Northern California Career Pathways Alliance (NCCPA)
Labor Market Forecast for NCCPA Counties
May 2016

Robert Eyler, PhD
President, Economic Forensics and Analytics
Petaluma, CA
eyler@econforensics.com

Table of Contents

Table of Tables and Figures

Executive Summary

As part of the Northern California Career Pathways Alliance (NCCPA) work, this forecast tells what may come for industry- and occupation-specific demand, recent commuting patterns among these counties, and other information to shape a final forecast. Counties of focus include: Lake; Marin; Mendocino; Napa; Solano; and Sonoma. The data suggest the following employment trends for the NCCPA counties of Lake, Marin, Mendocino, Napa, Solano, and Sonoma through 2022:

- Health-care employers are projected to hire more workers;
- Manufacturing will be experiencing a reduction of hiring nationally, slow growth in California, and faster growth in the NCCPA counties, with a lean toward more food and beverage manufacturing employment;
- Retail and tourism services businesses are predicted to hire more workers; and
- Professional and Business services are also projected to hire at the national, state and county levels.

The recent recession that ended in 2010 left most areas of California reeling in terms of job markets and where to go next. When comparing to other regions in California, specifically the Bay Area counties of Alameda, Contra Costa, San Francisco, San Mateo, similar trends of hiring are happening. One reason is that these regional economies are similar in many ways. Agricultural jobs are one point of difference, but health care, professional services, retail and tourism services (including hotel, motel and restaurant jobs) are all among the larger growth industries outside of the NCCPA area in California and the Bay Area. Currently (as of April 2016), the forecasted job growth for these six counties, San Francisco's metro area (outside of the NCCPA counties) and California are:

- NCCPA Counties: total jobs growth is predicted to be 62,040 more jobs;
- San Francisco MSA: total jobs growth is predicted to be 85,350 more jobs;
- California: total jobs growth is predicted to be 1,699,320 more jobs.

The national and state economies have supported regional employment growth, as economic recovery expands opportunity for all occupations and employers; the national and state forecasts currently available suggest continued growth through 2022. The occupations that have performed the best in the NCCPA counties are health, hospitality, information technology. Outside the pathway occupations, more growth has taken place. Wages growth is mixed for these occupations in 2015 (the latest data available), and the NCCPA areas tend to lag the Bay Area a bit in terms of both wages and housing prices.

Such a lag suggests that we should expect outbound commuting from the NCCPA counties to the greater Bay Area and that is what happens. There may be as much of 75,500 people that leave the NCCPA counties daily for jobs in San Francisco, Alameda, Contra Costa, and San Mateo counties otherwise. Such data suggest that, as of 2014, some students that are educated in this region end up in jobs outside this region. Not only should the occupational and employer performance be monitored, so should the regional labor markets and how they trade labor with each other.

Estimated Growth of Employment, Industry Sectors
NCCPA counties, 2015-2022, Annual Averages

Industry	Lake/Mendo	Marin	Napa	Solano	Sonoma	Total
Agriculture	121	0	114	14	86	335
Goods	46	107	400	614	786	1,953
Services	607	1,958	1,057	2,286	3,486	9,394
Government	147	88	100	271	371	977
Total	**921**	**2,153**	**1,671**	**3,185**	**4,729**	**12,659**

Source: California EDD (www.edd.ca.gov) and EFA Calculations

The following table summarizes the annual jobs forecast for each NCCPA county and the eight occupational targets of the career pathways project in NCCPA's region. Occupational and employer performance since 2010 (the end of the recent recession) shows labor market recovery. In sum, the performance of the occupations through 2015 remains a bit mixed for this region, suggesting economic recovery is still underway, and this region has not fully recovered yet. The projected growth of industry sectors through 2022 suggests there will be more opportunities for students in the pathway occupations through the next five to six years. The strength of these forecasts depend greatly on the performance of the national and state economies.

Summary of NCCPA Pathway Jobs Performance by County,
NCCPA Occupations, 2010-2015

NCCPA Occupation Target/Pathway	Lake/ Mendocino	Marin	Napa	Solano	Sonoma	Total
Agriculture and Natural Resources	240	20	240	10	80	590
Business and Finance	-162	342	845	-194	-370	461
Engineering and Architecture	139	745	-323	-66	290	785
Health Science and Medical Tech	-375	1,014	579	-574	2,832	3,476
Hospitality, Tourism and Recreation	-1,055	1,928	2,530	243	3,117	6,763
Information and Communications Tech	2	2,215	-113	317	-40	2,381
Manufacturing and Product Development	79	14	-907	-1,450	248	-2,016
Public Services	-502	600	10	-27	236	317
Total NCCPA	-1,634	6,878	2,861	-1,741	6,393	12,757
Outside NCCPA Occupations	-583	6,640	3,455	152	9,241	18,905
Overall	**-2,217**	**13,518**	**6,316**	**-1,589**	**15,634**	**31,662**

Source: California EDD (www.edd.ca.gov)

Northern California Career Pathways Alliance (NCCPA) 2016
Labor Market Forecast for NCCPA Counties

Introduction

This study provides an updated, labor-market forecast for the six counties in the NCCPA (Lake, Marin, Mendocino, Napa, Solano, and Sonoma).[1] In the 2015 issue of this report, we focused on occupational forecasts for the eight "career pathways" in the NCCPA area. The "Bay Area" counties throughout this report are: Alameda, Contra Costa, San Francisco, and San Mateo counties.

The 2016 issue focuses on changes in employment by both occupation and employer since 2010, and employer forecasts to 2022 for the NCCPA region. This forecast references 2010 as the bottom of the recession; jobs growth performance since 2010 indicates how the occupations and employers that define the career pathways made it out of the recession. While the current forecasts will be updated regularly, new events can help change outlooks. For example, the Lake County fires of summer 2015 may have confounding effects on Lake County's employment forecasts from California's Employment Development Department (EDD) has currently set otherwise.

EDD is currently predicting these six counties will employ over 668,300 workers by the end of 2022. At the end of 2015, the current estimate was approximately 567,900 workers. The actual and predicted data implies growth of over 100,000 more regional employees in the next seven years.[2] The California Department of Finance (DOF) provides an economic outlook for the United States and California through 2019 as of March 2016.[3] Jobs growth is forecasted to be approximately 1.4 percent growth for the whole state. The four main areas of growth since 2010 are:

- Health care jobs;
- Visitor-related employment (hotel/motel, restaurants);
- Professional services; and
- Manufacturing.

One of the challenges in planning educational pathways for students is matching occupations to employer demand for workers. There is a subtle but important difference between employment and occupational data. Employers hire people across several occupations in the same industry; for example, a winery may hire agricultural workers, manufacturing workers, accountants, sales representatives, and other "occupations". Being a sales person is an occupation, and has its own market for services, regardless of employer. Business and Finance

[1] The authors would like to thank NCCPA and Sonoma County Office of Education for their funding of this report.
[2] See http://www.labormarketinfo.edd.ca.gov/ for the data portals.
[3] See http://www.dof.ca.gov/html/fs_data/LatestEconData/FS_Forecasts.htm for the forecast portal. The California forecast has details on industry sectors and employment and is summarized below.

occupations are examples, as are transportation, administrative, and building maintenance and service occupations. There could be the same workers in multiple industries. We also consider commute patterns and how employment is linked across these counties to create a regional marketplace. A central question is: in what industries are employers going to be looking for workers?

The actual data are compared to forecasts for each county. Understanding each county and the NCCPA area overall combines for three themes in this 2016 issue:

- What employers are likely to be demanding workers through at least 2022?
- How do jobs in NCCPA occupations match up to the current forecasts for specific employers and industries?
- How do other factors, such as worker commute patterns in the NCCPA area, confound and change the forecasts?

Building a forecast means combining multiple sources of information into one data point. The flow of information diagram below provides the components for a forecast for employment by industry, adjusted by local conditions.

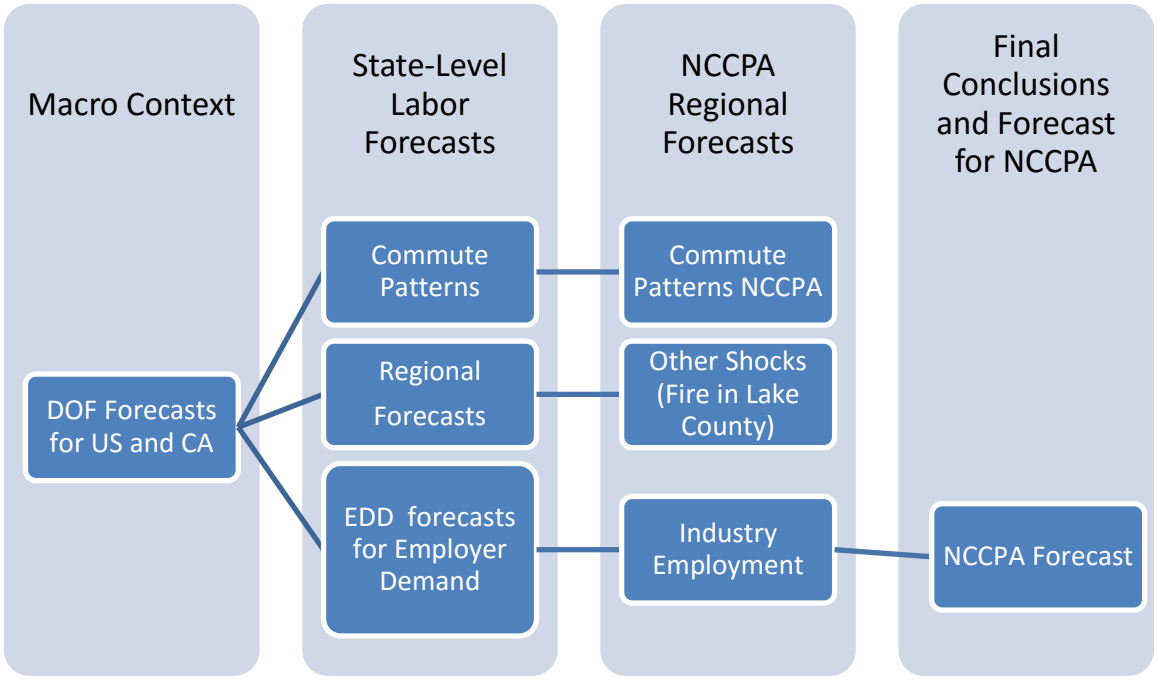


Table 1 reminds us about the NCCPA occupational pathways.[4] These occupational sectors, the NCCPA and Pathways Trust foci, are in competition with other industries and occupations that may seek workers simultaneously, both regionally and beyond. Commute patterns suggest that current employment demand does not fully match regional workers and

[4] See http://www.cde.ca.gov/ci/ct/pt/index.asp for more on the Trust and its history.

their skills; commuting takes place when workers seek to find better economic opportunities outside the local area. Cost of living, relative wages, and other factors play in role in inter-regional flows.

Table 1: Occupational Sectors and Occupational Pathways

Occupational Sector	Occupational Pathways
Agriculture & Natural Resources	Agricultural Business Agricultural Mechanics Agriscience
Health Sciences & Medical Technology	Biotechnology Patient Care
Engineering & Architecture	Engineering Technology Pathway Environmental Engineering Pathway
Business & Finance	Financial Services
Hospitality, Tourism & Recreation	Food Services and Hospitality
Information & Communication Technologies	Game and Simulation Information Support & Services
Manufacturing & Product Development	Matching and Forming Technologies
Public Services	Public Safety

Source: http://tinyurl.com/nccpapathways

The NCCPA must use **regional planning and forecasting**. This is a regional effort, but all these areas are connected through regional systems of housing, commuting workers and employers. The national and state economies provide context for local labor markets.

The National and State Economic Forecasts in Brief: 2016-17

The recession of 2008-10 has been labeled the "Great Recession"; for specific areas, the recession's stop and start dates continue to be debated. Part of emerging from recession's shadow is jobs growth. Hiring workers generally works as: (1) employers offer jobs; (2) employees qualify for such jobs then apply; and (3) workers are hired based on occupations for which they are trained and job matching.

The Federal Reserve recently provided labels for the last five economic cycles providing context in considering the current recovery:

- The Dot-Com Boom (1994-2000): the dawn of the internet in earnest, and the birth of the social media age;
- The Dot-Com Bust (2001-2003): a brief recession due to speculative bubbles bursting in equity markets, inflation and rising interest rates, and a terrorist act that remains with us today and beyond;

- The Housing Boom (2003 – 2007): a brief economic recovery and expansion based on credit expansion and house-building growth, low interest rates following the dot-com bust, and house/commercial real estate building accelerating;
- The Great Recession (2008-2010): the largest recession since the Great Depression, but a slowly fading memory in much of the NCCPA area given jobs and housing market recoveries; and
- The Tepid Recovery (2011-Present): due to the Great Recession's depth and breadth, the American economy's recovery has been slow and steady while over a long period of time, the compounded growth rate has been slower than any recovery period since the 1970s.[5]

The economic recovery (job growth as compared to job losses) since 2010 has given way to economic expansion (jobs growth across many different industries) as of 2016, where jobs growth has come into almost every major employment category and personal incomes and housing wealth are on the rise across these counties. Economic conditions in 2016 point to some themes that may affect this region:

- A possible, global economic slowdown, starting in Asia and South America, but affecting the global economy, may shift tourism and other trade flows away from the United States and California such that jobs growth in related industries slow down;
- Commodity prices have fallen, which has helped support overall inflation pressure in the United States and delayed interest rates rising, but…
- Uncertainty about interest rates rising in the United States may inhibit business growth, which would slow down jobs growth; and
- Wage growth is now rising in pace with local and regional price levels in California across a broad base of industries and is forecasted for continued growth through 2019.[6]

In the regional economy (thinking NCCPA counties), there are some trends and things to watch for also, some of which are connected to the national and state economies:

- Housing prices, both to purchase and rent, have increased rapidly since 2013 and have led to concerns over wage levels providing support for employees living locally;
- Some counties have increased inbound and outbound commuting, increasing traffic congestion on major corridors;
    - The SMART rail opens in late 2016 as a new mass transit option between Sonoma and Marin counties connecting with the core Bay Area;

[5] Please see https://www.federalreserve.gov/monetarypolicy/beigebook/beigebook201603.htm for a recent take on the current recovery period.
[6] Senate Bill 3 passed in April 2016 initiated a state-side, minimum wage increase through 2023. The effects on hiring patterns in occupations that are affected by this change may change forecasts also.

- Job placement and matching to demanded skills has local employers questioning local labor's fit for local businesses;
- Median household income levels have slowly increased in trend, and in real terms per capita personal income has increased consistently since 2011.

While the national and state economies look good through 2019, there are some global issues that have affected job market growth and the overall economic forecasts. Such projected, slower growth means different business decision-making and planning reflecting more uncertainty by employers. This can also change the original forecasts and current performance of hiring in the NCCPA Career Pathways. Let's now look as some recent labor market data and ideas for the employer/industry side.

Labor Market Data: What it tells and what it does not

Labor market data are split into four major categories of employers:

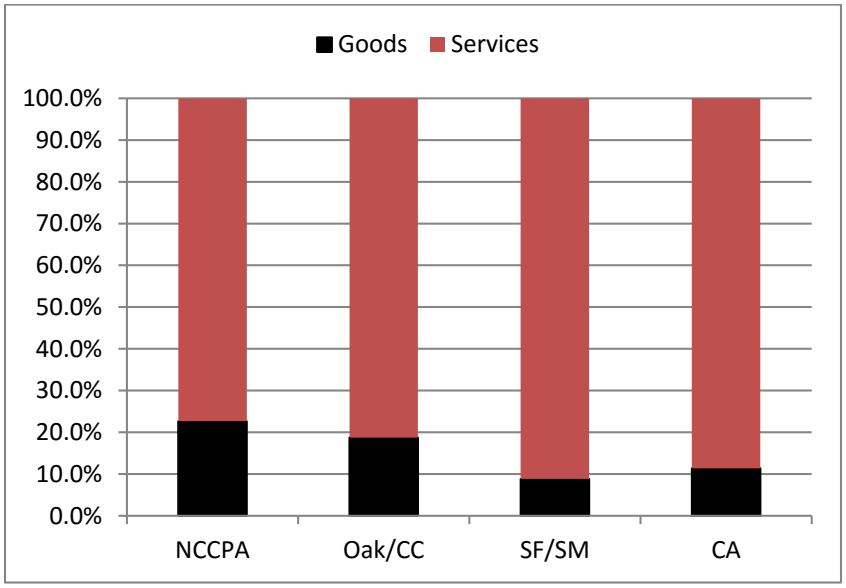
1. Agriculture and primary products;
2. Goods-producing jobs;
3. Service-producing jobs; and
4. Government.

Goods-producing jobs are mainly construction and manufacturing. Services, outside of government and farming jobs, are all other employment. Since 2010, jobs growth has been mainly in services, as the rapid loss of housing and financial wealth changed the construction industry, and pushed many workers toward services initially. From the peak employment in summer of 2007, there may be as many as 10,000 construction jobs that have yet to come back as of April 2016.

Services are both a blessing and curse in labor markets when more jobs growth takes place. Services do not generally access markets outside the local community, short of tourism. There are smaller effects on the local economy when services grow versus goods-producing jobs, like construction. When construction jobs slowed down between 2007 and 2012, so did the "multiplier" effect in the American economy. While some jobs that are characterized as services are the first step in construction and manufacturing (design, engineering, etc.), the majority of service jobs are meant to serve local consumers, which include local businesses, workers, residents and tourists. These include health care, retail, professional services (accounting and legal), restaurants, hotels, and many other services focused on local markets. Construction and manufacturing tend to have global markets, as does agriculture. Figure 1 shows that the growth of jobs since 2010 has been heavier toward services *outside* of the NCCPA counties than inside, where much of the goods market has been in non-durable manufacturing, mainly food and beverage manufacturing jobs.

Figure 1: Growth of Employment in Selected Areas, % change of total growth
NCCPA and Regional Employment, 2010-2016, Goods versus Services

Sector	NCCPA	Oak/CC	SF/SM	CA
Goods	22.7%	18.7%	8.8%	11.4%
Services	77.3%	81.3%	91.2%	88.6%
Overall	100.0%	100.0%	100.0%	100.0%
Overall Jobs Growth	**77,500**	**138,400**	**212,200**	**2,009,200**



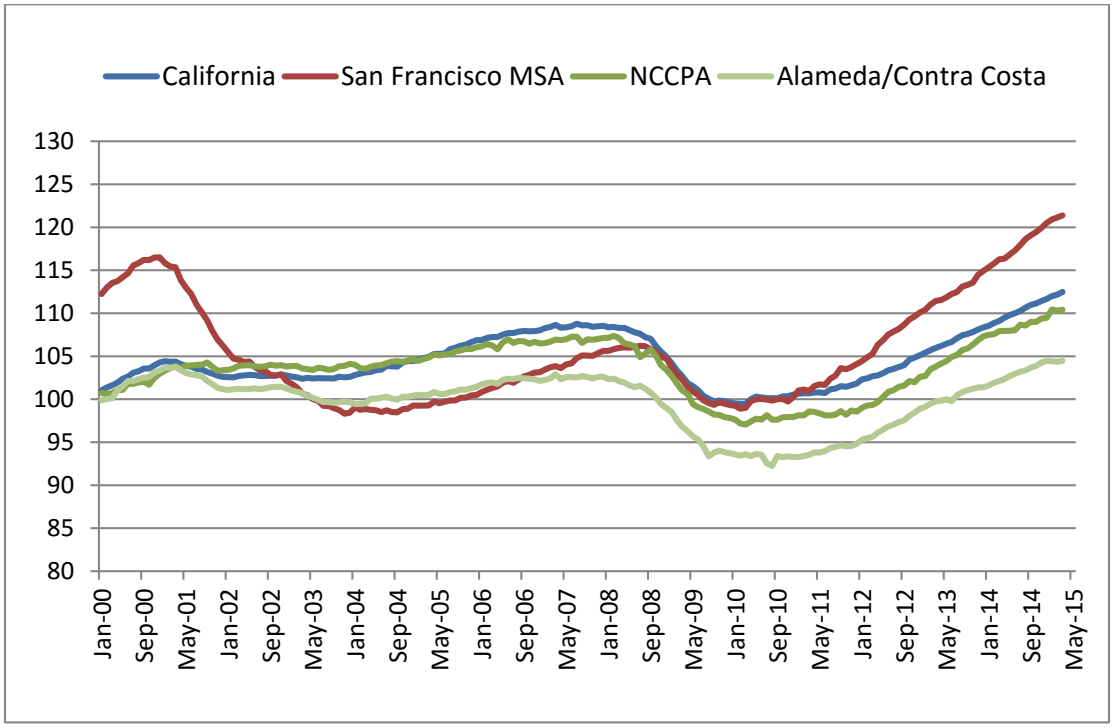
Source: California EDD (www.edd.ca.gov)

The Great Recession affected jobs, incomes and housing values all at the same time; this recovery period is finally – as of 2016 – getting the NCCPA counties and California overall back to pre-recession levels of jobs (see Figure 2). Figure 2 provides a way to see the cyclic relationship among employers in California overall, the Bay Area and also the NCCPA counties.

The recession of the early 2000s pushed overall employment in the San Francisco metropolitan statistical area down quickly from its peaks to the bottom of two recessions in seven years by 2008. The cyclic movements are similar on purpose: these are regional economies tied to each other through commuters. These are based on payroll and occupational employment. As of April 2016, the US economy is in its seventh year of economic recovery for comparison.

Monitoring regional labor markets is a critical step in matching or shifting curricula to match students and recent graduates' demands as well as employers' needs. Recent labor market performance does inform forecasts for the state and local economies. What the next section does is look at forecasts at the national and state level for hiring by industry sector or employer, and then compares the NCCPA region to the Bay Area and California overall as to the types of industries with the most growth, and at least through 2022 (though national data is currently predicted to 2024).

Figure 2: Employment in Selected Areas, NCCPA and Regional Employment 2000-2015, Index (Jan 2011 = 100)



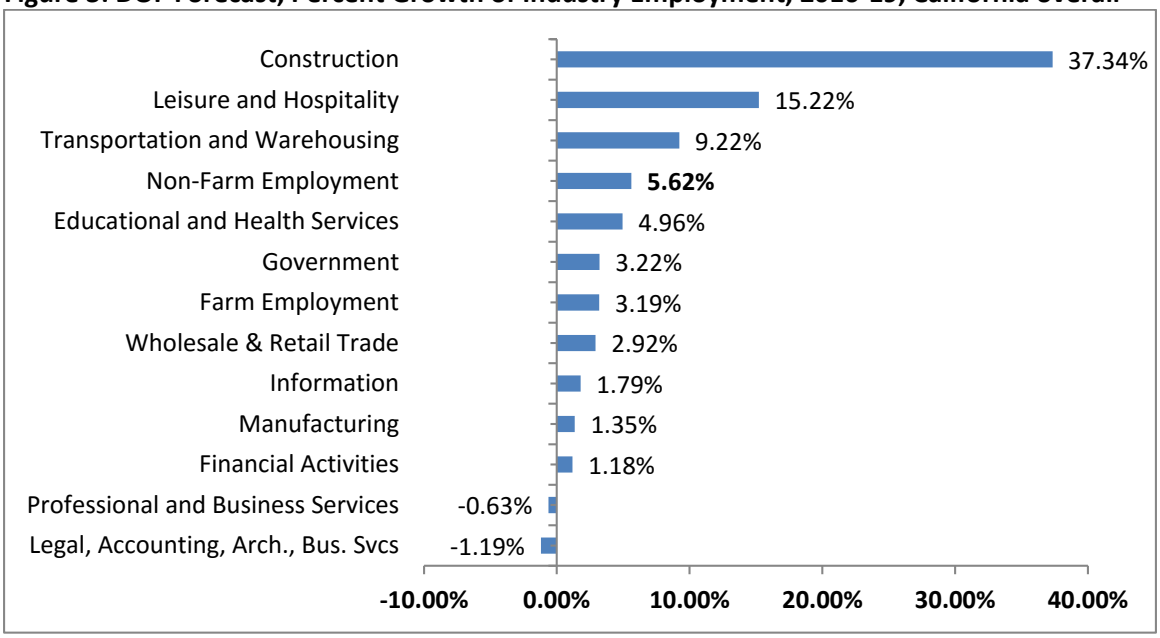
Source: California EDD (www.edd.ca.gov)

Recent Employment Forecasts: Regional and State

The California Department of Finance (DOF) forecast is an important tool used by policy makers in Sacramento as the basis for economic decision making. In terms of labor-market data, there are industry forecasts that go as far as 2022 as of April 2015 in California made by the California Employment Development Department (EDD). In the 2015 report, we looked at the aggregate employment levels for California, San Francisco/San Mateo counties in sum (Bay Area), Alameda/Contra Costa counties (East Bay), and the NCCPA. Figure 3 shows the major industry highlights of the most recent DOF forecast in 2016 to 2019 for California overall. The Bureau of Labor Statistics (www.bls.gov) provides jobs forecasts for the national economy through 2024 as of April 2016. Tables 2 and 3 provide a sample of the fastest predicted jobs growth by industry and also those with the fastest decline.

From both the DOF and BLS forecasts, we see that manufacturing is likely to move more slowly over time. In terms of goods-producing industries, construction may grow quickly in California through 2019, while growing more modestly in the United States overall. For goods-producing jobs that may hire vocational workers as well as those in STEM (to engineer the products to be manufactured), the opportunities in California may be limited, but better than other places in the United States.

Figure 3: DOF Forecast, Percent Growth of Industry Employment, 2016-19, California overall



Source: California Department of Finance (www.dof.ca.gov)

Table 2: Fast Growing Industry Employers, United States, 2014-24

Industry	Employer	2004-14 % Growth	**2014-24 % Growth**
Health	Home health care services	5.0	**4.8**
Health	Outpatient care centers	4.7	**4.1**
Health	Offices of other health practitioners	4.0	**3.8**
Health	Other ambulatory health care services	3.4	**3.4**
Health	Ambulatory health care services	3.0	**3.1**
Health	Medical and diagnostic laboratories	2.7	**2.8**
Consult	Management, scientific, and technical consulting services	5.0	**2.4**
Tech	Software publishers	2.9	**2.3**
Support	Facilities support services	1.3	**2.2**
Tech	Computer systems design and related services	4.5	**2.1**
Health	Offices of physicians	1.9	**1.9**
Health	Offices of dentists	1.6	**1.7**
Logistics	Local government passenger transit	1.1	**1.5**
Support	Office administrative services	3.6	**1.4**
Tech	Wireless telecommunications carriers (except satellite)	-2.0	**1.3**
Health	Individual and family services	6.3	**1.3**
Self	Non-farm, self-employed workers	-1.0	**0.7**

Source: Bureau of Labor Statistics

Table 3: Fastest Declining Industry Employers Nationally, 2014-24

Industry	Employer	2004-14 % Growth	2014-24 % Growth
Manufac	Electric lighting equipment manufacturing	-3.3	-1.6
Manufac	Other chemical product and preparation manufacturing	-2.4	-1.7
Manufac	Rubber product manufacturing	-2.5	-1.7
Manufac	Household appliance manufacturing	-4	-1.7
Retail	Wired telecommunications carriers	-1.7	-1.7
Manufac	Clay product and refractory manufacturing	-4.8	-1.8
Manufac	Computer and peripheral equipment manufacturing	-2.5	-1.8
Manufac	Foundries	-2.6	-1.9
Manufac	Spring and wire product manufacturing	-3.4	-1.9
Manufac	Hardware manufacturing	-4.4	-2.1
Manufac	Pulp, paper, and paperboard mills	-3.3	-2.2
Manufac	Other miscellaneous manufacturing	-2.5	-2.2
Manufac	Glass and glass product manufacturing	-2.7	-2.4
Manufac	Audio and video equipment manufacturing	-5.3	-2.6
News	Newspaper, periodical, book, and directory publishers	-4.8	-2.8
Manufac	Communications equipment manufacturing	-4.2	-2.9
Manufac	Manufacturing and reproducing magnetic and optical media	-8.6	-2.9
Logistics	Postal Service	-2.7	-3.2
Manufac	Tobacco manufacturing	-7.3	-3.9
Manufac	Apparel, leather, and allied manufacturing	-6.2	-5.9

Source: Bureau of Labor Statistics

Two themes become apparent from these data:

- Industries predicted to grow throughout the national economy include health care and technology services:
    - The faster-growing industry employers nationally do not include manufacturing, construction, or many other, “goods-producing” businesses; and
    - The fastest-declining industries are, in contrast, tilt toward manufacturing and dying industries otherwise (newspaper publishers and postal service jobs).
- Growth from 2004 to 2014 may nor may not suggest continued growth over the next ten years:
    - Self-employment is one category that fell in the 2004-2014 period, which included the Great Recession, but is predicted to grow; and
    - For declining industries, manufacturing jobs have been shed across the country in the last ten years and are predicted to continue due to comparative and competitive advantages across the world.

Regional forecasts take the national forecasts and use them as a basis for local predictions. While such predictions for California and its counties is not due until later in 2016 to go through 2024, we should expect some similar patterns to emerge:

- Health care is likely to be a leading industry for jobs growth;
- Manufacturing is likely to be declining in durable goods (machines and business capital), while growing in non-durable goods outside of textiles (food and beverage especially); and
- Service-providing jobs are likely to be growing faster than goods-producing industry employment, though construction jobs are likely to be growing between 2014 and 2014 versus the years of 2010-2014.

Employment Forecasts in the NCCPA region

California's Employment Development Department (EDD) makes short-term, occupational projections for industry employment annually and long-term bi-annual projections. Unfortunately, these forecasts are not necessarily at the county level (they are for Napa, Sonoma and Solano only, as the other counties are in regions). The current, long-term forecast has key elements for the NCCPA to watch:

- Professional and Business services, with an emphasis on computer-based design and technical jobs, is predicted to grow faster in the Bay Area counties of San Francisco, San Mateo, Alameda, and Contra Costa faster than the state overall and the NCCPA counties;
- Health Care jobs grow throughout the state, including the Bay Area and NCCPA regions;
- Accommodations and food services, the mix of hotels, motels, and restaurants, will also grow in all regions;
- Manufacturing jobs are predicted to fall in California overall by over 40,000 workers, but grow faster in the NCCPA region than the Bay Area, though growth is predicted in both regions;
- Construction growth is coming across California;
- Retail and wholesale jobs growth is also predicted in all regions; and
- Government jobs at the state and local level are also projected to grow.

Table 4 shows the fasted growing industries since 2010 for the NCCPA counties. Construction and real estate jobs shifted out of the labor market and gave way to more retail and other services jobs. Construction's comeback is evident in these data. Notice that social assistance jobs (including non-profit organizations that provide health care) grew as did biotechnology. Manufacturing has seen job growth, in food and beverage makers; the wine industry, which links agriculture to manufacturing to tourism and retail, remains a foundation of jobs for this region, and is reflected in beverage manufacturing and agricultural support jobs.

Table 4: Fastest Growing Industries (Top 13), 2010-15, Percentage Growth
Payroll Employment by Employers, Number of Workers, NCCPA Counties

Industry	Percent Growth	Employees
Rental and Leasing Services	192.7%	794
Life Sciences	112.3%	3,145
Agriculture & Forestry Support	41.5%	2,313
Support Activities for Transportation	39.9%	392
Utilities	36.6%	517
Food Manufacturing	25.5%	1,532
Construction	22.9%	5,895
Beverage Manufacturing	20.6%	3,225
Motor Vehicle and Parts Dealers	20.5%	1,335
Miscellaneous Store Retailers	20.3%	669
Couriers and Messengers	19.5%	226
Bars and Restaurants	19.3%	8,073

Source: QCEW (www.edd.ca.gov)

Table 5: Fastest Growing Industries (Top 15), 2010-15
Payroll Employment by Employers, Selected Areas, In Descending Order

California	San Francisco MSA	Oakland MSA	NCCPA Counties
Funds, Trusts & Financial Vehicles	Primary Metal Manufacturing	Textile Mills	Furniture/Home Stores
Private Households	Broadcasting (except Internet)	Primary Metal Manufacturing	Forestry and Logging
Rail Transportation	Computer and Elec Product Mfg	Broadcasting (except Internet)	Educational Services
Postal Service	Printing and Related Activities	Computer and Elec Product Mfg	Food Manufacturing
Leather/Allied Product Manufacture	Banks and Credit Unions	Printing and Support Activities	Mining (except Oil and Gas)
Petroleum & Coal Manufacturing	Paper Manufacturing	Banks and Credit Unions	Crop Production
Support Activities for Mining	Utilities	Paper Manufacturing	Health and Personal Care Stores
Telecommunications	Animal Production/Aquaculture	Utilities	Electrical Equip and Appliances
Lessors, Intangible Assets	Plastics/Rubber Manufacture	Animal Production/ Aquaculture	Chemical Manufacturing
Electronics and Appliance Stores	Fishing, Hunting and Trapping	Plastics/Rubber Manufacturing	Insurance Carriers & Related
Apparel Manufacturing	Clothing Stores	Fishing, Hunting and Trapping	Wholesalers, Durable Goods
Monetary Authorities - Central Bank	Sporting Goods/Book Stores	Clothing Stores	Miscellaneous Store Retailers
Textile Mills	Hospitals	Sporting Goods/Book Stores	Membership Orgs & Associations
Primary Metal Manufacturing	Textile Product Mills	Hospitals	Food and Beverage Stores
Broadcasting (except Internet)	Motion Picture/Sound Industries	Textile Product Mills	General Merchandise Stores

Sources: QCEW (www.edd.ca.gov) and EFA

What these tables show is not only recent job growth (Table 4), but also comparisons to the Bay Area (Table 5). Notice the similarities across the regions in Table 5 as to the major areas of jobs growth, especially among San Francisco's metro area (San Francisco and San Mateo counties), the East Bay (Alameda and Contra Costa counties), and the NCCPA counties versus California overall.

One of the themes of this year's report is the linkages among the NCCPA counties and the Bay Area more generally. Table 6 shows the recovery period and the emergence from recession in terms of jobs performance; this table also shows the industries expecting the fastest growth of jobs from the type of business or employer.

Table 6: Employment Trends in the NCCPA Region:
Fastest Growth Industries from 2010-15, NCCPA Focus

Industries	NCCPA	CA	SF	SM	Alameda	CC
Rental and Leasing Services	192.7%	9.7%	-5.5%	22.6%	14.7%	3.5%
Life Sciences	112.3%	29.6%	33.5%	68.0%	33.9%	31.9%
Broadcasting (except Internet)	47.2%	6.6%	23.8%	59.5%	32.8%	196.8%
Agriculture & Forestry Support Activity	41.5%	9.0%	28.0%	-11.8%	14.2%	8.7%
Support Activities for Transportation	39.9%	5.3%	17.3%	7.3%	-69.6%	-32.2%
Utilities	36.6%	-3.6%	103.1%	-11.2%	9.1%	-7.6%
Food Manufacturing	25.5%	-3.8%	-2.5%	-3.1%	-39.0%	
Construction	22.9%	5.9%	-5.8%	-5.0%	4.4%	6.8%
Beverage Manufacturing	20.6%	1.2%	-6.0%	-9.0%	-13.8%	23.4%
Motor Vehicle and Parts Dealers	20.5%	35.9%	209.2%	58.4%	16.3%	215.6%
Miscellaneous Store Retailers	20.3%	8.0%	1.5%	-0.4%	13.8%	6.9%
Couriers and Messengers	19.5%	14.4%	48.4%	24.0%	17.7%	-0.5%
Food Services and Drinking Places	19.3%	-2.7%	-14.9%	5.4%	-11.1%	-3.1%
Hotels and Motels	18.6%	12.1%	-5.0%	97.1%	4.9%	6.5%
Nursing and Residential Care Facilities	17.7%	14.1%	15.6%	11.8%	14.3%	14.3%
Wood Product Manufacturing	17.6%	33.5%	-17.0%	6.0%	17.3%	-11.8%
Fabricated Metal Product Manufacturing	17.5%	8.6%	11.4%	3.2%	15.6%	5.4%
Administrative and Support Services	16.4%	-8.6%	-1.3%	-26.4%	-30.6%	-19.8%
Performing Arts and Spectator Sports	15.4%	10.1%	18.1%	6.6%	13.6%	25.3%
Printing and Related Support Activities	14.8%	-8.5%	-14.2%	-9.1%	15.9%	-16.9%
Furniture and Home Furnishings Stores	14.7%	9.2%	30.7%	32.5%	7.8%	-16.2%
Food and Beverage Stores	13.7%	21.3%	27.4%	18.9%	24.8%	20.3%
Nonmetallic Mineral Product Mfg	12.8%	17.5%	34.9%	30.2%	25.6%	10.2%
Building Material & Garden Supply Stores	12.4%	8.3%	14.2%	0.3%	3.6%	-6.6%
Ambulatory Health Care Services	12.4%	16.0%	16.4%	19.4%	15.3%	11.2%

Sources: QCEW (www.edd.ca.gov) and EFA

The employment trends begin in 2011 as the bottom of the recent recession and show what has happened during the economic recovery thus far. The similarities of the North Bay, San Francisco and East Bay suggest that jobs growth will be similar also (Table 6); the percentage change in jobs since the recession's end have similar themes across these areas. To a certain extent, such growth may portend later growth. Let's look at recent performance by occupation,

through the latest data available in April 2016 (2014 employment data and 2015 Q1 wages), and also look at skill levels and how hiring has taken place.

Wages, Employment Growth by Occupation and Career Pathways

We now want to look at the recent wage and employment growth by occupation, focused on the eight, NCCPA pathways and then on other occupations as an average. Tables 7 and 8 provide the most recent wages and employment data; Table 9 provides the growth of employment by occupation. In the 2015 report, forecasts were made by occupation and by skill levels. The skill levels are (unfortunately) defined by EDD as: low (high school diploma or below); medium (some colleges but did not finish or only an associate's degree or certification beyond high school); and high skill (bachelor's degree or above).

Since the recession's end, health-care occupations have been in demand. These occupations cover the entire spectrum of skills and educational levels. For this reason, it is likely that health-care careers, especially those in patient care, will continue to be a focus of all of California in terms of career pathways. Construction jobs also have strong, predicted growth relative to other industries or total employment overall. While manufacturing looks to be continuing its fade in California, for Napa, Sonoma and Solano, the prediction is for further growth in manufacturing. This growth is due mainly to jobs in non-durable food and beverage industries. As in the comparisons above, the Oakland and San Francisco metro areas are included for comparison.

Table 7 shows that wages are lower in Lake and Mendocino counties than in Napa and Sonoma and Marin (though Marin's data is currently part of the San Francisco MSA data concerning wages); Solano County has more of mix of wages for the pathway occupations. Some of the pathways pay lower wages than the average and also less than occupations outside the pathways on average. Such data can provide challenges in attracting and retaining students and workers in these occupations.

Table 7: NCCPA counties, Median Wages by Occupation, 2015 Q1

Pathway	Lake/Mendo	Marin/SF/SM	Napa	Solano	Sonoma
Agriculture & Natural Resources	$ 15.96	$ 27.71	$ 22.36	$ 15.16	$ 19.53
Health Sciences & Medical Technology	$ 31.21	$ 39.37	$ 34.22	$ 37.75	$ 34.84
Engineering & Architecture	$ 36.86	$ 46.00	$ 41.31	$ 41.25	$ 38.59
Business & Finance	$ 23.72	$ 36.78	$ 30.28	$ 30.76	$ 28.99
Hospitality, Tourism & Recreation	$ 12.73	$ 15.27	$ 14.95	$ 12.19	$ 13.53
Information & Communication Technologies	$ 32.77	$ 52.66	$ 39.38	$ 44.12	$ 41.75
Manufacturing & Product Development	$ 19.03	$ 61.58	$ 19.34	$ 18.98	$ 18.93
Public Services	$ 30.81	$ 42.32	$ 35.59	$ 30.52	$ 32.02
All Other Occupations	$ 20.08	$ 29.49	$ 23.82	$ 23.40	$ 24.41
Average	**$ 22.74**	**$ 33.59**	**$ 26.05**	**$ 26.97**	**$ 26.58**

Sources: California EDD, Bureau of Labor Statistics, NCCPA, and EFA Calculations

Tables 8 through 10 provide a way to see **annual** demand across all comparison areas for only the NCCPA defined pathways and their forecasts. Table 10 shows the growth in these occupations through the latest available data (2014 as of April 2016). Table 11 shows that the total demand for those with an associate's degree (category 4 in the skills columns) is larger than the demand for those in occupations outside the NCCPA career pathways versus the heavier emphasis on associate's degrees in the pathways.

Table 8: Jobs by Occupation, 2014, NCCPA Counties

Pathway	Lake/Mendo	Marin	Napa	Solano	Sonoma
Agriculture & Natural Resources	690	54	2,930	330	2,440
Health Sciences & Medical Technology	4,135	8,484	5,170	11,150	15,310
Engineering & Architecture	475	2,796	180	1,280	3,260
Business & Finance	2,445	13,273	3,370	7,290	13,420
Hospitality, Tourism & Recreation	4,375	12,733	10,030	12,180	20,680
Information & Communication Technologies	370	8,892	390	1,780	2,890
Manufacturing & Product Development	1,645	91	3,480	3,230	9,890
Public Services	995	1,306	40	1,040	1,410
All Other Occupations	25,655	57,278	32,070	64,240	103,290
Total	**40,785**	**104,907**	**57,660**	**102,520**	**172,590**

Sources: California EDD, Bureau of Labor Statistics, NCCPA, and EFA Calculations

Table 9 shows the dominant occupations among these is health sciences and medical technology. Other occupations are business and finance and hospitality in terms of strong, post-recession demand. These data follow the anecdotal evidence well. Tourism has been a large part of supporting these counties since the recession began and ended, and have fed off of the recovery of the greater Bay Area and the national economies. However, most of that growth was in Marin, Napa and Sonoma counties.

Table 9: Change in Employment,
NCCPA Skill Levels and Career Pathways, 2010-2014

	Pathways	Lake/Mendo	Marin	Napa	Solano	Sonoma	Totals
1	Agriculture & Natural Resources	240	20	240	10	80	590
2	Health Sciences & Medical Technology	-162	342	845	-194	-370	461
3	Engineering & Architecture	139	745	-323	-66	290	785
4	Business & Finance	-375	1,014	579	-574	2,832	3,476
5	Hospitality, Tourism & Recreation	-1,055	1,928	2,530	243	3,117	6,763
6	Information & Communication Technologies	2	2,215	-113	317	-40	2,381
7	Manufacturing & Product Development	79	14	-907	-1,450	248	-2,016
8	Public Services	-502	600	10	-27	236	317
	Total NCCPA Occupations	-1,634	6,878	2,861	-1,741	6,393	12,757
9	All Other Occupations	-583	6,640	3,455	152	9,241	18,905
	Total	-2,217	13,518	6,316	-1,589	15,634	31,662

Sources: California EDD, Bureau of Labor Statistics, NCCPA, and EFA Calculations

Manufacturing employment and wages are likely to be driven by non-durable goods (food and beverage manufacturing). STEM occupations (engineering and architecture and ICT mainly) have seen some growth regionally, though Lake, Mendocino and Solano counties have struggled to recover more than Marin, Napa and Sonoma.

Table 9's data shows the subtle contrast between occupations and employment data. Manufacturing industry jobs have recovered in Solano County since 2010, but those occupations identified as manufacturing jobs by skill or training have fell. This suggests that employers that code their business as manufacturing may be hiring non-manufacturing occupations. Table 10 provides some quick comparisons across the greater Bay Area, and Table 11 looks at skills demand.

Table 10: Performance of Pathways occupations since recession

Eight Pathways and Rest of Areas, 2010-14

	NCCPA			East Bay (Alameda/Contra Costa)			San Francisco/San Mateo		
	Median Wage	Employed Workers	2010-14 Change employment	Median Wage	Employed Workers	2010-14 Change employment	Median Wage	Employed Workers	2010-14 Change employment
1	$19.80	6,444	590	$18.62	1,070	536	$27.71	490	183
2	$34.82	44,249	461	$37.15	91,550	-4,780	$39.37	77,130	3,106
3	$38.98	7,991	785	$43.41	31,010	2,603	$46.00	25,420	6,776
4	$28.70	39,798	3,476	$34.01	88,210	5,110	$36.78	120,660	9,217
5	$13.35	59,998	6,763	$12.77	89,800	12,180	$15.27	115,750	17,530
6	$41.17	14,322	2,381	$48.48	45,620	7,920	$52.66	80,840	20,140
7	$19.03	18,336	-2,016	$19.23	49,600	292	$61.58	830	130
8	$31.17	4,791	317	$38.11	9,300	7,892	$42.32	11,870	5,453
9	$23.19	282,533	18,905	$26.44	570,260	32,435	$29.49	520,710	60,364

Sources: California EDD, Bureau of Labor Statistics, NCCPA, and EFA Calculations

Notice also that each occupational category, specifically the NCCPA pathways, are a mix of skill levels. Low-skill health care workers and manufacturing have seen the most trouble, along with low-skill business and finance. High-skill workers across industries, and agriculture workers across skill levels, have fared well since 2010.

Table 11, NCCPA Counties, Employment Growth by Occupation and Skills, 2010-2014

	Occupation	High Skill	Middle Skill	Low Skill	Total Chg
1	Agriculture & Natural Resources		70	520	590
2	Health Sciences & Medical Technology	930	1,787	-2,256	461
3	Engineering & Architecture	758	1	26	785
4	Business & Finance	5,233		-1,757	3,476
5	Hospitality, Tourism & Recreation			6,763	6,763
6	Information & Communication Technologies	2,381			2,381
7	Manufacturing & Product Development	369	13	-2,397	-2,015
8	Public Services		-506	823	317
	Total NCCPA Occupations	8,445	798	3,514	12,757
9	Outside NCCPA Pathways	3,426	400	15,079	18,905
	Overall Change	11,624	1,177	18,860	31,661

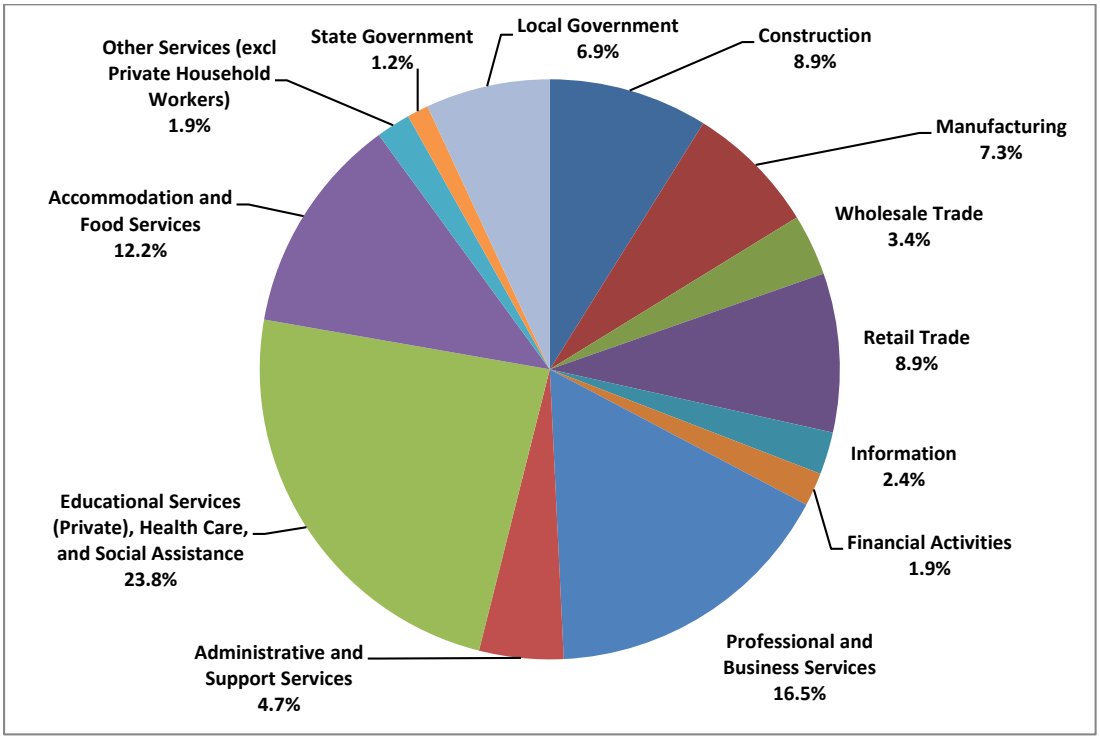
Source: OES Employment and Wages Data Tables and EFA Calculations

Forecasts for Industry Employment

Recent industry employment performance, combined with occupation employment performance and other factors, now leads us to considerations about employer hiring after 2016. The national level forecast is in place through 2024, but the regional and local forecasts are different enough to raise some doubts about how the national economic trends reflect the local economy. For the NCCPA, the slowdown in manufacturing is the pathways and how employers may hire support positions (not necessarily inside the pathways) versus mainline manufacturing occupations (inside the pathways). Figure 4 shows the predicted performance of industry employment from 2015 to 2022. The percentages represent the proportion of overall growth by industry; for example, manufacturing is predicted to be 7.3 percent of the overall employment growth of the six counties in the NCCPA (62,040 more jobs by 2022).

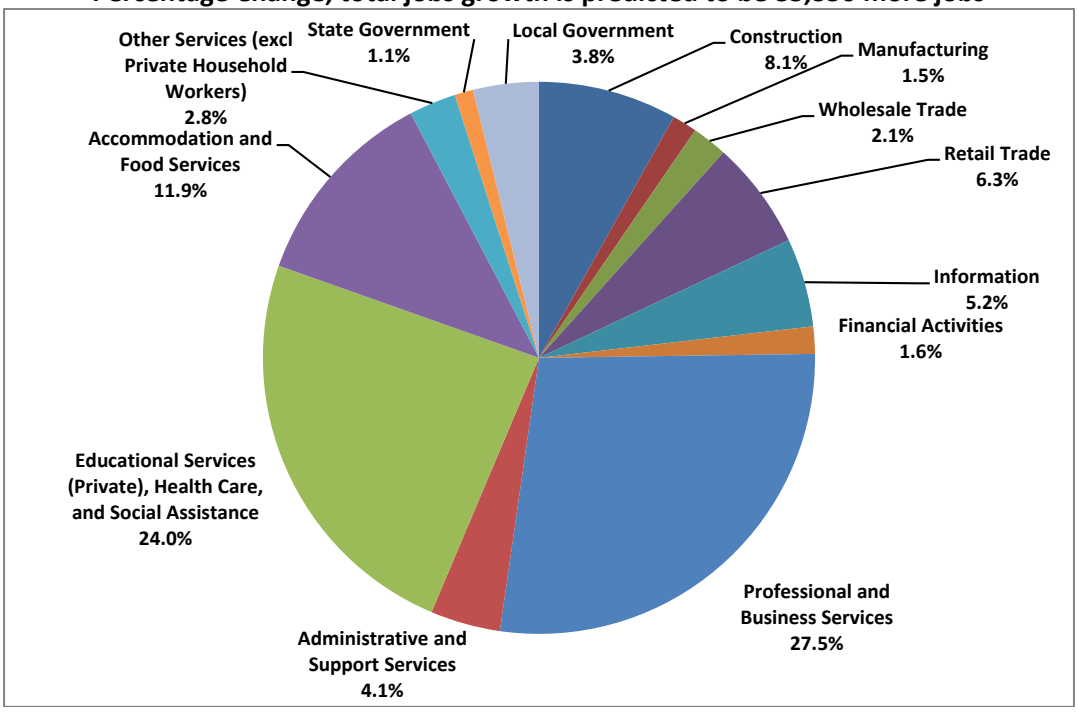
For the state of California overall, manufacturing is projected to lose over 25,000 jobs between 2015 and 2022. Thus, manufacturing is not part of Figure 5. Professional and business services, industries that hire across all services occupations are expected to be a large part of California's job growth, as are retail and tourism services. For the Bay Area, professional and businesses services are the major part of the forecast also, as San Francisco becomes more of a technology and financial hub for the world. Retail jobs growth is a similar proportion to the state economy, and manufacturing is also seen as rising, where that is a mix of biotechnology, food and beverage, and other non-durables.

Figure 4: Forecasted Growth of Industry Employment, NCCPA Counties, 2015-2022, Percentage Change, total jobs growth is predicted to be 62,040 more jobs



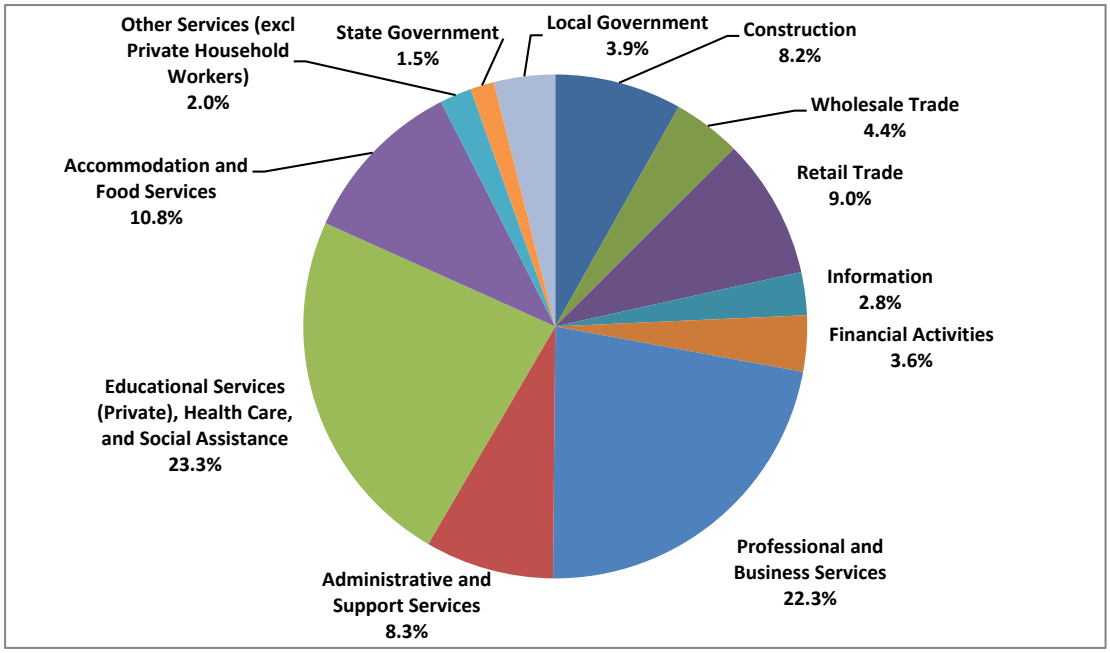
Sources: California EDD (www.edd.ca.gov) and Bureau of Labor Statistics (www.bls.gov)

Figure 5: Forecasted Growth of Industry Employment, San Francisco MSA Counties, 2015-2022, Percentage Change, total jobs growth is predicted to be 85,350 more jobs



Sources: California EDD (www.edd.ca.gov) and Bureau of Labor Statistics (www.bls.gov)

Figure 6: Forecasted Growth of Industry Employment, California, 2015-2022, Percentage Change, total jobs growth is predicted to be 1,699,320 more jobs



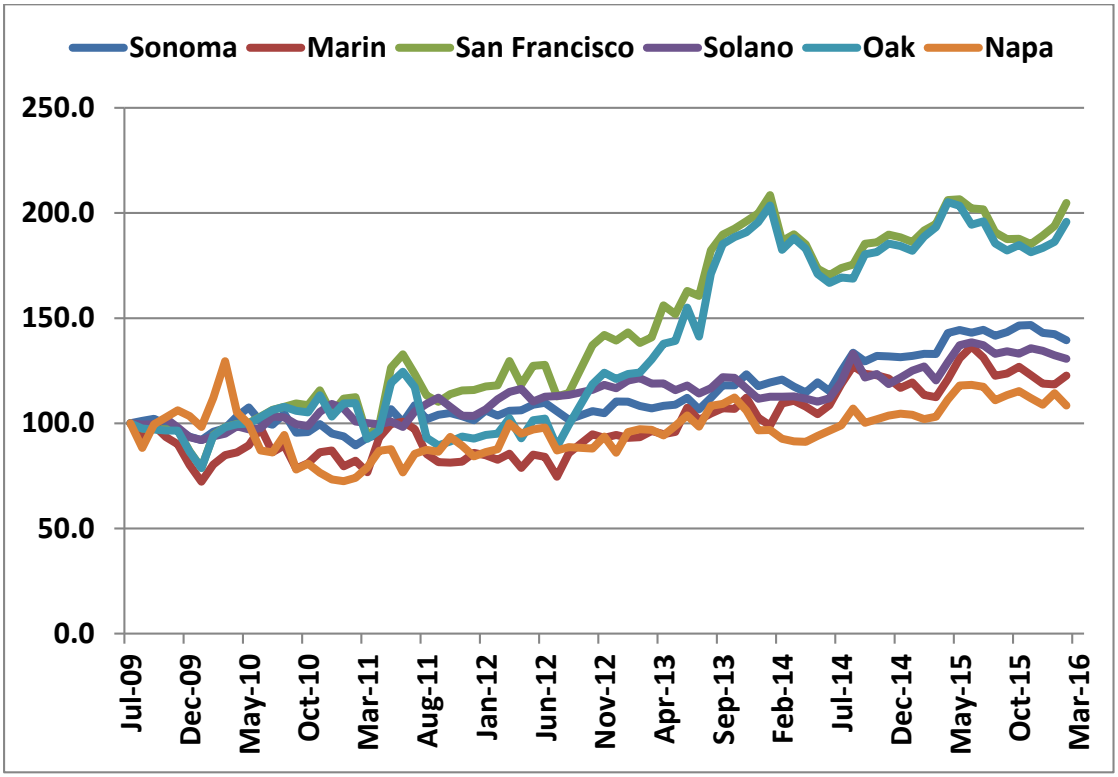
Sources: California EDD (www.edd.ca.gov) and Bureau of Labor Statistics (www.bls.gov)

Labor markets are connected to each other through the flow of commuters. The volume of commuting can make for a more complex set of requirements in planning educational programs for local (defined as within the same county or set of counties) students to be available for local employers. Low-cost commuting options makes it difficult to keep students and residents local for work opportunities if larger wage and salary opportunities are within commuting distance. Part of that commuting cost is housing.

Housing and Transportation: A Deeper Dive

While this forecast is not meant to be a polemic on housing markets or transportation systems, we need to realize that infrastructure does play a role in how integrated the regional workforce can be. For example, Sonoma, Marin, Solano, and Napa counties are all relatively well-connected by various freeways and highways. Mendocino and Lake counties are somewhat more challenged in terms of access to major labor markets and employers, outside of government or retail, due to distance. Growth of employment in Lake and Mendocino County is likely to rely more on local demographics than in-bound commuters from more-populated areas in the NCCPA; the more rural areas may be more challenged in terms of finding pathways to jobs with more global connections because of out-bound commuters living locally and working elsewhere.

Figure 7: Rental Prices, 2009-2016
Index July 2009 = 100, Selected Counties



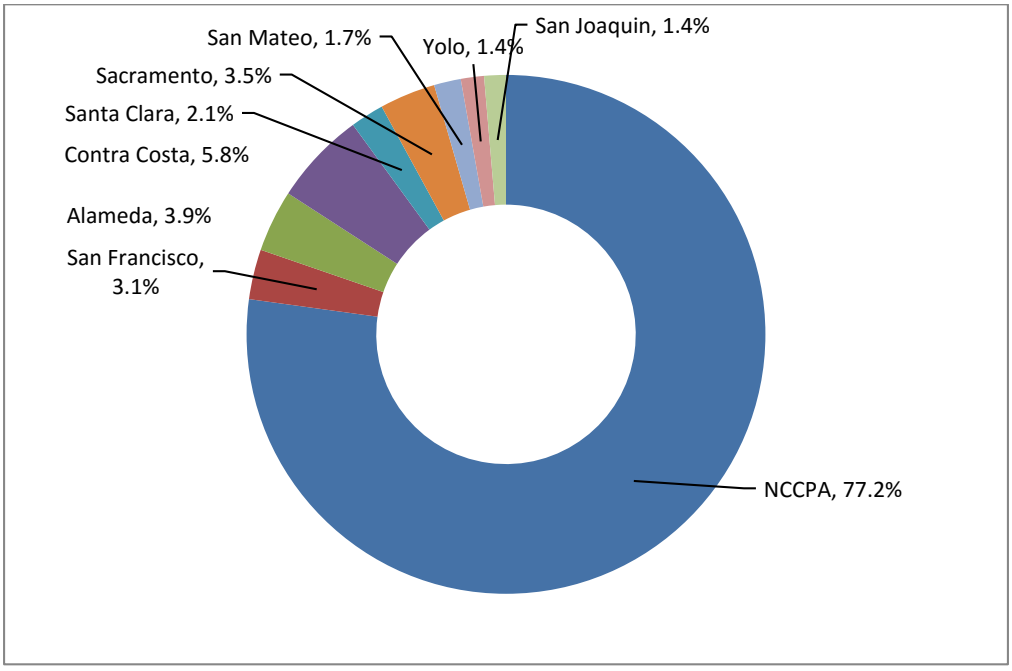
Source: Rent Jungle (www.rentjungle.com)

Housing and transportation naturally link labor markets between county economies. People travel between the core counties on a daily basis; Mendocino and Lake counties have more outflow of workers than inflow, much like any other rural areas that are adjacent to more populated areas. Figure 7 shows how quickly San Francisco and East Bay (Oak) rents have ascended; if rent is less expensive in the North Bay, and jobs pay more in the core Bay Area, when the cost of transportation is low, people commute.

The data on commuting workers does not drill down to the employer level from the industry-sector level, but can provide simple guidance as to where people come from and go. There will always be a flow of workers over county borders. These data come from the Census Bureau and its continuing data study called "Longitudinal Employment and Housing Dynamics" data or LEHD (see http://onthemap.ces.census.gov for more).

These data are important because they remind us that people flow over county lines for work and also outside the NCCPA area for jobs. In many cases, schools and community colleges will teach and educate students that will not work in the NCCPA region but may live in this region. Monitoring the commute data helps gauge the flows of labor and how occupations and employment may be different locally versus regionally.

Figure 8: Work Location of NCCPA Region residents, 2014



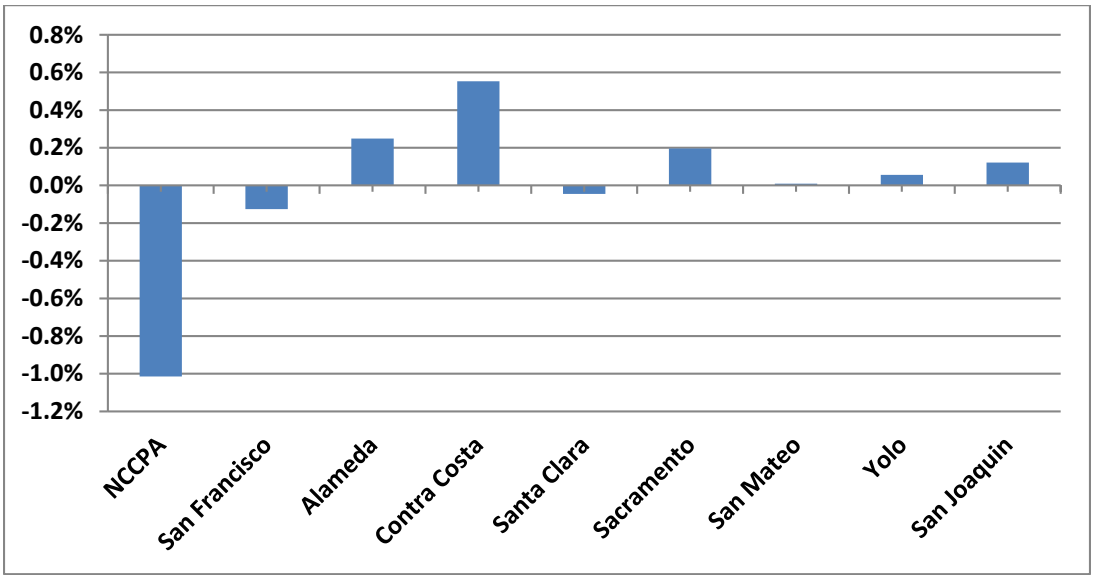
Source: LEHD (onthemap.ces.census.gov)

These data are split by where people live and where they work, and there are three categories based on a specific place (say Napa County):

1. People work in Napa County and live in Napa County;
2. People work in Napa County and live in another county (inbound commuters); or
3. People live in Napa County and work in another county (outbound commuters).

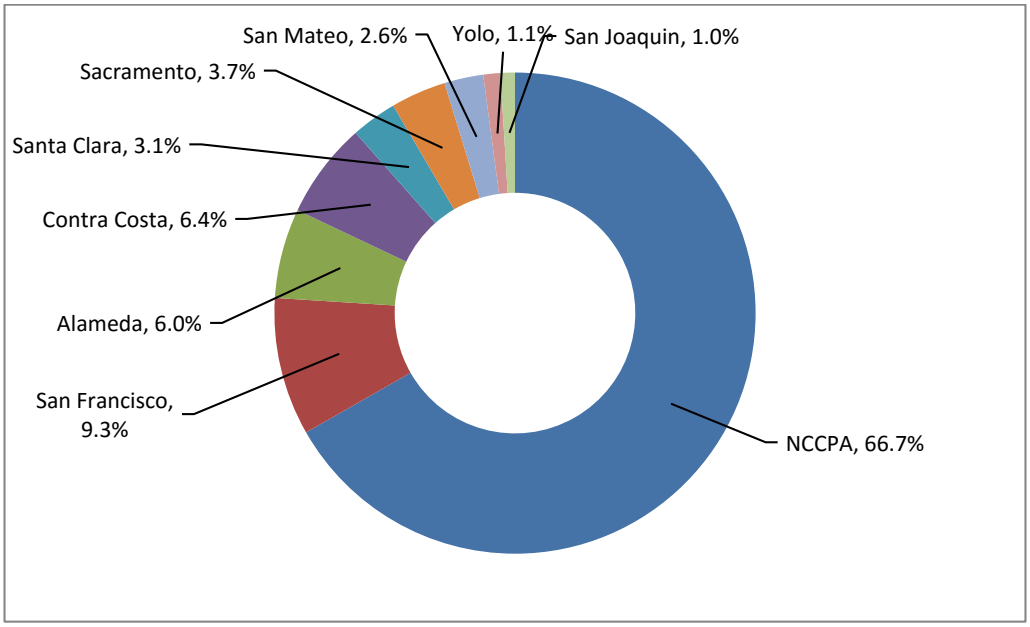
In terms of people flow, outbound commuters reduce the locally-available workforce. These are local residents leaving the area for work, suggesting there are better economic opportunities elsewhere. In the NCCPA area, as of 2014 (the latest data available), over 77 percent of workers living locally also work locally, within the NCCPA's six counties. The remaining places regional residents work are spread throughout northern California (Figure 8). Figure 9 shows what has happened to these flows since 2008 (pre-recession). Notice there is fewer people that work and live locally, meaning more outbound commuters in the NCCPA counties.

Figure 9: Change in where NCCPA workers live, 2014 and 2008, % Difference



Source: LEHD (onthemap.ces.census.gov)

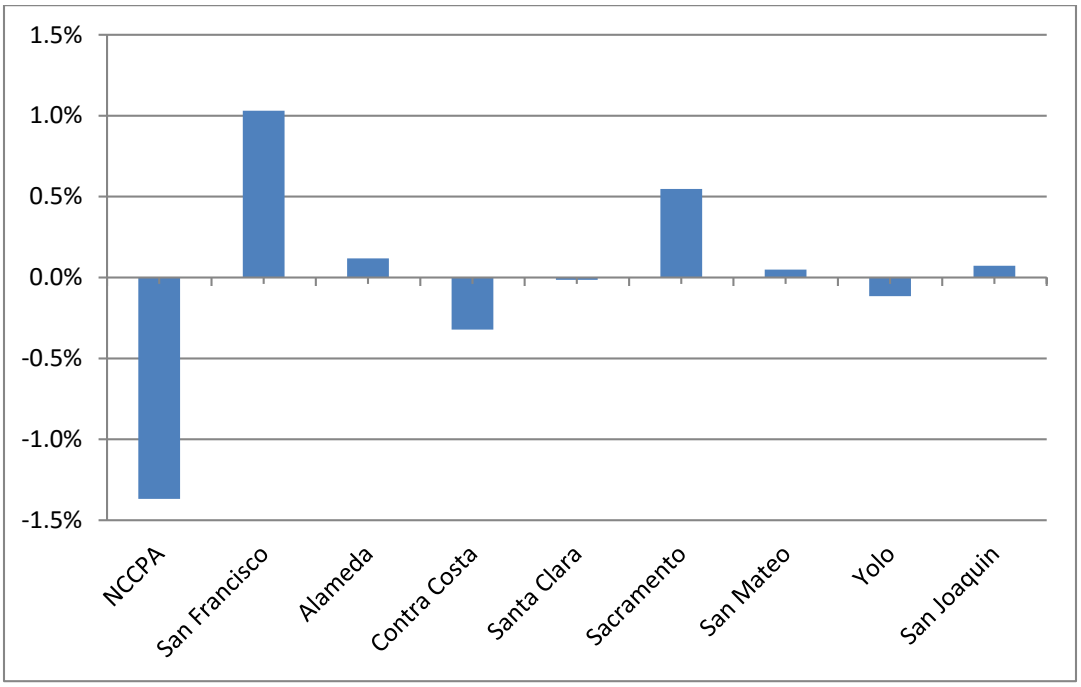
Figure 10: Residential Region of NCCPA Workers, 2014



Source: LEHD (onthemap.ces.census.gov)

Figures 10 and 11 tell a different story. These data are about who comes to work in the NCCPA. From the perspective of local employment, given the number of people working (see Tables 12 and 13), only 66.7 percent of those that work in the NCCPA also live there, and the rest come from other places to work locally. Notice in Figure 11, there have been a surge in inbound commuters to San Francisco and Sacramento, and an outflow of workers from the NCCPA to other places as commuters.

Figure 11: Change in where NCCPA residents work, 2014 and 2008, % Difference



Source: LEHD (onthemap.ces.census.gov)

Table 12: Working Residents that Live in the NCCPA Counties, Work in… Selected Areas

Work In	Employees	% of Total 2014	% of Total 2008
NCCPA	373,577	77.2%	78.2%
San Francisco	15,069	3.1%	3.2%
Alameda	18,682	3.9%	3.6%
Contra Costa	28,148	5.8%	5.3%
Santa Clara	10,121	2.1%	2.1%
Sacramento	16,874	3.5%	3.3%
San Mateo	8,101	1.7%	1.7%
Yolo	6,985	1.4%	1.4%
San Joaquin	6,538	1.4%	1.2%
Totals	**484,095**	**100.0%**	**100.0%**

Source: LEHD (onthemap.ces.census.gov)

Table 13: Working Residents that Work in the NCCPA Counties, Live in…Selected Areas

Live In	Employees	% of Total 2014	% of Total 2008
NCCPA	373,631	66.7%	68.1%
San Francisco	51,862	9.3%	8.2%
Alameda	33,743	6.0%	5.9%
Contra Costa	36,051	6.4%	6.8%
Santa Clara	17,225	3.1%	3.1%
Sacramento	20,815	3.7%	3.2%
San Mateo	14,654	2.6%	2.6%
Yolo	6,410	1.1%	1.3%
San Joaquin	5,422	1.0%	0.9%
Totals	**559,813**	**100.0%**	**100.0%**

Source: LEHD (onthemap.ces.census.gov)

A subtle data point is the difference between the totals in Tables 12 and 13: **approximately 75,800 more people leave the NCCPA counties than come into them for work**. This underscores the idea of training a workforce that currently does not work locally for over 75,000 local residents. Notice how many times the same counties are repeated, especially in the top rows. For example, in Table 13, Lake County residents travel to Sonoma, Mendocino and Napa counties for work, while works coming to Lake County (when not living there) come from mainly from Mendocino, Sonoma, Sacramento, and Napa counties. These places are all connected by transportation infrastructure, which suggests that people are willing to travel to jobs, and that regional shifts in employment and occupational demand may draw workers from beyond and to the NCCPA counties. Tables 12 and 13 underscore the regionality of these labor markets in NCCPA planning and forecasting. The Appendix provides maps of the 2014 commute data, with inbound (dark green), live and work (green circle arrow) and outbound commuters (light green) for each NCCPA county.

Connecting the Dots

One of the themes of this year's report is that the NCCPA counties are not only connected to each other, these areas also provide a workforce for the greater Bay Area. How these counties can retain the students taught here, specifically those that walk along the career pathways, is subject to broader economic forces that seek local workers for work outside this area. The employment forecast for California suggests that specific industries are going to grow between 2016 and 2022. Those include:

- Construction;
- Health Care and social assistance;
- Logistics and warehousing; and

- Leisure and Hospitality.

The national forecast is similar but leans more toward health care and away from manufacturing. For the NCCPA counties, the current forecast through 2022 suggests the following employers will be seeking more workers at faster growth rates than other industries:

- Education and health care;
- Professional and business services;
- Leisure and hospitality;
- Retail trade; and
- Construction.

Manufacturing is likely to play a role in the NCCPA counties, but more toward food and beverage manufacturing, where the regional wine industry is a dominant player. Jobs growth has been in these five industries, suggesting that the forecasts are categorically correct. However, this growth pattern has been the same for decades; outbound commuting for other industries has been on the rise since 2008.

Occupational growth has been mainly in high-skill jobs outside of tourism (leisure and hospitality) within the pathways. Growth since 2010 has happened across all industries throughout these counties and across skills. This is a good sign that these pathways are demanded, thought the negative growth figures suggest there is either room to grow or there is trouble retaining workers educated in these pathways for local jobs. Commute patterns suggest that may be the case.

Conclusions and Recommendations

The NCCPA has declared eight occupations and 16 career (occupational) pathways upon which to focus new and expanded connections to the business community. The summary table provides the growth or loss of jobs in pathways occupations and in for each NCCPA county and the eight occupational targets of the career pathways project in NCCPA's region. Occupational and employer performance since 2010 (the end of the recent recession) shows labor market recovery, with some pathways still struggling to recover. In specific, manufacturing and product development has suffered, but this was somewhat forecasted by economists since 2010.

Summary points from this year's report are as follows:

- Services-producing industries have performed better than goods-producing in terms of job growth since the recent recession ended
    - The shadow of construction's losses is slowly fading, but should continue to fade in the 2015 data and beyond
    - Manufacturing has grown in these six counties, but has been primarily in food and beverage manufacturing
- Health-care jobs, tourism and professional services (legal, accounting, etc.) have been the dominant services jobs growing;
    - Some of these gains match the NCCPA occupational pathways
    - There has been growth outside the pathways across each NCCPA county.
- State and national forecasts foresee continued jobs growth through 2022 on average
    - There may be slower years than others, but there is still no recession predicted for the US or California economies through at least 2019;
    - Manufacturing is the one industry predicted to see job losses through 2022; however
    - That prediction does not hold for the NCCPA counties, which have positive manufacturing jobs growth through 2022.
- High- and low-skilled workers have been the most in demand since 2010, with middle-skill workers remaining in the middle;
    - This is not a shocker given most of the jobs market is high-skill (Bachelor's degree or higher) and low-skill (HS diploma or less);
    - For community colleges, the challenge is the return to pathways that end at the community college, given recent demand evidence for such workers.
- Commuting confounds planning for any area, and the NCCPA has a history of outbound commuting to the larger, core Bay Area employers.
    - As many as 75,000 people per year may leave the NCCPA counties in net to work outside these areas, most to the core Bay Area counties;
    - Through Solano County, the reach of outbound commuting of local residents reaches Sacramento, San Joaquin and Yolo counties as well.

The following table summarizes the current, annual predictions for the NCCPA counties. Notice that Lake and Mendocino counties are combined here due to how data are reported. Notice the heavy, projected growth for services jobs outside of agriculture, goods-producing and government.

Table 14: Estimated Growth of Occupational Demand
NCCPA counties, 2015-2022, Annual Averages

Industry	Lake/Mendo	Marin	Napa	Solano	Sonoma	Total
Agriculture	121	0	114	14	86	335
Goods	46	107	400	614	786	1,953
Services	607	1,958	1,057	2,286	3,486	9,394
Government	147	88	100	271	371	977
Total	**921**	**2,153**	**1,671**	**3,185**	**4,729**	**12,659**

Source: California EDD (www.edd.ca.gov) and EFA Calculations

References and Data Sources

This report uses several data sources for the baseline data and for the forecasts:

American Community Survey and Decennial Census (ACS): **http://factfinder.census.gov**

Bureau of Labor Statistics (BLS): **www.bls.gov**

California Department of Finance (DOF): **www.dof.ca.gov**

Employment Development Department of California (EDD): **www.edd.ca.gov**

Longitudinal Employment and Housing Dynamics database (LEHD): **http://onthemap.ces.census.gov**

The author's calculations were used to supplement and expand the data also.

Appendix

Lake and Mendocino Counties, Employment Growth by Occupation and Skills, 2010-2014

Occupation	High Skill	Middle Skill	Low Skill	Total
Agriculture & Natural Resources	0	0	480	480
Health Sciences & Medical Technology	-227	-73	-143	-443
Engineering & Architecture	237	30	10	277
Business & Finance	-90	0	-660	-750
Hospitality, Tourism & Recreation	0	0	-1,186	-1,186
Information & Communication Technologies	3	0	0	3
Manufacturing & Product Development	0	80	261	341
Public Services	0	-430	-573	-1,003
Total NCCPA Occupations	-77	-393	-1,811	-2,281
Outside NCCPA Pathways	-448	-27	364	-111
Overall Change	-525	-420	-1,447	-2,392

Source: OES Employment and Wages Data Tables

Napa County, Employment Growth by Occupation and Skills, 2010-2014

Occupation	High Skill	Middle Skill	Low Skill	Total
Agriculture & Natural Resources	0	10	230	240
Health Sciences & Medical Technology	199	316	200	715
Engineering & Architecture	-283	0	0	-283
Business & Finance	589	0	3	592
Hospitality, Tourism & Recreation	0	0	2,583	2,583
Information & Communication Technologies	-80	0	0	-80
Manufacturing & Product Development	70	-50	-864	-844
Public Services	0	0	10	10
Total NCCPA Occupations	495	276	2,162	2,933
Outside NCCPA Pathways	69	250	3,521	3,840
Overall Change	564	526	5,683	6,773

Source: OES Employment and Wages Data Tables

Sonoma County, Employment Growth by Occupation and Skills, 2010-2014

Occupation	High Skill	Middle Skill	Low Skill	Total
Agriculture & Natural Resources	-	60	20	80
Health Sciences & Medical Technology	(70)	833	(1,083)	(320)
Engineering & Architecture	380	(100)	20	300
Business & Finance	3,053	-	(307)	2,746
Hospitality, Tourism & Recreation	-	-	3,310	3,310
Information & Communication Technologies	(40)	-	-	(40)
Manufacturing & Product Development	60	30	327	417
Public Services	-	(430)	726	296
Total NCCPA Occupations	3,383	393	3,013	6,789
Outside NCCPA Pathways	1,781	(247)	7,904	9,438
Overall Change	5,164	146	10,917	16,227

Source: OES Employment and Wages Data Tables

Solano County, Employment Growth by Occupation and Skills, 2010-2014

Occupation	High Skill	Middle Skill	Low Skill	Total
Agriculture & Natural Resources	-	-	10	10
Health Sciences & Medical Technology	346	297	(790)	(147)
Engineering & Architecture	80	33	-	113
Business & Finance	266	-	(870)	(604)
Hospitality, Tourism & Recreation	-	-	(3)	(3)
Information & Communication Technologies	350	-	-	350
Manufacturing & Product Development	60	(20)	(872)	(832)
Public Services	-	50	(77)	(27)
Total NCCPA Occupations	1,102	360	(2,602)	(1,140)
Outside NCCPA Pathways	80	180	995	1,255
Overall Change	1,182	540	(1,607)	115

Source: OES Employment and Wages Data Tables

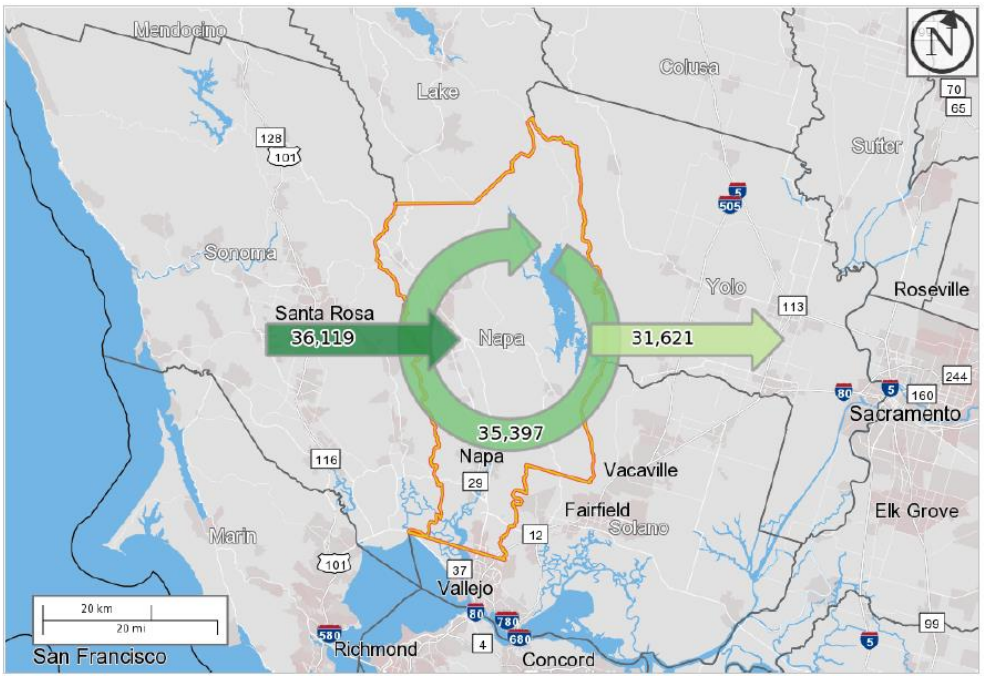
Marin County, Employment Growth by Occupation and Skills, 2010-2014

Occupation	High Skill	Middle Skill	Low Skill	Total
Agriculture & Natural Resources	-	-	20	20
Health Sciences & Medical Technology	375	6	(42)	338
Engineering & Architecture	707	53	10	770
Business & Finance	1,210	-	(199)	1,011
Hospitality, Tourism & Recreation	-	-	1,928	1,928
Information & Communication Technologies	2,215	-	-	2,215
Manufacturing & Product Development	14	7	(48)	(27)
Public Services	-	(3)	601	598
Total NCCPA Occupations	4,521	62	2,270	6,853
Outside NCCPA Pathways	2,402	310	5,478	8,189
Overall Change	6,923	372	7,748	15,043

Source: OES Employment and Wages Data Tables

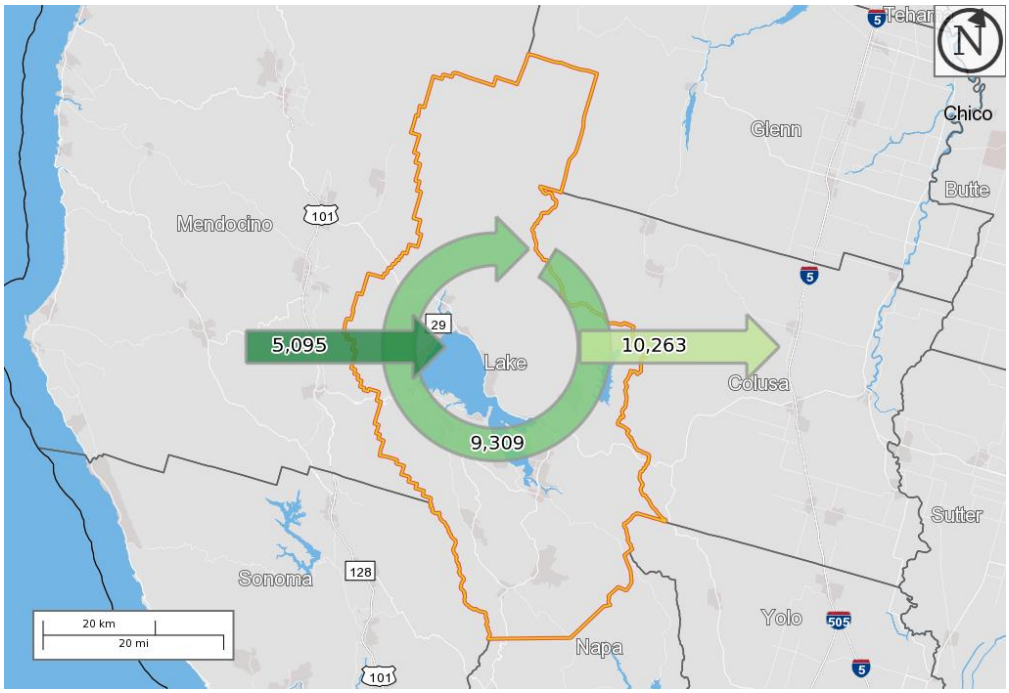
For the Maps below, the dark green is inbound workers, the green circle is workers that live and work in the named county, and the light green are residents that work elsewhere.

Napa County Commute Patterns, 2014



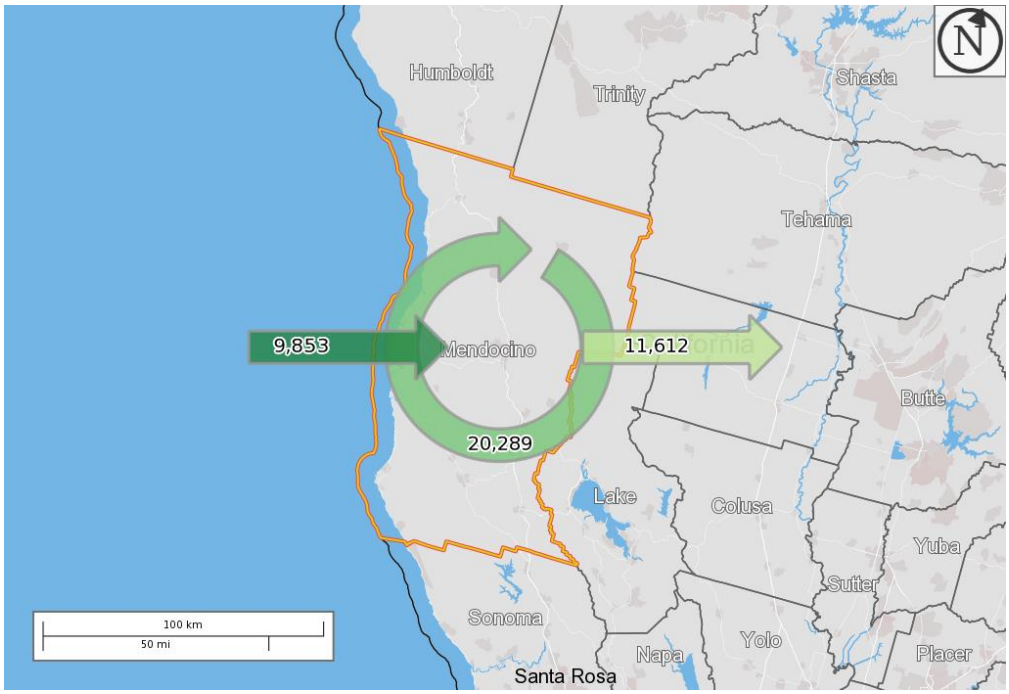
Source: LEHD (onthemap.ces.census.gov)

Lake County Commute Patterns 2014



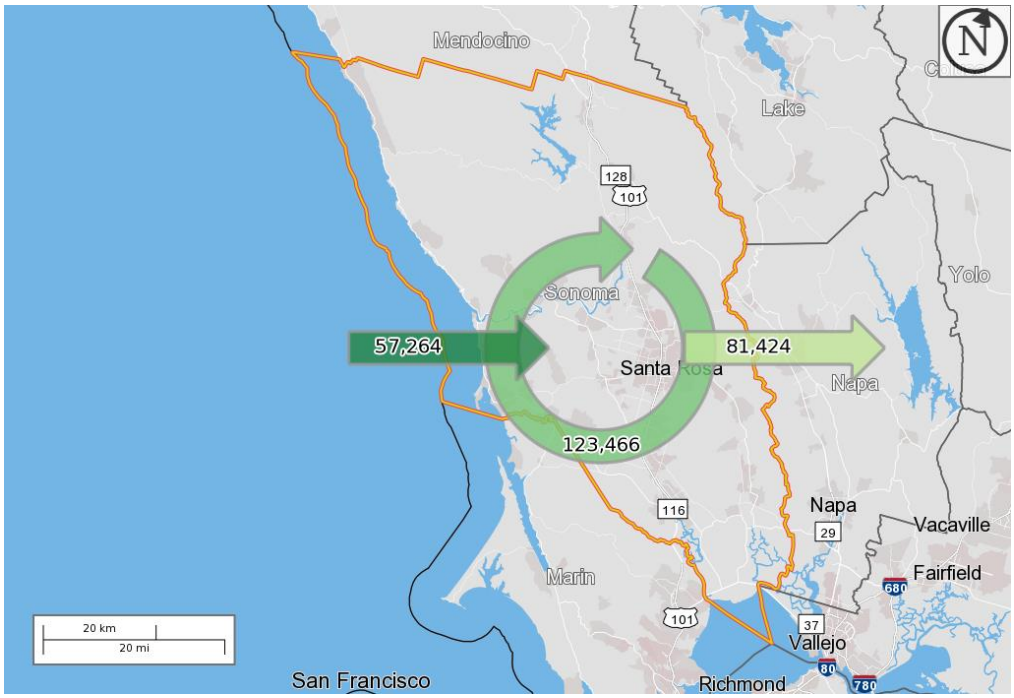
Source: LEHD (onthemap.ces.census.gov)

Mendocino County Commute Patterns, 2014



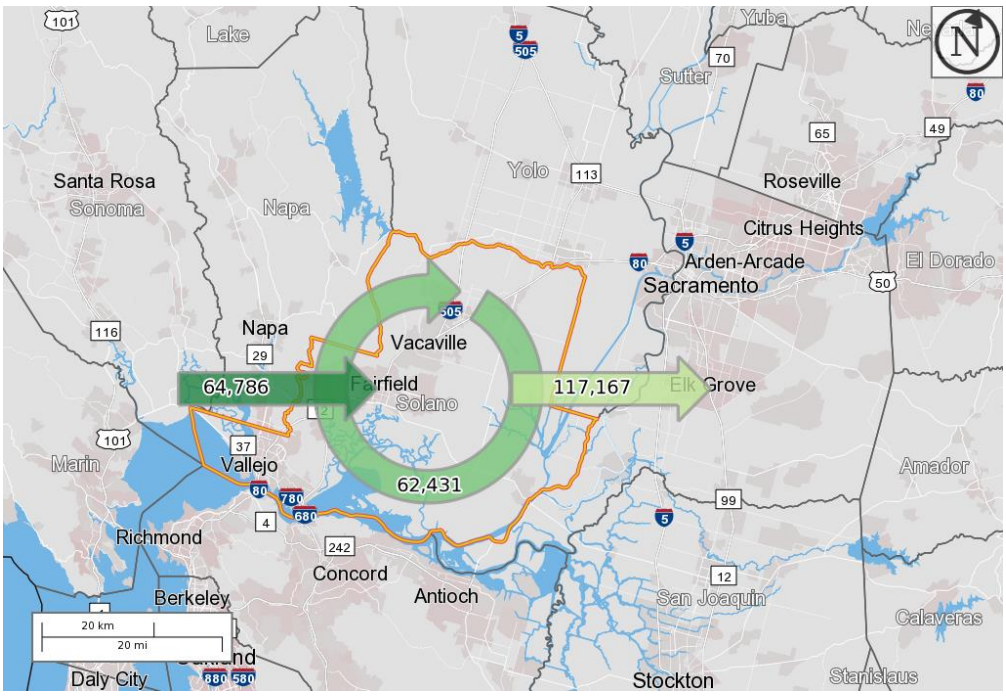
Source: LEHD (onthemap.ces.census.gov)

Sonoma County Commute Patterns, 2014



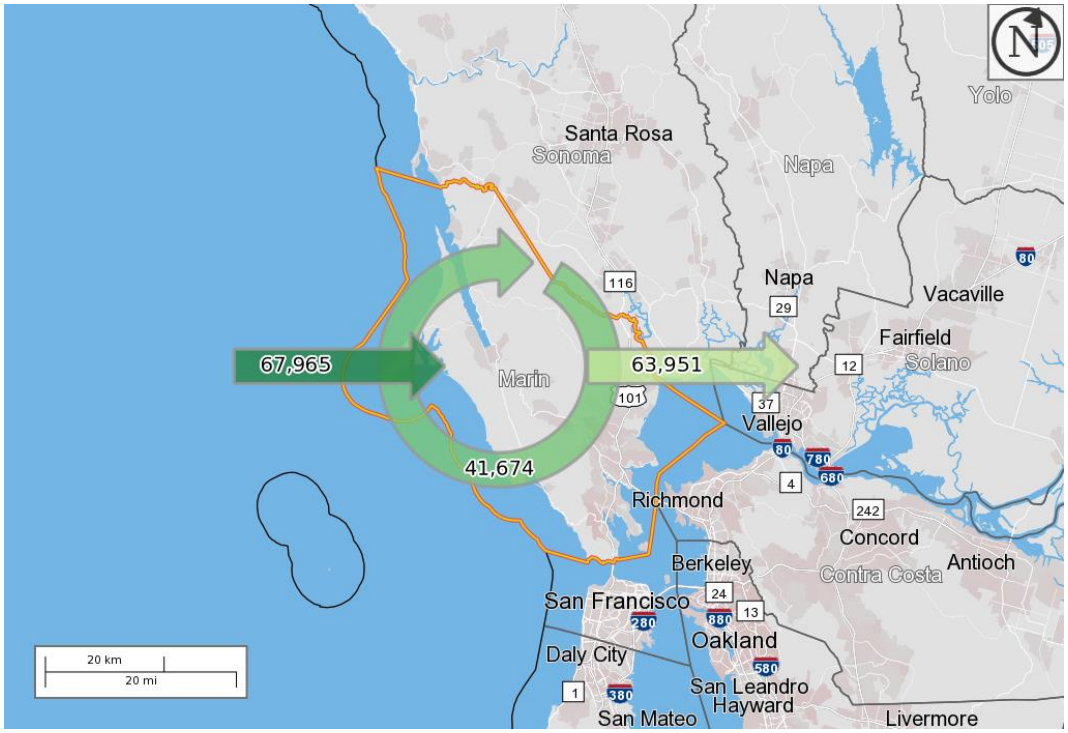
Source: LEHD (onthemap.ces.census.gov)

Solano County Commute Patterns, 2014



Source: LEHD (onthemap.ces.census.gov)

Marin County Commute Pattern, 2014



Source: LEHD (onthemap.ces.census.gov)