicity data for the CVML labor force, Good Jobs, and Good Jobs vocational programs, several trends emerge:

- Hispanic or Latinos are significantly underrepresented in 32 Good Jobs but only 1 Good Jobs vocational program. However, they tend to be underrepresented in higher-paying Good Jobs.
 - Typical entry-level hourly wages for the 32 occupations where Hispanic or Latino workers are significantly underrepresented are \$35.98, which is higher compared to the 5 occupations in which Hispanic or Latino workers are well represented (\$30.84).
 - This discrepancy can partially be explained by the fact that Hispanic or Latino workers are underrepresented in high-paying occupations, such as *Registered Nurses (29-1141)* and *Police and Sheriff's Patrol Officers (33-3051)*.
 - Conversely, Hispanic or Latino workers are well represented in lower-paying occupations, such as *First-Line Supervisors of Production and Operating Workers (51-1011)* and *Industrial Machinery Mechanics (49-9041)*.
 - These wage differences are present only for Hispanic or Latino workers. Additional research would be required to better understand these earnings dynamics.
- Black or African Americans are significantly underrepresented in 31 Good Jobs and 7 Good Jobs vocational programs.
- Asian or Pacific Islanders are significantly underrepresented in 27 Good Jobs and 17 Good Jobs vocational programs.
- Other Race/Ethnicity individuals are significantly underrepresented in 18 Good Jobs and 6 Good Jobs vocational programs.

- White individuals are significantly underrepresented in 5 Good Jobs and 45 Good Jobs vocational programs.

Age

When examining age data, the following trends emerge:

- Pre-Career/College Age workers are significantly underrepresented in 46 of the 50 Good Jobs but are significantly underrepresented in only one Good Jobs vocational program. This is largely because regional community colleges generally serve a younger population.
- There are only three occupations in which at least three age groups are underrepresented: *Cost Estimators (13-1051)*, *First-Line Supervisors of Police and Detectives (33-1012)*, and *First-Line Supervisors of Firefighting and Prevention Workers (33-1021)*.

Sex and Gender

When examining sex and gender data, the following trends emerge:

- Women are significantly underrepresented in 33 of the 50 Good Jobs and 25 Good Jobs vocational programs. These jobs and programs are concentrated in sectors such as Advanced Manufacturing; Energy, Construction, and Utilities; ICT/Digital Media; and Public Safety.
 - Female workers are primarily underrepresented in Energy, Construction and Utilities (8), Public Safety (7), Advanced Manufacturing (6), and Advanced Transportation and Logistics (6) occupations
 - Female students are primarily underrepresented in Advanced Manufacturing (6), Energy, Construction, and Utilities (6), and ICT/Digital Media (6) programs
- Male workers are underrepresented in 16 of the 50 Good Jobs and 23 Good Jobs vocational programs. These jobs and programs are concentrated in the Health sector.



These findings have several implications for practice and further analysis. Though Hispanic or Latino workers have high employment rates nationally, their earnings tend to be lower compared to other demographic groups and they are more occupationally segregated than any other ethnic group.¹ Though most recommendations to address this problem focus on policy changes and labor standards enforcement², regional community colleges may be able to address occupational segregation by connecting Hispanic or Latino students to programs that lead to high wage jobs. Similar actions could also lead to higher representation of Black or African American and other underrepresented workers in these Good Jobs.³

Additionally, women are underrepresented in traditional trades such as construction, where wages tend to be higher and where work-based learning opportunities such as apprenticeships are prevalent. Regional community colleges could develop strategies to increase female participation in programs that train for these occupations, including providing supportive services such as mentoring, childcare, and transportation.⁴

Research underscores the significance of gender and cultural competence in healthcare, especially given the underrepresentation of men. Culturally competent care enables providers to understand and respect the cultural backgrounds of their patients, which is crucial for fostering trust, effective communication, and improved patient outcomes.⁵

Though the remainder of this report focuses on Good Jobs and a demographic analysis of the Good Jobs workforce, and students in Good Jobs vocational programs, the Central Valley/Mother Lode Center of Excellence (CVML COE) plans to continue exploring strategies and collaborating with educational institutions to address the equity gaps identified in this report.



¹ Carmen Sanchez Cumming, "Latino Workers Are Often Segregated into Bad Jobs, but a Strong U.S. Labor Movement Can Boost Job Quality and U.S. Economic Growth," Equitable Growth, last modified October 12, 2022, <https://equitablegrowth.org/latino-workers-are-often-segregated-into-bad-jobs-but-a-strong-u-s-labor-movement-can-boost-job-quality-and-u-s-economic-growth/>.

² Rebecca Dixon, "Racism and the Economy Focus on Employment: Occupational Segregation," Federal Reserve Bank of Minneapolis, accessed March 13, 2025, <https://www.minneapolisfed.org/~media/assets/events/2020/racism-and-the-economy-focus-on-employment/racism-and-the-economy-employment-proposal-dixon.pdf?la=en>.

³ "Occupational Segregation," Opportunity@Work, last modified September 4, 2023, <https://opportunityatwork.org/our-solutions/stars-insights/occupational-segregation/>.

⁴ "Discover Apprenticeship: Women in Apprenticeship," Apprenticeship.gov, accessed March 14, 2025, https://www.apprenticeship.gov/sites/default/files/women-in-apprenticeship-fact-sheet_0.pdf.

⁵ Salsberg, Edward, et al. "Estimation and Comparison of Current and Future Racial/Ethnic Representation in the US Health Care Workforce." JAMA Network Open, vol. 4, no. 3, 2021, e213789. <https://doi.org/10.1001/jamanetworkopen.2021.3789>.

INTRODUCTION

Community colleges are uniquely positioned to prepare workers for middle-skill jobs due to their accessibility, affordability, and connections with local employers and regional workforce development agencies. Bridging these foundational strengths with targeted research, this study aims to provide labor market data related to Good Jobs in the Central Valley/Mother Lode (CVML) Region, as well as data related to equity gaps between these Good Jobs, the CVML Labor Force, and regional community college career education programs that train for these Good Jobs.

The purpose of this study is to:

- Identify good-paying, middle-skill jobs, hereafter referred to as “Good Jobs,” that offer economic opportunity and career growth for CVML region residents
- Understand the current demographics (e.g., race/ethnicity, age, and sex and gender) of workers in these Good Jobs compared to the labor force overall
- Examine the demographic (e.g., race/ethnicity, age, and sex and gender⁶) composition of community college students in relation to workers in these jobs, hereafter referred to as “Good Jobs vocational programs”

Through a comparison of student demographics with workforce demographic data, this research has uncovered significant underrepresentation of workers in Good Jobs and students enrolled in Good Jobs vocational programs. This analysis provides valuable insights that can help regional community colleges and other workforce development stakeholders develop strategies to ensure that all students have equitable access to career pathways leading to economic mobility. By identifying underrepresentation of both workers in Good Jobs and students in related programs, community colleges can target their efforts to address the identified demographic gaps, potentially leading to more equitable representation in Good Jobs within the region.

Definitions for the purpose of this study:

- “Significant Underrepresentation” in Good Jobs means that there is a statistically significant lower percentage of workers in Good Jobs in the region compared to the CVML labor force overall.
- “Significant Underrepresentation” in Good Jobs vocational programs means that there is a statistically significant lower percentage of students in programs that train for one or more of the Good Jobs compared to the CVML labor force overall.

Fundamentally, this report lays out to what extent specific groups of students and workers – by race/ethnicity, age, and sex and gender – are underrepresented at different points along the community college pathway to Good Jobs in the CVML region.

⁶ Since the inception of the American Community Survey in 2005, the United States Census Bureau has included a question about the sex of each person. In 2024, the Census Bureau [developed proposed questions related to gender identity](#) to be included on the 2027 version of the American Community Survey. As of March 2025, it is [unclear if these questions will be included](#) due to a change in administration. However, the California Community College Chancellor's Office categorizes student data by gender. For these reasons, this group is called sex and gender to recognize the different data collection and reporting methods from various agencies.

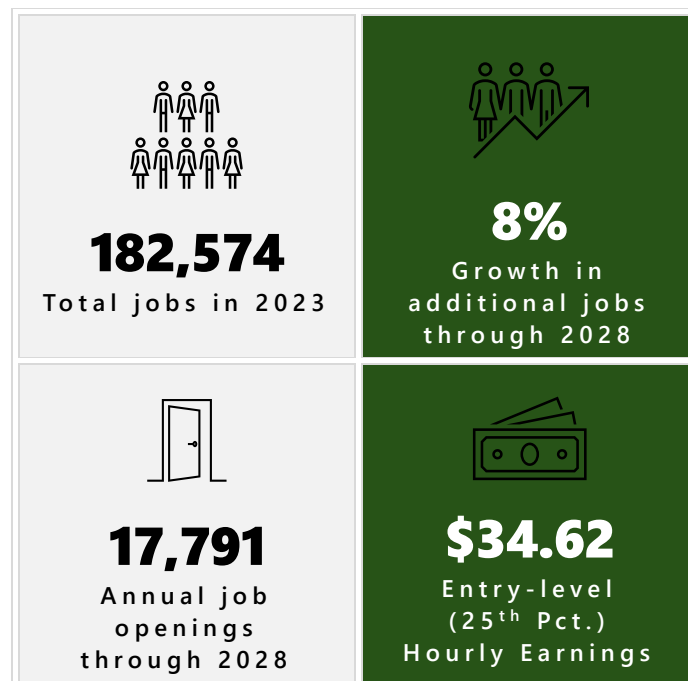
GOOD JOBS IN THE CENTRAL VALLEY/MOTHER LODE REGION

For the purposes of this report, Good Jobs in the CVML region were identified based on the following criteria:

- **Middle skill:** occupations that typically require more than a high school diploma but less than a bachelor's degree
- **Demand:** at least 65 annual job openings, which is the median across all occupations, throughout the region from 2023 to 2028
- **Living wage:** typical entry-level hourly earnings at or above the Central Valley/Mother Lode regional living wage of \$25.12⁷

Middle-skill occupations, or those that typically require more than a high school diploma but less than a four-year degree, often represent opportunities for economic mobility for a broad range of students and residents.

The Good Jobs analyzed in this report are in-demand, growing, and offer competitive wages. Based on the above criteria, 50 of the 796 occupations in the Standard Occupational Classification (SOC) system met these criteria in the Central Valley/Mother Lode region. Collectively, these 50 Good Jobs are projected to grow 8% and offer nearly 18,000 annual job openings per year between 2023 and 2028.



The 50 Good Jobs identified in this study span eight occupational sectors, with the Health sector accounting for 10 Good Jobs, the most of any sector. The Business and Entrepreneurship sector (51,379) had the highest number of jobs in 2023, followed by the Health sector (49,057). These two sectors also have the highest annual job openings (Business and Entrepreneurship: 5,283 and Health: 3,965). Health occupations have the highest weighted entry-level hourly wages (\$43.31) of all sectors. Exhibit 1 shows the sectors represented by these 50 Good Jobs, sorted alphabetically by sector.

⁷ This report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard (last updated in March 2024), which the COE refers to as a living wage. To determine the regional living wage, the CVML COE calculated the average living wage for 1 adult and 1 adult with one child of all 15 counties (Alpine, Amador, Calaveras, Fresno, Inyo, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, and Tuolumne) in the region.

Exhibit 1: Good Jobs Sectors in the Central Valley/Mother Lode Region

Sector	# of Good Jobs	2023 Jobs	2028 Jobs	5-Year Change	5-Year % Change	Annual Openings	Entry-Level Hourly Wage
Advanced Manufacturing	6	15,256	16,858	1,602	10%	1,708	\$26.23
Advanced Transportation and Logistics	6	16,488	18,209	1,721	10%	1,748	\$30.97
Business and Entrepreneurship	9	51,379	54,919	3,540	7%	5,283	\$31.06
Education and Human Development	1	1,276	1,491	215	17%	188	\$34.19
Energy, Construction, and Utilities	8	19,109	20,591	1,482	8%	2,022	\$29.33
Health	10	49,057	53,378	4,321	9%	3,965	\$43.31
ICT/Digital Media	2	2,305	2,524	219	10%	186	\$33.43
Public Safety	8	27,704	29,714	2,010	7%	2,691	\$36.38
Total	50	182,574	197,684	15,110	8%	17,791	\$34.62

Across all 50 Good Jobs, *Registered Nurses (29-1141)* accounted for the most jobs in 2023 (30,054), *General and Operations Managers (11-1021)* accounted for the most annual openings (2,289), and *First-Line Supervisors of Correctional Officers (33-1011)* has the highest entry-level hourly wages (\$53.58). Exhibit 2 lists the 50 occupations that met the Good Jobs definition for this study, sorted by occupational sector, then annual openings.

Exhibit 2: Good Jobs in Central Valley/Mother Lode Region

Sector	Occupation (SOC)	2023 Jobs	2028 Jobs	5-Year Change	5-Year % Change	Annual Openings	Entry-Level Hourly Wage
Advanced Manufacturing	First-Line Supervisors of Production and Operating Workers (51-1011)	6,166	6,759	593	10%	715	\$25.53
	Industrial Machinery Mechanics (49-9041)	5,778	6,576	798	14%	634	\$25.12
	Electrical and Electronic Engineering Technologists and Technicians (17-3023)	951	991	41	4%	102	\$30.75
	Engineering Technologists and Technicians, Except Drafters, All Other (17-3029)	986	1,007	21	2%	94	\$30.62
	Electrical and Electronics Repairers, Commercial and Industrial Equipment (49-2094)	881	948	67	8%	90	\$30.06
	Occupational Health and Safety Technicians (19-5012)	495	576	81	16%	72	\$25.14
Advanced Transportation and Logistics	First-Line Supervisors of Mechanics, Installers, and Repairers (49-1011)	5,920	6,512	592	10%	627	\$30.84
	Transportation, Storage, and Distribution Managers (11-3071)	3,108	3,526	418	13%	341	\$36.23
	Mobile Heavy Equipment Mechanics, Except Engines (49-3042)	2,820	3,018	197	7%	279	\$27.51
	Logisticians (13-1081)	1,909	2,213	304	16%	223	\$29.29
	Aircraft Mechanics and Service Technicians (49-3011)	1,966	2,111	146	7%	176	\$30.14
	Commercial Pilots (53-2012)	765	829	64	8%	102	\$29.66

Sector	Occupation (SOC)	2023 Jobs	2028 Jobs	5-Year Change	5-Year % Change	Annual Openings	Entry-Level Hourly Wage
Business and Entrepreneurship	General and Operations Managers (11-1021)	21,258	23,821	2,562	12%	2,289	\$36.23
	First-Line Supervisors of Office and Administrative Support Workers (43-1011)	13,845	14,375	530	4%	1,450	\$25.57
	Executive Secretaries and Executive Administrative Assistants (43-6011)	3,477	3,380	(97)	(3%)	356	\$28.06
	Buyers and Purchasing Agents (13-1028)	3,342	3,435	93	3%	328	\$25.12
	Cost Estimators (13-1051)	2,423	2,571	148	6%	235	\$28.72
	Administrative Services Managers (11-3012)	2,224	2,414	190	9%	214	\$34.09
	Facilities Managers (11-3013)	1,468	1,608	141	10%	143	\$37.66
	Real Estate Brokers (41-9021)	1,497	1,554	57	4%	140	\$25.58
	Claims Adjusters, Examiners, and Investigators (13-1031)	1,845	1,761	(84)	(5%)	129	\$27.85
Education and Human Development	Kindergarten Teachers, Except Special Education (25-2012)	1,276	1,491	215	17%	188	\$34.19
Energy, Construction and Utilities	First-Line Supervisors of Construction Trades and Extraction Workers (47-1011)	7,619	8,223	604	8%	760	\$30.29
	Operating Engineers and Other Construction Equipment Operators (47-2073)	4,463	4,868	405	9%	473	\$27.55
	Water and Wastewater Treatment Plant and System Operators (51-8031)	1,799	1,936	137	8%	202	\$26.46
	Construction and Building Inspectors (47-4011)	1,256	1,339	83	7%	164	\$28.24
	Telecommunications Equipment Installers and Repairers, Except Line Installers (49-2022)	1,224	1,274	50	4%	140	\$28.05
	Telecommunications Line Installers and Repairers (49-9052)	1,080	1,135	55	5%	111	\$28.73
	Electrical Power-Line Installers and Repairers (49-9051)	929	1,026	97	10%	93	\$40.51
	Civil Engineering Technologists and Technicians (17-3022)	738	790	52	7%	79	\$27.94
Health	Registered Nurses (29-1141)	30,054	32,569	2,516	8%	2,210	\$49.33
	Licensed Practical and Licensed Vocational Nurses (29-2061)	7,602	8,340	738	10%	754	\$30.06
	Dental Hygienists (29-1292)	2,012	2,230	218	11%	182	\$48.45
	Psychiatric Technicians (29-2053)	1,910	2,013	103	5%	181	\$28.96
	Physical Therapist Assistants (31-2021)	820	962	142	17%	150	\$30.30

Sector	Occupation (SOC)	2023 Jobs	2028 Jobs	5-Year Change	5-Year % Change	Annual Openings	Entry-Level Hourly Wage
Health	Radiologic Technologists and Technicians (29-2034)	2,022	2,199	176	9%	148	\$37.62
	Respiratory Therapists (29-1126)	1,622	1,728	106	7%	109	\$37.11
	Surgical Technologists (29-2055)	1,044	1,146	102	10%	86	\$29.22
	Diagnostic Medical Sonographers (29-2032)	1,063	1,148	85	8%	75	\$43.54
	Paramedics (29-2043)	907	1,042	135	15%	71	\$25.15
ICT/Digital Media	Network and Computer Systems Administrators (15-1244)	1,492	1,630	139	9%	114	\$36.49
	Computer Network Support Specialists (15-1231)	814	894	81	10%	72	\$27.80
Public Safety	Correctional Officers and Jailers (33-3012)	10,466	10,648	182	2%	960	\$35.60
	Police and Sheriff's Patrol Officers (33-3051)	7,621	8,473	852	11%	779	\$37.58
	Firefighters (33-2011)	3,924	4,350	425	11%	391	\$27.04
	Public Safety Telecommunicators (43-5031)	1,070	1,193	124	12%	136	\$26.24
	First-Line Supervisors of Correctional Officers (33-1011)	1,383	1,453	70	5%	126	\$53.58
	Detectives and Criminal Investigators (33-3021)	1,256	1,357	101	8%	115	\$39.05
	First-Line Supervisors of Police and Detectives (33-1012)	1,023	1,169	147	14%	100	\$51.27
	First-Line Supervisors of Firefighting and Prevention Workers (33-1021)	961	1,070	109	11%	83	\$40.61

To better understand potential equity gaps in the region, the remainder of this report analyzes demographic data for the CVML labor force, these 50 Good Jobs, and community college students enrolled in Good Jobs vocational programs that can lead to employment in these Good Jobs.



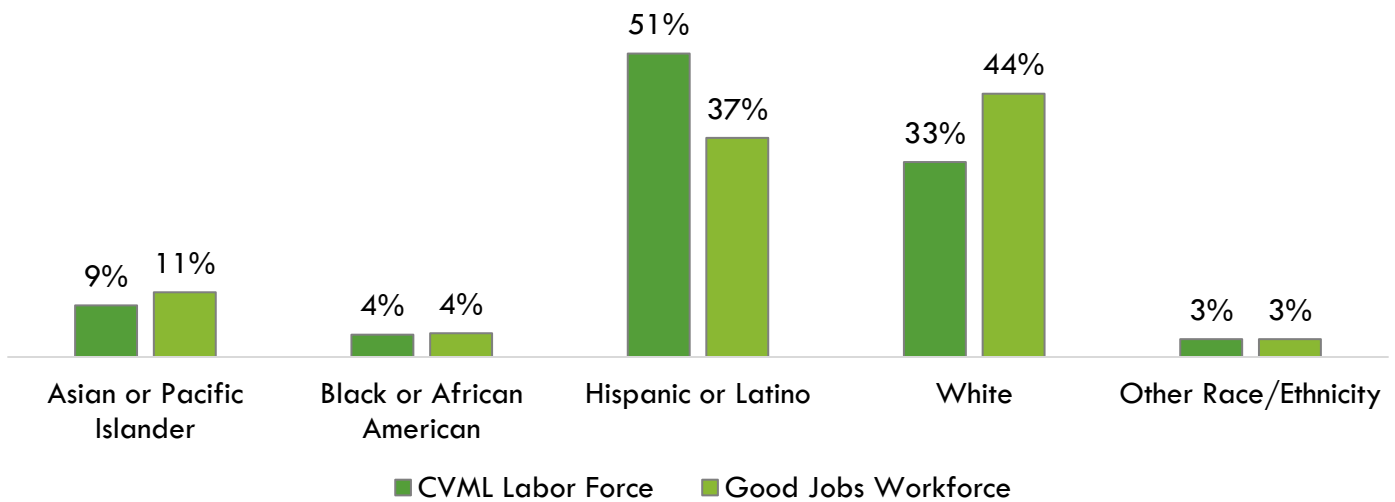
EQUITY ANALYSIS: CVML LABOR FORCE VS. GOOD JOBS

Central Valley/Mother Lode Labor Force

This section compares the demographics of the CVML labor force to the demographics of workers in the 50 Good Jobs described in the previous section.⁸ Exhibit 3 shows the race and ethnicity distribution for both the CVML labor force compared to the Good Jobs workforce.

The shares of white (44%) and Asian or Pacific Islander (11%) workers in Good Jobs are greater than their shares of the CVML labor force (33% and 9%, respectively). Conversely, the percentage of Hispanic or Latino (37%) workers in Good Jobs is substantially lower than the CVML labor force overall (51%). The shares of Black or African American (4%) and Other Race/Ethnicity (3%) workers in the Good Jobs workforce are comparable to the CVML labor force overall (4% and 3%, respectively).

Exhibit 3: Central Valley/Mother Lode Labor Force and Good Jobs Workforce Race and Ethnicity Distribution



⁸ Labor force is defined as individuals 16 years and older that are classified as either employed or unemployed, as defined by the federal Bureau of Labor Statistics. For more information, see: <https://www.bls.gov/cps/definitions.htm#laborforce>.

Exhibit 4 shows the age distribution for both CVML labor force participants as well as workers in Good Jobs. This report used groupings based on typical stages of progression through education, career, and retirement. Pre-Career/College Age (24 or younger) individuals make up 15% of the CVML labor force, but only 5% of the Good Jobs workforce. Conversely, Early Career (25-34), Mid-Career (35-54), and Later Career/Retirement (55 and Older) individuals make up 26%, 38%, and 31% (respectively) of the Good Jobs workforce, compared to the 25%, 33%, and 28% (respectively) of the CVML labor force.

Exhibit 4: Central Valley/Mother Lode Labor Force and Good Jobs Workforce Age Category Distribution

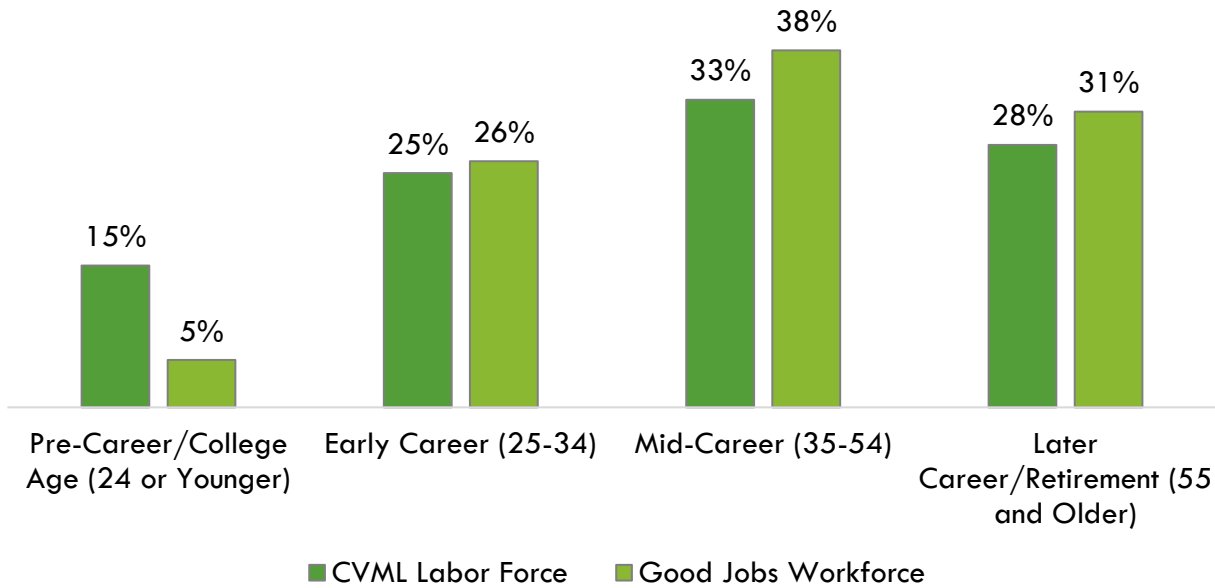


Exhibit 5 shows the sex and gender distribution for both CVML labor force participants as well as the Good Jobs workforce. The share of female workers in Good Jobs (41%) was slightly less when compared to the CVML labor force (44%). The share of male workers in Good Jobs (59%) was 3% greater than male workers in the CVML labor force (56%).

Exhibit 5: Central Valley/Mother Lode Labor Force and Good Jobs Workforce Sex and Gender Distribution

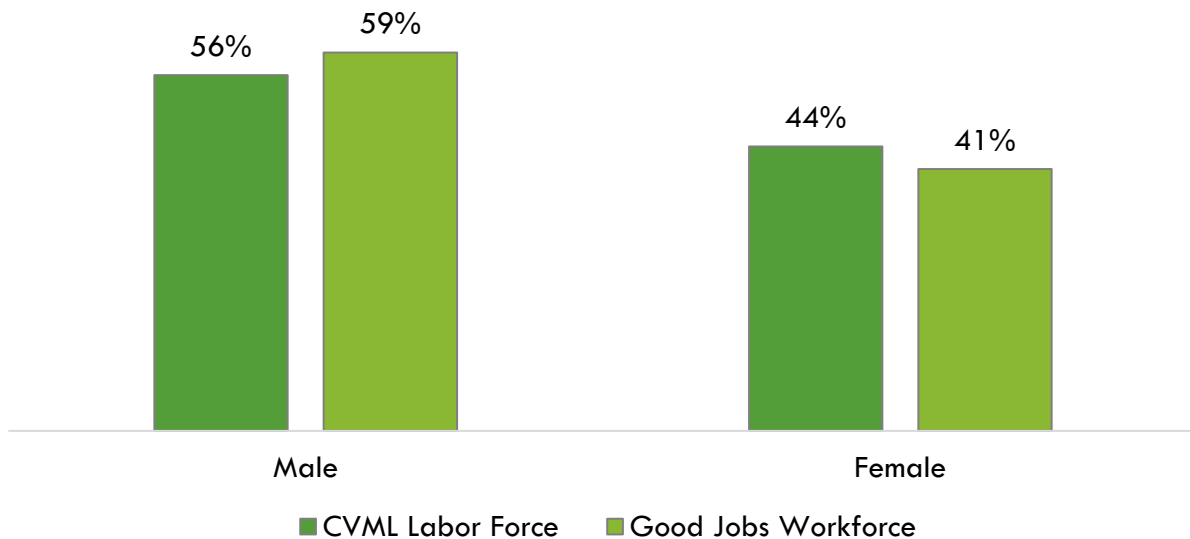


Exhibit 6 shows the number of Good Jobs in which workers from various demographic groups are highly underrepresented compared to CVML labor force participants. Notably, Pre-Career/College Age workers are significantly underrepresented in 46 Good Jobs, Hispanic or Latino workers are highly underrepresented in 32 Good Jobs, female workers in 33 Good Jobs, and Black or African American workers in 31 Good Jobs.

Exhibit 6: Good Jobs with Significant Underrepresentation

Demographic Category	Good Jobs with Underrepresentation
Asian or Pacific Islander	27
Black or African American	31
Hispanic or Latino	32
Other Race/Ethnicity	18
White	5
Pre-career/College (≤ 24)	46
Early career (25-34)	16
Mid-career (35-54)	6
Late career/retirement (55+)	16
Females	33
Males	16

The following sections will further examine the demographic groups that are significantly underrepresented in these Good Jobs.



Race and Ethnicity

When examining race/ethnicity data for these 50 Good Jobs compared to the CVML labor force, Hispanic or Latino workers are underrepresented in the most Good Jobs (32), closely followed by Black or African American workers (31), Asian or Pacific Islander workers (27), and Other Race/Ethnicity workers (18). Notably, white workers are underrepresented in only five Good Jobs. Additional findings for race/ethnicity gaps are listed in Exhibit 7.

Exhibit 7: Underrepresentation in Good Jobs by Race and Ethnicity

Hispanic or Latino

- Underrepresented in **32 Good Jobs** across 7 sectors
- Primarily underrepresented in Business and Entrepreneurship (8) and Health (7) occupations

Black or African American

- Underrepresented in **31 Good Jobs** across 7 sectors
- Primarily underrepresented in Business and Entrepreneurship (6), Energy, Construction, and Utilities (6) and Public Safety (6) occupations

Asian or Pacific Islander

- Underrepresented in **27 Good Jobs** across 7 sectors
- Primarily underrepresented in Public Safety (8) and Energy, Construction, and Utilities (6) occupations

Other Race/Ethnicity

- Underrepresented in **18 Good Jobs** across 7 sectors
- Primarily underrepresented in Advanced Manufacturing (3), Advanced Transportation and Logistics (3), Business and Entrepreneurship (3), Health (3) and Public Safety (3) occupations

White

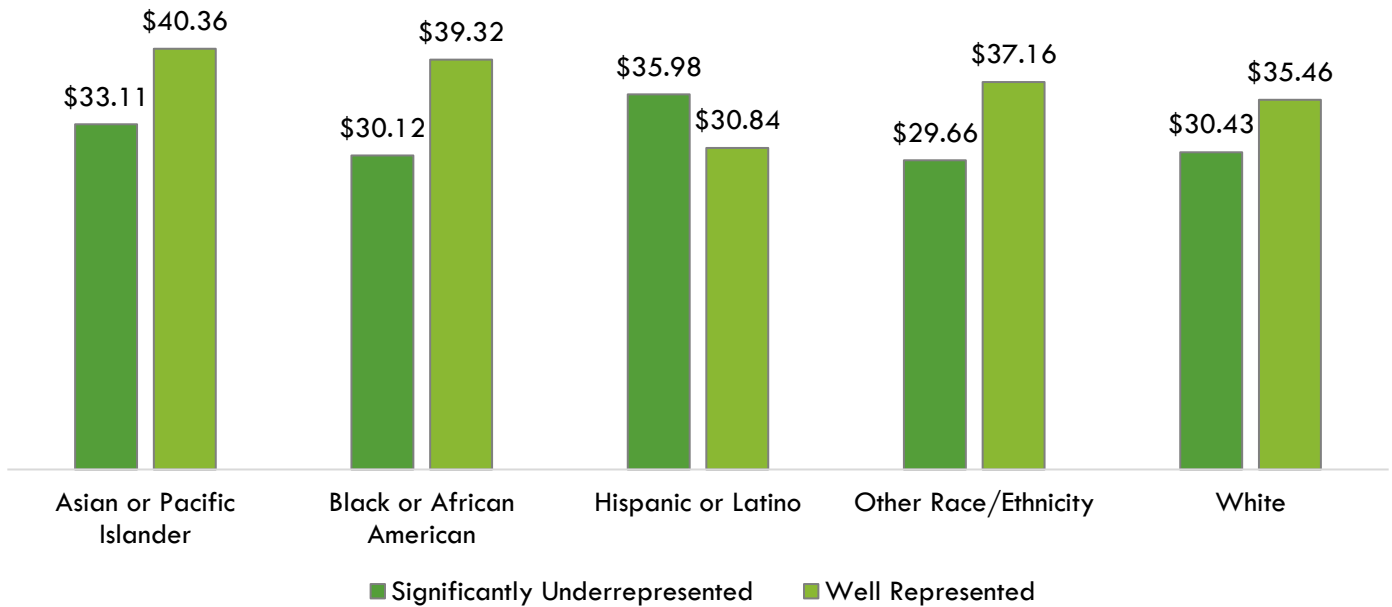
- Underrepresented in **5 Good Jobs** across 4 sectors
- Primarily underrepresented in Health (2) occupations

Notably, Hispanic or Latino workers are underrepresented in the most Good Jobs. Additionally, though all Good Jobs analyzed in this report have entry-level wages above the living wage, typically entry-level wages for the 32 occupations where Hispanic or Latino workers are highly underrepresented are higher than the 5 occupations in which Hispanic or Latino workers are well represented, indicating that Hispanic or Latino workers tend to be well represented in lower paying jobs and underrepresented in higher paying jobs.

This discrepancy can be attributed to the fact that Hispanic or Latino workers are significantly underrepresented in particularly high-paying occupations, including Health occupations such as *Registered Nurses (29-1141)* and *Dental Hygienists (29-1292)*, as well as Public Safety occupations such as *First-Line Supervisors of Firefighting and Prevention Workers (33-1021)* and *Police and Sheriff's Patrol Officers (33-3051)*. Conversely, Hispanic or Latino workers are well represented in lower paying occupations such as *First-Line Supervisors of Production and Operating Workers (51-1011)* and *Industrial Machinery Mechanics (49-9041)*.

This discrepancy only exists for Hispanic or Latino workers. For all other groups, typical entry-level earnings are lower in occupations where they are highly underrepresented compared to occupations where they are well represented, as shown in Exhibit 8.

Exhibit 8: Entry-Level Wages for Significantly Underrepresented vs. Well Represented Occupations by Race/Ethnicity



To better understand the Good Jobs for which multiple groups are underrepresented, Exhibit 9 shows all 50 Good Jobs and which race/ethnicity groups are significantly underrepresented. Notably, there are three Good Jobs for which four groups are underrepresented:

- *Construction and Building Inspectors (47-4011)*
- *Paramedics (29-2043)*
- *Firefighters (33-2011)*

For all three occupations, white workers are the only group that are not significantly underrepresented.



Exhibit 9: Good Jobs with Significant Underrepresentation

Sector	SOC	Occupation	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White
Advanced Manufacturing	17-3029	Engineering Technologists and Technicians, Except Drafters, All Other			X		
	51-1011	First-Line Supervisors of Production and Operating Workers		X		X	
	17-3023	Electrical and Electronic Engineering Technologists and Technicians			X	X	
	19-5012	Occupational Health and Safety Technicians		X			
	49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment		X	X		X
	49-9041	Industrial Machinery Mechanics	X	X		X	
Advanced Transportation and Logistics	11-3071	Transportation, Storage, and Distribution Managers	X		X		
	13-1081	Logisticians		X		X	X
	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	X		X		
	49-3011	Aircraft Mechanics and Service Technicians			X	X	
	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	X	X		X	
	53-2012	Commercial Pilots	X	X	X		
Business and Entrepreneurship	11-1021	General and Operations Managers	X		X		
	11-3012	Administrative Services Managers		X			X
	11-3013	Facilities Managers	X		X	X	
	13-1051	Cost Estimators	X	X	X		
	13-1028	Buyers and Purchasing Agents		X	X		
	13-1031	Claims Adjusters, Examiners, and Investigators	X		X	X	
	41-9021	Real Estate Brokers		X	X	X	
	43-1011	First-Line Supervisors of Office and Administrative Support Workers		X	X		
	43-6011	Executive Secretaries and Executive Administrative Assistants	X	X	X		

Sector	SOC	Occupation	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White
Education and Human Development	25-2012	Kindergarten Teachers, Except Special Education		X		X	
Energy, Construction and Utilities	17-3022	Civil Engineering Technologists and Technicians			X		
	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	X	X		X	
	47-2073	Operating Engineers and Other Construction Equipment Operators	X	X			
	47-4011	Construction and Building Inspectors	X	X	X	X	
	49-9051	Electrical Power-Line Installers and Repairers	X	X			
	49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	X				
	49-9052	Telecommunications Line Installers and Repairers		X	X		
	51-8031	Water and Wastewater Treatment Plant and System Operators	X	X	X		
Health	29-1126	Respiratory Therapists		X	X		
	29-1141	Registered Nurses			X		
	29-1292	Dental Hygienists		X	X		
	29-2034	Radiologic Technologists and Technicians	X		X	X	
	29-2043	Paramedics	X	X	X	X	
	29-2053	Psychiatric Technicians					X
	29-2055	Surgical Technologists		X		X	
	29-2061	Licensed Practical and Licensed Vocational Nurses			X		X
	31-2021	Physical Therapist Assistants		X			
	29-2032	Diagnostic Medical Sonographers			X		

Sector	SOC	Occupation	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White
ICT/ Digital Media	15-1231	Computer Network Support Specialists			X		
	15-1244	Network and Computer Systems Administrators	X		X		
Public Safety	33-1012	First-Line Supervisors of Police and Detectives	X	X			
	33-1021	First-Line Supervisors of Firefighting and Prevention Workers	X	X	X		
	33-2011	Firefighters	X	X	X	X	
	33-3051	Police and Sheriff's Patrol Officers	X		X		
	43-5031	Public Safety Telecommunicators	X		X		
	33-1011	First-Line Supervisors of Correctional Officers	X	X		X	
	33-3012	Correctional Officers and Jailers	X	X			
	33-3021	Detectives and Criminal Investigators	X	X		X	



Age

When examining age data for these 50 Good Jobs compared to the CVML labor force, Pre-Career/College Age workers are significantly underrepresented in 46 of the 50 Good Jobs. There are only four occupations for which Pre-Career/College Age workers are well represented:

- *Aircraft Mechanics and Service Technicians (49-3011)*
- *Electrical Power-Line Installers and Repairers (49-9051)*
- *Psychiatric Technicians (29-2053)*
- *Physical Therapist Assistants (31-2021)*

Other findings for age gaps are listed below in Exhibit 10.

Exhibit 10: Underrepresentation in Good Jobs by Age

Pre-Career/College Age (24 or Younger)

- Underrepresented in **46 Good Jobs** across 8 sectors
- Primarily underrepresented in Business and Entrepreneurship (9), Health (8), and Public Safety (8) occupations

Early Career (25 - 34)

- Underrepresented in **16 Good Jobs** across 6 sectors
- Primarily underrepresented in Business and Entrepreneurship (6) occupations

Mid-Career (35 - 54)

- Underrepresented in **6 Good Jobs** across 5 sectors
- Primarily underrepresented in Advanced Manufacturing (2) occupations

Later Career/Retirement (55 and Older)

- Underrepresented in **16 Good Jobs** across 4 sectors
- Primarily underrepresented in Health (6) and Public Safety (6) occupations

To better understand the Good Jobs for which multiple groups are underrepresented, Exhibit 11 shows all 50 Good Jobs and which age groups are significantly underrepresented. There are only three occupations in which at least three age groups are underrepresented:

- *Cost Estimators (13-1051)*
- *First-Line Supervisors of Police and Detectives (33-1012)*
- *First-Line Supervisors of Firefighting and Prevention Workers (33-1021)*

Exhibit 11: Good Jobs with Significant Underrepresentation by Age

Sector	SOC	Occupation	Pre-Career/ College Age	Early Career	Mid-Career	Later Career/ Retirement
Advanced Manufacturing	17-3029	Engineering Technologists and Technicians, Except Drafters, All Other	X		X	
	51-1011	First-Line Supervisors of Production and Operating Workers	X	X		
	17-3023	Electrical and Electronic Engineering Technologists and Technicians	X	X		
	19-5012	Occupational Health and Safety Technicians	X			
	49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	X		X	
	49-9041	Industrial Machinery Mechanics	X			
Advanced Transportation and Logistics	11-3071	Transportation, Storage, and Distribution Managers	X			X
	13-1081	Logisticians	X			
	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	X	X		
	49-3011	Aircraft Mechanics and Service Technicians			X	X
	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	X			
	53-2012	Commercial Pilots	X			
Business and Entrepreneurship	11-1021	General and Operations Managers	X	X		
	11-3012	Administrative Services Managers	X	X		
	11-3013	Facilities Managers	X	X		
	13-1051	Cost Estimators	X	X	X	
	13-1028	Buyers and Purchasing Agents	X			
	13-1031	Claims Adjusters, Examiners, and Investigators	X			
	41-9021	Real Estate Brokers	X	X		
	43-1011	First-Line Supervisors of Office and Administrative Support Workers	X			
	43-6011	Executive Secretaries and Executive Administrative Assistants	X	X		

Sector	SOC	Occupation	Pre-Career/ College Age	Early Career	Mid-Career	Later Career/ Retirement
Education and Human Development	25-2012	Kindergarten Teachers, Except Special Education	X			
Energy, Construction and Utilities	17-3022	Civil Engineering Technologists and Technicians	X		X	
	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	X	X		
	47-2073	Operating Engineers and Other Construction Equipment Operators	X			
	47-4011	Construction and Building Inspectors	X	X		
	49-9051	Electrical Power-Line Installers and Repairers		X		X
	49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	X			
	49-9052	Telecommunications Line Installers and Repairers	X			X
	51-8031	Water and Wastewater Treatment Plant and System Operators	X			
Health	29-1126	Respiratory Therapists	X			
	29-1141	Registered Nurses	X			
	29-1292	Dental Hygienists	X			X
	29-2034	Radiologic Technologists and Technicians	X	X		
	29-2043	Paramedics	X			X
	29-2053	Psychiatric Technicians				X
	29-2055	Surgical Technologists	X			X
	29-2061	Licensed Practical and Licensed Vocational Nurses	X			X
	31-2021	Physical Therapist Assistants				X
	29-2032	Diagnostic Medical Sonographers	X		X	
ICT/Digital Media	15-1231	Computer Network Support Specialists	X			
	15-1244	Network and Computer Systems Administrators	X			

Sector	SOC	Occupation	Pre-Career/ College Age	Early Career	Mid-Career	Later Career/ Retirement
Public Safety	33-1012	First-Line Supervisors of Police and Detectives	X	X		X
	33-1021	First-Line Supervisors of Firefighting and Prevention Workers	X	X		X
	33-2011	Firefighters	X			X
	33-3051	Police and Sheriff's Patrol Officers	X			X
	43-5031	Public Safety Telecommunicators	X			X
	33-1011	First-Line Supervisors of Correctional Officers	X	X		
	33-3012	Correctional Officers and Jailers	X			X
	33-3021	Detectives and Criminal Investigators	X			



Sex and Gender

Female workers are significantly underrepresented in 33 of the 50 Good Jobs, as shown in Exhibit 12. Good Jobs in which female worker are underrepresented span 7 of the 12 sectors as classified by the California Community College’s Chancellor’s Office. The majority of these 33 jobs are concentrated in four main sectors: Energy, Construction and Utilities (8); Public Safety (7); Advanced Manufacturing (6); and Advanced Transportation and Logistics (6).

Exhibit 12: Underrepresentation in Good Jobs by Sex and Gender

Female

- Underrepresented in **33 Good Jobs** across 7 sectors
- Primarily underrepresented in Energy, Construction and Utilities (8), Public Safety (7), Advanced Manufacturing (6), and Advanced Transportation and Logistics (6) occupations

Male

- Underrepresented in **16 Good Jobs** across 4 sectors
- Primarily underrepresented in Health (8) and Business and Entrepreneurship (6) occupations

Conversely, male workers are underrepresented in 16 of the 50 Good Jobs. Exhibit 13 outlines this disparity, grouping by sector and specific jobs where female and male workers are significantly underrepresented.

Exhibit 13: Good Jobs with Significant Underrepresentation by Sex and Gender

Sector	SOC	Occupation	Female	Male
Advanced Manufacturing	17-3029	Engineering Technologists and Technicians, Except Drafters, All Other	X	
	51-1011	First-Line Supervisors of Production and Operating Workers	X	
	17-3023	Electrical and Electronic Engineering Technologists and Technicians	X	
	19-5012	Occupational Health and Safety Technicians	X	
	49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	X	
	49-9041	Industrial Machinery Mechanics	X	
Advanced Transportation and Logistics	11-3071	Transportation, Storage, and Distribution Managers	X	
	13-1081	Logisticians	X	
	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	X	
	49-3011	Aircraft Mechanics and Service Technicians	X	
	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	X	
	53-2012	Commercial Pilots	X	

Sector	SOC	Occupation	Female	Male
Business and Entrepreneurship	11-1021	General and Operations Managers	X	
	11-3012	Administrative Services Managers		X
	11-3013	Facilities Managers	X	
	13-1051	Cost Estimators	X	
	13-1028	Buyers and Purchasing Agents		X
	13-1031	Claims Adjusters, Examiners, and Investigators		X
	41-9021	Real Estate Brokers		X
	43-1011	First-Line Supervisors of Office and Administrative Support Workers		X
	43-6011	Executive Secretaries and Executive Administrative Assistants		X
Education and Human Development	25-2012	Kindergarten Teachers, Except Special Education		X
Energy, Construction and Utilities	17-3022	Civil Engineering Technologists and Technicians	X	
	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	X	
	47-2073	Operating Engineers and Other Construction Equipment Operators	X	
	47-4011	Construction and Building Inspectors	X	
	49-9051	Electrical Power-Line Installers and Repairers	X	
	49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	X	
	49-9052	Telecommunications Line Installers and Repairers	X	
	51-8031	Water and Wastewater Treatment Plant and System Operators	X	
Health	29-1126	Respiratory Therapists		X
	29-1141	Registered Nurses		X
	29-1292	Dental Hygienists		X
	29-2034	Radiologic Technologists and Technicians		
	29-2043	Paramedics	X	
	29-2053	Psychiatric Technicians		X
	29-2055	Surgical Technologists		X
	29-2061	Licensed Practical and Licensed Vocational Nurses		X
	31-2021	Physical Therapist Assistants		X
	29-2032	Diagnostic Medical Sonographers		X

Sector	SOC	Occupation	Female	Male
ICT)/Digital Media	15-1231	Computer Network Support Specialists	X	
	15-1244	Network and Computer Systems Administrators	X	
Public Safety	33-1012	First-Line Supervisors of Police and Detectives	X	
	33-1021	First-Line Supervisors of Firefighting and Prevention Workers	X	
	33-2011	Firefighters	X	
	33-3051	Police and Sheriff's Patrol Officers	X	
	43-5031	Public Safety Telecommunicators		X
	33-1011	First-Line Supervisors of Correctional Officers	X	
	33-3012	Correctional Officers and Jailers	X	
	33-3021	Detectives and Criminal Investigators	X	



GOOD JOBS VOCATIONAL PROGRAMS

This study identified 78 vocational programs offered by community colleges in the CVML region that prepare students for the Good Jobs identified in this study and had student enrollment in 2022-23.⁹ Exhibit 14 displays the 78 Good Jobs vocational programs grouped by the sectors established by the California Community College Chancellor's Office.¹⁰ The Health sector accounted for the highest number of programs (11), followed by Energy, Construction, and Utilities (10), ICT/Digital Media (10), and Public Safety (10).

Exhibit 14: Good Jobs Vocational Programs in Central Valley/Mother Lode Region

Advanced Manufacturing

- Aeronautical and Aviation Technology (0950.00)
- Computer Electronics (0934.10)
- Electronics and Electric Technology (0934.00)
- Engineering Technology, General (0924.00)
- Industrial and Occupational Safety and Health (0956.70)
- Industrial Electronics (0934.20)
- Industrial Systems Technology and Maintenance (0945.00)
- Manufacturing and Industrial Technology (0956.00)
- Welding Technology (0956.50)

Advanced Transportation and Logistics

- Automotive Technology (0948.00)
- Aviation Airframe Mechanics (0950.10)
- Aviation Powerplant Mechanics (0950.20)
- Diesel Technology (0947.00)
- Heavy Equipment Maintenance (0947.20)
- Heavy Equipment Operation (0947.30)
- Logistics and Materials Transportation (0510.00)
- Piloting (3020.20)

Agriculture, Water and Environmental Technologies

- Agricultural Power Equipment Technology (0116.00)
- Agriculture Business, Sales and Service (0112.00)
- Viticulture, Enology, and Wine Business (0104.00)

Business and Entrepreneurship

- Business Administration (0505.00)
- Business and Commerce, General (0501.00)
- Business Management (0506.00)
- E-Commerce (Business Emphasis) (0509.70)
- International Business and Trade (0508.00)
- Management Development and Supervision (0506.30)
- Marketing and Distribution (0509.00)
- Real Estate (0511.00)
- Small Business and Entrepreneurship (0506.40)

Education and Human Development

- Child Development/Early Care and Education (1305.00)
- Infants and Toddlers (1305.90)
- Preschool Age Children (1305.40)
- The School Age Child (1305.50)

Energy, Construction and Utilities

- Architecture and Architectural Technology (0201.00)
- Carpentry (0952.10)
- Civil and Construction Management Technology (0957.00)
- Construction Crafts Technology (0952.00)
- Construction Inspection (0957.20)
- Electrical (0952.20)
- Electrical Systems and Power Transmission (0934.40)
- Electro-Mechanical Technology (0935.00)
- Plumbing, Pipefitting and Steamfitting (0952.30)
- Water and Wastewater Technology (0958.00)

⁹ Student data was sourced from DataVista, a data and metrics platform from the California Community Colleges Chancellor's Office.

¹⁰ California Community Colleges Chancellor's Office. (n.d.). CTE TOP Codes to Sectors. <https://datavista.cccco.edu/resources/8>.

Health

- Administrative Medical Assisting (1208.20)
- Dental Hygienist (1240.20)
- Licensed Vocational Nursing (1230.20)
- Medical Office Technology (0514.20)
- Nursing (1230.00)
- Paramedic (1251.00)
- Physical Therapist Assistant (1222.00)
- Psychiatric Technician (1239.00)
- Radiologic Technology (1225.00)
- Registered Nursing (1230.10)
- Respiratory Care/Therapy (1210.00)

ICT/Digital Media

- Computer Information Systems (0702.00)
- Computer Infrastructure and Support (0708.00)
- Computer Networking (0708.10)
- Computer Programming (0707.10)
- Computer Software Development (0707.00)
- Computer Support (0708.20)
- Computer Systems Analysis (0707.30)
- Information Technology, General (0701.00)
- Office Technology/Office Computer Applications (0514.00)
- World Wide Web Administration (0709.00)

Life Sciences and Biotechnology

- Electron Microscopy (0934.70)

Public Safety

- Administration of Justice (2105.00)
- Corrections (2105.10)
- Fire Academy (2133.50)
- Fire Technology (2133.00)
- Forensics, Evidence, and Investigation (2105.40)
- Industrial and Transportation Security (2105.30)
- Other Public and Protective Services (2199.00)
- Police Academy (2105.50)
- Probation and Parole (2105.20)
- Wildland Fire Technology (2133.10)

Retail, Hospitality and Tourism

- Fashion Merchandising (1303.20)
- Office Management (0514.40)
- Retail Store Operations and Management (0506.50)

Unassigned

- N/A



EQUITY ANALYSIS: CVML LABOR FORCE, GOOD JOBS, AND GOOD JOBS VOCATIONAL PROGRAMS

The following section provides a detailed examination of the representation of students by key demographic categories, including race/ethnicity, age, and sex and gender compared to the CVML labor force. The charts and narrative highlight significant underrepresentation within these categories across the identified programs. These insights are crucial for understanding how different student populations are participating in vocational programs, providing a basis for targeted interventions aimed at addressing equity gaps and ensuring all students have access to programs leading to Good Jobs.

During the academic year 2022, the community colleges in the Central Valley/Mother Lode region enrolled over 104,000 students into community college career technical education programs. Due to the release timing of program and student data, this study was confined to the 2022-23 academic year.

To assess equitable representation, it's essential to examine how closely student demographics in Good Jobs vocational programs align with those of the CVML labor force. Exhibit 15, shows college programs are enrolling a significantly higher share of Hispanic or Latino students in Good Jobs vocational programs (64%) compared to the share of Hispanic or Latinos in the both the CVML labor force (51%) and Good Jobs workforce (37%).

White students (21%) made up a smaller share of students in Good Jobs vocational programs as compared to both white individuals in the CVML labor force (33%) and Good Jobs workforce (44%). A slightly smaller share of Asian or Pacific Islander students (7%) were enrolled in community college Good Jobs vocational programs as compared to Asian individuals (9%) in the CVML labor force and Good Jobs workforce (11%).

Exhibit 15: Race/Ethnicity of Students Enrolled in Good Jobs Vocational Programs

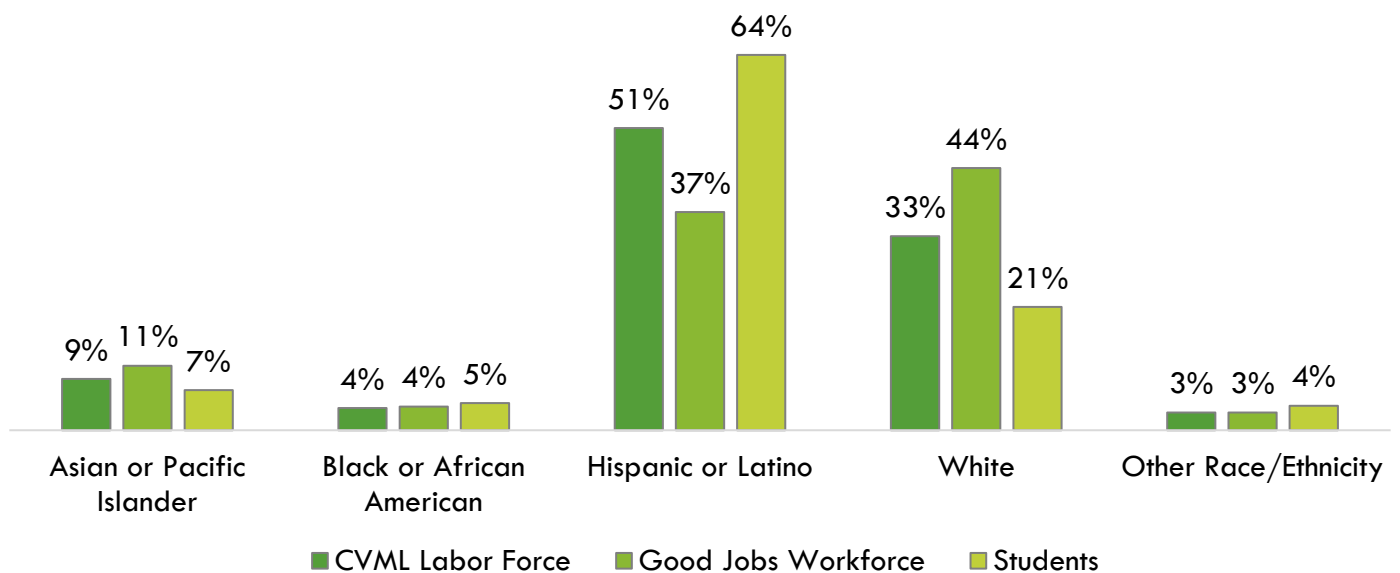


Exhibit 16 shows the age distribution for students enrolled in Good Jobs vocational programs, individuals in the CVML labor force and workers in Good Jobs. For the ease of analyzing and comparing the age of each population, data is grouped based on typical stages of progression through education and career.

The percentage of pre-career/college (24 or younger) students enrolled in Good Jobs vocational programs (56%) is significantly higher than the share of pre-career/college (24 or younger) individuals in the CVML labor force (15%) and workers in Good Jobs (5%). The share of early career (25-34) students (24%), individuals in the CVML labor force (25%), and workers in Good Jobs (26%) are similar to each other. Conversely, the share of mid-career (35-54) individuals in the CVML labor force (33%) and workers in Good Jobs (38%) is significantly greater than mid-career (35-54) students enrolled in Good Jobs vocational programs (15%). The share of later career/retirement (55 and older) students (4%) is significantly lower than individuals in the CVML labor force (28%), and workers in Good Jobs (31%).

Exhibit 16: Age Category of Students Enrolled in Good Jobs Vocational Programs

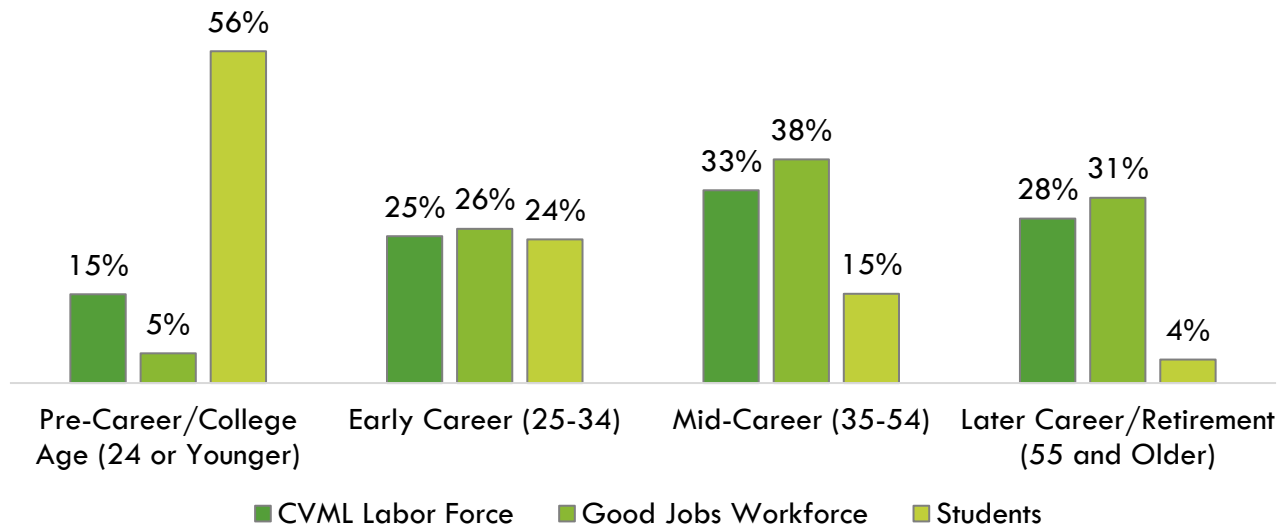


Exhibit 17 shows the sex and gender distribution for students enrolled in Good Jobs vocational programs, individuals in the CVML labor force, and workers in Good Jobs. The share of female students enrolled in Good Jobs vocational programs (49%) is higher than the share of female workers in Good Jobs (41%) and female CVML labor force participants (44%). The opposite trend exists for male students (50%), workers in Good Jobs (59%), and CVML labor force participants (56%).

Exhibit 17: Sex and Gender of Students Enrolled in Good Jobs Vocational Programs

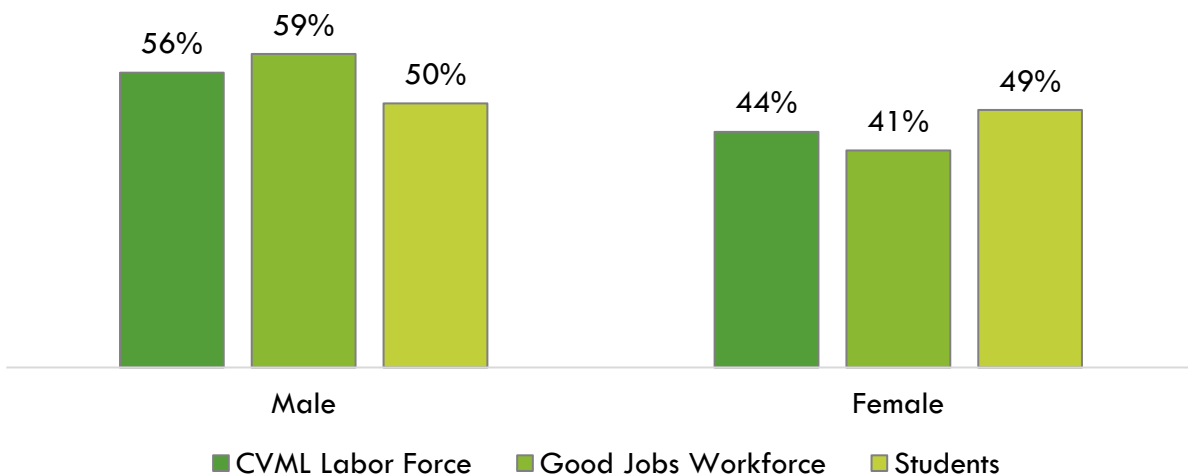


Exhibit 18 provides the number of Good Jobs vocational programs with significant underrepresentation in each of the demographic categories as compared to workers in Good Jobs. At least one demographic group is significantly underrepresented in 73% (57) of the 78 Good Jobs vocational programs.

Exhibit 18: Good Jobs Vocational Programs with Significant Underrepresentation

Demographic Category	Good Jobs Vocational Programs with Underrepresentation
Asian or Pacific Islander	17
Black or African American	7
Hispanic or Latino	1
Other Race/Ethnicity	6
White	45
Pre-career/College (≤ 24)	1
Early career (25-34)	16
Mid-career (35 - 54)	46
Late career/retirement (55+)	37
Females	25
Males	23



Race and Ethnicity

In contrast to the Good Jobs data analyzed in the previous sections, Hispanic or Latino students are well represented across most Good Jobs vocational programs and are significantly underrepresented in only one program, Other Race/Ethnicity students in six Good Jobs vocational programs, and Black or African American students in seven Good Jobs vocational programs. Conversely, white students are significantly underrepresented in 45 Good Jobs vocational programs. This analysis suggests that regional community colleges serve a more diverse set of individuals when compared to the overall CVML labor force and the Good Jobs workforce. Exhibit 19 shows other findings for race/ethnicity in Good Jobs vocational programs.

Exhibit 19: Underrepresentation in Good Jobs Vocational Programs by Race and Ethnicity

White

- Underrepresented in **45 Good Jobs vocational programs** across 10 sectors
- Primarily underrepresented in Business and Entrepreneurship (8) and ICT/Digital Media (8) programs

Asian or Pacific Islander

- Underrepresented in **17 Good Jobs vocational programs** across 7 sectors
- Primarily underrepresented in Public Safety (5) and Advanced Manufacturing (4) programs

Black or African American

- Underrepresented in **7 Good Jobs vocational programs** across 5 sectors
- Primarily underrepresented in Public Safety (3) programs

Other Race/Ethnicity

- Underrepresented in **6 Good Jobs vocational programs** across 4 sectors
- Primarily underrepresented in Advanced Manufacturing (2) and Public Safety (2) programs

Hispanic or Latino

- Underrepresented in **1 Good Jobs vocational program**, which is an ICT/Digital Media program

In the CVML region, though white individuals constitute 33% of the labor force and account for 44% of workers in Good Jobs, they represent only 21% of the students enrolled in community college programs during the academic year 2022-23 and are significantly underrepresented in 45 of the 78 Good Jobs vocational programs. Compared to all students, white students have generally higher median annual earnings after exiting compared to all students regardless of whether they are significantly underrepresented or well represented.

Exhibit 20 shows the programs with significant underrepresentation, which span 10 of the 12 CCCC sectors. The highest number of programs are in ICT/Digital Media (9) and Business and Entrepreneurship (8).

Exhibit 20: Good Jobs Vocational Programs with Significant Underrepresentation by Race and Ethnicity

Sector	Program - TOP	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White
Advanced Manufacturing	Electronics and Electric Technology - 0934.00				X	X
	Engineering Technology, General (requires Trigonometry) – 0924.00					X
	Industrial and Occupational Safety and Health – 0956.70	X				X
	Industrial Electronics – 0934.20					X
	Industrial Systems Technology and Maintenance – 0945.00	X				X
	Manufacturing and Industrial Technology – 0956.00	X			X	X
	Welding Technology – 0956.50	X	X			X
Advanced Transportation and Logistics	Automotive Technology – 0948.00	X			X	X
	Diesel Technology – 0947.00					X
	Logistics and Materials Transportation – 0510.00					X
Agriculture, Water and Environmental Technologies	Agriculture Business, Sales and Service – 0112.00	X	X			X
	Agricultural Power Equipment Technology – 0116.00	X				
Business and Entrepreneurship	Business Administration – 0505.00					X
	Business and Commerce, General – 0501.00	X				X
	Business Management – 0506.00	X				X
	International Business and Trade – 0508.00					X
	Management Development and Supervision - 0506.30					X
	Marketing and Distribution – 0509.00					X
	Real Estate – 0511.00				X	X
	Small Business and Entrepreneurship – 0506.40					X

Sector	Program - TOP	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White
Education and Human Development	Child Development/Early Care and Education – 1305.00	X				X
Energy, Construction and Utilities	Architecture and Architectural Technology – 0201.00	X				X
	Carpentry – 0952.10					X
	Construction Crafts Technology – 0952.00					X
	Electrical – 0952.20	X	X			X
	Electro-Mechanical Technology – 0935.00					X
Health	Licensed Vocational Nursing – 1230.20					X
	Medical Office Technology – 0514.20					X
	Nursing – 1230.00					X
	Physical Therapist Assistant – 1222.00					X
	Psychiatric Technician – 1239.00					X
	Radiologic Technology – 1225.00					X
	Registered Nursing – 1230.10					X
ICT/Digital Media	Computer Information Systems – 0702.00			X		
	Computer Infrastructure and Support – 0708.00					X
	Computer Networking – 0708.10					X
	Computer Programming – 0707.10					X
	Computer Software Development – 0707.00		X			X
	Computer Systems Analysis – 0707.30					X
	Information Technology, General – 0701.00					X
	Office Technology/Office Computer Applications – 0514.00					X
	World Wide Web Administration – 0709.00					X

Sector	Program - TOP	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White
Public Safety	Administration of Justice – 2105.00	X				X
	Corrections – 2105.10	X				X
	Fire Academy – 2133.50	X	X		X	
	Fire Technology – 2133.00	X	X			
	Police Academy – 2105.50	X	X		X	X
	Probation and Parole – 2105.20					X
Retail, Hospitality and Tourism	Fashion Merchandising – 1303.20					X



Age

In the CVML region, mid-career (35-54) individuals constitute 33% of the labor force and account for 38% of workers in Good Jobs, but represent 15% of the students enrolled in community college programs during the 2022-23 academic year and are significantly underrepresented in 46 of the 78 Good Jobs vocational programs. Generally, mid-career and later career/retirement age students are underrepresented in the most Good Jobs vocational programs because community colleges typically serve a younger population. Exhibit 21 shows other findings for age in Good Jobs vocational programs.

Exhibit 21: Underrepresentation in Good Jobs Vocational Programs by Age

Pre-Career/College Age (24 or Younger)

- Underrepresented in **1 Good Jobs vocational program**, which is a Public Safety program

Early Career (25 - 34)

- Underrepresented in **16 Good Jobs vocational programs** across 7 sectors
- Primarily underrepresented in Energy, Construction and Utilities (4) and Advanced Manufacturing (3) programs

Mid-Career (35 - 54)

- Underrepresented in **46 Good Jobs vocational programs** across 9 sectors
- Primarily underrepresented in Business and Entrepreneurship (9) and Health (9) programs

Later Career/Retirement (55 and Older)

- Underrepresented in **37 Good Jobs vocational programs** across 9 sectors
- Primarily underrepresented in Business and Entrepreneurship (7), ICT/Digital Media (6), and Public Safety (6) programs

Exhibit 22 outlines the Good Jobs vocational programs where at least one age group is underrepresented. These programs span 9 of the 12 CCCCCO Sectors, with most of the programs concentrated in Business and Entrepreneurship (9), Health (9), and ICT/Digital Media (8).

Exhibit 22: Good Jobs Vocational Programs with Significant Underrepresentation by Age

Sector	TOP and Title	Pre-Career/ College Age	Early Career	Mid- Career	Later Career/ Retirement
Advanced Manufacturing	Electronics and Electric Technology – 0934.00			X	X
	Engineering Technology, General (requires Trigonometry) – 0924.00		X	X	
	Industrial and Occupational Safety and Health – 0956.70				X
	Industrial Electronics – 0934.20			X	
	Industrial Systems Technology and Maintenance – 0945.00			X	X
	Manufacturing and Industrial Technology – 0956.00		X	X	X
	Welding Technology – 0956.50		X	X	X
Advanced Transportation and Logistics	Automotive Technology – 0948.00		X	X	X
	Diesel Technology – 0947.00		X		
	Logistics and Materials Transportation – 0510.00				X
Agriculture, Water and Environmental Technologies	Agriculture Business, Sales and Service – 0112.00		X	X	X
	Agricultural Power Equipment Technology – 0116.00		X	X	X
Business and Entrepreneurship	Business Administration – 0505.00			X	X
	Business and Commerce, General – 0501.00			X	X
	Business Management – 0506.00			X	X
	E-Commerce (Business emphasis) – 0509.70		X	X	
	International Business and Trade – 0508.00		X	X	

Sector	TOP and Title	Pre-Career/ College Age	Early Career	Mid- Career	Later Career/ Retirement
Business and Entrepreneurship	Management Development and Supervision – 0506.30			X	X
	Marketing and Distribution – 0509.00			X	X
	Real Estate – 0511.00			X	X
	Small Business and Entrepreneurship – 0506.40			X	X
Education and Human Development	Child Development/Early Care and Education – 1305.00			X	X
	Infants and Toddlers – 1305.90			X	X
	Preschool Age Children – 1305.40			X	X
Energy, Construction and Utilities	Architecture and Architectural Technology - 0201.00		X	X	X
	Carpentry - 0952.10		X	X	
	Construction Crafts Technology – 0952.00		X	X	
	Electrical – 0952.20			X	X
	Electro-Mechanical Technology – 0935.00		X	X	
Health	Administrative Medical Assisting – 1208.20			X	
	Licensed Vocational Nursing – 1230.20			X	X
	Medical Office Technology – 0514.20			X	X
	Nursing – 1230.00			X	X
	Paramedic – 1251.00			X	
	Physical Therapist Assistant – 1222.00			X	
	Psychiatric Technician – 1239.00			X	
	Radiologic Technology – 1225.00			X	
	Registered Nursing – 1230.10			X	X

Sector	TOP and Title	Pre-Career/ College Age	Early Career	Mid- Career	Later Career/ Retirement
ICT/Digital Media	Computer Information Systems – 0702.00			X	X
	Computer Infrastructure and Support – 0708.00			X	X
	Computer Networking – 0708.10			X	X
	Computer Programming – 0707.10		X	X	X
	Computer Software Development – 0707.00		X		
	Information Technology, General – 0701.00			X	X
	Office Technology/Office Computer Applications - 0514.00			X	X
	World Wide Web Administration – 0709.00			X	
Public Safety	Administration of Justice – 2105.00		X	X	X
	Corrections – 2105.10			X	X
	Fire Academy – 2133.50				X
	Fire Technology – 2133.00			X	X
	Police Academy – 2105.50	X			X
	Probation and Parole – 2105.20			X	
	Wildland Fire Technology – 2133.10				X



Sex and Gender

In the CVML region, female individuals constitute 44% of the labor force, account for 41% of workers in Good Jobs, represent 49% of students in Good Jobs vocational programs during the 2022-23 academic year, and are significantly underrepresented in 25 of the 78 Good Jobs Vocational Programs. Notably, female students are significantly underrepresented in Advanced Manufacturing (6), Energy, Construction, and Utilities (6), and ICT/Digital Media (6) programs. Exhibit 23 shows other findings for sex and gender in Good Jobs vocational programs.

Exhibit 23: Underrepresentation in Good Jobs Vocational Programs by Sex and Gender

Female

- Underrepresented in **25 Good Jobs vocational programs** across 7 sectors
- Primarily underrepresented in Advanced Manufacturing (6), Energy, Construction, and Utilities (6), and ICT/Digital Media (6) programs

Male

- Underrepresented in **23 Good Jobs vocational programs** across 7 sectors
- Primarily underrepresented in Health (8) programs

Exhibit 24 shows the programs where female or male students are significantly underrepresented. These programs span 10 of the 12 CCCCCO Sectors, with most of the programs concentrated in the Health sector (9 programs). This sector represents a critical area where efforts to boost male participation could be highly effective (8 of the 9 programs show significant underrepresentation). Female participation could be increased in Advanced Manufacturing; Advanced Transportation and Logistics; Energy, Construction and Utilities; ICT/Digital Media; and Public Safety.

Exhibit 24: Good Jobs Vocational Programs with Significant Underrepresentation by Sex and Gender

Sector	TOP and Title	Female	Male
Advanced Manufacturing	Electronics and Electric Technology – 0934.00	X	
	Engineering Technology, General (requires Trigonometry) – 0924.00	X	
	Industrial Systems Technology and Maintenance – 0945.00	X	
	Manufacturing and Industrial Technology – 0956.00	X	
	Welding Technology – 0956.50	X	
	Industrial and Occupational Safety and Health – 0956.70	X	
Advanced Transportation and Logistics	Diesel Technology – 0947.00	X	
	Automotive Technology – 0948.00	X	

Sector	TOP and Title	Female	Male
Agriculture, Water and Environmental Technologies	Agriculture Business, Sales and Service – 0112.00		X
	Agricultural Power Equipment Technology – 0116.00	X	
Business and Entrepreneurship	Business Administration – 0505.00		X
	Business Management – 0506.00		X
	Management Development and Supervision – 0506.30		X
	International Business and Trade – 0508.00		X
	Small Business and Entrepreneurship – 0506.40		X
	Marketing and Distribution – 0509.00		X
	Real Estate – 0511.00		X
Education and Human Development	Child Development/Early Care and Education – 1305.00		X
	Infants and Toddlers – 1305.90		X
	Preschool Age Children – 1305.40		X
Energy, Construction and Utilities	Architecture and Architectural Technology – 0201.00	X	
	Carpentry – 0952.10	X	
	Construction Crafts Technology – 0952.00	X	
	Electrical – 0952.20	X	
	Electro-Mechanical Technology – 0935.00	X	
	Water and Wastewater Technology – 0958.00	X	
Health	Licensed Vocational Nursing – 1230.20		X
	Nursing – 1230.00		X
	Paramedic – 1251.00	X	
	Psychiatric Technician – 1239.00		X
	Radiologic Technology – 1225.00		X
	Registered Nursing – 1230.10		X
	Respiratory Care/Therapy – 1210.00		X
	Medical Office Technology – 0514.20		X
Physical Therapist Assistant – 1222.00		X	

Sector	TOP and Title	Female	Male
ICT/Digital Media	Computer Programming – 0707.10	X	
	Computer Software Development – 0707.00	X	
	Office Technology/Office Computer Applications – 0514.00		X
	Computer Systems Analysis – 0707.30	X	
	Computer Infrastructure and Support – 0708.00	X	
	Computer Networking – 0708.10	X	
	World Wide Web Administration – 0709.00	X	
Public Safety	Administration of Justice – 2105.00		X
	Fire Academy – 2133.50	X	
	Fire Technology – 2133.00	X	
	Police Academy – 2105.50	X	
	Probation and Parole – 2105.20		X
Retail, Hospitality and Tourism	Fashion Merchandising – 1303.20		X



CONCLUSION

This report identified Good Jobs and equity gaps between the Good Jobs workforce, Good Jobs vocational programs, and the CVML labor force. The data presented throughout this report provides a base understanding of equity gaps within the CVML region and shows areas where regional community colleges and other workforce development stakeholders could target interventions to close these equity gaps. The key findings presented at the beginning of this report highlight the most significant gaps, including underrepresentation of Hispanic or Latino workers in higher paying Good Jobs, female underrepresentation in traditional sectors such as Advanced Manufacturing; Energy, Construction, and Utilities; and Public Safety; and male underrepresentation in Health occupations and programs.

Occupational segregation is defined as “the overrepresentation or underrepresentation of a demographic group in a certain occupation or field.”¹¹ Though the causes of occupational segregation are beyond the scope of this analysis, it is important to note that this form of segregation can lead to pay inequities, fewer benefits, and higher unemployment rates for underrepresented groups.¹²

When reviewing the data in this report, regional community colleges could consider the following questions:

- Has your college worked with industry and local employers to promote hiring individuals from underrepresented groups?
- How could your college design programs to recruit, retain, and promote equitable outcomes for underrepresented groups?
- What successes has your college experienced with targeted marketing campaigns for specific demographic groups (e.g., women, youth)?
- How could you apply those strategies to promote Good Jobs vocational programs to underrepresented groups?



¹¹ Rebecca Dixon and Amy Traub, "Desegregating Opportunity: Why Uprooting Occupational Segregation is Critical to Building A Good-Jobs Economy," National Employment Law Project, last modified May 16, 2024, <https://www.nelp.org/insights-research/desegregating-opportunity-why-uprooting-occupational-segregation-is-critical-to-building-a-good-jobs-economy/>.

¹² Ibid.

APPENDICES

Appendix A: Good Jobs Demographic Data

Exhibit 25 shows the percentage of workers in Good Jobs by demographic group. Groups that are significantly underrepresented are highlighted in orange.

Exhibit 25: Percentage of Workers in Good Jobs by Demographic Group

Sector	SOC	Occupation	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Advanced Manufacturing	17-3029	Engineering Technologists and Technicians, Except Drafters, All Other	16%	3%	39%	3%	38%	8%	32%	27%	33%	23%	77%
	51-1011	First-Line Supervisors of Production and Operating Workers	7%	2%	59%	2%	29%	3%	19%	46%	32%	18%	82%
	17-3023	Electrical and Electronic Engineering Technologists and Technicians	8%	4%	34%	0%	54%	4%	20%	31%	45%	11%	89%
	19-5012	Occupational Health and Safety Technicians	9%	2%	48%	10%	31%	9%	23%	34%	33%	38%	62%
	49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	17%	0%	30%	35%	17%	7%	24%	13%	56%	0%	100%
	49-9041	Industrial Machinery Mechanics	6%	1%	55%	3%	36%	3%	35%	34%	28%	3%	97%
Advanced Transportation and Logistics	11-3071	Transportation, Storage, and Distribution Managers	7%	4%	42%	3%	45%	6%	29%	44%	21%	17%	83%
	13-1081	Logisticians	24%	1%	47%	2%	26%	5%	24%	31%	40%	32%	68%
	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	1%	5%	39%	5%	50%	1%	15%	41%	43%	7%	93%
	49-3011	Aircraft Mechanics and Service Technicians	14%	8%	22%	2%	55%	25%	36%	19%	20%	4%	96%
	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	0%	2%	52%	3%	43%	10%	24%	36%	29%	1%	99%
	53-2012	Commercial Pilots	3%	0%	14%	6%	77%	2%	32%	33%	33%	11%	89%

Sector	SOC	Occupation	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Business and Entrepreneurship	11-1021	General and Operations Managers	6%	6%	27%	4%	57%	2%	17%	43%	38%	28%	72%
	11-3012	Administrative Services Managers	13%	0%	47%	21%	19%	5%	19%	40%	36%	74%	26%
	11-3013	Facilities Managers	6%	18%	33%	0%	44%	0%	8%	44%	47%	27%	73%
	13-1051	Cost Estimators	5%	1%	12%	7%	75%	1%	17%	24%	58%	15%	85%
	13-1028	Buyers and Purchasing Agents	10%	3%	26%	4%	58%	11%	23%	29%	37%	59%	41%
	13-1031	Claims Adjusters, Examiners, and Investigators	5%	9%	39%	1%	46%	1%	23%	38%	39%	57%	43%
	41-9021	Real Estate Brokers	8%	3%	28%	2%	60%	2%	13%	37%	48%	59%	41%
	43-1011	First-Line Supervisors of Office and Administrative Support Workers	9%	3%	42%	4%	42%	4%	26%	34%	36%	69%	31%
	43-6011	Executive Secretaries and Executive Administrative Assistants	4%	1%	33%	11%	51%	1%	18%	36%	44%	92%	8%
Education and Human Development	25-2012	Kindergarten Teachers, Except Special Education	9%	2%	47%	2%	40%	9%	29%	33%	29%	96%	4%
Energy, Construction and Utilities	17-3022	Civil Engineering Technologists and Technicians	16%	3%	39%	3%	38%	8%	32%	27%	33%	23%	77%
	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	3%	1%	54%	2%	41%	2%	19%	35%	44%	2%	98%
	47-2073	Operating Engineers and Other Construction Equipment Operators	2%	0%	52%	4%	41%	4%	23%	36%	38%	5%	95%
	47-4011	Construction and Building Inspectors	2%	1%	24%	1%	72%	2%	21%	35%	42%	5%	95%

Sector	SOC	Occupation	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Energy, Construction and Utilities	49-9051	Electrical Power-Line Installers and Repairers	2%	0%	51%	3%	44%	18%	20%	55%	7%	4%	96%
	49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	2%	9%	52%	8%	30%	3%	29%	40%	27%	7%	93%
	49-9052	Telecommunications Line Installers and Repairers	8%	0%	28%	29%	35%	4%	38%	42%	17%	2%	98%
	51-8031	Water and Wastewater Treatment Plant and System Operators	3%	0%	35%	5%	57%	4%	23%	37%	36%	5%	95%
Health	29-1126	Respiratory Therapists	15%	1%	19%	9%	55%	1%	33%	43%	24%	67%	33%
	29-1141	Registered Nurses	29%	5%	21%	4%	41%	2%	26%	38%	34%	82%	18%
	29-1292	Dental Hygienists	10%	0%	27%	5%	59%	5%	23%	57%	15%	88%	12%
	29-2034	Radiologic Technologists and Technicians	7%	5%	37%	2%	49%	1%	19%	41%	39%	51%	49%
	29-2043	Paramedics	0%	0%	25%	0%	74%	4%	53%	30%	12%	26%	74%
	29-2053	Psychiatric Technicians	14%	10%	47%	4%	25%	22%	27%	34%	17%	74%	26%
	29-2055	Surgical Technologists	11%	0%	52%	0%	37%	1%	30%	56%	13%	68%	32%
	29-2061	Licensed Practical and Licensed Vocational Nurses	27%	10%	36%	3%	24%	8%	37%	35%	20%	86%	14%
	31-2021	Physical Therapist Assistants	11%	0%	44%	5%	39%	19%	30%	32%	19%	75%	25%
	29-2032	Diagnostic Medical Sonographers	10%	7%	27%	4%	53%	1%	32%	27%	39%	74%	26%
ICT/Digital Media	15-1231	Computer Network Support Specialists	14%	5%	26%	10%	45%	9%	22%	44%	25%	23%	77%
	15-1244	Network and Computer Systems Administrators	5%	9%	27%	6%	53%	3%	22%	40%	35%	9%	91%

Sector	SOC	Occupation	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Public Safety	33-1012	First-Line Supervisors of Police and Detectives	0%	1%	56%	3%	40%	4%	16%	62%	18%	10%	90%
	33-1021	First-Line Supervisors of Firefighting and Prevention Workers	0%	1%	14%	4%	81%	0%	10%	75%	16%	2%	98%
	33-2011	Firefighters	1%	2%	36%	1%	59%	10%	48%	35%	7%	7%	93%
	33-3051	Police and Sheriff's Patrol Officers	5%	7%	35%	3%	51%	3%	33%	45%	19%	13%	87%
	43-5031	Public Safety Telecommunicators	3%	16%	26%	4%	51%	6%	36%	43%	14%	72%	28%
	33-1011	First-Line Supervisors of Correctional Officers	0%	1%	45%	2%	52%	0%	16%	49%	35%	12%	88%
	33-3012	Correctional Officers and Jailers	7%	3%	55%	4%	32%	3%	31%	47%	19%	16%	84%
	33-3021	Detectives and Criminal Investigators	0%	2%	49%	2%	46%	6%	40%	28%	27%	32%	68%

Appendix B: Good Jobs Vocational Programs Demographic Data

Exhibit 26 shows the percentage of students in Good Jobs vocational programs by demographic group. Groups that are significantly underrepresented are highlighted in orange.

Exhibit 26: Percentage of Students in Good Jobs Vocational Programs by Demographic Group

Sector	TOP and Title	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Advanced Manufacturing	Aeronautical and Aviation Technology — 0950.00	N/A	N/A	100%	N/A	N/A	69%	N/A	N/A	N/A	N/A	95%
	Computer Electronics — 0934.10	N/A	N/A	69%	N/A	31%	55%	18%	N/A	N/A	N/A	81%
	Electronics and Electric Technology — 0934.00	8%	4%	69%	2%	17%	60%	24%	13%	3%	11%	88%
	Engineering Technology, General (requires Trigonometry) — 0924.00	18%	2%	52%	6%	21%	81%	16%	2%	N/A	18%	80%
	Industrial and Occupational Safety and Health — 0956.70	1%	4%	70%	13%	12%	26%	31%	29%	14%	8%	92%
	Industrial Electronics — 0934.20	7%	N/A	84%	N/A	9%	58%	25%	9%	N/A	N/A	94%
	Industrial Systems Technology and Maintenance — 0945.00	5%	3%	76%	N/A	16%	57%	24%	16%	3%	6%	93%
	Manufacturing and Industrial Technology — 0956.00	6%	3%	72%	2%	17%	74%	16%	8%	2%	10%	89%
	Welding Technology — 0956.50	4%	2%	65%	3%	25%	69%	17%	10%	3%	9%	89%
Advanced Transportation and Logistics	Automotive Technology — 0948.00	5%	3%	75%	3%	14%	80%	13%	6%	2%	10%	89%
	Aviation Airframe Mechanics — 0950.10	N/A	N/A	61%	N/A	39%	61%	N/A	N/A	N/A	N/A	92%
	Aviation Powerplant Mechanics — 0950.20	N/A	N/A	48%	N/A	52%	41%	N/A	N/A	N/A	N/A	86%
	Diesel Technology — 0947.00	14%	N/A	76%	N/A	10%	76%	17%	N/A	N/A	7%	93%
	Heavy Equipment Maintenance — 0947.20	28%	N/A	72%	N/A	N/A	67%	N/A	N/A	N/A	N/A	N/A
	Heavy Equipment Operation — 0947.30	N/A	N/A	100%	N/A	N/A	45%	N/A	N/A	N/A	N/A	N/A
	Logistics and Materials Transportation — 0510.00	10%	16%	52%	N/A	22%	39%	27%	28%	6%	44%	54%
	Piloting — 3020.20	N/A	N/A	N/A	N/A	100%	34%	N/A	N/A	N/A	N/A	93%

Sector	TOP and Title	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Agriculture, Water and Environmental Technologies	Agricultural Power Equipment Technology — 0116.00	3%	N/A	62%	4%	30%	83%	11%	5%	1%	19%	80%
	Agriculture Business, Sales and Service — 0112.00	3%	1%	67%	4%	26%	85%	10%	4%	1%	52%	46%
	Viticulture, Enology, and Wine Business — 0104.00	N/A	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A	50%	43%
Business and Entrepreneurship	Business Administration — 0505.00	14%	7%	56%	5%	18%	65%	21%	12%	2%	52%	47%
	Business and Commerce, General — 0501.00	7%	6%	60%	3%	22%	62%	21%	14%	3%	51%	48%
	Business Management — 0506.00	7%	5%	60%	4%	24%	60%	22%	15%	3%	54%	44%
	E-Commerce (Business emphasis) — 0509.70	N/A	N/A	69%	N/A	31%	58%	14%	13%	N/A	47%	50%
	International Business and Trade — 0508.00	N/A	N/A	79%	N/A	21%	64%	14%	11%	N/A	67%	33%
	Management Development and Supervision — 0506.30	8%	6%	58%	4%	24%	46%	25%	22%	6%	66%	34%
	Marketing and Distribution — 0509.00	7%	6%	57%	6%	24%	54%	25%	17%	3%	61%	37%
	Real Estate — 0511.00	10%	9%	61%	2%	19%	54%	25%	16%	6%	59%	40%
	Small Business and Entrepreneurship — 0506.40	8%	11%	54%	6%	20%	51%	27%	17%	5%	59%	40%
Education and Human Development	Child Development/Early Care and Education — 1305.00	5%	5%	65%	4%	20%	61%	23%	13%	3%	85%	13%
	Infants and Toddlers — 1305.90	N/A	5%	58%	N/A	37%	35%	40%	21%	5%	95%	4%
	Preschool Age Children — 1305.40	N/A	3%	67%	N/A	30%	45%	31%	19%	6%	94%	6%
	The School Age Child — 1305.50	N/A	N/A	75%	N/A	25%	38%	17%	29%	N/A	N/A	N/A

Sector	TOP and Title	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Energy, Construction and Utilities	Architecture and Architectural Technology — 0201.00	6%	4%	73%	4%	14%	76%	13%	7%	3%	37%	61%
	Carpentry — 0952.10	N/A	N/A	92%	N/A	8%	75%	9%	6%	N/A	8%	90%
	Civil and Construction Management Technology — 0957.00	N/A	N/A	100%	N/A	N/A	64%	N/A	N/A	N/A	N/A	N/A
	Construction Crafts Technology — 0952.00	N/A	N/A	88%	N/A	12%	75%	9%	6%	N/A	9%	90%
	Construction Inspection — 0957.20	N/A	N/A	100%	N/A	N/A	64%	N/A	N/A	N/A	36%	60%
	Electrical — 0952.20	5%	2%	71%	3%	19%	50%	32%	15%	2%	4%	95%
	Electrical Systems and Power Transmission — 0934.40	43%	N/A	57%	N/A	N/A	27%	27%	N/A	N/A	N/A	100%
	Electro-Mechanical Technology — 0935.00	N/A	N/A	89%	N/A	11%	55%	16%	10%	N/A	9%	91%
	Plumbing, Pipefitting and Steamfitting — 0952.30	N/A	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Water and Wastewater Technology — 0958.00	N/A	N/A	52%	N/A	48%	23%	32%	27%	N/A	26%	72%
Health	Administrative Medical Assisting — 1208.20	N/A	N/A	66%	N/A	34%	25%	46%	12%	N/A	96%	N/A
	Dental Hygienist — 1240.20	N/A	N/A	71%	N/A	29%	38%	48%	N/A	N/A	90%	N/A
	Licensed Vocational Nursing — 1230.20	13%	3%	67%	N/A	17%	32%	44%	21%	3%	90%	9%
	Medical Office Technology — 0514.20	10%	2%	69%	4%	14%	52%	35%	12%	2%	87%	13%
	Nursing — 1230.00	9%	4%	59%	6%	21%	42%	38%	17%	3%	84%	15%
	Paramedic — 1251.00	N/A	N/A	50%	6%	44%	35%	49%	14%	N/A	25%	73%
	Physical Therapist Assistant — 1222.00	6%	N/A	73%	N/A	21%	53%	34%	8%	N/A	59%	40%

Sector	TOP and Title	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Health	Psychiatric Technician — 1239.00	6%	8%	77%	N/A	9%	28%	41%	20%	N/A	70%	29%
	Radiologic Technology — 1225.00	19%	N/A	60%	N/A	22%	15%	53%	26%	N/A	74%	25%
	Registered Nursing — 1230.10	14%	3%	61%	3%	19%	44%	38%	16%	1%	79%	20%
	Respiratory Care/Therapy — 1210.00	16%	N/A	49%	N/A	35%	11%	51%	33%	N/A	84%	16%
ICT/Digital Media	Computer Information Systems — 0702.00	7%	6%	42%	6%	40%	46%	32%	16%	6%	40%	57%
	Computer Infrastructure and Support — 0708.00	16%	6%	53%	5%	20%	45%	35%	16%	5%	18%	78%
	Computer Networking — 0708.10	6%	3%	65%	5%	21%	49%	32%	14%	5%	23%	74%
	Computer Programming — 0707.10	17%	3%	56%	4%	20%	75%	18%	5%	1%	22%	75%
	Computer Software Development — 0707.00	20%	2%	49%	3%	26%	77%	20%	N/A	N/A	18%	79%
	Computer Support — 0708.20	N/A	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Computer Systems Analysis — 0707.30	12%	N/A	68%	8%	13%	61%	27%	N/A	N/A	25%	71%
	Information Technology, General — 0701.00	10%	4%	61%	3%	22%	65%	22%	10%	3%	42%	56%
	Office Technology/Office Computer Applications — 0514.00	8%	6%	60%	4%	21%	37%	31%	24%	8%	75%	23%
	World Wide Web Administration — 0709.00	12%	N/A	61%	6%	21%	53%	31%	8%	N/A	32%	65%
Life Sciences and Biotechnology	Electron Microscopy — 0934.70	38%	N/A	38%	N/A	25%	60%	22%	N/A	N/A	38%	58%

Sector	TOP and Title	Asian or Pacific Islander	Black or African American	Hispanic	Other Race/Ethnicity	White	Pre-Career/College Age	Early Career	Mid-Career	Later Career/Retirement	Female	Male
Public Safety	Administration of Justice – 2105.00	5%	7%	67%	4%	16%	71%	17%	10%	2%	53%	45%
	Corrections – 2105.10	2%	5%	75%	6%	11%	57%	26%	14%	2%	47%	52%
	Fire Academy – 2133.50	1%	1%	67%	1%	30%	19%	32%	37%	12%	5%	94%
	Fire Technology – 2133.00	2%	2%	45%	8%	43%	49%	25%	21%	5%	8%	91%
	Forensics, Evidence, and Investigation – 2105.40	N/A	N/A	73%	N/A	28%	N/A	N/A	21%	N/A	N/A	79%
	Industrial and Transportation Security – 2105.30	N/A	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Other Public and Protective Services – 2199.00	N/A	N/A	63%	N/A	37%	N/A	N/A	26%	48%	41%	59%
	Police Academy – 2105.50	3%	2%	74%	2%	18%	12%	38%	37%	13%	21%	79%
	Probation and Parole – 2105.20	N/A	7%	78%	N/A	15%	32%	49%	10%	N/A	58%	41%
	Wildland Fire Technology – 2133.10	N/A	N/A	58%	3%	39%	24%	31%	37%	9%	N/A	90%
Retail, Hospitality and Tourism	Fashion Merchandising – 1303.20	N/A	N/A	86%	N/A	14%	81%	N/A	N/A	N/A	73%	25%
	Office Management – 0514.40	N/A	N/A	100%	N/A	N/A	N/A	19%	21%	N/A	88%	N/A
	Retail Store Operations and Management – 0506.50	N/A	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix C: Methodology and Data Sources

Traditional Labor Market Data

This report uses labor market data on job growth, education requirements, and wages to identify occupations in the Central Valley/Mother Lode (CVML) region that provide economic opportunity for jobseekers.

The data sources used in this study include data from Lightcast (Datarun 2024.4), a labor market analytics firm that specializes in providing insights for workforce development, economic planning, and education. Lightcast compiles its regional and occupational datasets from a variety of federal and state sources. Among these are the Quarterly Census of Employment and Wages (QCEW), which offers detailed industry employment and wage data, and other critical sources such as the U.S. Census Bureau's American Community Survey (ACS) and Quarterly Workforce Indicators, the Bureau of Labor Statistics' Occupational Employment and Wage Statistics and Current Population Survey, and data from the Bureau of Economic Analysis.¹³ These combined resources provide comprehensive insights into employment trends, wage patterns, and industry-specific workforce characteristics across the region.

The traditional labor market data analyzed in this report includes:

- **2023 Jobs:** the number of jobs by occupation in 2023.
- **2028 Jobs:** the projected number of jobs by occupation in 2028. Projections are based on the assumption that past trends will continue into the future, including the assumption that the economy, during the projection period, will be at approximately full employment. Projections do not consider potential recessions or labor shocks, such as natural disasters or pandemics, and are intended to capture structural change in the economy over time.
- **Change:** the projected change in the number of jobs expressed as an actual number and a percentage.
- **Average Annual Openings (Demand):** the projected number of annual job openings. This figure is the sum of job growth and replacement jobs. Job growth is the result of job creation while replacement jobs are the result of retirements and workers leaving the field, creating the need to hire a replacement.
- **Entry-level (25th percentile) Hourly Wages:** the typical entry-level wages for an occupation; 25% of workers earn less than this amount and 75% earn more.
- **Typical Entry-Level Education:** represents the typical education level workers need to enter an occupation.
- **Educational Attainment:** the percentage of workers employed in an occupation by their highest level of education attained.

This report analyzed data for middle-skill occupations, which are defined as:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree
- All occupations that require a high school diploma or equivalent or no formal education but also require short- to long-term on-the-job training where multiple community colleges have existing programs

¹³ Lightcast (2022). Version 2024.4. Retrieved from <https://lightcast.io/> in January 2025.

To identify Good Jobs vocational programs, the CVML COE used a crosswalk created by the Centers of Excellence to determine alignment between Good Jobs and Taxonomy of Program (TOP) codes that train for these occupations. From that list, we identified 78 TOP codes for which student data was available in DataVista, a statewide data system supported by the California Community Colleges Chancellor's Office (CCCCO) that provides data on progress, success, employment, and earnings outcomes for California community college students.

TOP codes are used to categorize instructional programs offered at community colleges across the state. They are also used to organize and report on program offerings, which enables consistent tracking of enrollment, completion, and other performance metrics. Each TOP code represents a specific discipline or field of study, and colleges assign these codes to their programs to ensure alignment with state reporting requirements and to facilitate analysis of educational trends which aligns each program with a Classification of Instructional Programs (CIP) code.

Demographic Data

Additionally, this report utilizes data from IPUMS USA, which preserves and harmonizes Census Bureau microdata, specifically using 2022 ACS data. This dataset provides granular, disaggregated information, which is crucial for producing detailed reports on workforce demographics. It allows for the breakdown of occupational workforce characteristics by race, gender, age, and education level, enabling deeper analysis of equity gaps and workforce diversity.¹⁴ Both labor force and occupational demographic data was sourced via IPUMS.

Student demographic data was sourced from DataVista, which includes the CCCCCO's sector definitions, based on TOP codes, for the purposes of collecting and reporting data.

Gap Analysis Methodology

To analyze the demographic distribution of these groups, two types of statistical analyses were used: the Proportionality Index and Proportion Gap. These methods allowed us to compare the representation of different demographic groups within each population. The analysis was conducted with a 95% confidence level, which means there is high confidence that the results reflect actual trends rather than random chance, and that there was enough data to support our conclusions.

In this analysis, the percentages of gender, age, and race/ethnicity in the labor force within the Central Valley/Mother Lode region served as a baseline to assess equity gaps of worker demographics in Good Jobs. Similarly, the demographic percentages for the labor force within the region served as a baseline when assessing equity gaps among students enrolled in vocational programs that prepare workers for Good Jobs. Throughout the report, the terms 'overrepresentation' and 'underrepresentation' are referencing the results of these statistical methods to quantify how significantly a demographic group's percentage in a particular setting, like the workers in Good Jobs or students in community college programs, deviates from that group's percentage in a broader baseline, such as the regional labor force. As an example, understanding these terms helps us recognize that overrepresentation, such as more Hispanics or Males in specific educational programs, is not inherently negative but reflects the program's alignment with labor force and demographic trends.

¹⁴ IPUMS USA, University of Minnesota. (n.d.). IPUMS USA dataset. live.usa.datadownload.ipums.org/web/extracts/usa/2347594/usa_00014.xml

Statistical Analysis

We applied multiple statistical methods, including the proportionality index, z-score, and p-value, to accurately assess demographic representation within the cohorts and to quantify the strength and significance of observed differences. These methods enhance confidence in the data by allowing precise comparisons of demographic percentages and determining the statistical relevance of any disparities.

Z-Score: A z-score measures how many standard deviations a data point is from the mean (average) of a dataset. It is calculated by subtracting the mean from the value and dividing by the standard deviation. A positive z-score indicates a value above the mean, while a negative z-score indicates a value below the mean. Z-scores are commonly used to understand the position of a data point within a normal distribution and to compare values across different datasets. As an example, a z-score of 1.5 means the value is 1.5 standard deviations above the mean, suggesting it is moderately above average compared to the rest of the data.

P-Value: The p-value represents the probability of observing a result as extreme as, or more extreme than, the actual observed results, assuming the null hypothesis is true. In hypothesis testing, it helps determine the statistical significance of the results. A small p-value (e.g., < 0.05) indicates strong evidence against the null hypothesis, suggesting that the observed results are unlikely to have occurred by random chance. Conversely, a large p-value implies the results could be due to random variation. As an example, a test with a p-value of 0.03, there is a 3% chance that the observed results are due to random chance if the null hypothesis is true, often suggesting statistical significance at the 5% level ($p < 0.05$) resulting in a 95% confidence level.

Proportionality Index is a statistical method used to evaluate the representation of a specific subgroup within a population relative to its representation in a reference group, such as a regional workforce or general population. It is calculated by dividing the proportion of the subgroup in the target population (e.g., students or workers in good jobs) by the proportion of the subgroup in the reference population or the labor force in the CVML region for this report.

To interpret the data, a Proportionality Index of 1 indicates perfect proportionality, meaning the subgroup is equally represented in both groups. An index greater than 1 suggests overrepresentation, while an index less than 1 suggests underrepresentation. To further study the magnitude of the representation, we defined “highly” over or under representation where there was positive or negative 0.15 difference from 1.

Proportion Gap is a statistical method that we used to provide a second method of comparison to the proportionality index. The proportion gap is calculated by subtracting the proportion of a specific subgroup from the proportion of a reference group. For example, if there were 70% of Hispanics or Latinos in the reference group (CVML labor force as an example) but there were only 50% Hispanics or Latinos in Good Jobs vocational programs, the proportion gap is 20 percentage points (70% - 50%). A positive gap (when the reference group’s percentage is higher than the subgroup’s percentage) indicates an equity gap or underrepresentation. It suggests that the subgroup is represented at a lower percentage than the reference group. A negative gap (if the subgroup’s percentage is higher than the reference group’s percentage) indicates overrepresentation.



Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

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