

Labor Market Analysis for Program Modification:
 0502.00/Accounting
 (Accounting, Associate of Arts)
 (Staff Accountant, Certificate of Achievement)
 Orange County Center of Excellence, February 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 9,695 middle-skill annual job openings throughout Los Angeles and Orange counties for these middle-skill accounting occupations, which is more than the 1,973 awards conferred by educational institutions.	
Living Wage: (Entry-Level, 25 th)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<i>Comments:</i> The majority (88%) of annual job openings for these middle-skill accounting occupations have entry-level hourly wages below the OC living wage of \$20.63.	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments:</i> The majority (88%) of annual job openings for these middle-skill accounting occupations typically require some college, no degree, and more than 40% of workers in the field have completed some college or an associate degree as their highest level of education.	

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 four accounting occupations:

- Middle-Skill
 - *Bookkeeping, Accounting, and Auditing Clerks (43-3031)*
 - *Payroll and Timekeeping Clerks (43-3051)*
 - *Brokerage Clerks (43-4011)*
- Above Middle-Skill – denoted with an asterisk (*) throughout this report.
 - *Accountants and Auditors (13-2011)**

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 accounting occupations in the region and typical education requirements align with a community college education.

However, the majority of annual 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 th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Bookkeeping, Accounting, and Auditing Clerks (43-3031)	LA: 6,090	LA: 1,244		Some college, no degree	49%
	OC: 2,442	OC: 729	OC: \$19.12		
	TTL: 8,532	TTL: 1,973			
Payroll and Timekeeping Clerks (43-3051)	LA: 688	Accounted for above	OC: \$21.52	High school diploma or equivalent	48%
	OC: 268				
	TTL: 956				
Brokerage Clerks (43-4011)	LA: 142	Accounted for above	OC: \$21.92	High school diploma or equivalent	41%
	OC: 65				
	TTL: 207				
Middle-Skill Total	9,695	1,973	N/A	N/A	N/A
Accountants and Auditors (13-2011)*	LA: 4,255	LA: 693	OC: \$30.13	Bachelor's degree	14%
	OC: 1,679	OC: 104			
Above Middle-Skill Total	5,935	797	N/A	N/A	N/A
Total	15,629	2,770	N/A	N/A	N/A

Demand:

- The number of jobs related to these middle-skill accounting occupations are projected to decrease 1% through 2027; however, there is projected to be 9,695 annual job openings due to retirements and replacements.
- Hourly entry-level wages for these middle-skill accounting occupations range from \$19.12 to \$21.92 in Orange County; the majority (88%) of annual job openings have entry-level wages below the living wage.
- There were 17,102 online job postings for these middle-skill accounting 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 accounting occupations ranges from a high school diploma or equivalent to some college, no degree.
- Between 41% 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. Of those, 96% (1,941) were for these middle-skill accounting occupations.
- 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 accounting programs in the 2020-21 academic year had a median annual wage of \$49,430 (\$23.76 per hour) after exiting the program and 58% attained the regional living wage.
- Throughout Orange County, 68% of accounting 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 four of the accounting occupations researched in this report from 2017 through 2027. Employment in these accounting occupations declined 3% from 2019 to 2020, which is lower than the 7% decline across all occupations due to the COVID-19 pandemic. These accounting occupations are projected to grow at a slightly lower rate when compared to all occupations through 2027; all of the growth will be for *accountants and auditors*, the sole above middle-skill occupation in this report.

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

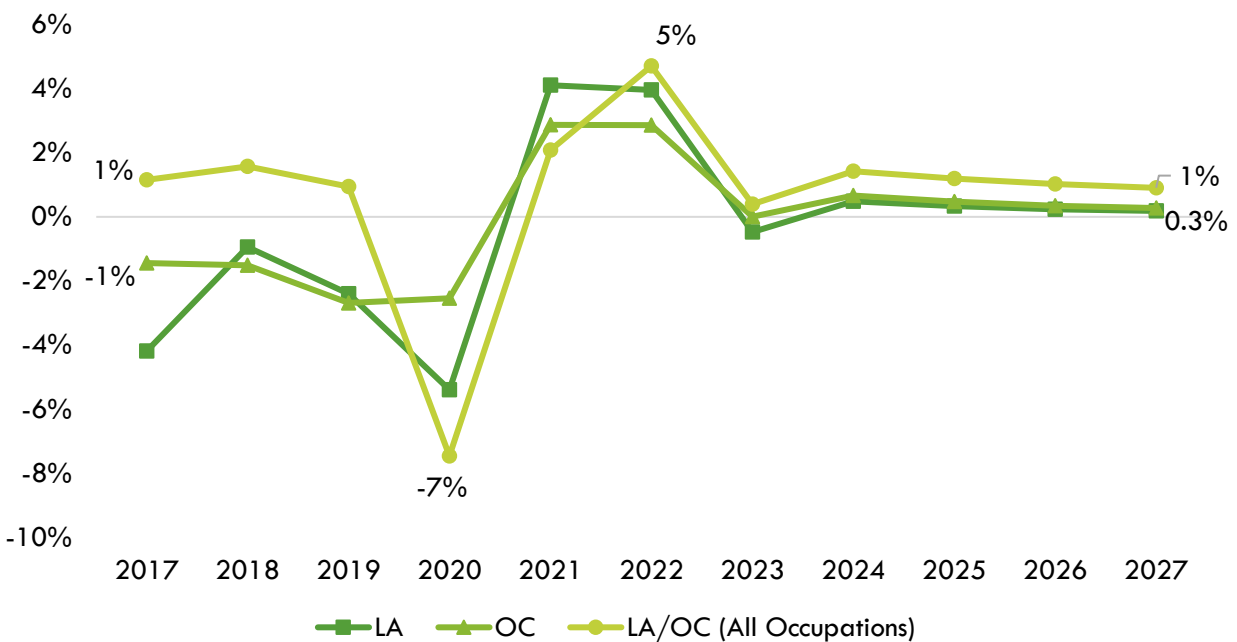


Exhibit 3 shows the five-year occupational demand projections for these middle-skill accounting occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to decrease 1% through 2027. There is projected to be 9,695 jobs available annually.

Exhibit 3: Middle-Skill Occupational Demand in Los Angeles and Orange Counties¹

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	60,933	60,011	(922)	(2%)	60,933
Orange	24,191	23,986	(206)	(1%)	2,775
Total	85,125	83,997	(1,128)	(1%)	9,695

Exhibit 4 shows the five-year occupational demand projections for *accountants and auditors*, 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 5,935 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	50,165	51,942	1,777	4%	4,255
Orange	18,921	19,896	974	5%	1,679
Total	69,086	71,838	2,751	4%	5,935

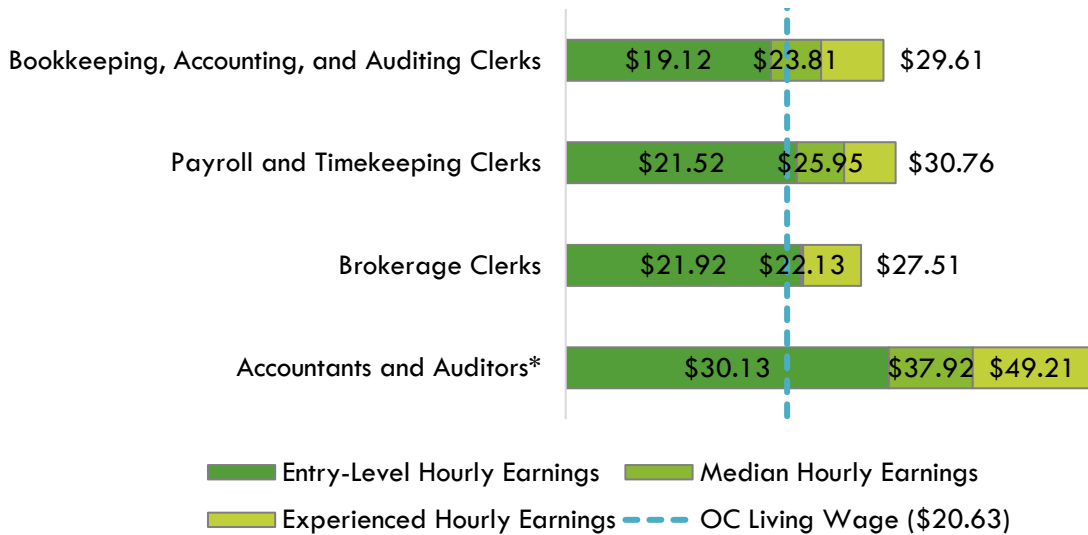
Wages:

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill accounting 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.

The majority (88%) of annual openings for these middle-skill accounting occupations have entry-level wages below the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages range between \$19.12 and \$21.92. Orange County's average wages (\$26.07) are below the average statewide wage of \$26.88 for these middle-skill occupations. Exhibit 5, on the following page, shows the wage range for each of these accounting occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

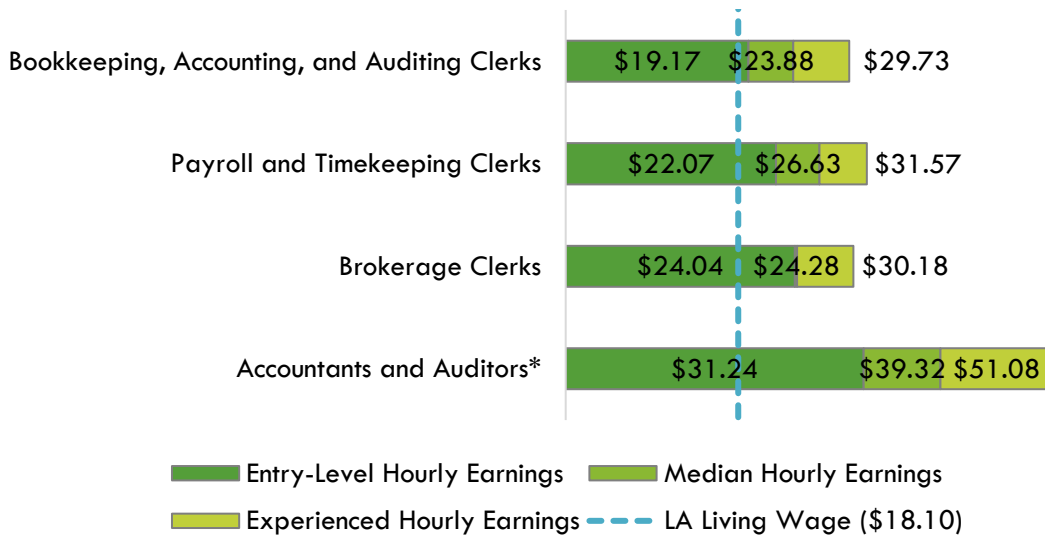
¹ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Exhibit 5: Wages by Occupation in Orange County



All annual openings for these accounting 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 \$19.17 and \$24.84. Los Angeles County’s average wages (\$26.33) are lower than the statewide wage of \$26.88 for these middle-skill occupations. Exhibit 6 shows the wage range for each of these accounting 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.² 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.

There were 30,806 online job postings related to these accounting occupations listed in the past 12 months. Of those, 56% (17,102) were for middle-skill accounting occupations. Exhibit 7 shows the number of job postings by occupation.

Exhibit 7: Number of Job Postings by Occupation (n=30,806)

Occupation	Job Postings	Percentage of Job Postings
Bookkeeping, Accounting, and Auditing Clerks	14,276	46%
Accountants and Auditors*	13,704	44%
Payroll and Timekeeping Clerks	2,738	9%
Brokerage Clerks	88	0.3%
Total Postings	126,518	100%

The top employers for the middle-skill accounting 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=17,102)

Employer	Job Postings	Percentage of Job Postings
Robert Half	1,229	7%
AppleOne	385	2%
Aston Carter	352	2%
Randstad	228	1%
Vaco	205	1%
Advantex Professional Services	164	1%
Century Group	123	1%
Rice Gorton Pictures	90	1%
Adecco	68	0.4%
Kelly Services	63	0.4%

² K. R. Chowdhary, Fundamentals of Artificial Intelligence (Basingstoke: Springer Nature, 2020), <https://link.springer.com/book/10.1007/978-81-322-3972-7>.

The top employers for *accountants and auditors*, 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=13,704)

Employer	Job Postings	Percentage of Job Postings
Robert Half	913	7%
Rice Gorton Pictures	469	3%
KPMG	239	2%
Regal Executive Search	233	2%
PricewaterhouseCoopers	228	2%
Vaco	196	1%
Moss Adams	163	1%
CyberCoders	159	1%
Aston Carter	148	1%
Randstad	148	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=17,102)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Accounting (9,907)	Detail Oriented (5,101)	Microsoft Excel (4,058)
Accounts Payable (7,388)	Communication (4,890)	Microsoft Office (2,255)
Invoicing (6,336)	Microsoft Excel (4,058)	QuickBooks (Accounting Software) (2,065)
Accounts Receivable (5,463)	Management (3,196)	Accounting Software (1,959)
Bookkeeping (5,206)	Customer Service (2,637)	Microsoft Outlook (1,479)
Finance (3,178)	Microsoft Office (2,255)	Spreadsheets (1,102)
Auditing (3,131)	Filing (2,248)	Payroll Systems (869)
Financial Statements (3,003)	Organizational Skills (2,156)	Microsoft Word (773)
Data Entry (2,612)	Collections (2,103)	SAP Applications (568)
Billing (2,232)	Research (2,005)	Microsoft PowerPoint (561)

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

Exhibit 11: Top Skills for Above Middle-Skill Occupations by Number of Job Postings (n=65,693)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Accounting (11,378)	Management (4,268)	Microsoft Excel (3,245)
Auditing (6,895)	Communication (4,183)	Microsoft Office (1,586)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Financial Statements (5,151)	Detail Oriented (3,399)	Accounting Software (1,284)
Finance (4,754)	Microsoft Excel (3,245)	QuickBooks (Accounting Software) (1,092)
Generally Accepted Accounting Principles (3,729)	Research (2,030)	Microsoft Outlook (838)
General Ledger (2,733)	Operations (2,028)	Microsoft PowerPoint (723)
Accounts Payable (2,423)	Budgeting (1,997)	SAP Applications (722)
Month-End Closing (2,300)	Problem Solving (1,913)	Spreadsheets (679)
Accounts Receivable (2,049)	Writing (1,868)	Microsoft Word (522)
Public Accounting (2,003)	Microsoft Office (1,586)	Yardi (Property Management Software) (430)

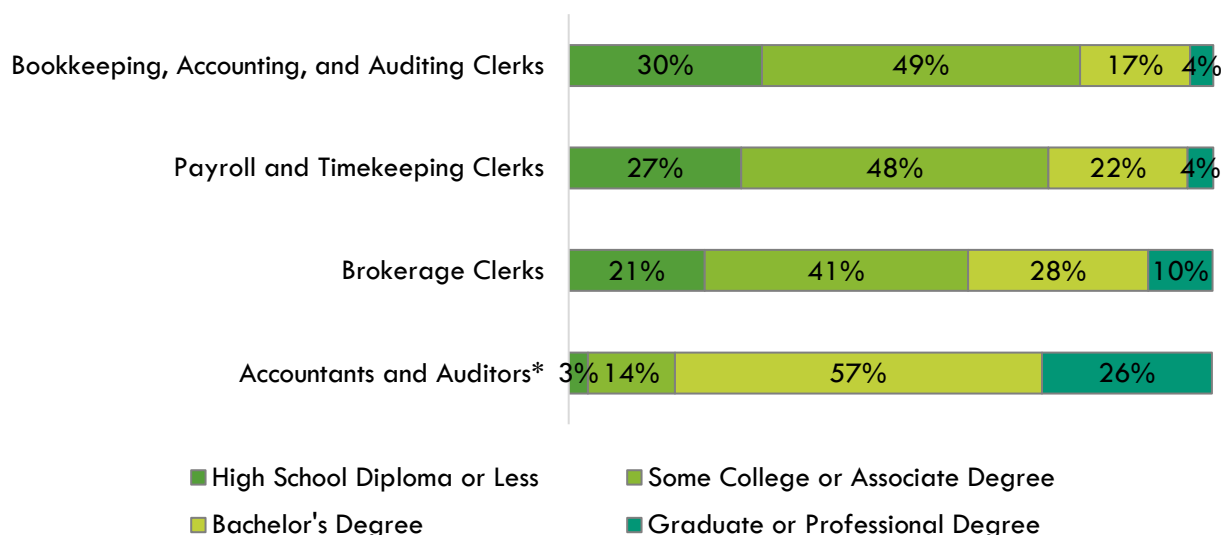
Educational Attainment:

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

- High school diploma or equivalent: *payroll and timekeeping clerks; brokerage clerks*
- Some college, no degree: *bookkeeping, accounting, and auditing clerks*
- Bachelor's degree: *accountants and auditors**

The national-level educational attainment data indicates between 41% and 49% of workers in the middle-skill occupations have completed some college or an associate degree as their highest level of education. Approximately 14% of *accountants and auditors*, 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 accounting occupations that listed a minimum education requirement in Los Angeles/Orange County, 57% (5,201) requested a high school diploma or an associate degree and 43% (3,953) requested a bachelor's degree.

Conversely, of the 74% of the postings for *accountants and auditors* – the sole above middle-skill occupation - that listed a minimum education requirement, 91% (9,215) requested a bachelor's degree and 9% (913) 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.

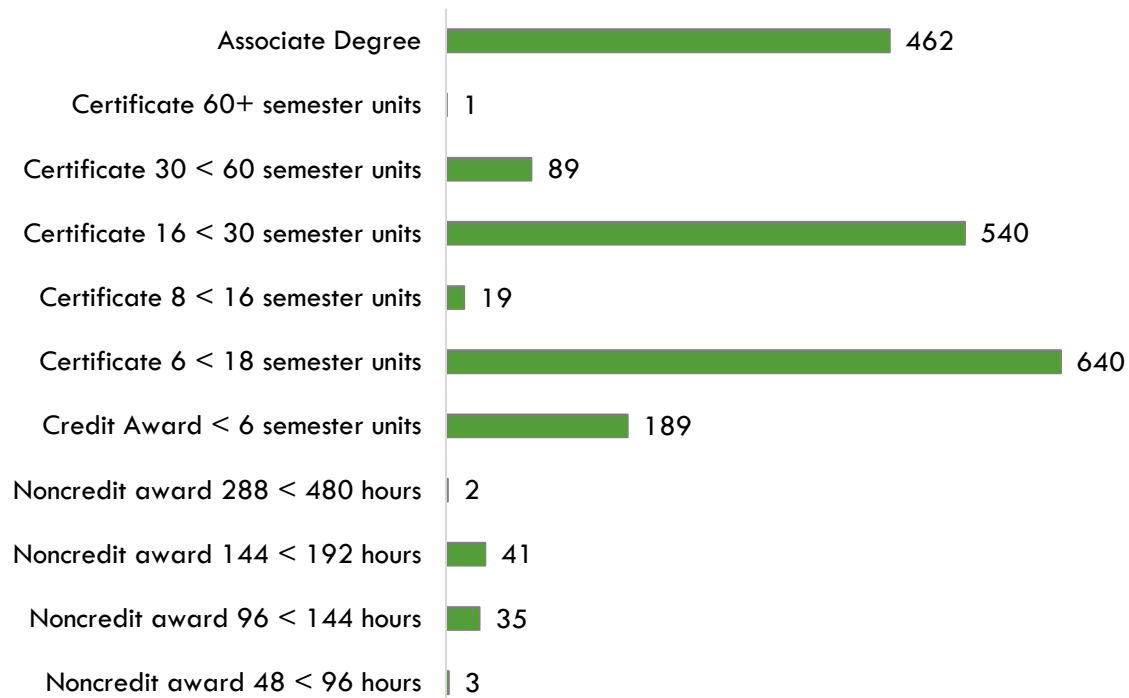
Exhibit 13: Regional Community College Awards (Certificates and Degrees), 2019-2022

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	
		LA Subtotal		1,372	1,152	1,117	1,212
		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
		OC Subtotal	679	580	929	729
Supply Subtotal/Average			2,051	1,732	2,046	1,941
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
		LA Subtotal	28	33	32	30
		Irvine	33	11	42	29
		Orange Coast	9	16	15	13
		Saddleback	12	5	7	8
		OC Subtotal	54	32	64	50
Supply Subtotal/Average			82	65	96	80
Supply Total/Average			2,133	1,797	2,142	2,021

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 accounting programs in Coast Community College District (CCCD), the Orange County Region, and California. Of the 12,122 accounting students in Orange County, 28% (3,352) attended a CCCD college.

Additionally, CCCD students that exited accounting programs in the 2019-20 academic year had median annual earnings of \$49,596 (or \$23.84 per hour), which is similar to accounting students throughout Orange County (49,430 or \$23.76 per hour). Both figures are slightly higher than students statewide (\$47,656 or \$22.91 per hour). Additionally, 71% of CCCD students that exited reported they are employed in a job closely related to their field of study, which is the same percentage of students throughout the state and slightly higher than accounting students throughout Orange County (68%).

Exhibit 15: Accounting (0502.00) Strong Workforce Program Metrics, 2020-21³

SWP Metric	CCCD	OC Region	California
SWP Students	3,352	12,122	99,142
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	32%	32%	36%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	33%	67%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	55	225	2,886
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	462	1,415	12,129
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	71%	68%	71%
Median Annual Earnings for SWP Exiting Students	\$49,596 (\$23.84)	\$49,430 (\$23.76)	\$47,656 (\$22.91)
Median Change in Earnings for SWP Exiting Students	23%	29%	27%
SWP Exiting Students Who Attained the Living Wage	60%	58%	63%

Non-Community College Supply:

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering accounting 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.

³ 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		
Supply Subtotal/Average			754	682	717
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
Supply Subtotal/Average			39	27	32
Supply Total/Average			793	709	749

Regional Demographics

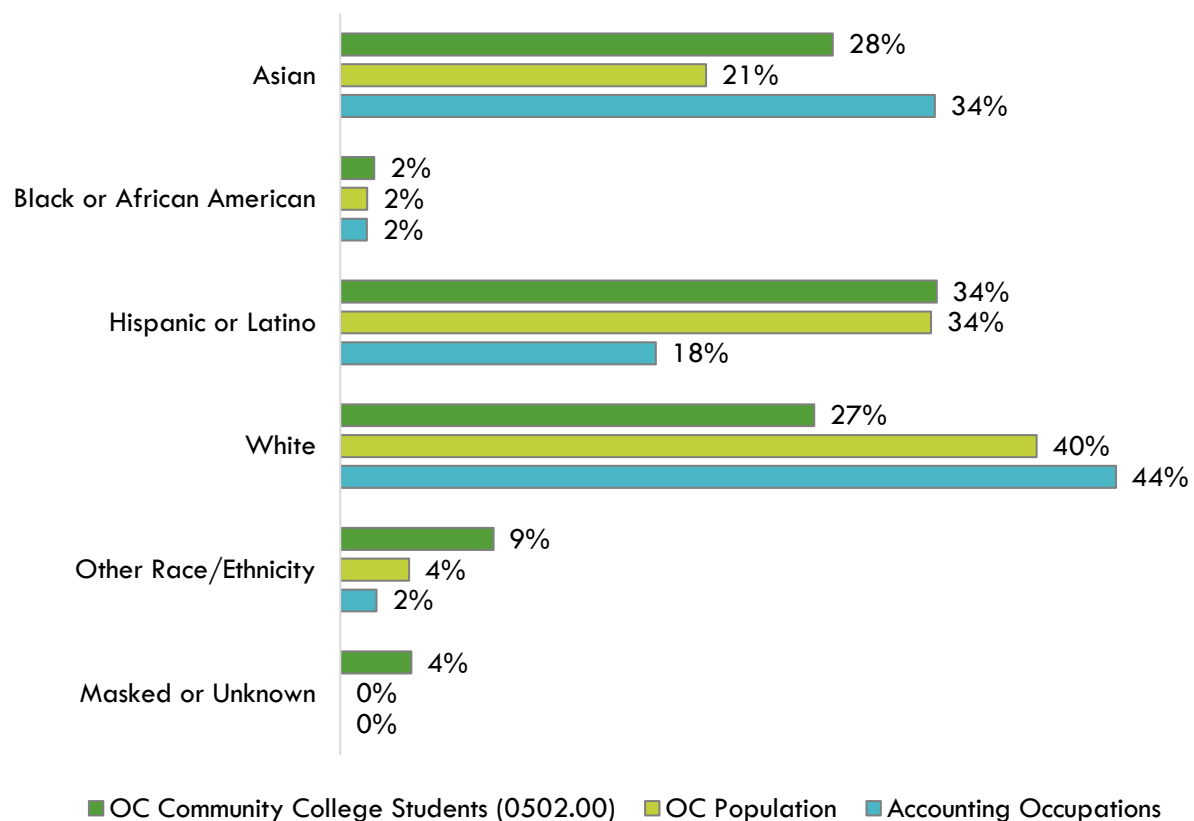
This section examines demographic data for Orange County community college students in accounting programs compared to the OC population, along with occupational data, to identify potential diversity and equity issues addressable by community college programs.

Ethnicity:

Exhibit 17 compares the ethnicity of Orange County community college students enrolled in accounting programs compared to the overall Orange County population, and occupation-specific data for the four accounting occupations included in this report. Notably, 44% of workers employed in these accounting occupations are white, which is similar to the population (40%) but significantly higher than community college accounting students (27%). Additionally, 34% of workers in these accounting occupations are Asian, which is slightly higher than community college accounting students (28%); both figures are higher than the population (21%). Though 34% of the population and community college accounting students are Hispanic or Latino, only 18% of workers in these accounting occupations are Hispanic or Latino.

Examining disaggregated data for each occupation (not shown), 42% of *accountants and auditors* are Asian and 41% are white; this occupation also has the highest entry-level hourly wages and the highest typical entry-level education requirements. Only 13% of workers in this occupation are Hispanic or Latino, 2% are Black or African American, and 2% are another race or ethnicity.

Exhibit 17: Program and County Demographics by Ethnicity

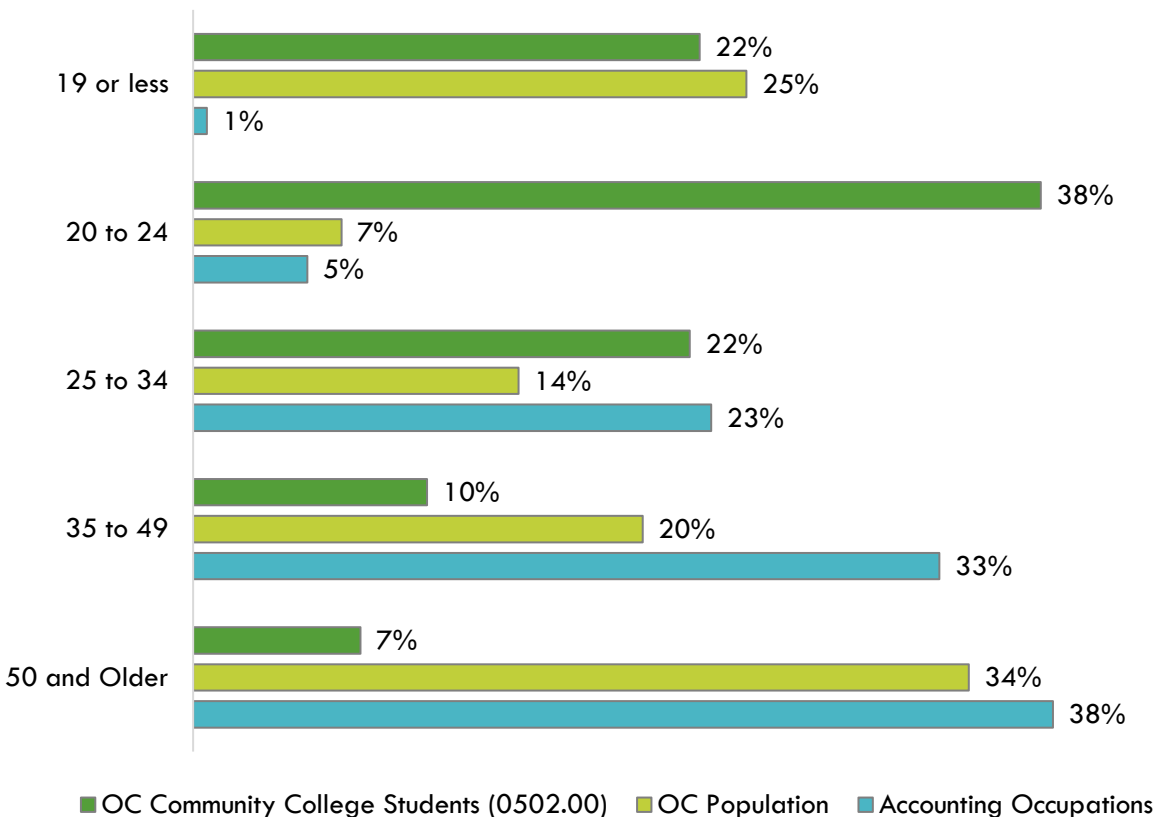


Age:

Exhibit 18 compares the age of Orange County community college students enrolled in accounting programs compared to the overall Orange County population, and occupation-specific data for the four accounting occupations included in this report. The plurality of workers in these accounting occupations are 50 and older (38%), which is similar to the population (34%); both figures are significantly higher than community college accounting students (7%). The next largest group of workers in these accounting occupations are 35 to 49 (33%), which is significantly higher than the population (20%) and community college accounting students (10%). Conversely, 60% of community college accounting students are 24 or less, significantly higher than the population (32%) and these accounting occupations (6%).

Examining disaggregated data for each occupation (not shown), nearly half (45%) of *bookkeeping, accounting and auditing clerks* are 50 and older, the highest of all four occupations. This occupation also has the lowest entry-level wages of all four occupations. Conversely, 33% of *brokerage clerks* are 24 or less, the highest of all four occupations. This occupation typically requires a high school diploma or equivalent but has the second highest entry-level wages of all four occupations.

Exhibit 18: Program and County Demographics by Age



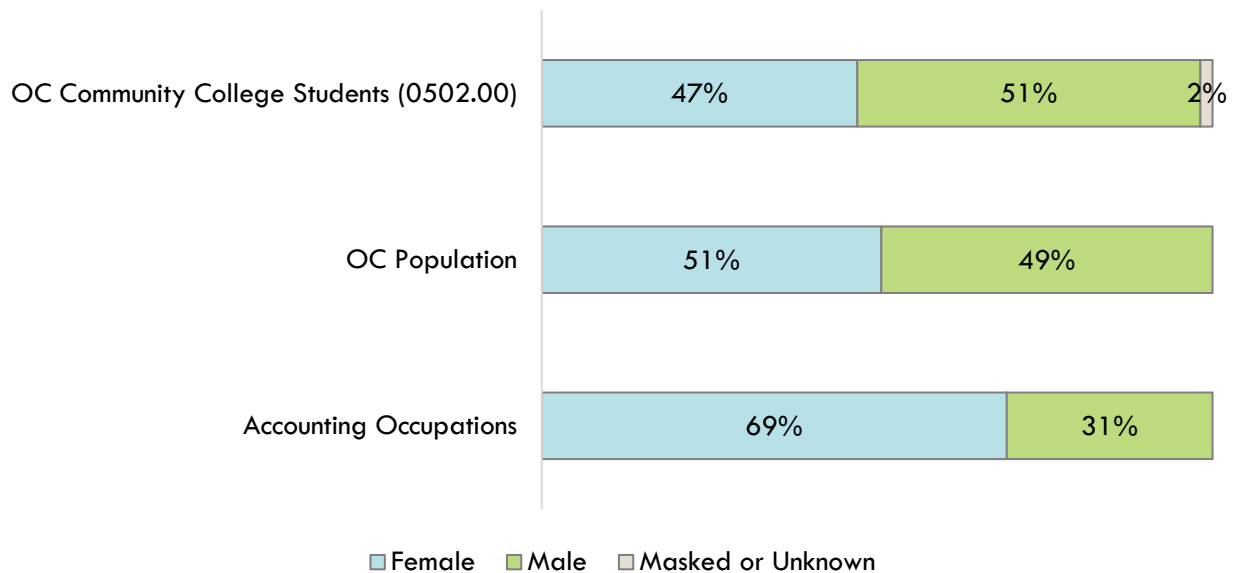
Sex:

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

Though the Orange County population and community college accounting students are split nearly evenly between men and women, 69% of workers in these accounting occupations are women.

Examining disaggregated data for each occupation (not shown), women account for the majority of workers for all occupations. However, *accountants and auditors* has the highest percentage of men (38%) and also has the highest entry-level wages and typical entry-level education requirements of all four occupations analyzed 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) and CIP code data comes from the Integrated Postsecondary Education Data System (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 https://lightcast.io/</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: https://insightccd.org/family-needs-calculator/</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 https://www.bls.gov/emp/documentation/education/tech.htm</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 https://www.onetonline.org/help/online/</p>
Educational Supply	<p>The CCCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu</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 https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions</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: https://www.calpassplus.org/LaunchBoard/Home.aspx</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: https://www.census.gov/programs-surveys/acs</p> <p>Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: https://usa.ipums.org/usa/about.shtml</p>

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