

Labor Market Analysis for: 3020.20 Piloting (Remote Drones)

Inland Empire/Desert Center of Excellence, May 2024

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Summary

Program LMI Endorsement	All LMI Criteria Met	Some LMI Criteria Met (Proceed with Caution)	LMI Criteria NOT Met
	✓	<input type="checkbox"/>	<input type="checkbox"/>

Program LMI Endorsement Criteria		
Supply Gap	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> There is <i>projected</i> to be 1,492 annual job openings throughout the Inland Empire/Desert region, which is more than the 12 annual average awards conferred by educational institutions over the last 3 years . Supply data includes both community college awards (0) and non-community college awards (12).	
Living Wage	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> All annual job openings for these five occupations are estimated to have entry-level hourly wages above the IE/D living wage of 13.74. ¹	
Education	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> Most job postings for target occupations require a high school diploma or equivalent (73%). See exhibits 8 and 9 for more details.	

The Inland Empire/ Desert (IE/D) Center of Excellence for Labor Market Research (IE/D COE) reviewed the following occupations to prepare this report:

- Middle-Skill (typically require training/education above a HS diploma but less than a bachelor’s degree)
 - First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors (53-1047)
 - Commercial Pilots (53-2012)
 - Airfield Operations Specialists (53-2022)
- Above Middle-Skill (typically require a bachelor’s degree)
 - Computer Programmers (15-1251)
 - Airline Pilots, Copilots, and Flight Engineers (53-2011)

Summary of findings

Demand

- The number of jobs related to the middle-skill occupations – First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors, Commercial Pilots, and Commercial Pilots - is projected to increase 11% through 2027, with 1,321 annual job openings (new and replacement jobs).
- Hourly entry-level wages for all occupations are above living wage at the 25th percentile hourly wage ranging from \$22.74 to \$79.21 in IE/D.
- There were 1,705 online job postings from 683 employers over the past 12 months with the highest postings for warehouse supervisors.
- Most job postings for target occupations require a high school diploma or equivalent (73%), followed by bachelor’s degree (18%), and associate degree (9%).

Supply

- On average, there were 12 annual awards conferred by educational institutions over the last 3 years in related fields: 0 from community colleges and 12 from other institutions (e.g., 4-year universities, private schools).
- IE/D community college students that exited these programs in the 2021-22 academic year earned a median annual wage of \$39,556 (\$19.02 per hour).
- Community college programs play an important role diversifying the talent pipeline in these occupations. The plurality of IE/D professionals in piloting occupations are Hispanic/Latino (44%), “mid-career” age category (48%), and male (74%). Most community college students in related programs are Hispanic/Latino (75%), “pre-career/college” age category (75%), and male (76%).

¹ While the [UW self-sufficiency standard](#) is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2021, does not account for significant increases in the cost of living in the Inland Empire the last three years, and is below the State of California minimum wage of \$16.00. For these reasons, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is \$26.30 in Riverside County and \$25.17 in San Bernadino County.

Introduction

California Community College Piloting (TOP 3020.20) programs prepare students for employment in the operation of commercial and private aircraft, including piloting, navigation, and passenger services (Taxonomy of Programs, 2023). The knowledge, skills, and abilities trained by Piloting programs lead to employment in occupations related to piloting.

Job Demand

In 2022, there were 11,880 jobs in occupations related to piloting in the IE/D region. Regional employment for this occupation group is projected to increase by 6% through 2027 with 1,492 job openings projected annually. Exhibit 1 displays the job count, five-year projected job growth, and job openings in the region.

Exhibit 1. Five-year projections for occupations related to piloting, IE/D Region, 2022-2027

Occupation	SOC	2022 Jobs	2027 Jobs	2022 - 2027 % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	53-1047	8,970	10,228	14%	5936	1,187
Airline Pilots, Copilots, and Flight Engineers	53-2011	991	1,036	4%	619	124
Airfield Operations Specialists	53-2022	703	780	11%	394	79
Commercial Pilots	53-2012	415	446	7%	275	55
Computer Programmers	15-1251	801	763	-5%	237	47
Total		11,880	13,253	6%	7461	1,492

SOURCE: LIGHTCAST 2024.1

Job Postings

The following analysis for occupations related to piloting using online job posting data.

Important note: The data produced in this section were generated by leveraging online job posting data sourced from Lightcast, which is the labor market analytics software tool COEs use to produce these briefs. The job posting data is collected from scraping online job boards such as LinkedIn, Indeed, Glassdoor and many others. The process Lightcast uses to assemble this data does have some limitations due to methods that recruitment professionals sometimes use (e.g., posting one job to fill multiple positions). For example, the number of jobs posted is not necessarily the same as the number of job vacancies.² While not perfect, Lightcast leverages machine learning and other AI technologies to enrich, deduplicate and aggregate this information to make it a meaningful dataset.

Exhibit 2 displays the number of job ads posted for occupations 1,705 unique job postings for occupations related to piloting in the region from 683 employers.

Exhibit 2. Job ads and posting duration, IE/D Region, May 2023 – April 2024

Job Title	Job Ads	Median Posting Duration
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	1,234	28 days
Commercial Pilots	202	26 days
Airline Pilots, Copilots, and Flight Engineers	128	17 days
Computer Programmers	96	32 days
Airfield Operations Specialists	45	31 days
Total	1,705	

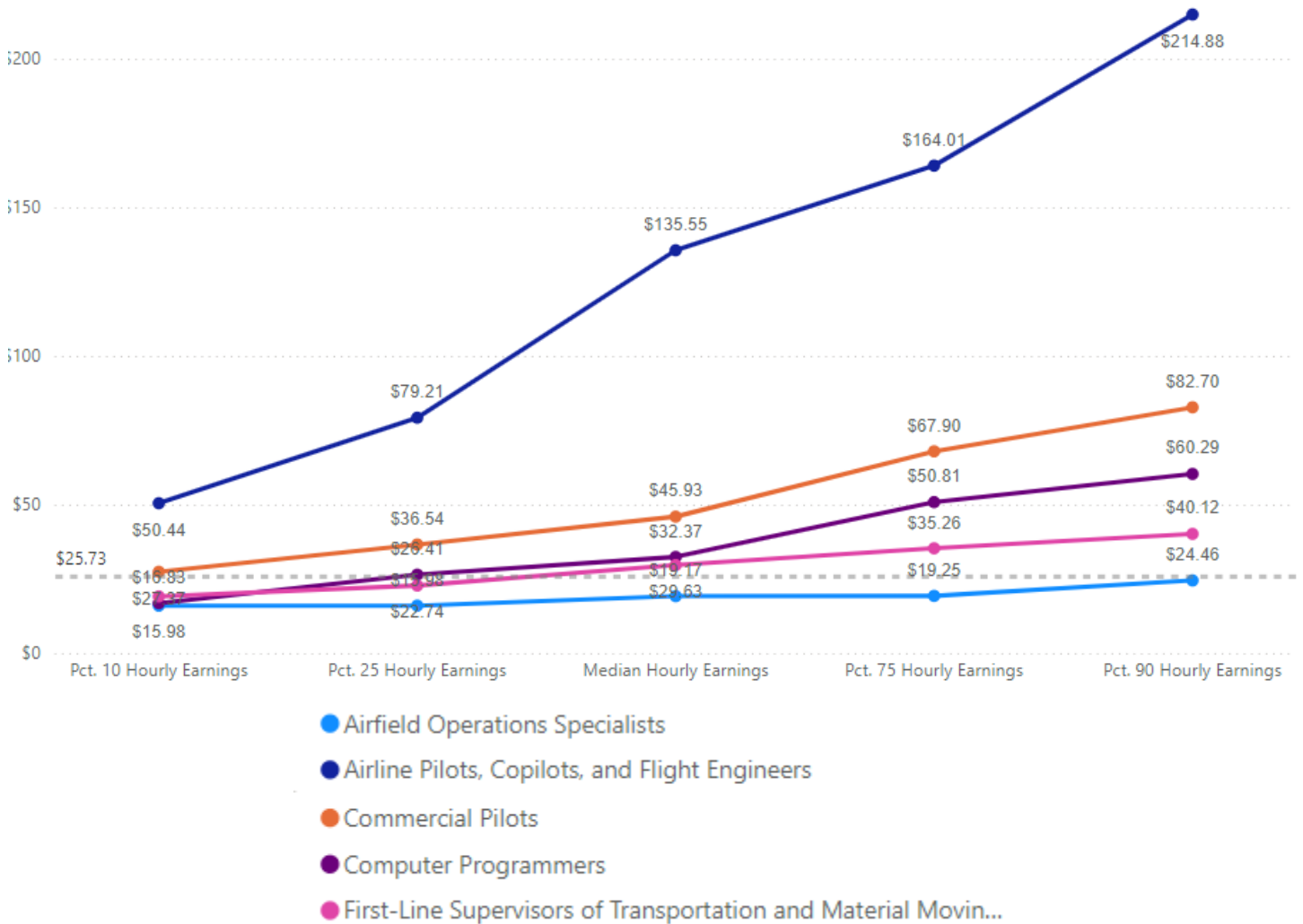
SOURCE: LIGHTCAST 2024.1

² "Job Posting Analytics (JPA) Methodology." Lightcast Knowledge Base, <https://kb.lightcast.io/en/articles/6957446-job-posting-analytics-jpa-methodology>

Earnings

Exhibit 3 displays the hourly earnings for occupations related to piloting and includes comparison of hourly earnings as compared to the MIT IE/D living wage of \$25.73.³

Exhibit 3. Hourly earnings by percentile for occupations related to piloting, IE/D Region, 2022



SOURCE: LIGHTCAST 2024.1

All entry-level earnings (that is, the earnings of the lowest paid 10% of employees in the IE/D) were above the UW Self-Sufficiency Standard for the IE/D⁴. Four of the five occupations we also above the MIT living wage for an adult with no children (\$25.73). Only the entry level earnings for Airfield Operations Specialists occupation were below this living wage metric at \$22.74 per hourly or \$47,299 annually.

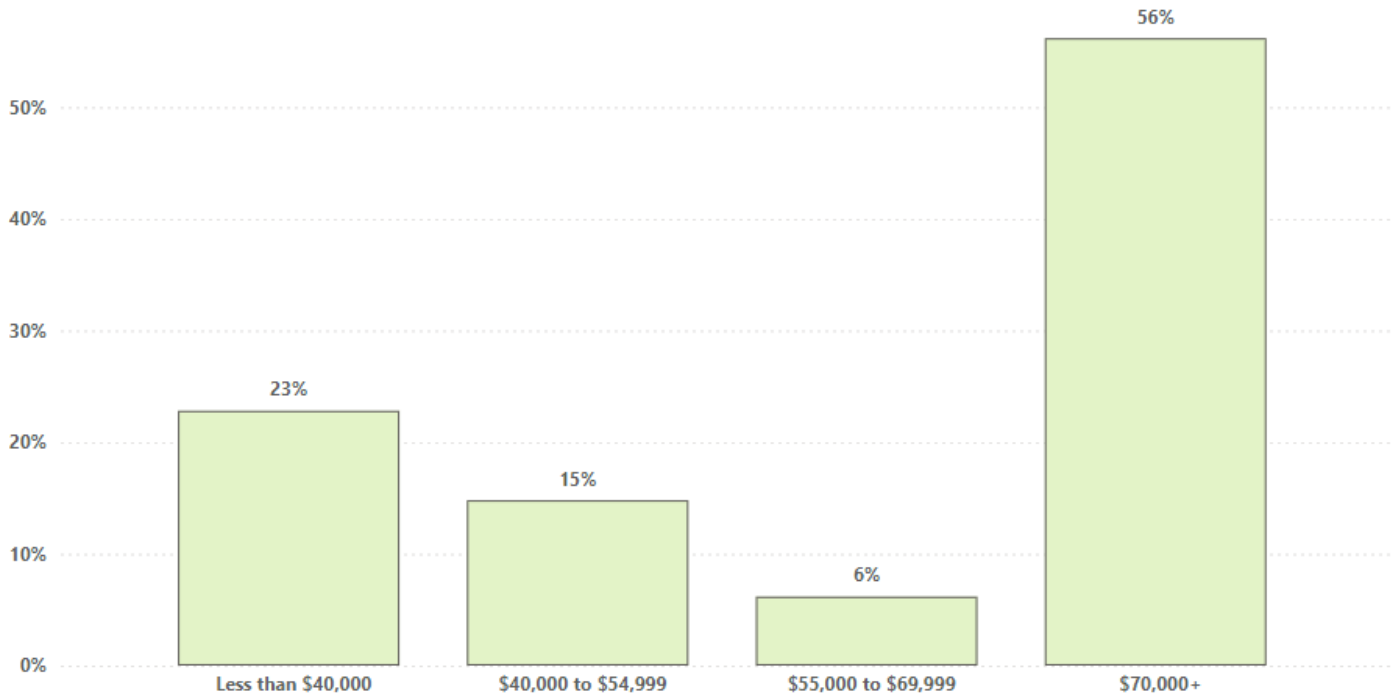
³ While the [UW self-sufficiency standard](#) is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2021, does not account for significant increases in the cost of living in the Inland Empire the last three years, and is below the State of California minimum wage of \$16.00. While the COE uses this standard for the LMI Wage criteria, For these reasons, the provides an alternative living wage calculation from MIT in the analysis as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is \$26.30 in Riverside County and \$25.17 in San Bernadino County.

⁴ *ibid*

Advertised Salary from Online Job Ads

Exhibit 4 displays the regional online advertised salaries for the occupations related to piloting over the last 12 months. Online job ad salary information data suggests most employers (56%) advertise an annual salary greater than \$70,000 (\$33.65 per hour).

Exhibit 4. Online advertised salaries occupations related to piloting, IE/D Region, May '23 to April '24



SOURCE: LIGHTCAST 2024.1

Online Job Advertisements: top job titles, skills, education & work experience.

Exhibit 5 displays the job titles most frequently used in job postings for the occupations related to piloting over the last 12 months. Assessing the top advertised job titles may provide insight into the types of positions sought by employers.











Exhibit 5. Job titles most frequently used in job ads, IE/D May '23 to April '24

Job Title	Unique Postings
Warehouse Supervisors	272
Warehouse Leads	107
Warehouse Coordinators	77
Transportation Supervisors	58
Helicopter Pilots	48
Warehouse Operations Supervisors	39
Distribution Supervisors	34
Air Interdiction Agents	32
Customs and Border Protection Officers	25
Transportation Operations Supervisors	25

SOURCE: LIGHTCAST 2024.1

Exhibit 6 displays the employers posting the most job ads for this occupational group during the last 12 months. Showing employer names can provide insight into where students may find employment after completing a program and may inform job development and other employer engagement targets for faculty and staff involved in related programs. The United States Department of Homeland Security and Air Methods had the highest unique job posts for this occupational group in the last 12 months. Posting intensity is the ratio of total job posts to unique job posts which are deduplicated. A higher posting intensity can represent the level of effort and activity the organization is putting into hiring for that position. The following report comes directly from Lightcast’s Job Posting Analytics dashboard.

Exhibit 6. Employers posting the most job ads, IE/D May '23 to April '24

Company	Total/Unique (May 2023 - Apr 2024)	Posting Intensity	Median Posting Duration
United States Department of Homeland Security	911 / 59	15 : 1 	20 days
Air Methods	55 / 29	2 : 1 	15 days
Penske Logistics	740 / 25	30 : 1 	44 days
McLane Company	157 / 22	7 : 1 	45 days
Burrtec	58 / 21	3 : 1 	32 days
Penske Automotive Group	290 / 18	16 : 1 	28 days
School Portraits By Adams Photography	99 / 17	6 : 1 	18 days
Lineage Logistics	84 / 15	6 : 1 	17 days
NFI Industries	64 / 15	4 : 1 	21 days
Ryder	77 / 13	6 : 1 	14 days

SOURCE: LIGHTCAST 2024.1

Exhibit 7 displays the top common, specialized and computer skills that were included in the job postings over the last 12 months. Today’s demand is an important indicator of which skills employers are looking for in the current market. Analyzing skills from a historical perspective as well as projecting the future needs of employers may provide insight into how the job posting skills demand compares to the market as a whole. Rapidly growing skills are those that are increasing in demand at a faster rate than the market as a whole.⁵

Exhibit 7. Top 10 in-demand skills from employer job ads, IE/D May '23 to April '24

Common skills	Total Postings	Skill Growth Relative to Market
Operations	791	Stable
Communication	740	Lagging
Management	612	Stable
Customer Service	530	Stable
Leadership	477	Stable
Detail Oriented	294	Stable
Planning	291	Growing
Problem Solving	282	Growing
Microsoft Excel	277	Growing
Lifting Ability	252	Growing

⁵ “What are Lightcast Skill Projects”, Lightcast Knowledge base, <https://kb.lightcast.io/en/articles/8496296-what-are-lightcast-skill-projections>

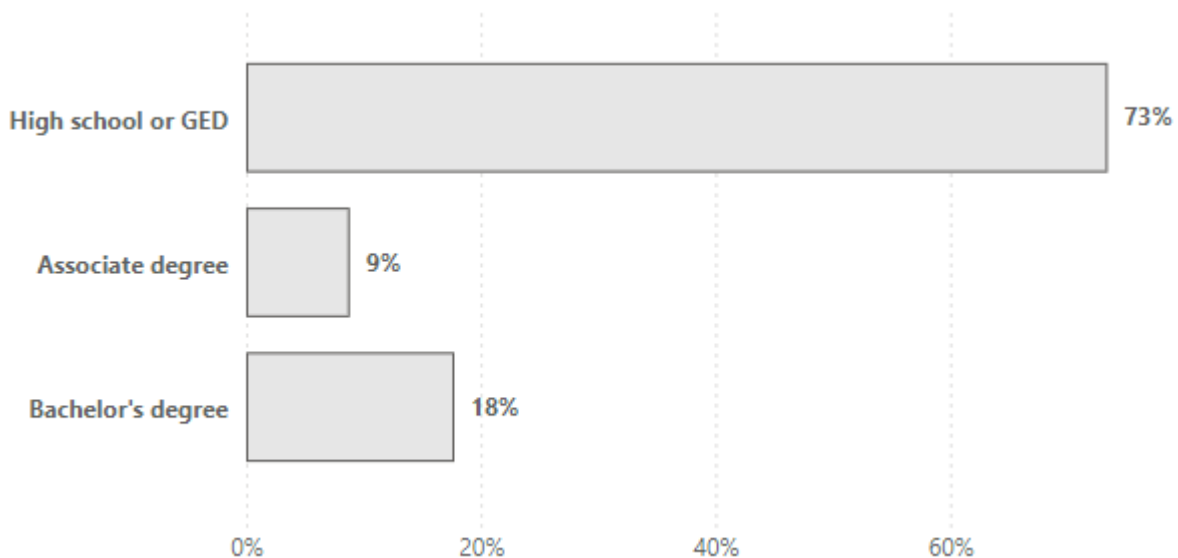
Specialized skills	Total Postings	Skill Growth Relative to Market
Warehousing	850	Growing
Warehouse Operations	228	Stable
Warehouse Management Systems	212	Growing
Forklift Truck	199	Stable
Auditing	196	Rapidly Growing
Shipping And Receiving	171	Growing
Inventory Management	154	Growing
Inventory Control	151	Growing
Federal Aviation Administration	132	Rapidly Growing
Workflow Management	128	Growing

Computer Skills	Total Postings	Skill Growth Relative to Market
Microsoft Excel	277	Growing
Microsoft Office	224	Growing
Warehouse Management Systems	214	Growing
Microsoft Outlook	172	Rapidly Growing
Microsoft Word	134	Stable
Microsoft PowerPoint	114	Rapidly Growing
IBM WebSphere MQ	61	Rapidly Growing
SAP Applications	60	Rapidly Growing
Operating Systems	58	Rapidly Growing
Inventory Management System	54	Growing

SOURCE: LIGHTCAST 2024.1

Exhibit 8 includes the minimum educational requirements from job postings for this occupational group with high school diploma or equivalent (73%) significantly greater than associate degree (9%) or bachelor's degree (18%).

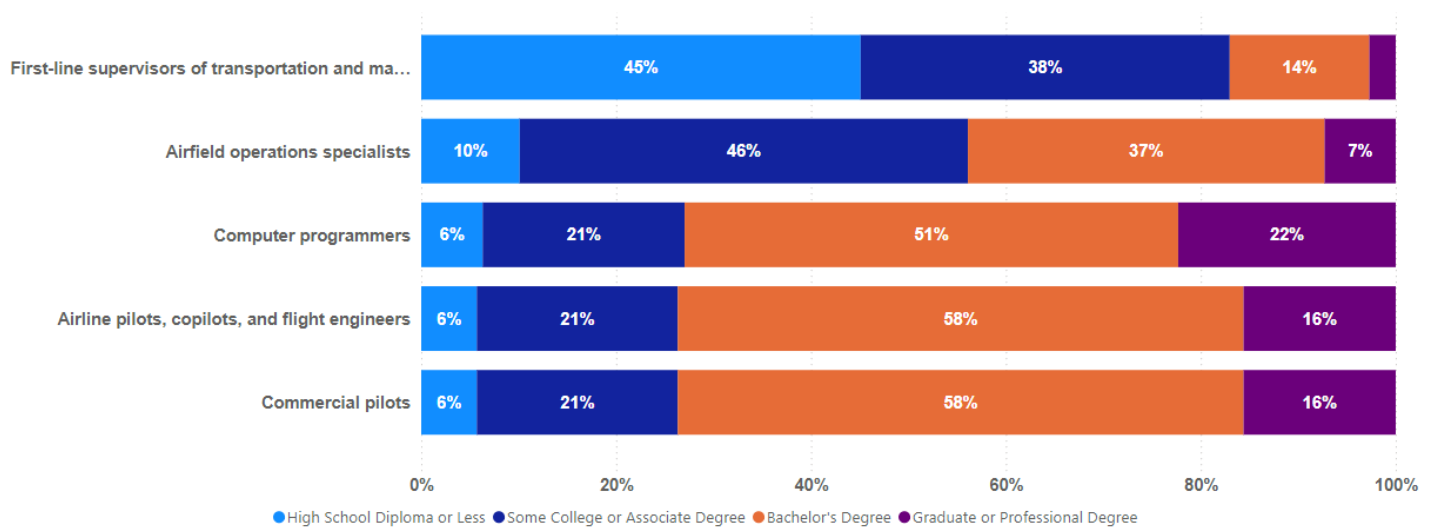
Exhibit 8 Minimum educational requirements in job postings for this occupational group, May '23 to April '24



SOURCE: LIGHTCAST 2024.1

For the middle-skill occupations, the Bureau of Labor Statistics (BLS) education attainment data in Exhibit 9 for current professionals in the occupations of interest indicates that between 21% and 46% of workers have completed some college or an associate degree as their highest level of education. For the above middle-skill occupations, Airline Pilots, Copilots, and Flight Engineers; Computer Programmers, an estimated 21% have completed a bachelor's degree.

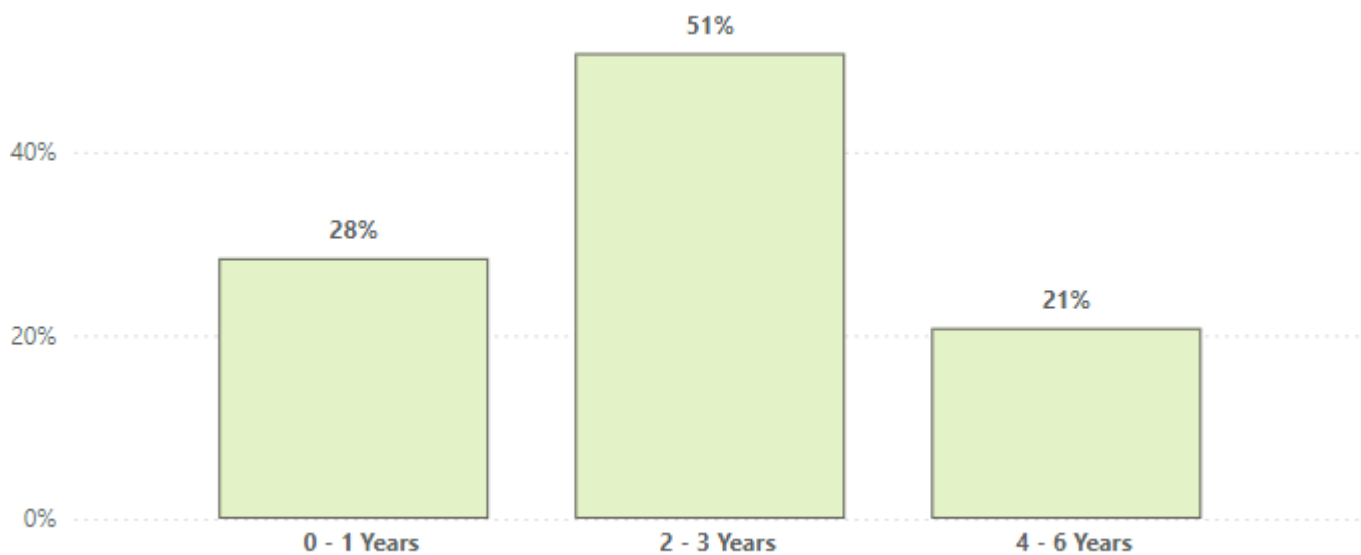
Exhibit 9 National-level Education Attainment for Occupations



SOURCE: BLS 2021

Exhibit 10 displays the work experience typically required from employer job ads for this occupational group. The majority (51%) of employers listing minimum experience requirements sought candidates with 2 – 3 years of previous work experience.

Exhibit 10 Work experience requirements, IE/D May '23 to April '24



SOURCE: LIGHTCAST 2024.1

Student Completions and Program Outcomes

In the previous three academic years, it appears no regional community colleges issued awards in the program Piloting (TOP 3020.20), according to LaunchBoard data.

Non-Community College Supply

Award completion data is available for Airline/Commercial/Professional Pilot and Flight Crew (CIP 49.0102) in the IE/D for non-community college programs.

In the previous three academic years, one regional non-community colleges institution issued an average of 12 awards in relevant programs.

CIP	CIP with Title	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
49.0102	49.0102 - Airline/Commercial/Professional Pilot and Flight Crew	California Baptist University	6	16	15	12
Total			6	16	15	12

SOURCE: IPEDS

California program outcome data may provide useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 12.

Exhibit 12 Piloting strong workforce program outcomes, IE/D, most recent academic year

Program metric title	Inland Empire/Desert	Statewide
Attained a living wage (completers and skills-builders)	85%	55%
Completed 9+ career education units in one year	23%	36%
Job closely related to the field of study		39%
Median annual earnings (all exiters)	\$39,556	\$41,172
Students who earned a degree, certificate, or attained apprenticeship	0	113
Unduplicated count of enrolled students	62	1,261

SOURCE: LAUNCHBOARD

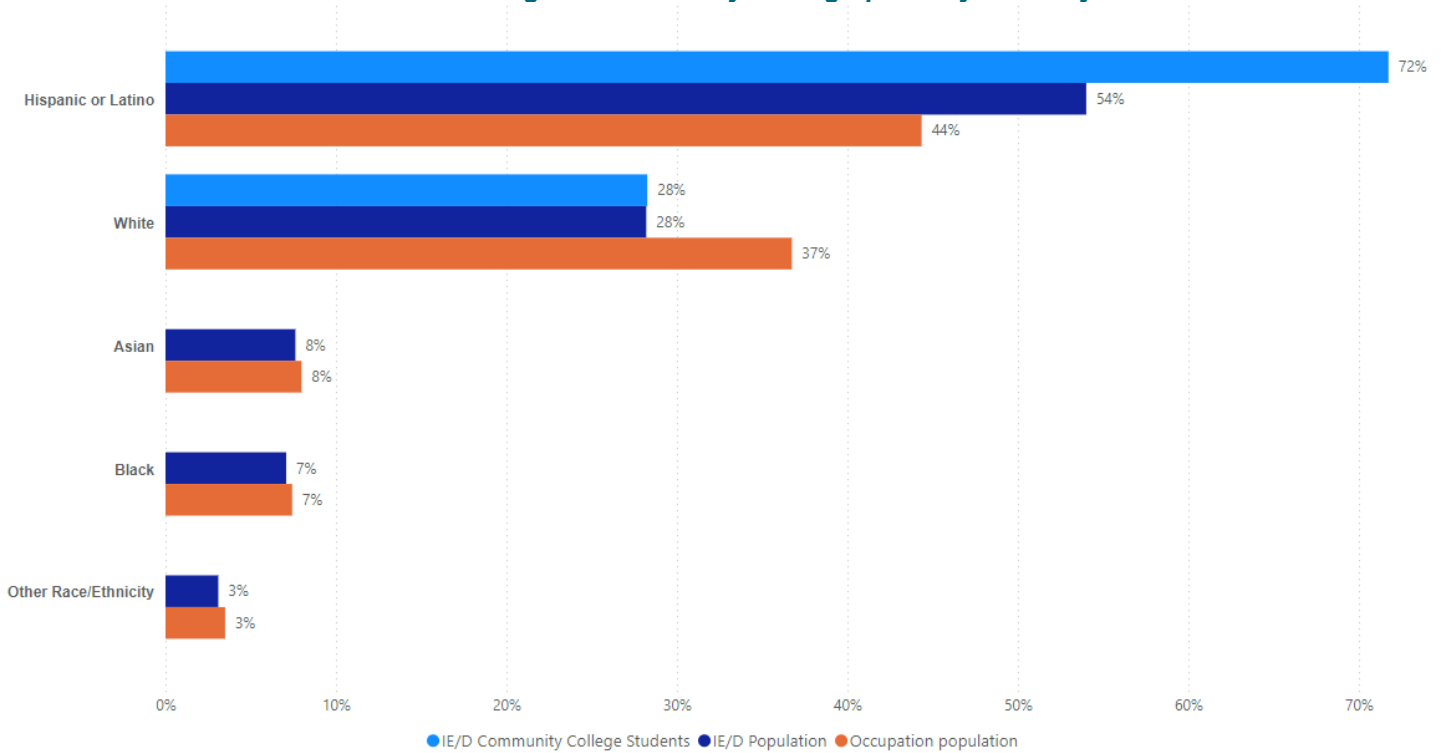
Building an Inclusive Economy

This section examines demographic data for IE/D community college students in Piloting programs compared to the IE/D population. We also include demographics for related occupation data for the five occupations related to piloting. This analysis can be used to:

- Understand the community college system’s current or potential role supporting a diverse talent pipeline into the occupations of interest.
- Inform students (and the faculty and staff working with them) the extent to which individuals from similar demographic groups are over or underrepresented in the professions related to their field of study.
- Inform employers of the diverse talent pipeline coming from the community college system for the occupations analyzed.

Notably, 72% of students enrolled in Piloting programs are Hispanic/Latino, which is significantly higher than Hispanic/Latino workers in occupations related to piloting in the IE/D region (44%). Additionally, 37% of the IE/D population that are employed in occupations related to piloting are White, which is higher than both IE/D community college students (28%) and IE/D population (28%). Though 8% of the workers employed in occupations related to piloting and 8% of the IE/D population are Asian, less than 1% of students in Piloting programs are Asian.

Exhibit 13 Program and County Demographics by Ethnicity



SOURCE: LIGHTCAST 2024.1 AND LAUNCHBOARD

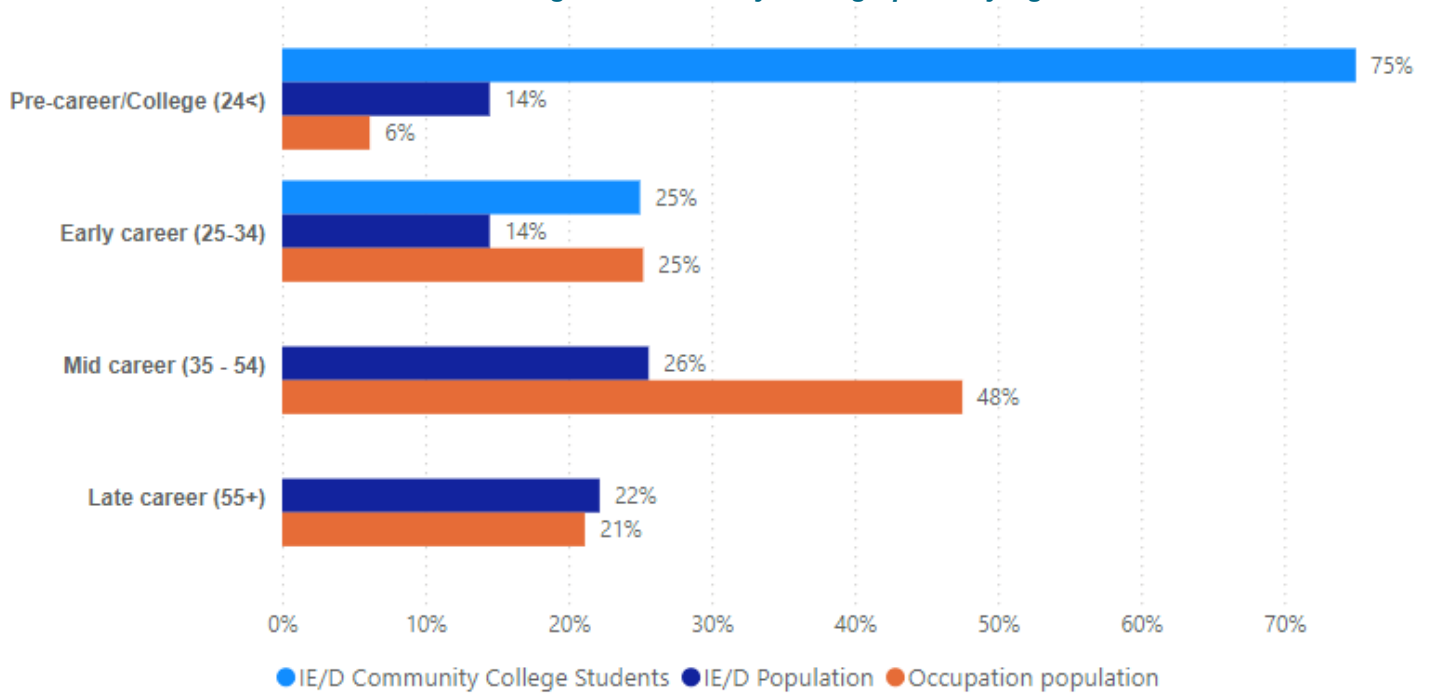
The plurality of IE/D professionals in piloting occupations are Hispanic/Latino (44%), “mid-career” age category (48%), and male (74%). Most community college students in related programs are Hispanic/Latino (75%), “pre-career/college” age category (75%), and male (76%). Major takeaways:

- Community colleges are an important talent source for employers committed to greater racial/ethnic diversity, especially Hispanic/Latino professionals.
- College programs may want to consider strategies to engage more women into these programs.

Exhibit 14 compares the age of IE/D community college students enrolled in Piloting programs compared to the IE/D population.

The majority of students enrolled in Piloting programs are in the “pre-career/college” age category (75%) as compared to IE/D population (14%) and workforce (6%) in these five occupations related to piloting. These programs are an important entry point for young piloting professionals.

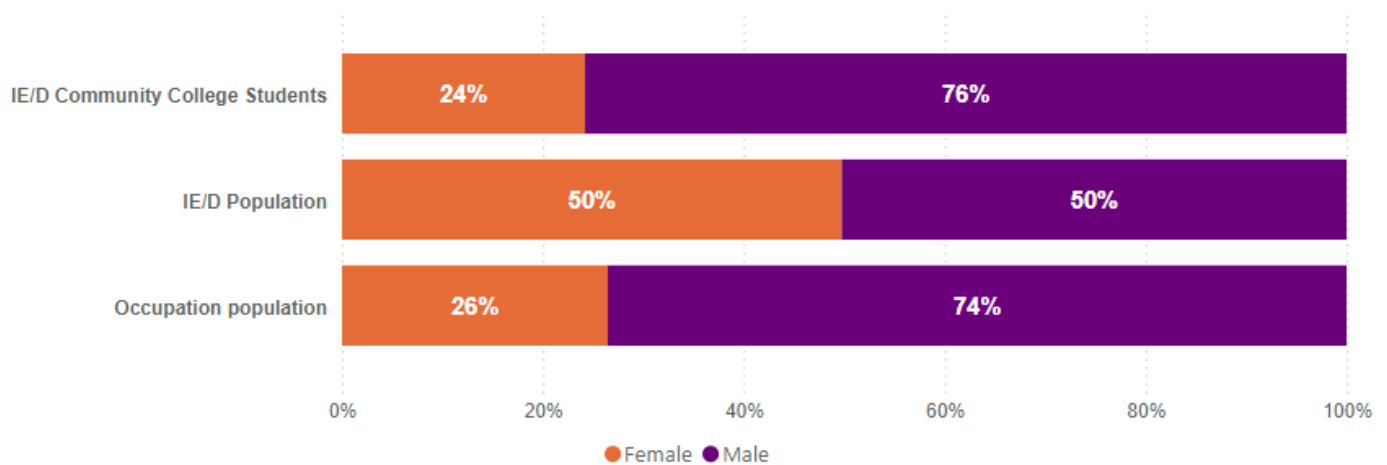
Exhibit 14 Program and County Demographics by Age



SOURCE: LIGHTCAST 2024.1

Exhibit 15 compares the gender of IE/D County community college students enrolled in Piloting programs compared to the IE/D population. We also include demographics for related occupation data for the five occupations related to piloting to identify potential diversity and equity issues addressable by community college programs.

Exhibit 15 Program and County Demographics by Gender



SOURCE: LIGHTCAST 2024.1

Appendix: Methodology

Exhibit 11 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2020 and 2023 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variations that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2023a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS) administered by Santa Rosa Junior College (LaunchBoard, 2023a).

Appendix: References

Type of Data	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment. https://lightcast.io/
Living Wage	The living wage is derived from MITs Living Wage Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. For more information, see: https://livingwage.mit.edu/pages/methodology The living wage for one adult in San Bernardino County is \$25.17 per hour (\$52,353.60 annually). The living wage for one adult in Riverside County is \$26.30 per hour (\$54,704 annually). The average living wage to represent Inland Empire/Desert is \$25.74 per hour (53,539.20 annually)
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Educational Supply	The CCCC Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions
Student Metrics and Demographics	LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx