

Labor Market Analysis for Program Modification:  
 0502.10/Tax Studies  
 (Enrolled Agent Tax Specialist, Certificate of  
 Achievement)



Orange County Center of Excellence, March 2024

## Summary

Program LMI Endorsement	Endorsed: All LMI Criteria Met <input type="checkbox"/>	Endorsed: Some LMI Criteria Met <input checked="" type="checkbox"/>	Not LMI Endorsed <input type="checkbox"/>
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### Program LMI Endorsement Criteria

	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Supply Gap:	<i>Comments:</i> there is projected to be <b>9,393 middle-skill annual job openings</b> throughout Los Angeles and Orange counties for these middle-skill tax occupations, which is <b>more than the 2,770 awards conferred by educational institutions</b> .	
Living Wage: (Entry-Level, 25 <sup>th</sup> )	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<i>Comments:</i> <b>All job openings</b> for these middle-skill tax occupations <b>have entry-level hourly wages below the OC living wage of \$20.63</b> .	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments:</i> The majority (91%) of annual job openings for these middle-skill tax occupations typically require <b>some college, no degree, and more than one-third of workers in the field have completed some college or an associate degree as their highest level of education</b> .	

### Emerging Occupation(s)

Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<i>Comments:</i> N/A	

The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to determine whether there is a supply gap in the Los Angeles/Orange County regional labor market related to three tax occupations:

- Middle-Skill
  - *Tax Preparers (13-2082)*
  - *Bookkeeping, Accounting, and Auditing Clerks (43-3031)*
- Above Middle-Skill – denoted with an asterisk (\*) throughout this report.
  - *Tax Examiners and Collectors, and Revenue Agents (13-2081)\**

Middle-skill occupations typically require a community college education while above middle-skill occupations typically require at least a bachelor’s degree.

Based on the available data, there appears to be a supply gap for these middle-skill tax occupations in the region and typical education requirements align with a community college education. However, all job openings have entry-level wages below the living wage. **Therefore, due to some of the regional labor market criteria being met, the COE endorses this proposed program.**

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the occupations included in this report.

### Exhibit 1: Labor Market Endorsement Summary

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Tax Preparers (13-2082)	LA: 616	LA: 693	OC: \$15.38	High school diploma or equivalent	32%
	OC: 245	OC: 104			
	TTL: 861	TTL: 797			
Bookkeeping, Accounting, and Auditing Clerks (43-3031)	LA: 6,090	LA: 1,244	OC: \$19.12	Some college, no degree	49%
	OC: 2,442	OC: 729			
	TTL: 8,532	TTL: 1,973			
<b>Middle-Skill Total</b>	<b>9,393</b>	<b>2,770</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Tax Examiners and Collectors, and Revenue Agents (13-2081)*	LA: 98	Accounted for above	OC: \$30.13	Bachelor's degree	14%
	OC: 20				
<b>Above Middle-Skill Total</b>	<b>118</b>	<b>Accounted for above</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<b>Total</b>	<b>9,511</b>	<b>2,770</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

#### Demand:

- The number of jobs related to these middle-skill tax occupations are projected to decrease 1% through 2027; however, there is projected to be 9,393 annual job openings due to retirements and replacements.
- Hourly entry-level wages for these middle-skill tax occupations range from \$15.38 to \$19.12 in Orange County; all annual job openings have entry-level wages below the living wage.
- There were 14,900 online job postings for these middle-skill tax occupations over the past 12 months. The highest number of postings were for accounts payable specialists, bookkeepers, and accounting clerks.
- The typical entry-level education for these middle-skill tax occupations ranges from a high school diploma or equivalent to some college, no degree.
- Between 32% and 49% of workers in these middle-skill occupations have completed some college or an associate degree as their highest level of educational attainment.

#### Supply:

- There was an average of 2,021 awards conferred by 28 community college institutions in Los Angeles and Orange Counties from 2019 to 2022.
- There was an annual average of 749 awards conferred by 21 non-community college institutions from 2019 to 2021.

- Orange County community college students that exited tax studies programs in the 2020-21 academic year had a median annual wage of \$62,920 (\$30.25 per hour) after exiting the program and 71% attained the regional living wage.
- Throughout Orange County, 63% of tax studies students that exited their program in 2019-20 reported that they are working in a job closely related to their field of study.

## Demand

### Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for all three of the tax occupations researched in this report from 2017 through 2027. Employment in these tax occupations declined 4% from 2019 to 2020 in Orange County, which is lower than the 7% decline across all occupations in Los Angeles and Orange counties due to the COVID-19 pandemic. Employment in these tax occupations increase each year from 2021 to 2022 but is projected to remain flat through 2027.

**Exhibit 2: Annual Percent Change in Jobs for Tax Occupations, 2017-2027**

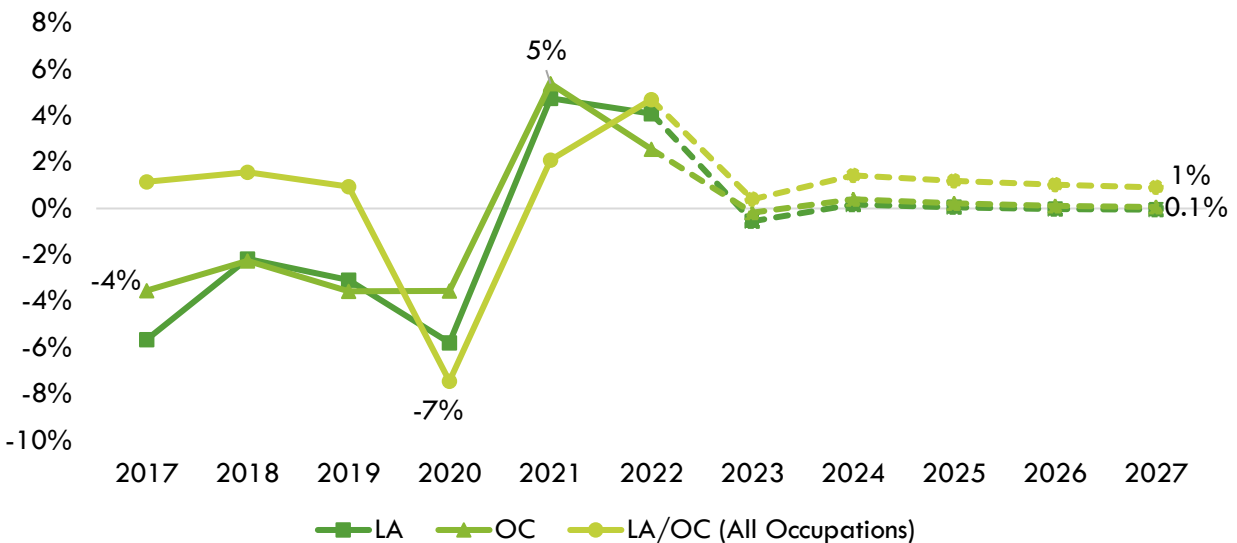


Exhibit 3 shows the five-year occupational demand projections for these middle-skill tax occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to decrease 0.2% through 2027. Notably, employment in these occupations is projected to decline 1% in Los Angeles County but increase 1% in Orange County. There is projected to be 9,393 jobs available annually.

**Exhibit 3: Middle-Skill Occupational Demand in Los Angeles and Orange Counties<sup>1</sup>**

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	57,657	57,363	(294)	(1%)	6,706
Orange	22,680	22,812	132	1%	2,687
<b>Total</b>	<b>80,336</b>	<b>80,174</b>	<b>(162)</b>	<b>(0.2%)</b>	<b>9,393</b>

<sup>1</sup> Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Exhibit 4 shows the five-year occupational demand projections for *tax examiners and collectors, and revenue agents*, the sole above middle-skill occupation in this report. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to increase by 4% through 2027. There is projected to be 118 jobs available annually.

### Exhibit 4: Above Middle-Skill Occupational Demand in Los Angeles and Orange Counties

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	1,161	1,212	51	4%	98
Orange	245	254	9	4%	20
<b>Total</b>	<b>1,406</b>	<b>1,467</b>	<b>60</b>	<b>4%</b>	<b>118</b>

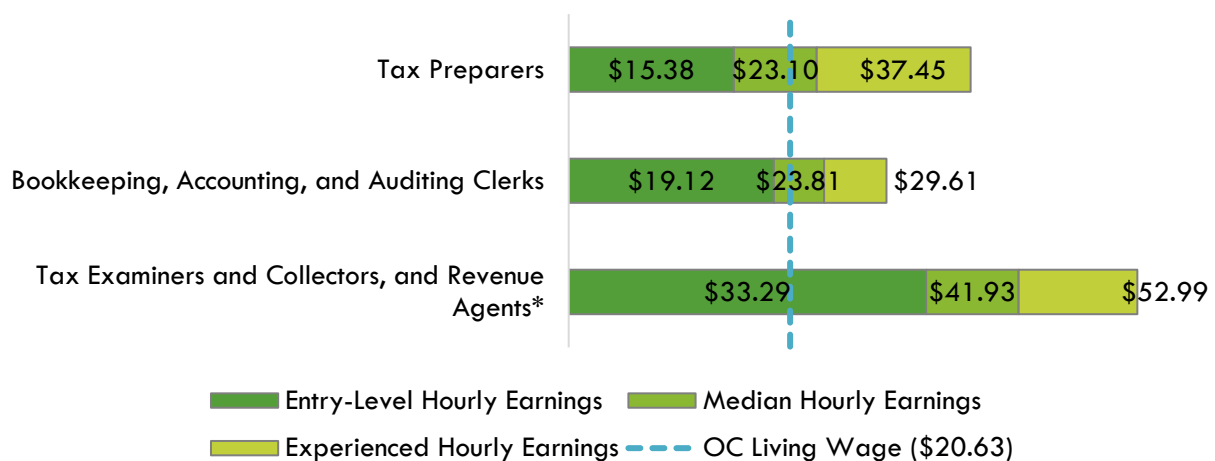
### Wages:

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill tax occupations in Orange County as they relate to the county’s living wage. Los Angeles County wages are included below in order to provide a complete analysis of the LA/OC region.

All annual openings for these middle-skill tax occupations have entry-level wages below the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages range between \$15.38 and \$19.12. Notably, the typical entry-level wage data appears low for *tax preparers*, likely because 26% of workers in this occupation are self-employed. Self-employed workers have different earnings dynamics than wage and salaried workers, making direct comparisons difficult.<sup>2</sup> However, experienced wages for this occupation are \$37.45, which is significantly higher than experienced wages for *bookkeeping, accounting, and auditing clerks* (\$29.61).

Orange County’s average wages (\$26.49) are below the average statewide wage of \$27.32 for these middle-skill occupations. Exhibit 5 shows the wage range for each of these tax occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

### Exhibit 5: Wages by Occupation in Orange County

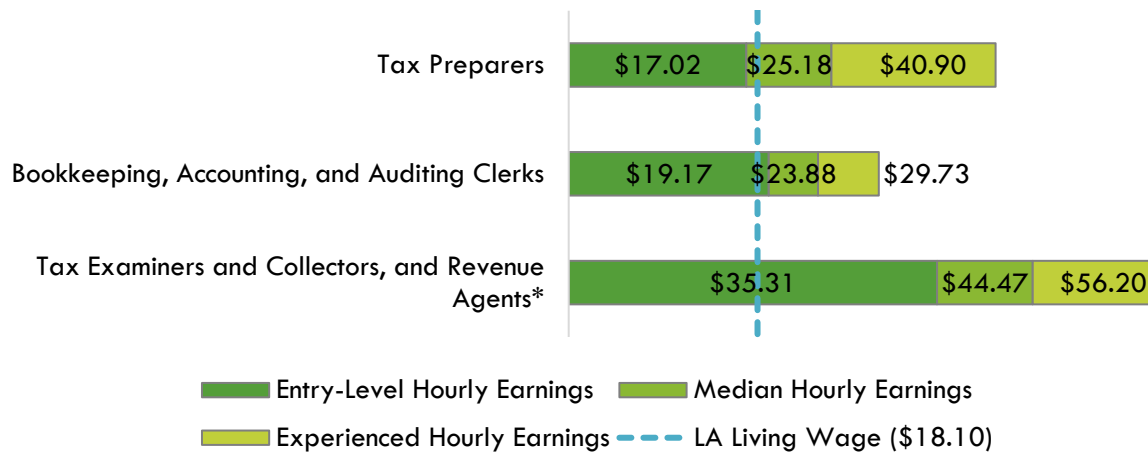


<sup>2</sup> [https://www.brookings.edu/wp-content/uploads/2019/11/201911\\_Brookings-Metro\\_low-wage-workforce\\_Ross-Bateman.pdf](https://www.brookings.edu/wp-content/uploads/2019/11/201911_Brookings-Metro_low-wage-workforce_Ross-Bateman.pdf)

The majority (91%) of annual openings for these tax occupations have entry-level wages above the living wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages range between \$17.02 and \$19.17. Though typical entry-level hourly wages for tax preparers are below the living wage, experienced wages for this occupation are \$40.90, which is over \$10 per hour higher than experienced wages for bookkeeping, accounting, and auditing clerks (\$29.73)

Los Angeles County's average wages (\$26.82) are lower than the statewide wage of \$27.32 for these middle-skill occupations. Exhibit 6 shows the wage range for each of these tax occupations in Los Angeles County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

### Exhibit 6: Wages by Occupation in Los Angeles County



### Job Postings:

**Important Online Job Postings Data Note:** Online job postings data is sourced from Lightcast, a labor market analytics firm that scrapes, collects, and organizes data from online job boards such as LinkedIn, Indeed, Glassdoor, Monster, GovernmentJobs.com, and thousands more. Lightcast uses natural language processing (NLP) to determine the related company, industry, occupation, and other information for each job posting. However, NLP has limitations that include understanding contextual words of phrases; determining differences in words that can be used as nouns, verbs, and/or adjectives; and misspellings or grammatical errors.<sup>3</sup> For these reasons, job postings could be assigned to the wrong employer, industry, or occupation within Lightcast's database.

Additionally, there are several limitations when analyzing job postings. A single job posting may not represent a single job opening, as employers may be creating a pool of candidates for future openings or hiring for multiple positions with a single posting. Additionally, not all jobs are posted online, and jobs may be filled through other methods such as internal promotion, word-of-mouth advertising, physical job boards, or a variety of other channels.

<sup>3</sup> K. R. Chowdhary, Fundamentals of Artificial Intelligence (Basingstoke: Springer Nature, 2020), <https://link.springer.com/book/10.1007/978-81-322-3972-7>.

There were 15,992 online job postings related to these tax occupations listed in the past 12 months. Of those, 92% (14,900) were for these middle-skill tax occupations. Exhibit 7 shows the number of job postings by occupation.

**Exhibit 7: Number of Job Postings by Occupation (n=15,992)**

Occupation	Job Postings	Percentage of Job Postings
Bookkeeping, Accounting, and Auditing Clerks	14,277	89%
Tax Examiners and Collectors, and Revenue Agents*	1,092	7%
Tax Preparers	623	4%
<b>Total Postings</b>	<b>15,992</b>	<b>100%</b>

The top employers for the middle-skill tax occupations in the region, by number of job postings, are shown in Exhibit 8.

**Exhibit 8: Top Middle-Skill Employers by Number of Job Postings (n=14,900)**

Employer	Job Postings	Percentage of Job Postings
Robert Half	1,111	7%
AppleOne	338	2%
Aston Carter	259	2%
Vaco	147	1%
Advantex Professional Services	146	1%
Randstad	146	1%
H&R Block	108	1%
Century Group	95	1%
Jackson Hewitt	95	1%
Intuit	74	0.5%

The top employers for *tax examiners and collectors, and revenue agents* - the sole above middle-skill occupation - in the region, by number of job postings, are shown in Exhibit 9.

**Exhibit 9: Top Above Middle-Skill Employers by Number of Job Postings (n=1,092)**

Employer	Job Postings	Percentage of Job Postings
KPMG	119	11%
United States Department of the Treasury	57	5%
PricewaterhouseCoopers	38	3%
Intuit	28	3%
Eide Bailly	27	2%
DaVita	26	2%
Baker Tilly	25	2%
Regal Executive Search	19	2%
RSM	17	2%
Grant Thornton	16	1%

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown for these middle-skill occupations in Exhibit 10.

### Exhibit 10: Top Skills for Middle-Skill Occupations by Number of Job Postings (n=14,900)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Accounting (9,215)	Detail Oriented (4,451)	Microsoft Excel (3,430)
Accounts Payable (7,234)	Communication (4,256)	QuickBooks (Accounting Software) (2,057)
Invoicing (6,217)	Microsoft Excel (3,430)	Microsoft Office (1,911)
Accounts Receivable (5,384)	Management (2,589)	Accounting Software (1,883)
Bookkeeping (5,252)	Customer Service (2,340)	Microsoft Outlook (1,241)
Financial Statements (2,932)	Filing (2,069)	Spreadsheets (969)
Finance (2,906)	Collections (2,059)	Microsoft Word (623)
Auditing (2,399)	Microsoft Office (1,911)	SAP Applications (510)
Data Entry (2,196)	Organizational Skills (1,828)	Microsoft PowerPoint (420)
Billing (2,156)	Research (1,804)	SAP Concur (Travel And Invoice Software) (223)

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown for *tax examiners and collectors, and revenue agents* in Exhibit 11.

### Exhibit 11: Top Skills for Above Middle-Skill Occupations by Number of Job Postings (n=1,092)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Accounting (522)	Communication (400)	Microsoft Excel (165)
Tax Returns (311)	Management (268)	Microsoft Office (140)
Auditing (272)	Research (268)	HyperText Markup Language (HTML) (85)
Finance (170)	Writing (226)	Microsoft Outlook (77)
Public Accounting (169)	Mentorship (175)	Tax Compliance Software (53)
Corporate Tax (163)	Microsoft Excel (165)	Microsoft PowerPoint (48)
Tax Preparation (141)	Detail Oriented (160)	Tax Software (46)
Tax Research (136)	Filing (149)	Customer Relationship Management (CRM) Software (23)
Tax Planning (125)	Customer Service (148)	Microsoft Word (21)
Tax Consulting (123)	Planning (141)	TurboTax (18)

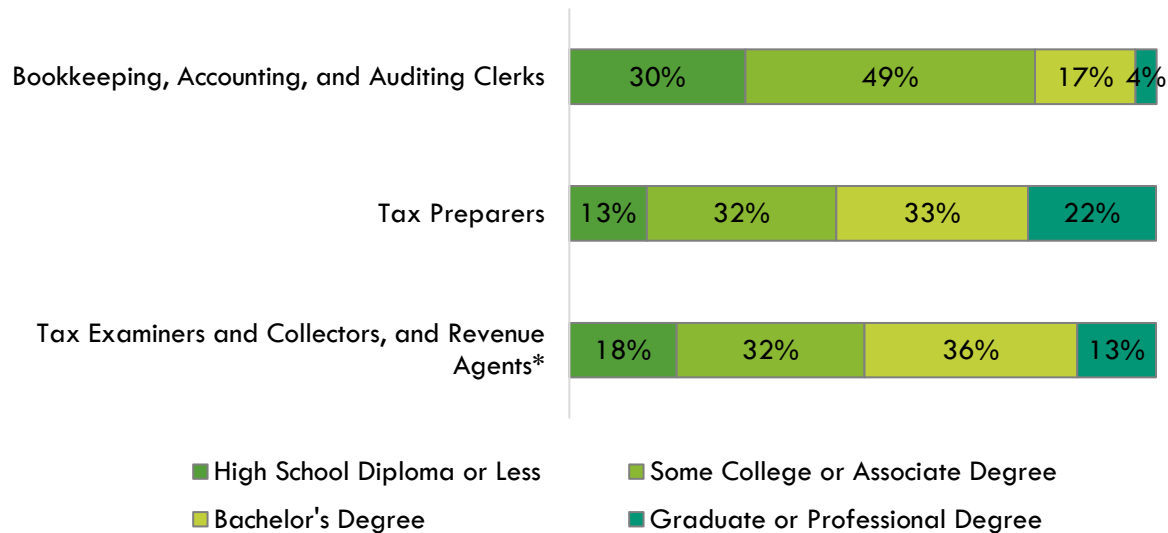
## Educational Attainment:

The Bureau of Labor Statistics (BLS) lists the following typical entry-level education for these tax occupations:

- High school diploma or equivalent: *tax preparers*
- Some college, no degree: *bookkeeping, accounting, and auditing clerks*
- Bachelor’s degree: *tax examiners and collectors, and revenue agents\**

The national-level educational attainment data indicates between 32% and 49% of workers in the middle-skill occupations have completed some college or an associate degree as their highest level of education. Approximately 32% of *tax examiners and collectors, and revenue agents*, the sole above middle-skill occupation, have completed some college or an associate degree. Exhibit 12 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

**Exhibit 12: National-level Educational Attainment for Occupations**



Of the 54% of the cumulative job postings for these middle-skill tax occupations that listed a minimum education requirement in Los Angeles/Orange County, 56% (4,561) requested a high school diploma or an associate degree and 44% (3,572) requested a bachelor’s degree.

Conversely, of the 76% of the postings for *tax examiners and collectors, and revenue agents* – the sole above middle-skill occupation - that listed a minimum education requirement, 80% (665) requested a bachelor’s degree and 20% (163) requested a high school diploma or an associate degree.



# Educational Supply

## Community College Supply:

Exhibit 13 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Accounting (0502.00) and Tax Studies (0502.10). The colleges with the most completions in the region are Irvine Valley, East LA, and Santa Monica. Over the past 12 months, there were two other related program recommendation requests from regional community colleges.

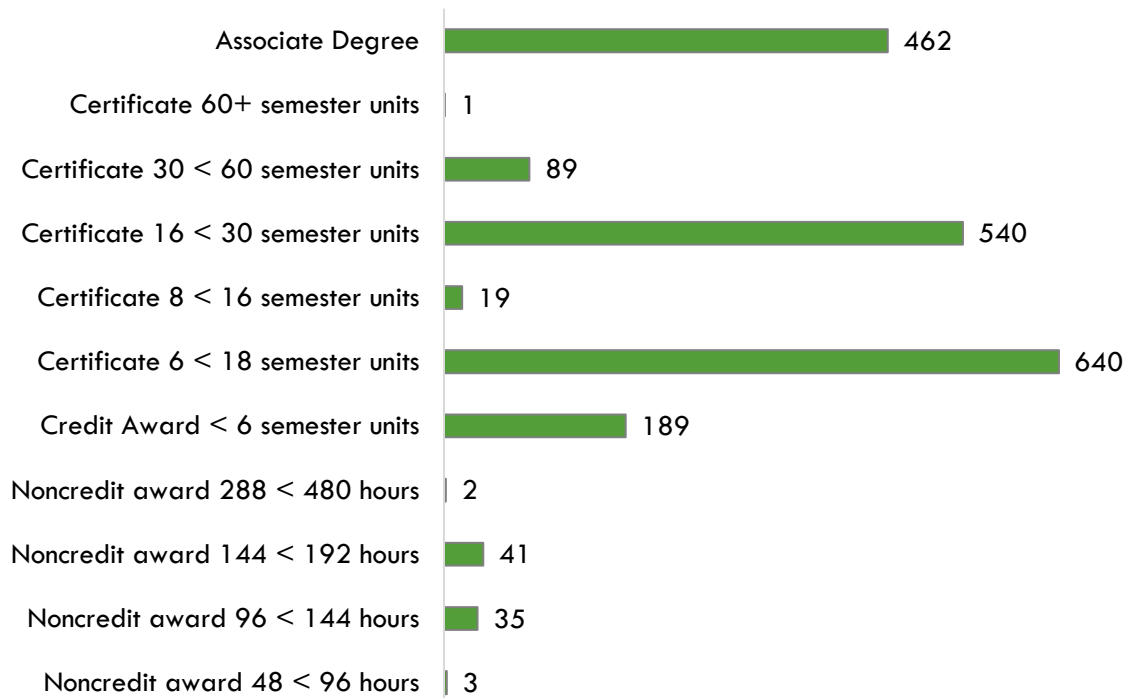
**Exhibit 13: Regional Community College Awards (Certificates and Degrees), 2019-2022**

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average	
0502.00	Accounting	Cerritos	49	22	37	35	
		Citrus	18	22	16	19	
		East LA	577	335	215	375	
		El Camino	13	15	20	17	
		Glendale	63	79	86	76	
		LA City	7	16	19	14	
		LA Harbor	15	33	27	24	
		LA Mission	26	33	24	28	
		LA Pierce	39	35	26	34	
		LA Southwest	0	2	1	1	
		LA Trade	12	10	14	12	
		LA Valley	46	51	55	51	
		Long Beach	63	49	56	56	
		Mt San Antonio	187	186	194	188	
		Pasadena	16	23	47	28	
		Rio Hondo	18	30	31	26	
		Santa Monica	217	195	231	215	
		West LA	6	16	18	13	
		<b>LA Subtotal</b>		<b>1,372</b>	<b>1,152</b>	<b>1,117</b>	<b>1,212</b>
		Coastline	40	51	48	46	
		Cypress	6	3	8	6	
		Fullerton	9	25	17	17	
		Golden West	17	30	23	24	
		Irvine	316	208	486	336	
		North Orange Adult	0	0	8	3	
		Orange Coast	124	94	92	103	
		Saddleback	36	19	55	37	
		Santa Ana	125	104	140	122	

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		Santiago Canyon	6	46	52	35
		<b>OC Subtotal</b>	<b>679</b>	<b>580</b>	<b>929</b>	<b>729</b>
<b>Supply Subtotal/Average</b>			<b>2,051</b>	<b>1,732</b>	<b>2,046</b>	<b>1,941</b>
0502.10	Tax Studies	East LA	0	2	2	1
		Glendale	2	2	0	1
		LA City	-	3	6	3
		LA Pierce	17	18	11	15
		Mt San Antonio	9	5	12	9
		Santa Monica	-	3	1	1
		<b>LA Subtotal</b>	<b>28</b>	<b>33</b>	<b>32</b>	<b>30</b>
		Irvine	33	11	42	29
		Orange Coast	9	16	15	13
		Saddleback	12	5	7	8
		<b>OC Subtotal</b>	<b>54</b>	<b>32</b>	<b>64</b>	<b>50</b>
<b>Supply Subtotal/Average</b>			<b>82</b>	<b>65</b>	<b>96</b>	<b>80</b>
<b>Supply Total/Average</b>			<b>2,133</b>	<b>1,797</b>	<b>2,142</b>	<b>2,021</b>

Exhibit 14 shows the annual average community college awards by type from 2019-20 to 2021-22. The plurality of the awards are for certificates between 6 and less than 18 semester units, followed by certificates between 16 and less than 30 semester units, and associate degrees.

### Exhibit 14: Annual Average Community College Awards by Type, 2019-2022



## Community College Student Outcomes:

Exhibit 15 shows the Strong Workforce Program (SWP) metrics for tax studies programs in Coast Community College District (CCCD), the Orange County Region, and California. Of the 904 tax studies students in Orange County, 16% (146) attended a CCCD college.

Additionally, CCCD students that exited tax studies programs in the 2019-20 academic year had median annual earnings of \$62,716 (or \$30.15 per hour), which is similar to tax studies students throughout Orange County (62,920 or \$30.25 per hour). Both figures are slightly higher than students statewide (\$59,940 or \$28.82 per hour). Additionally, 60% of CCCD students that exited reported they are employed in a job closely related to their field of study, which is lower than the percentage of students throughout Orange County (71%) and the state (71%).

### Exhibit 15: Tax Studies (0502.10) Strong Workforce Program Metrics, 2020-21<sup>4</sup>

SWP Metric	CCCD	OC Region	California
SWP Students	146	904	3,424
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	50%	45%	47%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	Insufficient Data	55%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	Insufficient Data	Insufficient Data	33
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	Insufficient Data	30	151
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	Insufficient Data	63%	68%
Median Annual Earnings for SWP Exiting Students	\$62,716 (\$30.15)	\$62,920 (\$30.25)	\$59,940 (\$28.82)
Median Change in Earnings for SWP Exiting Students	14%	32%	18%
SWP Exiting Students Who Attained the Living Wage	60%	71%	71%

## Non-Community College Supply:

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering tax studies training programs. Exhibit 16 displays the annual and two-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) Codes: Accounting (52.0301) and Accounting Technology/Technician and Bookkeeping (52.0302). The available data covers 2019 to 2021. During this period, non-community college institutions in the region conferred an average of 749 awards annually in related training programs.

<sup>4</sup> All SWP metrics are for 2020-21 unless otherwise noted.

Exhibit 16: Regional Non-Community College Awards, 2019-2021

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	3-Year Award Average
52.0301	Accounting	Abraham Lincoln University	1	0	0
		Azusa Pacific University	32	21	26
		Biola University	17	22	20
		California State University-Northridge	304	287	296
		Chapman University	58	34	46
		Claremont McKenna College	6	11	8
		Los Angeles Pacific College	7	2	4
		Loyola Marymount University	43	44	44
		Marymount California University	3	2	2
		Mount Saint Mary's University	18	17	18
		Pepperdine University	16	14	15
		Scripps College	2	0	1
		University of La Verne	38	32	35
		University of Southern California	189	175	182
		Vanguard University of Southern California	7	9	8
Woodbury University	13	12	12		
<b>Supply Subtotal/Average</b>			<b>754</b>	<b>682</b>	<b>717</b>
52.0302	Accounting Technology/ Technician and Bookkeeping	ABC Adult School	21	21	21
		Advanced College	0	0	0
		Hacienda La Puente Adult Education	10	0	5
		InterCoast Colleges-West Covina	0	1	0
		Los Angeles Pacific College	4	4	4
		Premiere Career College	4	1	2
<b>Supply Subtotal/Average</b>			<b>39</b>	<b>27</b>	<b>32</b>
<b>Supply Total/Average</b>			<b>793</b>	<b>709</b>	<b>749</b>

## Regional Demographics

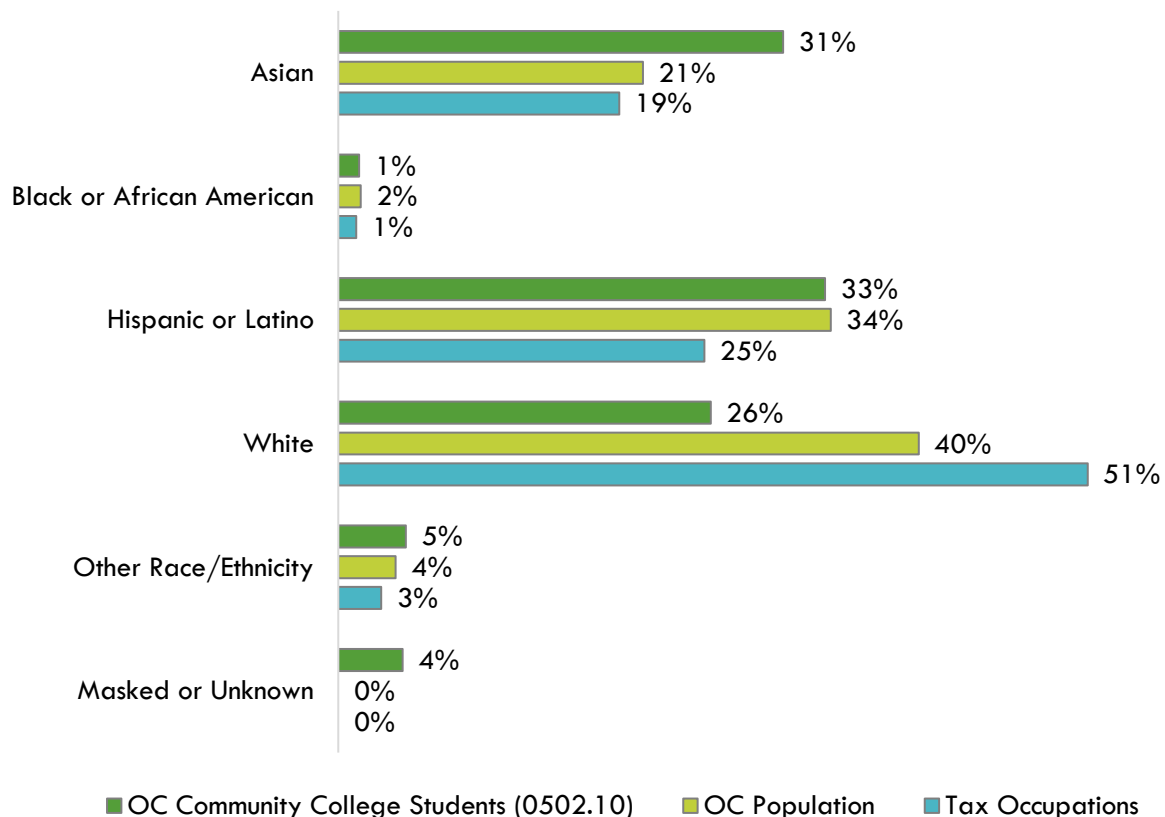
This section examines demographic data for Orange County community college students in tax studies programs compared to the OC population, along with occupational data, to identify potential diversity and equity issues addressable by community college programs.

### Ethnicity:

Exhibit 17 compares the ethnicity of Orange County community college students enrolled in tax studies programs compared to the overall Orange County population, and occupation-specific data for the three tax studies occupations included in this report. Notably, the majority (51%) of workers employed in these tax occupations are white, which is higher than the population (40%) and nearly double community college tax studies students (26%). Additionally, 33% of tax studies students are Hispanic or Latino, which is nearly equivalent to the population (34%) but higher than these tax occupations (25%). Similarly, 31% of tax studies students are Asian, which is significantly higher than both the population (21%) and these tax occupations (19%).

Examining disaggregated data for each occupation (not shown), white workers make up the plurality of *tax preparers* (42%) and *bookkeeping, accounting, and auditing clerks* (53%). These occupations have entry-level wages below the living wage. Notably, 46% of *tax examiners and collectors, and revenue agents* are Hispanic or Latino, while 35% are Asian. This occupation has the highest typical entry-level education requirements and the highest wages of the three occupations in this report.

Exhibit 17: Program and County Demographics by Ethnicity

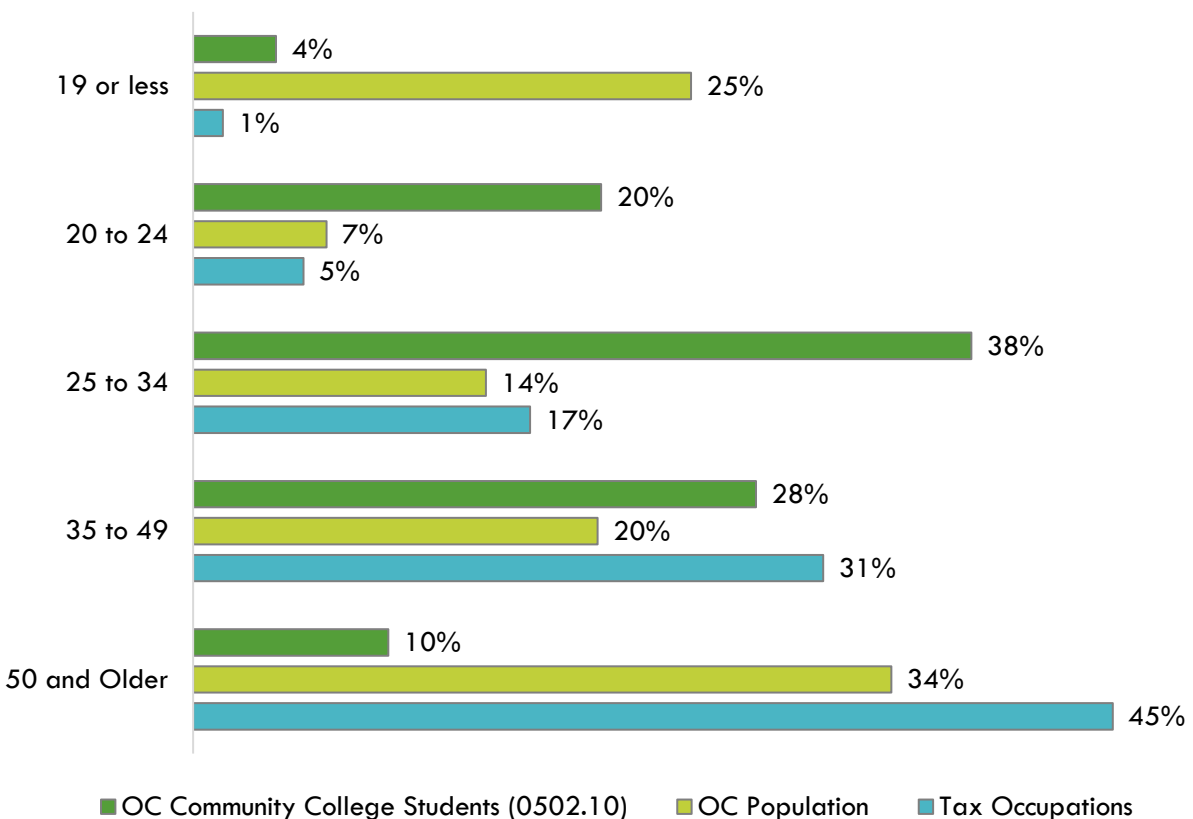


## Age:

Exhibit 18 compares the age of Orange County community college students enrolled in tax studies programs compared to the overall Orange County population, and occupation-specific data for the three tax occupations included in this report. The plurality of workers in these tax occupations are 50 and older (45%), which is higher than the population (34%); both figures are significantly higher than community college tax studies students (10%). The next largest group of workers in these tax occupations are 35 to 49 (31%) which is significantly higher than the population (20%) but similar to community college tax studies students (28%). Conversely, 58% of community college tax studies students are 20 to 34, significantly higher than the population (21%) and these tax studies occupations (22%).

Examining disaggregated data for each occupation (not shown), the majority (53%) of *tax preparers* and the plurality (45%) of *bookkeeping, accounting, and auditing clerks* are 50 and older. These occupations also have the lowest entry-level wages of all three occupations. Conversely, 35% of *tax examiners and collectors, and revenue agents* are 25 to 34, the highest of all three occupations. This occupation typically requires a bachelor's degree and has the highest entry-level wages of all three occupations.

Exhibit 18: Program and County Demographics by Age



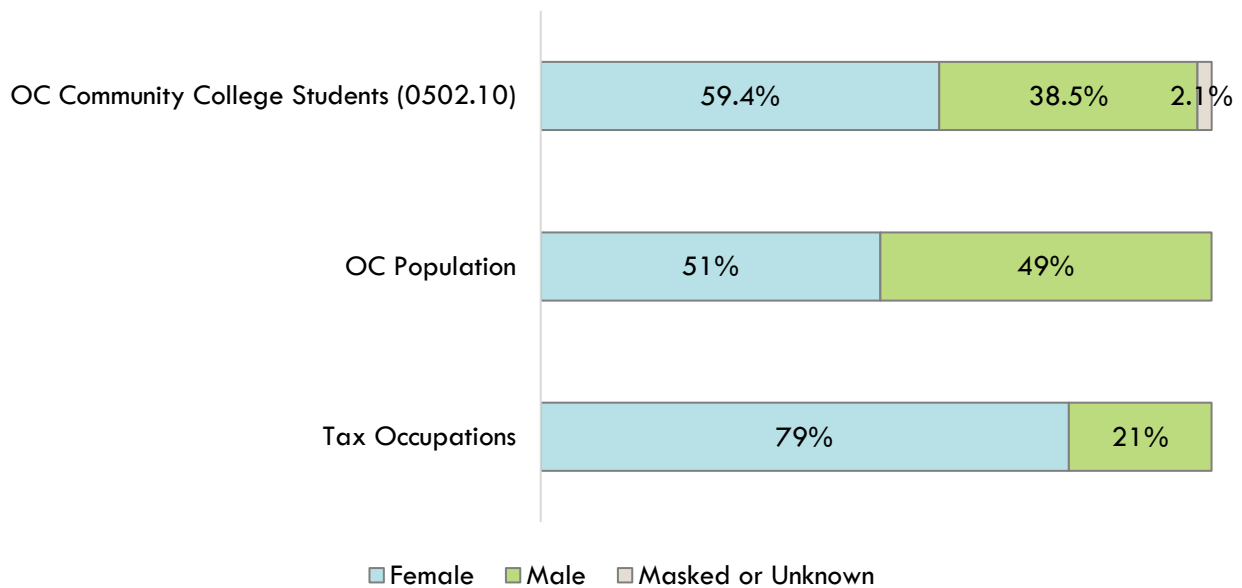
## Sex:

Exhibit 19 compares the sex of Orange County community college students enrolled in tax studies programs compared to the overall Orange County population and occupation-specific data for the three tax occupations included in this report.

Though the Orange County population is split nearly evenly between men and women, nearly 60% of community college tax studies students and 79% of workers in these occupations are women.

Examining disaggregated data for each occupation (not shown), women account for 84% of *bookkeeping, accounting, and auditing clerks* but only 41% of *tax preparers* and 31% of *tax examiners and collectors, and revenue agents*. The occupation with the highest percentage of men (69%) is *tax examiners and collectors, and revenue agents*; this occupation also has the highest typical entry-level education requirements and entry-level wages of all three occupations in this report.

Exhibit 19: Program and County Demographics by Sex



## Appendix A: Methodology

The OC COE prepared this report by analyzing data from occupations and education programs. Occupational data is derived from Lightcast, a labor market analytics firm that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS) and other government agencies. Program supply data is drawn from two systems: Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP).

Using a TOP-SOC crosswalk, the OC COE identified middle-skill jobs for which programs within these TOP codes train. Middle-skill jobs include:

- 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; or
- 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.

The OC COE determined labor market supply for an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a "supply table" with this information, which is the source of the program supply data for this report. TOP code data comes from the California Community Colleges Chancellor's Office MIS Data Mart ([datamart.cccco.edu](http://datamart.cccco.edu)) and CIP code data comes from the Integrated Postsecondary Education Data System ([nces.ed.gov/ipeds/use-the-data](http://nces.ed.gov/ipeds/use-the-data)), also known as IPEDS. TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education in the United States and Canada. Institutions outside of the California Community College system do not use TOP codes in their reporting systems.

Data included in this analysis represent the labor market demand for relevant positions most closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study which can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.

All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; 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 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.



## Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	<p>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 Statistics and the American Community Survey. For more information, see <a href="https://lightcast.io/">https://lightcast.io/</a></p>
Living Wage	<p>The living wage is derived from the Insight Center’s California Family Needs Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, child care, health care, transportation, and taxes. For more information, see: <a href="https://insightccd.org/family-needs-calculator/">https://insightccd.org/family-needs-calculator/</a></p> <p>The living wage for one adult in Orange County is \$20.63 per hour (\$42,910.40 annually). This figure is used by the CCCCCO to calculate the percentage of students that attained the regional living wage.</p>
Typical Education and Training Requirements, and Educational Attainment	<p>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 <a href="https://www.bls.gov/emp/documentation/education/tech.htm">https://www.bls.gov/emp/documentation/education/tech.htm</a></p>
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	<p>The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations. For more information, see <a href="https://www.onetonline.org/help/online/">https://www.onetonline.org/help/online/</a></p>
Educational Supply	<p>The CCCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: <a href="https://datamart.cccco.edu">https://datamart.cccco.edu</a></p> <p>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 <a href="https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions">https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions</a></p>
Student Metrics and Demographics	<p>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: <a href="https://www.calpassplus.org/LaunchBoard/Home.aspx">https://www.calpassplus.org/LaunchBoard/Home.aspx</a></p>

Data Type	Source
Population and Occupation Demographics	<p>The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. For more information, see: <a href="https://www.census.gov/programs-surveys/acs">https://www.census.gov/programs-surveys/acs</a></p> <p>Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: <a href="https://usa.ipums.org/usa/about.shtml">https://usa.ipums.org/usa/about.shtml</a></p>

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