



2018 San Luis Obispo County WDB Report

Industry, Economic & Workforce Research

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Introduction

The San Luis Obispo County Workforce Development Board commissioned BW Research Partnership, Inc. (BW Research), an independent research firm, to conduct the 2018 Industry Cluster Analysis and Economic and Workforce Research Study. The research highlights key industry clusters, job quality, talent and educational characteristics, and commute patterns. As markets emerge and decline, the research evaluates new opportunities and challenges for workforce development in San Luis Obispo County. Some of the questions that drive this research include:

- How is the world of work changing in San Luis Obispo County and its four sub-regions (North, Coastal, City of SLO, and South)?
- What industry clusters are found in San Luis Obispo County and which ones should be the focus of workforce development efforts?
- What is San Luis Obispo County's current job quality profile?
- What types of workers are the county importing and exporting and are there opportunities to prepare current students for local employment opportunities?
- How can the Workforce Development Board work with its partners across the county to facilitate countywide workforce and economic development strategies that connect with the needs and objectives of local job-seekers and businesses?
- How can the Workforce Development Board best support regional employers who are looking for talent?

Data for this report were largely taken from the Economic Modelling Specialists Intl. (Emsi), the Bureau of Labor Statistics, California Employment Development Department, and the U.S. Census Bureau.

Contributors and Acknowledgements

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Executive Summary

Key Findings

Overall Economy

1. **San Luis Obispo County experienced strong job growth since the Great Recession, however, average earnings per job (\$56,049) are relatively low in an area where the cost of living is one-third (32%) higher than the national average.** Since 2010, San Luis Obispo (SLO) County grew by 16.1% with a total of 17,000 jobs created, a higher growth rate than the national average of 11.7%, but still below the state average (17.4%) (please see p.7 for more details).
2. **A tight labor market with low unemployment rates driven by the strong economic growth experienced in the past years could pose a growing challenge for new businesses and businesses looking to expand as the workforce shortage worsens.** Consistently strong employment growth in the county has led to an unemployment rate of 3.6%, lower than the state and national averages and below the natural rate of unemployment. This indicates a tight job market where workers are in high demand and employers face increasing difficulty finding qualified job candidates, particularly in certain industries and occupations (p.7 for more details).
3. **There are significant differences in the economic profile of San Luis Obispo County's four sub-regions, with the North County leading in employment growth and the City of SLO having the largest portion of young and highly-educated residents.** The North County experienced the largest employment and population growth since 2010, it has the highest labor force participation rate, and the lowest unemployment rate among the four county sub-regions. The City of SLO has the largest proportion of young (24 years and older), non-earner (lowest labor force participation rate), educated population, with some of the lowest commuting times and the highest proportion of people who walk or bike to work. The Coastal population is highly educated and has the largest portion of older adults (55 years and older), while the South region is the most ethnically diverse (p.7 for more details).

Job Quality

1. **A high concentration of low-paying jobs and a lower concentration of high-paying jobs pose a threat to job quality and living affordability in the county.** Most occupations can be divided into 3 tiers; tier 1 occupations are higher-skill, higher-paying occupations, tier 2 occupations are middle-skill, middle-wage occupation, and tier 3 occupations are lower-skill, lower-paying occupations. In SLO County, over half (51%) of all jobs are low-wage, tier 3 jobs, less than one-fifth (19%) are higher-wage, tier 1 jobs, and 31% are tier 2 jobs. This high concentration of tier 3 jobs is likely to continue as these jobs experienced the highest growth among the three tiers (more details starting on p. 11) since 2010.
2. **Mid-skill jobs are growing at a slower pace than low-skill jobs in SLO County, with a portion of mid-skill workers finding themselves working in these growing, low-skill positions.** Although tier 2 jobs are currently

at state-level concentrations, these jobs experienced the lowest growth rates among the three tiers. High underemployment rates among middle-skill workers in the county show that 9.1% of middle-skill workers are either involuntarily working part-time or are working in a position below their qualification level. As tier 3 jobs continue to grow in the county, middle skill workers increasingly find themselves working in tier 3 jobs and working in a position below their qualification level. Since tier 3 jobs do not typically provide enough income for workers to afford living in the county and do not offer much upward mobility, it is important for the county to focus on the growth of higher-paying, tier 1 and tier 2 occupations (more details starting on p. 11).

3. **San Luis Obispo County is a net exporter of talent in higher-paying occupations and a net importer of talent in lower-paying occupations such as sales and service positions.** This indicates that there are more residents in the labor force working in higher-paying occupations such as management, business, science, and arts occupations than are available jobs in the county, consequently at least some residents for these types of positions need to leave the county to find work. On the other hand, there are more jobs than resident workers in lower paying positions like sales and service, meaning the county is attracting workers from outside the region to fill-in available positions. This is aligned with the high concentration of lower-paying, tier 3 jobs, high underemployment rate among mid-skill workers, and the negative underemployment rate in low-skill workers in the county (more details starting on p. 49).

Industry Clusters Analysis

1. **Industry clusters like energy, information and communication technologies (ICT), biotechnology & biomedical devices (B&BD), and building & design offer above average wages and strong career pathway opportunities.** In addition to continuous growth in the past five years and high wages, the majority of jobs in these clusters fall under tier 1 and tier 2 occupations. It is important to support the growth of these clusters to respond to the county's high living costs and below state-average salaries. Additionally, these clusters provide career pathways with opportunities for career progression and skill development. A forthcoming challenge the county will face is the closure of the Diablo Canyon Nuclear Power Plant and approximately 1,500 positions that will be impacted. To ensure local talent remains in the county and this industry continues to thrive, it will be important to transition the plant's employees into equivalent positions in SLO County (see p.18 for more details).

Challenges in SLO County

1. **Job volatility brought by automation and technological advancements is likely to impact SLO's economy in the next 5 to 10 years given the high concentration of jobs in volatile industries such as tourism, hospitality, and recreation and agriculture & food.** SLO County has a greater percentage of highly volatile jobs (31%) than the national average (22%). These findings indicate that nearly three out of every ten jobs in San Luis Obispo County will likely be impacted by automation and technology in the next 5 to 10 years, changing the skills and training required for the position or changing the position and title altogether. This is an important thing to consider as new skills and training is needed as the resident workforce responds to changes in the world of work. Students, job-seekers and current workers should recognize the need for foundational, technical and non-technical skills to adapt and respond to the expected changes in the

world of work and develop the ability to transfer to in-demand and higher paying career pathways (more details on p.15).

2. **Lower average wages combined with higher than average housing costs continues to be a challenge to economic growth in SLO County with half of those renting and 35% of homeowners spending 35% or more of their gross income on housing.** This is important because if a large portion of residents' income is spent on housing, that means little discretionary spending leftover, which is often the spending that spurs much of the local economy and allows residents to re-invest in training and education. With high living costs and low average wages, it becomes challenging to afford to live in the county. To be able to attract and retain talent and businesses, affordable housing needs to be addressed in SLO County (more details on p.43).

3. **Underemployment among previously middle-wage workers.** While the county's unemployment rate is low with a generally tight labor market, San Luis Obispo does have a challenge with underemployment, particularly with its middle skill workers. The underemployment analysis completed as part of this study, reveals that underemployment for middle-skill workers in San Luis Obispo County is about eight times the statewide average (9.1% vs. 1.1%) and can also be explained by tier 3 positions growing more than 30% faster than tier 2 occupations in the county since 2010. (more details on p.9).

Next Steps

The research in this report profiles several economic and social indicators for San Luis Obispo County to properly identify community strengths, challenges, and opportunities. To improve both economic development and quality of life, the research team has identified the following next steps or areas of focus for San Luis Obispo County's Workforce Development Board.

Support innovation & entrepreneurship programs, particularly those in emerging industry clusters within the county. With the county's high living costs, and low-wage, tier 3 jobs outpacing the growth of higher-paying jobs, it is important for San Luis Obispo County to support industry clusters such as information and communication technologies, building and design, and biotechnology and biomedical devices, as they offer above average wages and employment that falls mostly within tier 1 and tier 2 jobs. Building upon current initiatives such as Cal Poly's Center for Innovation & Entrepreneurship, the **expansion of free business consulting and training to support businessowners and entrepreneurs** will be vital to help grow current businesses, attract more businesses, and increase job quality in the county.

Identify and prioritize industry and occupational career pathways that support regional employers, key industry clusters and underemployed local talent. Wage disparities, middle-skill underemployment, job volatility, and uneven talent demand between industry clusters all contribute to the need for prioritized industry and occupational career pathways. These career pathways should identify the foundational, technical, and non-technical skills that allow individuals to grow along given pathways and provide information on the training and educational opportunities available in the county and the region.

“Ticket into Tech” - Technology Apprenticeship Program 2.0

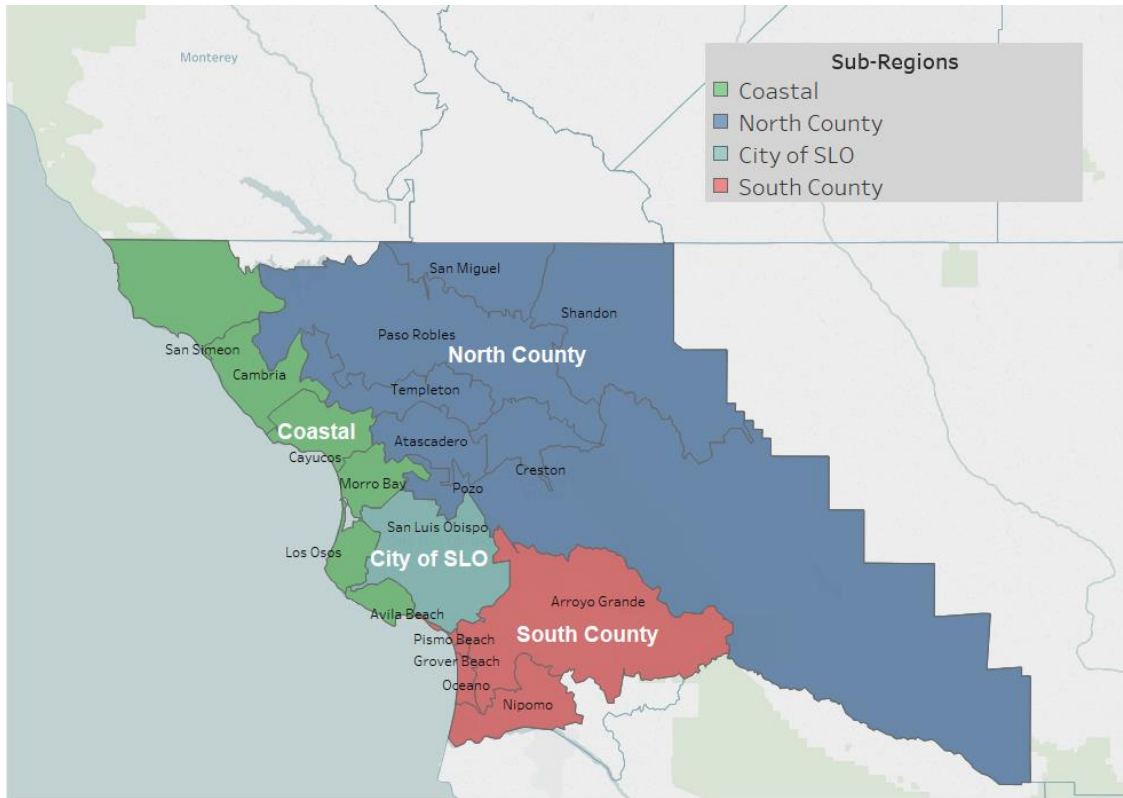
SLO Partners, a regional consortium of educational organizations and industry stakeholders founded in 2014 under the San Luis Obispo County Office of Education, recently created a technology apprenticeship program that is providing an innovative approach to supporting local employers and developing local talent that provide pathways into higher paying technology occupations, like IT technician, software tester and software developer. The “Ticket into Tech” program is an innovative approach to connect local talent to the world of work for several reasons;

1. The program is built around the ***needs of local employers***, in particular technology occupations that they have identified as being difficult to recruit in the county.
2. This apprenticeship program is based on the need to develop ***hands-on learning and contextual experience***, in an emerging occupational pathway that does not have a history of established apprenticeships.
3. The software/IT occupational pathway that is the focus of this apprenticeship program, ***serves several of SLO’s key industry clusters*** that have been identified in this study, including Information & Communication Technologies (ICT), as well as industries that require information technology expertise and software developers such as Biotechnology & Biomedical Devices, Healthcare, and Education & Knowledge Creation.

For more information on this new, innovative program developed in San Luis Obispo County, go to <https://www.slopartners.org/>

Establish consistent feedback loops with industry specialists and the employer community to better understand the changing dynamics of industry and occupational career pathways. Like in many other places, automation and technology advancements will impact local jobs such as changing skills and training required or changing the position and title altogether. It is valuable for the Workforce Development Board to develop mechanisms to gather feedback quickly and consistently from local employers and industry specialists to better understand how the world of work is changing, which resources local businesses need to grow, and what skills and career pathways workers should invest in. The consistent feedback obtained from this partnership will inform things such as local innovation & entrepreneurship and workforce training programs.

San Luis Obispo County



For this report, the San Luis Obispo County is divided into four sub-regions:

Coastal	North	City of San Luis Obispo	South
Avilla Beach, Cambria, Cayucos, Los Osos, Morro Bay, San Simeon,	Atascadero, Creston, San Miguel, Paso Robles, Pozo, Shandon, Templeton	San Luis Obispo	Arroyo Grande, Grover Beach, Nipomo, Oceano, Pismo Beach City

For zip code breakdowns of the sub-regions, please see Appendix A.

Economic and Workforce Profile

Employment Overview

San Luis Obispo (SLO) County supports over 122,800 jobs. Average earnings per job are \$56,049, which is lower than both the state- and national average of \$78,217 and \$66,029, respectively. The rebound from the Great Recession between the years of 2010-2017 included 16.1% job growth, or about 17,000 jobs created in SLO County (Figure 1). This growth rate is considerably higher than the national average (11.7%) and close to the state average (17.4%) during the same time period (Table 1). The county's sub-regions experienced varying rates of growth; North County led with 17.9% growth in jobs, followed by the Coastal and South sub-regions (16.2%). The City of SLO, which was the sub-region that grew the least (14.6%), still outpaced the national average (Table 1: Overall Employment Growth by Region, 2010-2017).

Consistent growth in SLO County has led to low levels of unemployment. The county has a low unemployment rate of 3.6%,¹ considered to be below the range of natural unemployment² and indicating a tight labor market with workers in high demand. While still low, the South County has the highest unemployment rate among the four sub-regions at just below 4 percent, with rates in the other regions ranging from 3.1 to 3.2% (Table 2).

Another measure of regional economic health, the civilian labor force participation rate (LFPR) examines the total number of civilians either actively employed in the labor force or seeking work, compared to total individuals 16 years of age or older. San Luis Obispo County has a lower than state- and national average LFPR, meaning that the proportion of retirees, students, and people not seeking work in San Luis Obispo County is higher than in California and the country (Table 2).

¹ Source: California Economic Development Department, 2017 Annual Average. Extracted July 2018.

² Federal Reserve, 21 March 2018. Can be accessed at: https://www.federalreserve.gov/faqs/economy_14424.htm.

Economic Profile Summary

While overall employment growth in San Luis Obispo is exceeding the national average, average wages per job are below the national and state average and the cost of living is above the national average. Among the sub-regions, only North County has exceeded the average state growth rate, while the remainder of the sub-regions consistently exceeded the national growth rate by 3 percentage points or more.

Strong growth in the county has kept unemployment lower than the state and national averages and below the natural rate of unemployment. This low unemployment rate presents a challenge to local businesses, as they may face difficulty finding qualified applicants.

Why is this Important?

Total job growth is a general indicator of economic health—how businesses are supporting regional population growth by creating jobs for new residents moving to San Luis Obispo or young adults just entering the workforce. At the same time, **unemployment** metrics highlight over- or undersupply of workers for certain types of jobs in a region's economy. For San Luis Obispo County, the labor market is considered "tight," with more jobs than available workers.

Figure 1: Overall Employment Growth in San Luis Obispo County, 2010-2017³

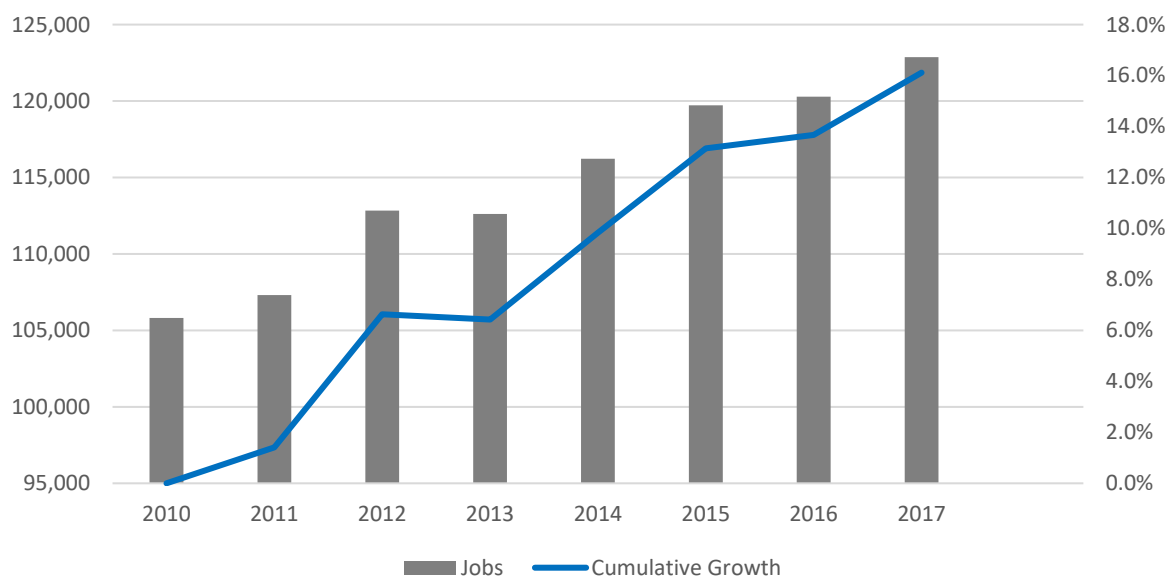


Table 1: Overall Employment Growth by Region, 2010-2017⁴

Region	Employment Growth
San Luis Obispo County	16.1%
North County	17.9%
City of SLO	14.6%
Coastal	16.2%
South County	16.2%
California	17.4%
United States	11.7%

³ Emsi 2018.2 QCEW and Non-QCEW Employees. Extracted July 2018.

⁴ Emsi 2018.2 QCEW and Non-QCEW Employees. Extracted July 2018.

Table 2: Labor Force Participation (2016) and Unemployment Rates (2017) by Region⁵

Region	Labor Force Participation Rate	Unemployment Rate
San Luis Obispo County	59.3%	3.6%
North County	64.1%	3.1%
City of SLO	52.2%	3.1%
Coastal	55.9%	3.2%
South County	61.0%	3.6%
California	63.4%	4.8%
United States	63.5%	4.4%

Note: data for city and census designated places were used as a proxy for the sub-regions' unemployment rates since unemployment rates are not provided at zip code level. As such, there are undesignated areas that are not included in the data and consequently the average unemployment rates among the sub-regions do not perfectly match the county's average.

Underemployment

An **underemployed worker** is someone who is working in a position below his or her qualification level - someone who is overqualified for their current position (e.g. someone with a bachelor's degree working as a bartender)- or someone who is working part-time but is seeking a full-time position.

Underemployed workers include workers with higher skills, more formal education, and more experience than the job requires, workers involuntarily working in a different field than their formal education or in a part-time position, and workers earning 20% less than their previous job.

Another important metric to examine is **underemployment**, or underutilization of skills, which occurs for example when someone with a bachelor's degree is working as a bartender. Underemployment rates can paint a different picture than merely looking at unemployment rates as, technically, underemployed workers count as employed, yet these workers may not be making a living wage, may not be working full-time, and may not have access to health insurance. Positive underemployment rates indicate the percentage of labor force that is employed in occupations requiring less skills and negative rates indicate a deficit of workers needed to fill available positions.

⁵ **Labor Force Participation Rates:** American Community Survey. 2016 5-Year Estimates. Extracted July 2018; **Unemployment Rates:** Unemployment Rates for California: California Economic Development Department, 2017 Annual Average Revised. Extracted July 2018; Data for Cities and Census Designated Places (CDP) were used as a proxy for the sub-region's unemployment rates. North County: Atascadero, Paso Robles, Lake Nacimiento CDP, San Miguel CDP, Shandon CDP, and Templeton CDP; Coastal County: Cambria CDP, Cayucos CDP, Morro Bay City; City of SLO: San Luis Obispo; South County: Grover Beach City, Oceano, Pismo Beach City.

In San Luis Obispo, underemployment rate⁶ for medium skill-level workers⁷ is above state-average (9.1% compared to the state's rate of 1.1%). This shows that **9.1%** of medium-skill level employees in SLO County are working in lower skill-level occupations and earning less than what would be expected given their skill level. For high-skill workers, the underemployment rate is 1.2% (state's average is 1.0%) and for low-skill workers, the underemployment rate is negative (-10.3%), meaning there is a deficit of workers required to fill-in available positions.

The above metrics are overall indicators of a region's economic health, highlighting the extent to which businesses in San Luis Obispo County are creating enough jobs to support the region's current and future population. The following section will examine to what extent these jobs support sustainable wages and careers for residents across the region.

⁶ Source: JobsEq, Chmura Economics & Analytics, 2018.1. Exported July 24, 2018.

⁷ Low skill – the highest educational attainment is a high school diploma, equivalent, or lower; Medium skill – the highest educational attainment is a 2-year college degree, certificate, or some college and no degree; High skill – the educational attainment is a bachelor's degree or higher.

Job Quality

Employment trends and economic snapshots are important in analyzing job quantity, but they fall short in analyzing job quality. For the purpose of analyzing job quality in the county, most occupations were categorized into one of three occupational tiers based on wages and educational attainment.

Tier 1 Occupations

include managers, professional positions (lawyers, accountants, physicians), and high-skill technical occupations (scientists, programmers, engineers). These are typically higher-paying occupations. In San Luis Obispo County, the **median wage for a Tier 1 worker is \$80,413 a year.**

Other Counties:

Monterey: \$88,483

Santa Barbara: \$91,478

Santa Cruz: \$84,344

Ventura: \$87,152

Tier 2 Occupations

include sales positions, teachers, librarians, office and administrative positions, as well as manufacturing, operations, and production occupations. These can be considered middle-skill, middle-wage position. In San Luis Obispo County, the **median wage for a Tier 2 worker is \$46,530 a year.**

Other Counties:

Monterey: \$49,733

Santa Barbara: \$48,277

Santa Cruz: \$48,298

Ventura: \$47,840

Tier 3 Occupations

include protective services, food service and retail, building and grounds keeping, and personal care positions. These are typically lower-paying occupations. In San Luis Obispo County, the **median wage for a Tier 3 worker is \$25,730 a year.**

Other Counties:

Monterey: \$25,792

Santa Barbara: \$25,792

Santa Cruz: \$25,896

Ventura: \$25,792

Most jobs in SLO County are tier 3 jobs (51%), followed by tier 2 (31%), and tier 1 jobs (19%). The overall job quality in the county is lower than the state- and national averages, with a smaller proportion of higher-paying, tier 1 jobs and a greater proportion of tier 3 jobs in the county than in California and the country (Figure 2). This indicates that the county offers relatively fewer higher paying jobs, which means little upward mobility is available to those in tier 3 occupations. Looking at other coastal Counties, this trend is also seen in Santa Barbara, Santa Cruz, Ventura, Sonoma, and especially in Monterey County (Figure 3).

The quality of jobs within the county has diverged over the past decade, with tier 1 and tier 3 jobs seeing strong growth (16.4% and 17.6%, respectively) and tier 2 jobs experiencing a smaller increase (13.4%) (Figure 4). These growth rates mirror an underlying national trend where both higher and lower-skill jobs are growing at rates that are outpacing the growth of middle skill jobs (Tier 2). This increasing polarization of job quality can have compounding effects; as middle-class jobs decrease in relative abundance, pathways for upward mobility become increasingly difficult; workers are rarely able to transition directly from tier 3 to tier 1 jobs without significant educational investment.

Job Quality Summary

Job quality in San Luis Obispo County is a little lower than in California and the country as a whole, with a larger portion of tier 3 jobs and a lower portion of tier 1 jobs in the county, compared to the other two regions. Job quality has increasingly polarized in the county, as tier 1 and tier 3 jobs have been accounted for most of the county's job growth, increasing by 16% and 18% since 2007. During this same time, tier 2 jobs increased 13%. This suggests relative decline in the proportion of middle-class employment in the county.

Looking at the county's sub-regions, job quality is highest in the City of SLO where the concentration of tier 1 jobs is 8 to 10 percentage points higher than in the other sub-regions.

Why is this Important?

Job quality is one of the most important indicators for a region's long-term economic sustainability. Medium and high wage jobs are important because they not only provide families a comfortable quality of life but allow them to stimulate more economic activity within the region.

Not only are these low-paying jobs insufficient at supporting the region's relatively high cost of living, many low-skill occupations have potential to be replaced through automation in the near future; this could lead to a negative feedback loop in which individuals with low educational attainment are at risk of losing their jobs yet simultaneously unable to find work in higher-skill positions.

Figure 2: Job Quality in San Luis Obispo County vs Statewide and National Compositions, 2017⁸

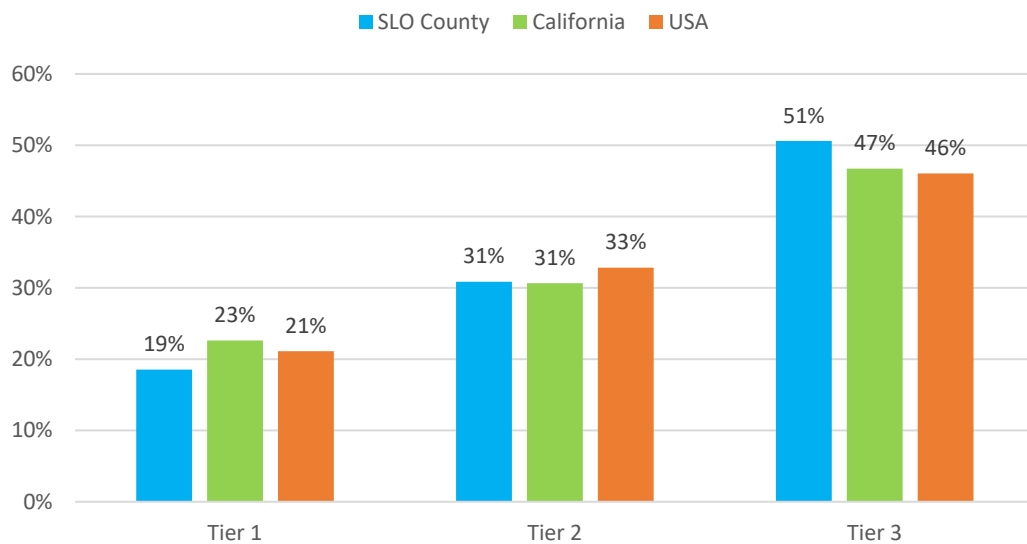
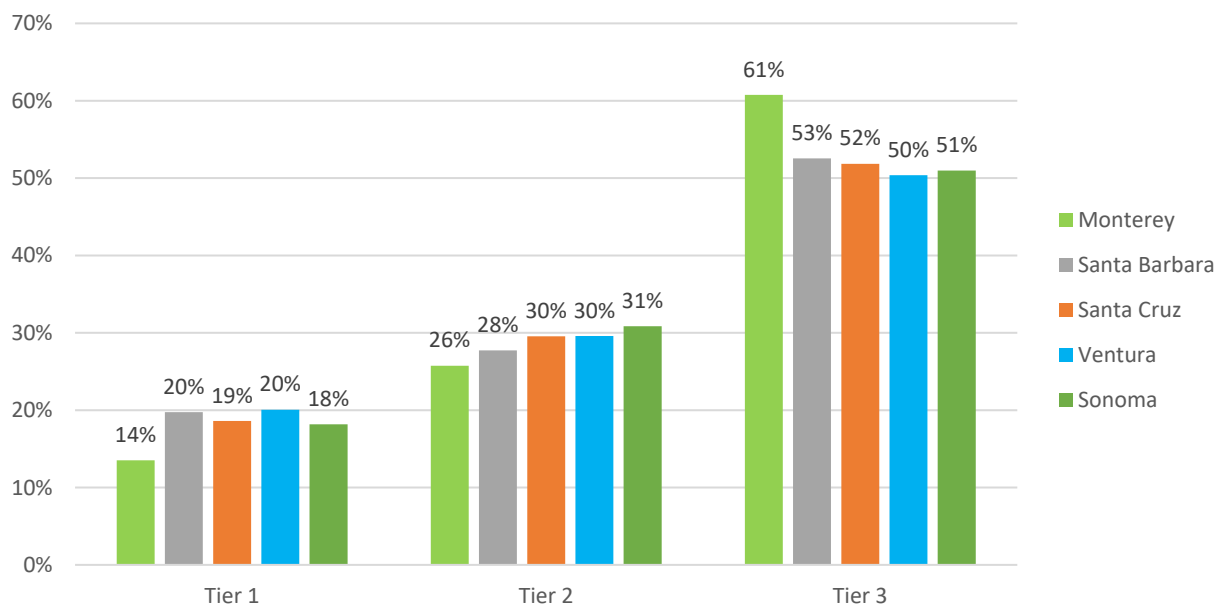


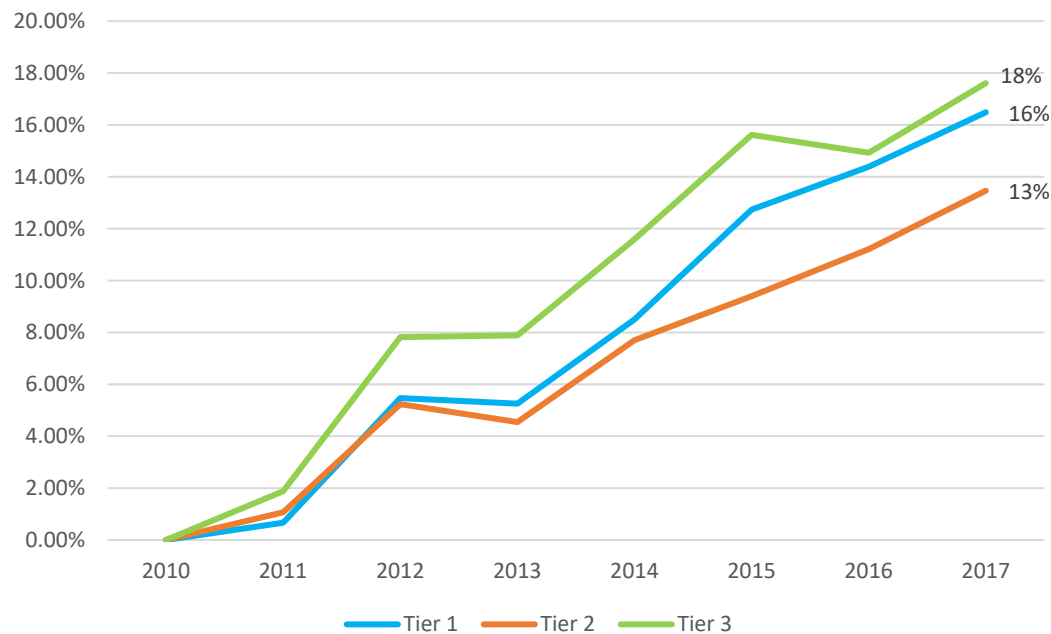
Figure 3: Job Quality by County, 2017⁹



⁸ Emsi 2018.2 QCEW and Non-QCEW Employees. Extracted July 2018.

⁹ Emsi 2018.2 QCEW and Non-QCEW Employees. Extracted July 2018.

Figure 4: Employment Growth by Job Quality, 2010 - 2017¹⁰



Looking at SLO County sub-regions, job quality is highest in the City of SLO, where the concentration of tier 1 jobs is 8 to 10 percentage points higher than in all other sub-regions. The Coastal sub-region has the highest proportion of tier 3 jobs and the lowest proportion of tier 1 jobs among all sub-regions (Table 3). The high proportion of tier 3 jobs in the Coastal sub-region is being driven by the high employment numbers in the Tourism, Hospitality & Recreation industry cluster, where 91% of the jobs are tier 3 jobs.

Table 3: Job Quality Distribution by Region, 2017¹¹

	Tier 1	Tier 2	Tier 3
SLO County	18.5%	30.9%	50.6%
North County	16.3%	32.7%	51.1%
Coastal	13.3%	27.3%	59.4%
City of SLO	23.4%	30.3%	46.3%
South County	15.0%	30.9%	53.0%
California	22.4%	30.3%	46.2%
United States	20.8%	32.4%	45.4%

¹⁰ Emsi 2018.2 QCEW and Non-QCEW Employees. Extracted July 2018.

¹¹ Emsi 2018.2 QCEW and Non-QCEW Employees. Extracted July 2018. It should be noted that percentages will not sum to 100, as not all occupations can be delineated into one of the three tiers.

The quality of jobs growth experienced in the county was also observed across the North sub-region and the City of SLO, but not in the Coastal and South Counties. While the Coastal sub-region saw marginal growth in tier 1 jobs (5.39%) and virtually none in tier 2 jobs (0.69%), the South County lost jobs in Tiers 1 and 2, and only saw growth within tier 3 occupations. To improve quality of life in the SLO County, it is important to continue to increase tier 1 and tier 2 jobs, as tier 3 employment typically does not provide enough income for people to afford to live in the county. In fact, it would take 2.27 tier 3 jobs for a family of two adults (one working) and two children to meet self-sufficiency in the county (Table 4). Even tier 2 employees have a difficult time making ends meet in San Luis Obispo—as the median wage (\$46,530) would require 1.26 tier 2 jobs to meet their family’s needs.

Table 4: Number of Jobs Required to Meet Family Self-Sufficiency¹²

	Median Annual Wage	Number of Jobs to Meet Family Self-Sufficiency
Tier 1	\$80,413	0.73
Tier 2	\$46,530	1.26
Tier 3	\$25,730	2.27

Job Volatility

Today’s world of work is continually changing and many of the jobs of today will not be found in the jobs of tomorrow. **Job volatility** is the likelihood that a given occupation will experience disruptive change to the skills, requirements, and/or demand for those positions. As such, BW Research recently (2017 data) completed a national analysis of job volatility by occupational segment and industry cluster to better understand how the world of work could change over the next five to 10 years. The analysis focused more specifically on the impact that technology and automation can have on employment opportunities into the future. The analysis looked to:

- Assess occupations and industry employment patterns based on current job skills and the likelihood that those skills could be replaced by technology or some related advancement in automation;

Job Volatility Summary

Job volatility is the likelihood that a given occupation will experience disruptive change to the skills, requirements, and/or demand for those positions.

San Luis Obispo County has a greater percentage of highly volatile jobs compared to the national average. Nationally, 22% of employment is currently found in positions that are considered highly volatile, while in the county 27% of current employment would fall into the highly volatility category. The largest contributor to the county’s employment volatility is the Tourism, Hospitality, and Recreation industry—San Luis Obispo’s largest industry—employing 16% of the workforce.

¹² Family self-sufficiency is defined as the living wage for two adults, one working, with two children—\$28.10 per hour, or \$56,049 per year.

- Evaluate and better understand the magnitude of change that is likely to occur in employment composition by industry and occupational segment over the next five to 10 years; and,
- Measure the potential job volatility within a given region, such as San Luis Obispo County, and the impact it could have on the county’s industry clusters.

The national job volatility analysis included a review of historical industry and occupational trends from 2010 to 2016 as well as an examination into the skills and abilities that are required in today’s occupations. The examination of occupational skills was built upon an assessment of the likelihood of that skill being automated and its relative importance for the position.¹³

From an occupational perspective, San Luis Obispo County has a greater percentage of highly volatile jobs than the national average. Nationally, 22% of employment is currently found in positions that are considered highly volatile according to our national analysis. Approximately 27% of current SLO County employment would fall into the highly volatility category. These findings indicate that over one out of every four jobs in San Luis Obispo County will likely be impacted by automation and technology in the next five to 10 years, changing the skills and training required for the position or changing the position and title altogether.

Table 5: Five Most Volatile Industries

Industries	2017 Jobs in SLO County	Percent of Total Jobs in SLO County
Agriculture & Food	8,800	7%
Logistics	2,789	2 %
Water	261	0%
Other Manufacturing	2,274	2%
Tourism, Hospitality, and Recreation	19,510	16%
Total	33,634	27%

The largest contributor to the county’s employment volatility is the Tourism, Hospitality, and Recreation industry—San Luis Obispo’s largest industry—employing more than 18% of the workforce. This industry was the fifth most volatile industry according to our calculations. Occupations in this industry most at risk are those which require generally repetitive and non-customer-facing positions. The abundance of restaurants, hotels, and bars will likely see volatility in positions such as sous-chefs, waiters, and administrative staff. The industry’s relatively low wages (\$25,428 in SLO County) makes this automation likely to occur further in the future until the costs of automation decrease. SLO County also has a high

¹³ Automation Assessment included information and analysis from the following study:
https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

concentration of employees in the Agriculture & Food industry—the county has nearly three times (2.8x) more workers than the national average.

Industry Clusters

Industry clusters are geographic concentrations of businesses that typically share a common market and exchange supporting goods and services. Unlike the traditional industry sector, clusters are comprised of interrelated industries complementing various elements of a supply chain, creating a local ecosystem of businesses. Industry clusters are also a useful framework to identify relevant focal points for workforce and economic development. Industry cluster analyses outline local economic drivers, emphasizing job growth and quality allowing San Luis Obispo County's Workforce Development Board to:

1. **Engage with employers** that are central to countywide economic growth. A focus on industry clusters provides insight into how local employers collaborate to drive the county's economic growth.
2. **Provide valuable information to current workers and job-seekers** looking to develop new skills and career pathways. Workforce development focused on key areas of growth will capitalize on the region's employment opportunities, guide individuals to sectors with strong employer demand, and grow the local economy.
3. **Design programs that best support the current and projected regional workforce demand.** Industry cluster analysis helps understand regional employer demand to create valuable workforce development programs.
4. Ensure that job-seekers can **transition into employment with sustainable wages** and strong career opportunities because most industry clusters are targeted towards high-quality employment within the county.

Industry Cluster Summary

Six important industry clusters in San Luis Obispo County include (a) Information and Communications Technologies, (b) Energy (c) Healthcare, (d) Biotechnology and Biomedical Devices, (e) Defense, Aerospace, and Transportation Manufacturing and (f) Building and Design. Collectively, these clusters accounted for more than 28,000 workers in 2017 or about 23% of the workforce. The average annual wages for these six clusters are between \$58,000 and \$167,000 a year and employment has grown by between 11% to 51% between 2010 and 2017.

Why is this Important?

Industry clusters provide a framework to help identify opportunities for workforce development. This analysis highlights San Luis Obispo's specific areas of strength both currently and likely into the future, allowing for appropriate planning and investments to be made that best support the county's jobseekers and employers.

Since the previous report for the Workforce Development Board in 2014, the **industry clusters analyzed for San Luis Obispo County have changed**. In 2014, the research focused on six San Luis Obispo County specific industry clusters¹⁴, that represented just under half (46%) of the County's employment. For this

¹⁴ The six San Luis Obispo County specific industry clusters analyzed in 2014 include; Building, Design & Construction, Green Energy, Health Services, Knowledge & Innovation, Specialized Manufacturing, and Uniquely SLO County.

report, BW Research began with 18 standard industry clusters that encompass the national economy and allow for an easy comparison among states and regions. Rather than focusing on specified industry clusters and potentially missing important, emerging industries in the county, the research team analyzed all 18 standard industry clusters that provided a broad overview of the county’s economy and help identify the county’s strengths and opportunities from both a workforce and economic development perspective. Additionally, the 18 standard industry clusters include the latest 2017 NAICS definitions. For ease of understanding and analysis, the 18 industry clusters were divided into three categories based on average wage; high-wage clusters provide an average annual wage of more than \$75,000, mid-wage clusters offer wages between \$54,000 and \$74,999, and low-wage industry clusters have an average annual wage that is less than \$54,000 per year.

San Luis Obispo County Industry Cluster Overview

The industry clusters providing the largest number of jobs in the county are tourism, hospitality and recreation, education & knowledge creation, and healthcare. Together, these three clusters account for almost 50,000 jobs or 41% of all jobs in the county. The industries that saw the greatest proportional growth in the county since 2010 are information & communication technologies (ICT) (51%), building & design (41%), and defense, aerospace, & transportation manufacturing (DATM) (37%). These industries have been the backbone of the mid- to higher-wage job growth in the county, with average wages between \$59,069 and \$81,880.

The table and graph below show the industry clusters providing the highest average earnings in the county, including energy, public services & infrastructure, water, ICT, biotechnology & biomedical devices (B&BD), and finance & banking, insurance, and real estate (FIRE). These clusters provide above county-average earnings of over \$75,000 and a total of 20,768 jobs (17% of all jobs in the county). Most of these clusters experienced growth since 2010, except for water and FIRE which decreased by -4% and -2%, respectively. ICT and B&BD have experienced the largest growth since 2010 and energy and water have the highest job concentration in the county, as compared to the national average (Table 6 and Figure 5).

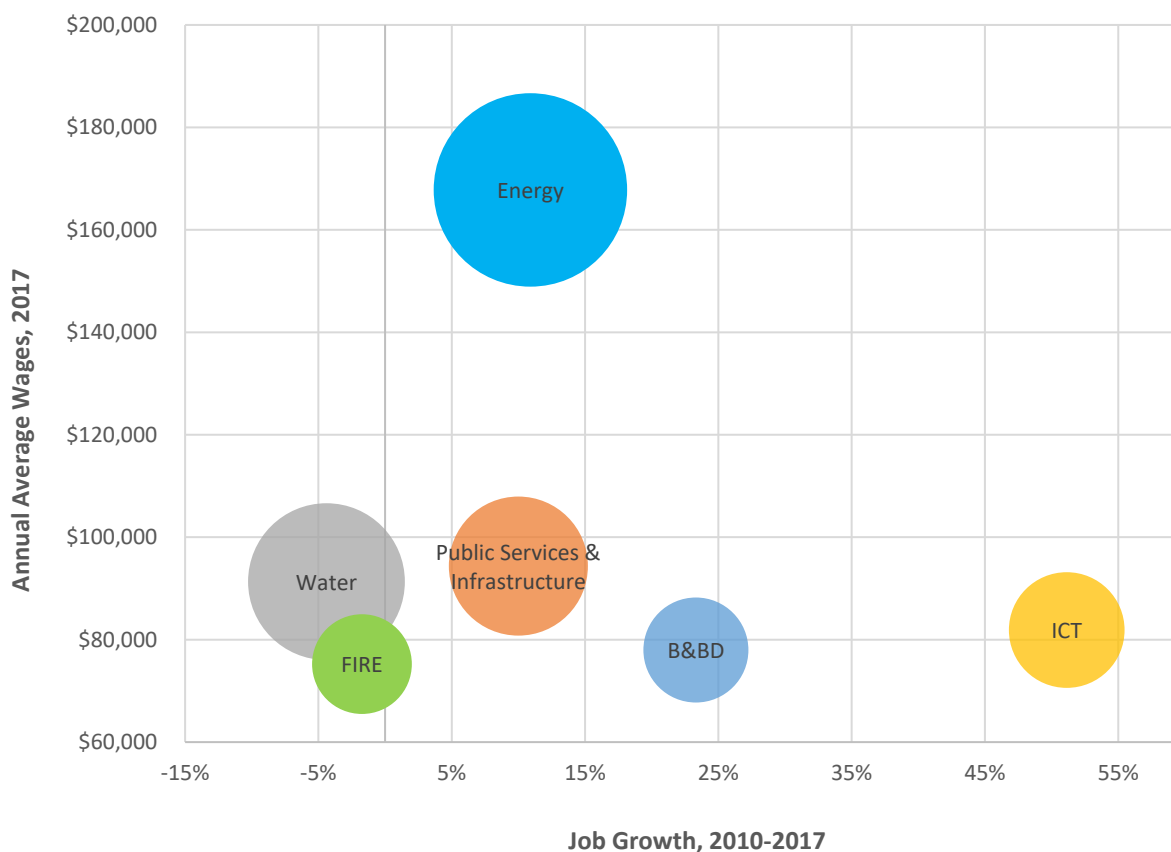
Table 6: Industry Cluster Overview - High Wage Clusters

Industry Clusters	2017 Employment	% Growth since 2010	Earnings per Worker	2017 LQ
Energy ¹⁵	3,265	11%	\$167,791	2.07
Public Services & Infrastructure	10,016	10%	\$94,367	1.07
Water	261	-4%	\$91,330	1.36
Information & communication technologies (ICT)	2,666	51%	\$81,880	0.74

¹⁵ This industry cluster will be significantly impacted with the closure of the **Diablo Canyon Power Plant**, with approximately 1,500 employees, or 46% of all jobs in this cluster.

Biotechnology & biomedical devices (B&BD)	989	23%	\$77,979	0.61
Finance & banking, insurance, and real estate (FIRE)	3,571	-2%	\$75,232	0.55

Figure 5: High-Wage Industry Clusters¹⁶



Note: The size of circles represents job concentration, as compared to the national average (Location quotient – LQ)

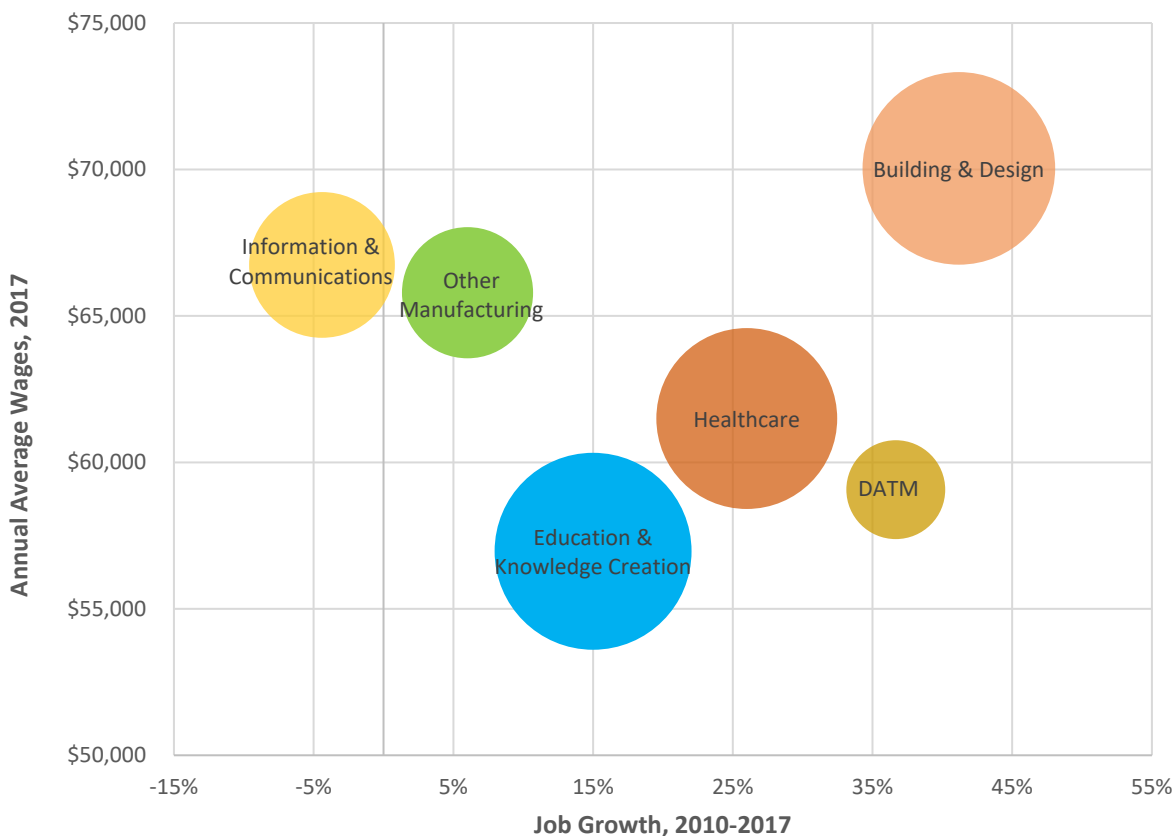
The table and graph below illustrate the middle-wage industry clusters, which provide average earnings between \$56,965 and \$70,037. Together these clusters provide nearly 42,000 jobs - or 34% of all jobs in the county - and have experienced growth since 2010, except for information & communications which saw a 4% decline. Additionally, while education & knowledge creation and building & design have job concentrations 15% and 10% above the national average, the other four clusters have job concentrations below the national average (Table 7 and Figure 6).

¹⁶ Source: Emsi 2018 q.2 Class of Worker Data.

Table 7: Industry Cluster Overview - Middle Wage Clusters

Industry Clusters	2017 Employment	% Growth since 2010	Earnings per Worker	2017 LQ
Building & Design	7,861	41%	\$70,037	1.10
Information & Communications	912	-4%	\$66,741	0.63
Other Manufacturing	2,274	6%	\$65,792	0.51
Healthcare	15,158	26%	\$61,497	0.97
DATM	533	37%	\$59,069	0.29
Education & Knowledge Creation	15,259	15%	\$56,965	1.15

Figure 6: Middle-Wage Industry Clusters¹⁷



Note: The size of circles represents job concentration, as compared to the national average (LQ)

¹⁷ Source: Emsi 2018 q.2 Class of Worker Data.

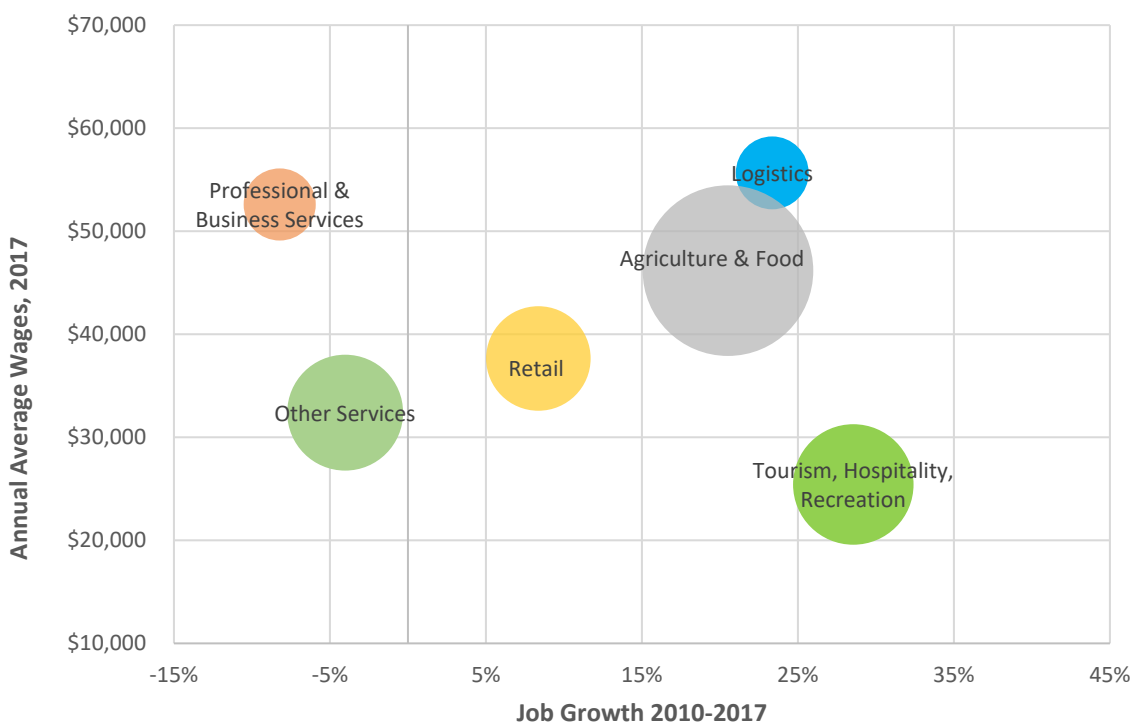
The table and figure below show the low-wage industry clusters, which provide between \$25,424 to \$55,662 in average earnings. These clusters are responsible for close to 60,000 jobs, or close to half (48%) of all jobs in the county. Most clusters experienced growth since 2010, except for professional and business services and other services, which saw an 8 and 4% decline, respectively (Table 8 and Figure 7). The decline in professional & business services, which was also experienced in the neighboring Santa Barbara County, is driven by a significant decline in the temporary help services industry (-1,709 jobs). It is worth noting that some of the highest job concentrations (location quotient – LQ) in the county are found in these lower-paying clusters (e.g. 2.80, 1.40).

Table 8: Industry Cluster Overview – Low-Wage Clusters¹⁸

Industry Clusters	2017 Employment	% Growth since 2010	Earnings per Worker	2017 LQ
Logistics	2,789	23%	\$55,662	0.51
Professional & Business Services	6,085	-8%	\$52,596	0.50
Agriculture & Food	8,800	21%	\$46,175	2.80
Retail	14,425	8%	\$37,650	1.05
Other Services	7,083	-4%	\$32,393	1.29
Tourism, Hospitality, Recreation	19,510	29%	\$25,424	1.40

¹⁸ Source: Emsi 2018 q.2 Class of Worker Data.

Figure 7: Low-Wage Industry Clusters¹⁹



Note: The size of circles represents job concentration, as compared to the national average (LQ)

Regional Industry Clusters

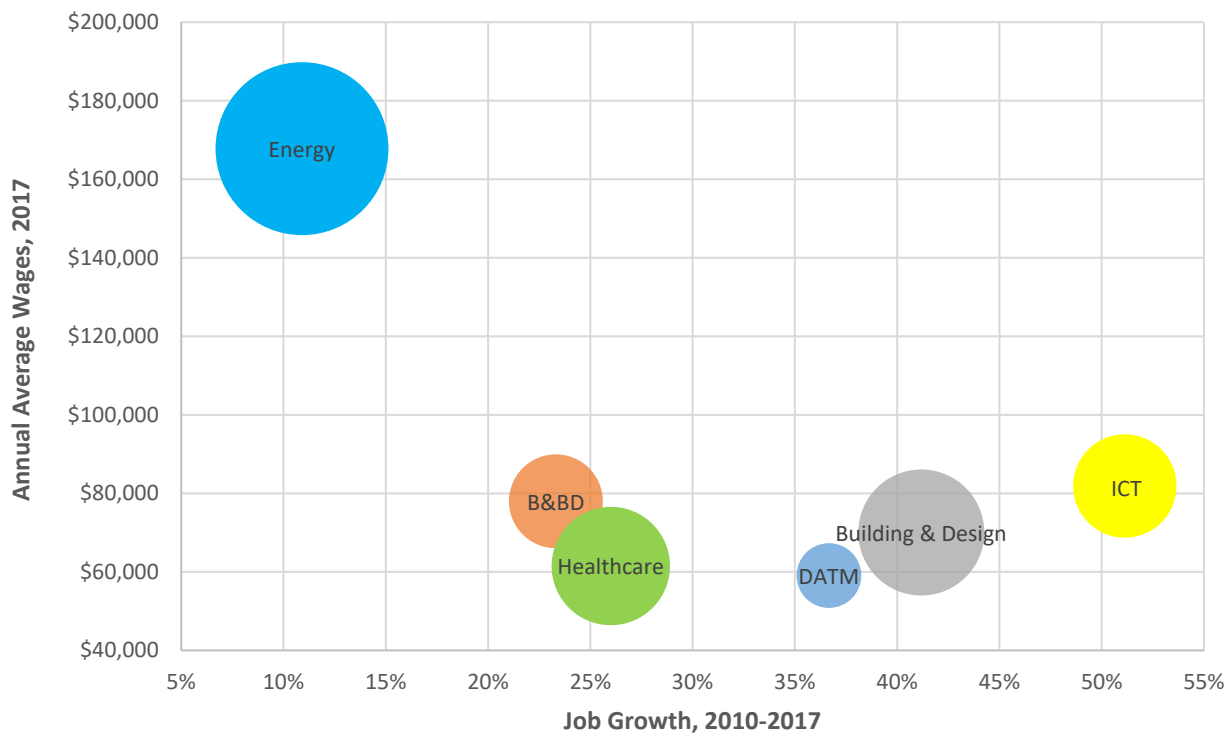
From the 18 industry clusters analyzed, the research team identified **six industry clusters** of interest based on overall employment, job growth, average earnings, and regional concentration. As we look for economic and workforce opportunities in the county, these clusters not only provide opportunities for training and workforce development, but also offer strong career pathways with opportunities for new skills and higher salaries (Table 9).

¹⁹ Source: Emsi 2018 q.2 Class of Worker Data.

Table 9: Regional Industry Clusters²⁰

Industry Clusters	2017 Employment	% Growth since 2010	Earnings per Worker	2017 LQ	2017 % Exported Sales
Energy ²¹	3,265	11%	\$167,791	2.07	81%
Information & communication technologies (ICT)	2,666	51%	\$81,880	0.74	35%
Biotechnology & biomedical devices (B&BD)	989	23%	\$77,979	0.61	83%
Building & Design	7,861	41%	\$70,037	1.10	27%
Healthcare	15,158	26%	\$61,497	0.97	34%
Defense, aerospace, & transportation manufacturing (DATM)	533	37%	\$59,069	0.29	79%

Figure 8: Regional Industry Clusters²²



Note: The size of circles represents job concentration as compared to the national average (LQ)

²⁰ Source: Emsi 2018 q.2 Class of Worker Data.

²¹ This industry cluster will be significantly impacted with the closure of the **Diablo Canyon Nuclear Power Plant**, with approximately 1,500 employees, or 46% of all jobs in this cluster, facing an uncertain future.

²² Source: Emsi 2018 q.2 Class of Worker Data.

Energy – this industry cluster provides a total of 3,265 jobs in the SLO County, with high average earnings of \$167,791, a job growth of 11% since 2010, and a job concentration that is 107% above the national average. Almost two-thirds (35%) of all Energy jobs are tier 1 jobs, 42% are tier 2, and 23% are tier 3 occupations. Some of the highest paying occupations include architectural and engineering managers, nuclear engineers, industrial production managers, and training and development specialists.

Information & Communication Technologies (ICT)- this cluster has a total of 2,666 jobs in the county with average earnings of \$81,880 per job, 51% job growth since 2010, and a job concentration that is 26% below the national average. ICT has the largest proportion of tier 1 jobs among all clusters, with nearly every 7-in-10 jobs being a tier 1 occupation (69%), followed by 19% of tier 2 jobs, and 12% of tier 3 jobs. Some of the highest-paying occupations in this cluster include computer and information systems managers, computer network architects, electronics engineers, and software developers.

Building & Design- this industry cluster is responsible for a total of 7,861 jobs in the county with average earnings of \$70,037, a job growth of 41% since 2010, and a job concentration that is 10% above the national average. Most jobs in B&D are tier 2 jobs (67%), followed by tier 1 (22%), and tier 3 (11%). Some of the highest-paid occupations in this cluster include architectural and engineering managers, landscape architects, construction managers, surveyors, and civil engineers.

Diablo Canyon Nuclear Power Plant

An important issue the county faces is the recent decision to close the Diablo Canyon Nuclear power facility. This closure will most likely disrupt the **Energy industry cluster**, as the plant's 1,500 employees (~46% of all jobs in this cluster) will face an uncertain future.²³

Since this decision, the California Public Utilities Commission has approved a plan to give Pacific Gas & Electric (PG&E), the plant's operator, funds to keep and retrain the plant's employees. It will be important to ensure these employees are able to transition into an equivalent position in the county, whether in the same industry cluster or in another cluster if appropriate training is provided.

²³ "Regulators vote to shut down Diablo Canyon, California's last nuclear power plant". Los Angeles Times.

Biotechnology & Biomedical Devices (B&BD) – B&BD is responsible for a total of 989 jobs with average earnings of about \$77,979, a job growth of 23% since 2010, and a job concentration that is 39% below national average. B&BD jobs are closely distributed among tier 2 (35%), tier 3 (34%), and tier 1 (31%) jobs. Some of the highest-paying occupations in this cluster include industrial production managers, medical scientists, general and operations managers, medical and clinical laboratory technologists, and chemists.

Defense, Aerospace & Transportation

Manufacturing (DATM) – this cluster provides approximately 533 jobs in SLO County with average earnings of \$59,069, a job growth of 37% since 2010, and a job concentration that is 71% below the national average. The largest portion of DATM jobs are tier 2 occupations (43%), followed by tier 3 (38%), and tier 1 (19%). Some of the highest-paying occupations in DATM include industrial production managers, material, electronics, health and safety, and other engineers, and general and operations managers.

Healthcare – employment in this cluster is the highest among all regional industry clusters with a total of 15,158 jobs with average earnings of \$61,497, a 26% job growth since 2010, and a job concentration that is 3% below the national average. Less than half of all jobs in healthcare are tier 3 jobs (45%), almost two-thirds (31%) are tier 2 jobs, and 24% are tier 1 jobs. Some of the highest-paying jobs in this cluster include family and general practitioners, physicians and surgeons, physician assistants, and nurse practitioners and registered nurses.

Lastly, B&BD, Energy, and DATM are the most export-oriented clusters among all regional clusters with 83%, 81%, and 79% of all its sales going to outside the county, respectively. This means that new wealth is being brought into SLO from outside areas. These industries offer significant promise to San Luis Obispo County, as they offer high paying and sustainable career opportunities which bring talent and wealth into the area.

Lockheed Martin Closure

Lockheed Martin - an aerospace and defense company - is shutting its operation in San Luis Obispo. The DATM industry cluster is likely to experience some disruption, as approximately 59 of the company's employees (11% of all jobs in the DATM cluster) will be impacted.²⁴ To retain the current talent, it is important for the county to ensure these employees are able to transition to other industries or companies and are able to find comparable positions in the county.

²⁴ Source: "Lockheed Martin is laying off workers and leaving San Luis Obispo," The Tribune.

Job Quality by Industry Cluster

The following tables illustrate the distribution of jobs by their respective occupational tier within each industry cluster in San Luis Obispo County. While the largest portion of tier 1 jobs is found in ICT (69%), energy (35%), and BB&D (31%), the largest portion of tier 3 employment is found in Tourism, Hospitality & Recreation (88%), Retail (72%), and Agriculture & Food (72%). The five highlighted industry clusters below have the highest job quality with most of its jobs falling under either Tier 1 or Tier 2 occupations. Not surprisingly, four out of these five industry clusters have the highest wages among all clusters.

Table 10: Industry Cluster Job Quality, 2017 – High-Wage Clusters²⁵

	Tier 1	Tier 2	Tier 3
Information and Communication Technologies (ICT)	69%	19%	12%
Energy	35%	42%	23%
Public Services and Infrastructure	23%	51%	26%
Water	15%	73%	12%
Biotechnology and Biomedical Devices (B&BD)	31%	35%	34%
Finance, Insurance, and Real Estate (FIRE)	28%	41%	31%

Table 11: Industry Cluster Job Quality, 2017 – Mid-Wage Clusters²⁶

	Tier 1	Tier 2	Tier 3
Information and Communications	15%	50%	34%
Defense, Aerospace, and Transportation Manufacturing	19%	43%	38%
Healthcare	24%	31%	45%
Building and Design	22%	67%	11%
Other Manufacturing	16%	41%	43%
Education & Knowledge Creation	25%	35%	40%

Table 12: Industry Cluster Job Quality, 2017 – Low-Wage Clusters²⁷

	Tier 1	Tier 2	Tier 3
Logistics	12%	49%	39%
Professional and Business Services	25%	26%	50%
Agriculture & Food	10%	19%	72%
Other Services	19%	34%	47%
Tourism, Hospitality, and Recreation	5%	7%	88%
Retail	6%	22%	72%

²⁵ Source: Emsi 2018 q.2 Class of Worker Data.

²⁶ Source: Emsi 2018 q.2 Class of Worker Data.

²⁷ Source: Emsi 2018 q.2 Class of Worker Data.

Growth Forecast

Analysis of macroeconomic metrics suggest that San Luis Obispo County is experiencing robust growth. Unemployment levels across SLO County are below the national and state average and the total number of jobs have grown by 16 percent since 2010. The area is also relatively well educated; more than four out of every ten residents over the age of 25 have a bachelor's degree or higher. However, a more granular analysis reveals that some parts of the county are not experiencing equivalent advancement. Labor participation is 11 and 7 percentage points below the state and national averages in the City of SLO and Coastal sub-region respectively, and medium skill-level underemployment is 9.1% compared to the State average of 1.1%. Furthermore, mid-wage jobs have grown at a slower pace than both low- and high-skill jobs, with tier 1 and tier 3 jobs increasing by 16% and 18% since 2010, while tier 2 jobs increased by 13% during the same time.

Economic Drivers

Some of the economic drivers that will help spur economic activity and development in the near future include the presence of growing, high-paying industry clusters such as information & communication technologies (ICT), biotechnology & biomedical devices, building & design, and defense, aerospace & transportation manufacturing in the county. In ICT for example, the majority of jobs are Tier 1 (69%) and tier 2 (19%) jobs which provide high- to mid-wages that allow workers to afford living in the county. Growing these industry clusters in the area will aid in rebuilding middle class jobs and support sustained employment growth in the coming years. Additionally, the proximity to schools such as California Polytechnic (Cal Poly) State University and the availability of a well-educated workforce and can also be positive economic drivers if these workers are able to find employment with wages competitive enough to allow them to live in the county.

Challenges

SLO County also faces a number of headwinds that may slow growth and dampen future prospects. The county has a higher underemployment rate relative to the State, particularly evident in the Mid-Tier, Medium skill level jobs. This signals that there aren't enough mid-level jobs in the area leading to a decline in upward mobility. Thus, workers who otherwise would have higher-paying jobs find themselves working in positions that require less skill, fewer hours, and less compensation.

Another challenge the county will face is the closure of the Diablo Canyon Nuclear power facility. This closure will most likely disrupt the highest paying industry cluster in the county - Energy - as the plant's 1,500 employees will face an uncertain future. To ensure local talent remains in the county, it will be important to transition the plant's employees into equivalent positions, whether in the same industry cluster or in different industry clusters if appropriate training is provided. In fact, redistributing these workers among different clusters provides an opportunity for the county to diversify its economy and support a variety of industry clusters.

Lastly, it is likely the county will continue to move with the state and national employment trends, with some forecasts predicting a 2-3% job growth rate over the next two years.²⁸ To explore this and other possibilities for the county's growth, we developed two hypothetical future scenarios for San Luis Obispo County.

Scenario 1: Business As Usual

In this scenario, the trends experienced in the county over the past years will continue; they are as follows.

➤ Deterioration of job quality: Tier 3 jobs will continue to grow at a faster rate than both tier 1 and tier 2 jobs, leading to a decrease in average wages per job and a continuous deterioration of job quality, as tier 3 employment is characterized by low wages. Note that with tier 3 average wages per job of \$25,730, it takes a family of 2 adults (one working) and 2 children **2.27** tier 3 jobs to meet self-sufficiency. With living costs that are 32% above the national average, residents in SLO County will have an increasing difficult time meeting self-sufficiency.

➤ Less upward mobility: with increasing tier 3 jobs and shrinking tier 2 jobs, a growing number of mid-skill workers will find themselves working at a lower-skill, tier 3 position, leading to growing underemployment rates among mid-skill workers. Shrinking tier 2 jobs means less upward mobility for those tier 3 workers wanting better salaries and positions, as typically there are no career pathways from tier 3 to tier 1 jobs without some significant education investment.

➤ Increasing difficulty meeting self-sufficiency: with lower wages and less financial ability to live in the county, many residents will have to move outside the county to an area with more affordable housing. This leads to longer commuting times, more carbon emissions, damage of the roads, and lower quality of life.

➤ Weakened business appeal: with less talent living in the area, it becomes challenging for the county to recruit new businesses as the availability of talent is one thing businesses look for when deciding where to settle. Additionally, with lower wages than neighboring Counties such as Santa Cruz, Santa Barbara, or Monterey, and with high- and mid-wage jobs increasing at a slower pace than low-paying jobs, an increasing number of students will move outside the county to find jobs, which means the county won't be able to be to take advantage of the local availability of talent.

²⁸ Source: Emsi 2018 q.2 Class of Worker Data.

Scenario 2: Optimal Development

In this scenario, economic and workforce development efforts are focused on optimizing job and life quality, and workforce development.

➤ Improved Job Quality: To respond to the continuous growth of tier 3 jobs and the slower growth of tier 2 jobs, industries such as **information and communication technologies, building and design, and biotechnology and biomedical devices** will be encouraged to grow and create new jobs in the county. These industry clusters offer above county-average wages and jobs that fall mostly within tier 1 and tier 2 jobs, which would lead to overall better job quality.

➤ More upward mobility: since these industry clusters offer career pathways with opportunities for career progression and workforce skill development, more jobs in these clusters mean high- and mid-skilled workers will have more job and upward mobility opportunities.

➤ Training programs built around in-demand technical skills: workforce development programs will be focused on training skills that are specific to these industry clusters, building a local workforce that is ready to fill-in job vacancies in these industry clusters. By being able to capitalize on the availability of talent, local businesses are able to grow in the county.

➤ Strong partnerships between training programs and local businesses: building upon and expanding current initiatives such as “Your ticket into tech,” training programs will develop strong relationships with local businesses to (1) ensure technical skills taught in training programs are up-to-date and demanded by local companies and to (2) develop apprenticeships and internships that will allow students to gain knowledge and skills in local companies and provide businesses with qualified, local talent.

➤ Increased business appeal: with more talent remaining in the area and businesses able to fill-in available positions, the county is able to grow its higher-paying, industry clusters and attract new businesses to the area. Additionally, building upon current initiatives such as Cal Poly’s Center for Innovation & Entrepreneurship, the county will continue to expand programs providing free business consulting and training to support businessowners and entrepreneurs, which will be vital to grow current and attract new businesses to the county.

Occupational Segments and Career Pathways

Occupational clusters are important to understand potential career pathways for jobseekers and to develop workforce training programs that can transition students into sustainable jobs in the county. When trying to predict the demand for different occupational clusters, there are two questions we need to ask: are the employers creating new jobs, or are the jobs available because people are retiring or changing careers? Annual openings represent all job openings in a particular year; annual replacement openings represent those jobs that are available due to people retiring or changing careers; new openings are the difference between the previous two representing the job openings as a result of new job creation. The table below shows the annual openings by occupational cluster and the percentage of the workforce that is likely to retire soon (65 years or older), i.e. the proportion of jobs that will need hiring in the near future (Table 13).

Replacement Jobs

In addition to job growth, which has been the main focus of this research, it is also important to look at replacement jobs as they also represent job availability. In San Luis Obispo County, office and administrative, food preparation, and sales occupations provide the largest number of annual replacement openings (Table 13). Food preparation also provides the highest annual replacement rates, along with personal care services and farming, fishing, and forestry. Lastly, the largest concentration of older workforce (age 65 and older) is seen in farming, fishing & forestry, personal care services, and building, grounds and maintenance (Table 13). If this trend continues, all these clusters will experience a high number of openings given their current annual replacement rates and aging workforce.

Table 13: SLO County's Annual Openings and Replacement Openings by Occupational cluster²⁹

Occupational clusters	2017 Jobs	Annual Openings	Annual Replacement Openings	New Openings	Annual Replacement Rate	Age 65+ % of Occupation
Office & Administrative	19,065	2,507	2,078	429	11%	8%
Food preparation	14,193	2,530	2,054	476	16%	5%
Sales	12,186	1,918	1,629	289	12%	8%
Healthcare	9,875	994	691	304	7%	4%
Educators & library positions	8,425	909	660	249	9%	7%
Personal care services	7,692	1,440	903	537	15%	9%
Construction & extraction	6,022	824	505	318	10%	3%
Building, grounds and maintenance	5,697	795	661	134	11%	9%
Business & Finance	5,407	626	417	209	8%	6%
Farming, fishing & forestry	4,040	679	539	140	13%	10%
Protective services	3,564	425	311	114	9%	5%

²⁹ Source: Emsi 2018 q.2 Class of Worker Data.

Computer, math & quantitative analysts	2,676	293	149	144	6%	2%
Community & Social Services	1,695	336	183	154	11%	7%
Architecture & engineering	1,655	179	106	73	7%	6%
Entertainment & communication	1,368	176	121	55	9%	6%
Scientists	1,039	127	85	43	9%	5%
Legal positions	494	49	27		7%	7%
Artists & Designers	313	38	24		9%	4%

Regional Occupational Segments

This section examines occupational clusters by industry cluster to understand industry-specific job potential in the area. For example, a sales representative in Information and Communications Technologies compared to a sales representative in Biotechnology and Biomedical Devices will have different skill requirements.

The following occupational clusters are highlighted as general areas of focus for jobseekers and potential workforce development programs in San Luis Obispo County. These clusters were selected for their level of employment in San Luis Obispo County (Table 14 - Table 19). Furthermore, many skillsets attained through working in each of these clusters allow for transferability across the various industry clusters either inside or outside of the area.

The occupational clusters with the largest number of jobs among the selected industry clusters include healthcare positions (7,739), construction positions (4,486), office and administrative positions (3,709), personal care positions (2,994), and computer, math, and quantitative analysts (1,144). The highest average salaries are seen among management positions (\$110,531), architecture and engineering (\$90,293), business and finance positions (\$79,518), and computer, math, and quantitative analysts (\$79,269).

Occupations and Career Pathways Summary

Long-term occupational outlook for San Luis Obispo County jobseekers includes **healthcare, office and administrative, sales and production positions, architecture & engineering, and business and finance positions**. These occupational clusters are largely represented in the six regional industry clusters for the area, indicating opportunity for training and skill transferability across the county's industry segments.

Why is this Important?

As the nation's job market continues to shift towards high-skilled occupations, sustainable career pathway models are becoming increasingly important, particularly for lower-skill workers who are less able to invest in educational attainment.

Career pathways provide the opportunity for skill development through on-the-job and in-industry training and outline potential steps to transition into higher-paying positions over time.

Table 14: Occupational Clusters – Information and Communication Technologies³⁰

	2017 Jobs	Average Wage
Computer, Math, and Quantitative Analysts	1,144	\$79,269
Business and Finance Positions	332	\$79,518
Office and Administrative Positions	276	\$36,400
Sales Positions	173	\$37,107
Management Positions	106	\$110,531

Table 15: Occupational Clusters – Energy³¹

	2017 Jobs	Average Wage
Production Positions	488	\$42,806
Construction Positions	390	\$58,011
Architecture & Engineering	352	\$90,293
Office and Administrative Positions	338	\$36,400
Business & Financial Positions	304	\$79,518

Table 16: Occupational Clusters – Healthcare³²

	2017 Jobs	Average Wage
Healthcare Positions	7,654	\$70,616
Personal Care Positions	2,994	\$27,914
Office and Administrative Positions	2,161	\$36,400
Community and Social Service Positions	709	\$51,646
Educators and Library Positions	124	\$58,843

³⁰ Source: Emsi 2018 q.2 Class of Worker Data.

³¹ Source: Emsi 2018 q.2 Class of Worker Data.

³² Source: Emsi 2018 q.2 Class of Worker Data.

Table 17: Occupational Clusters – Biotechnology and Biomedical Devices³³

	2017 Jobs	Average Wage
Office and Administrative Positions	118	\$36,400
Healthcare Positions	85	\$70,616
Production Positions	59	\$42,806
Sales Positions	51	\$37,107
Scientists	37	\$75,816

Table 18: Occupational Clusters – Building & Design³⁴

	2017 Jobs	Average Wage
Construction Positions	4,096	\$58,011
Office and Administrative Positions	793	\$36,400
Architecture & Engineering	675	\$90,293
Business and Financial Positions	278	\$79,518
Management	217	\$110,531

Table 19: Occupational Clusters – Defense, Aerospace, and Transportation Manufacturing (DATM)³⁵

	2017 Jobs	Average Wage
Production Positions	104	\$42,806
Sales Positions	39	\$37,107
Transportation and Material Movement Positions	32	\$36,795
Office & Administration Positions	23	\$36,400
Management	15	\$110,531

³³ Source: Emsi 2018 q.2 Class of Worker Data.

³⁴ Source: Emsi 2018 q.2 Class of Worker Data.

³⁵ Source: Emsi 2018 q.2 Class of Worker Data.

Career Pathways for Industry Clusters

The following tables dig deeper into the occupational clusters and profile potential career pathways within each of the six industry clusters. The specific occupations selected were based on overall positive job growth for the county. Each pathway progresses from entry-level positions with low education requirements—high school diploma or some college—to higher-skill, higher-wage positions that require a college degree.

For example, a jobseeker interested in the Information and Communication Technologies industry could land an entry-level job as a secretary or administrative assistant in order to gain experience and on-the-job training within the industry. During this time, with additional training, education, or certifications, a worker could move on to becoming a computer user support specialist and then eventually into software development or general and operations management (Table 20).

Table 20: Potential Career Pathway – Information and Communication Technologies³⁶

	2017 Jobs	Median Hourly Wages	Growth 2016-17	Typical Entry-level Education
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	40	\$17.35	0%	High School Diploma or Equivalent
Computer User Support Specialists	227	\$21.17	1%	Some college, no degree
Computer Systems Analysts	91	\$41.12	3%	Bachelor's degree
Software Developers, Applications	252	\$48.99	2%	Bachelor's degree

Table 21. Potential Career Pathway – Energy³⁷

	2017 Jobs	Median Hourly Wages	Growth 2016-17	Typical Entry-level Education
Electrical and Electronic Equipment Assemblers	144	\$13.78	1%	High school diploma or equivalent
Plumbers, Pipefitters, and Steamfitters	62	\$22.62	9%	High school diploma or equivalent
Operating Engineers and Other Construction Equipment Operators	86	\$37.38	18%	High school diploma or equivalent
General and Operations Managers	61	\$41.43	3%	Bachelor's degree

³⁶ Source: Emsi 2018 q.2 Class of Worker Data.

³⁷ Source: Emsi 2018 q.2 Class of Worker Data.

Table 22: Potential Career Pathway – Biotechnology & Biomedical Devices (B&BD)³⁸

	2017 Jobs	Median Hourly Wages	Growth 2016-17	Typical Entry-level Education
Office Clerks, General	21	\$13.71	5%	Some college, no degree
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	18	\$17.35	0%	High school diploma or equivalent
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	38	\$21.91	19%	High school diploma or equivalent
General and Operations Managers	28	\$41.34	0%	Bachelor's degree

Table 23: Potential Career Pathway – Building & Design³⁹

	2017 Jobs	Median Hourly Wages	Growth 2016-17	Typical Entry-level Education
Cement Masons and Concrete Finishers	217	\$17.74	10%	No formal education required
First-Line Supervisors of Construction Trades and Extraction Workers	271	\$31.62	5%	High school diploma or equivalent
Civil Engineers	260	\$44.02	9%	Bachelor's degree
Construction Managers	196	\$47.26	1%	Bachelor's degree

Table 24: Potential Career Pathway – Defense, Aerospace, and Transportation Manufacturing (DATM)⁴⁰

	2017 Jobs	Median Hourly Wages	Growth 2016-17	Typical Entry-level Education
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	26	\$21.91	18%	High school diploma or equivalent
Machinists	30	\$23.12	88%	High school diploma or equivalent
Welders, Cutters, Solderers, and Brazers	15	\$23.91	114%	High school diploma or equivalent
General and Operations Managers	15	\$41.34	36%	Bachelor's degree

³⁸ Source: Emsi 2018 q.2 Class of Worker Data.

³⁹ Source: Emsi 2018 q.2 Class of Worker Data.

⁴⁰ Source: Emsi 2018 q.2 Class of Worker Data.

Table 25: Potential Career Pathway – Healthcare⁴¹

	2017 Jobs	Median Hourly	Growth 2016-17	Typical Entry-level Education
Medical Assistants	604	\$16.62	3%	Postsecondary nondegree award
Medical Secretaries	433	\$19.94	3%	High school diploma or equivalent
Dental Hygienists	209	\$43.79	1%	Associate degree
Registered Nurses	1,259	\$48.72	2%	Bachelor’s degree

⁴¹ Source: Emsi 2018 q.2 Class of Worker Data.

Demographic Profile

The following sections examine population growth, age distribution, ethnicity, and educational attainment across San Luis Obispo County and within its four sub-regions. Age and population growth are key to understanding the employment or training needs of the county's working age population as well as the overall labor supply available for the area's businesses.

Population Demographics: Growth and Age Distribution

Population growth in San Luis Obispo County has been linear—just under 1% growth each year over the last seven years. Between 2011 and 2016, the county's population grew by 3.8%. The Coastal sub-region has seen little population growth over the past seven years (2% since 2011), with a small decline between 2011 and 2013 and increasing since then. The rest of the sub-regions have seen more steady population growth. The population in the City of SLO has increased the most, growing by about 5%. North and South County grew more consistently with the overall trend of the county, increasing by 3.8 and 3.2 percent respectively between 2011-2016 (Figure 9).

About one quarter (25%) of SLO County's population is 55 years and older. This older population is more highly concentrated in the Coastal sub-region (45%), followed by the South (35%) and North (31%) sub-regions. On the other hand, more than half (51%) of City of SLO' residents are 24 years or younger. This is significantly greater than the county's average of 34% (Figure 10).

Population Demographics Summary

SLO County's population has been steadily increasing, with a growth rate of almost 4% since 2011. The Coastal sub-region has a relatively older population, with more than four out of every ten residents over the age of 54. The City of SLO has a population at the other end of the age spectrum; over half (51%) of the population is 24 years of age or younger.

Why is this Important?

Examining population dynamics and how they vary within the area provides an understanding of the county's potential student, workforce, and senior populations. These populations impact regional workforce availability as well as demand for education and training.

Figure 9: Population Growth by Sub-Region, 2010-2016⁴²

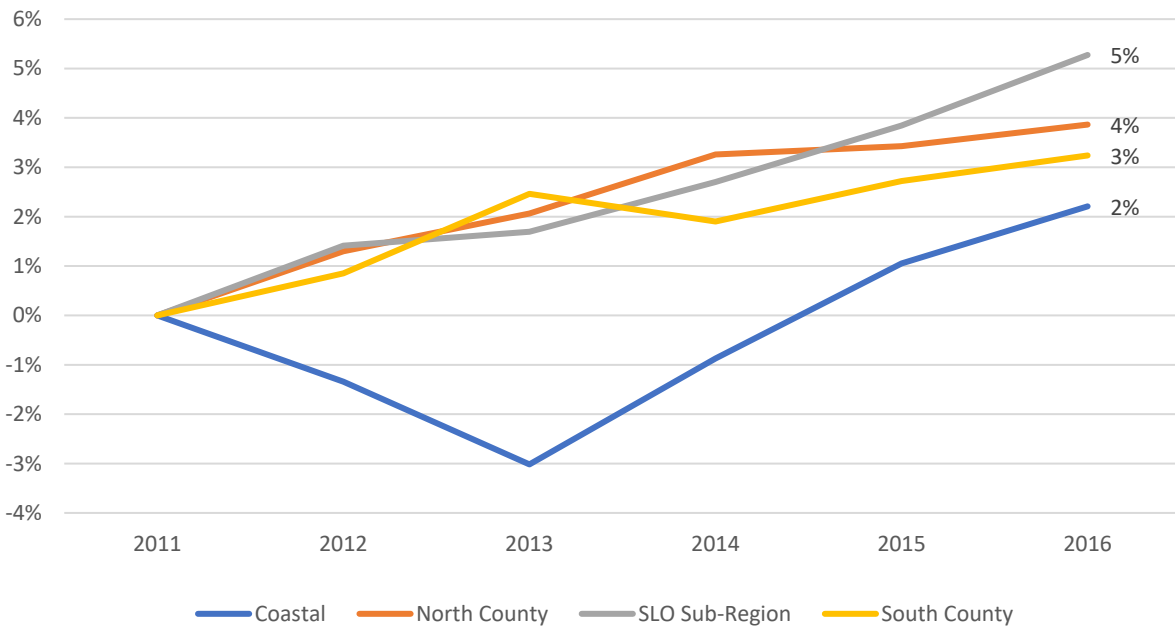
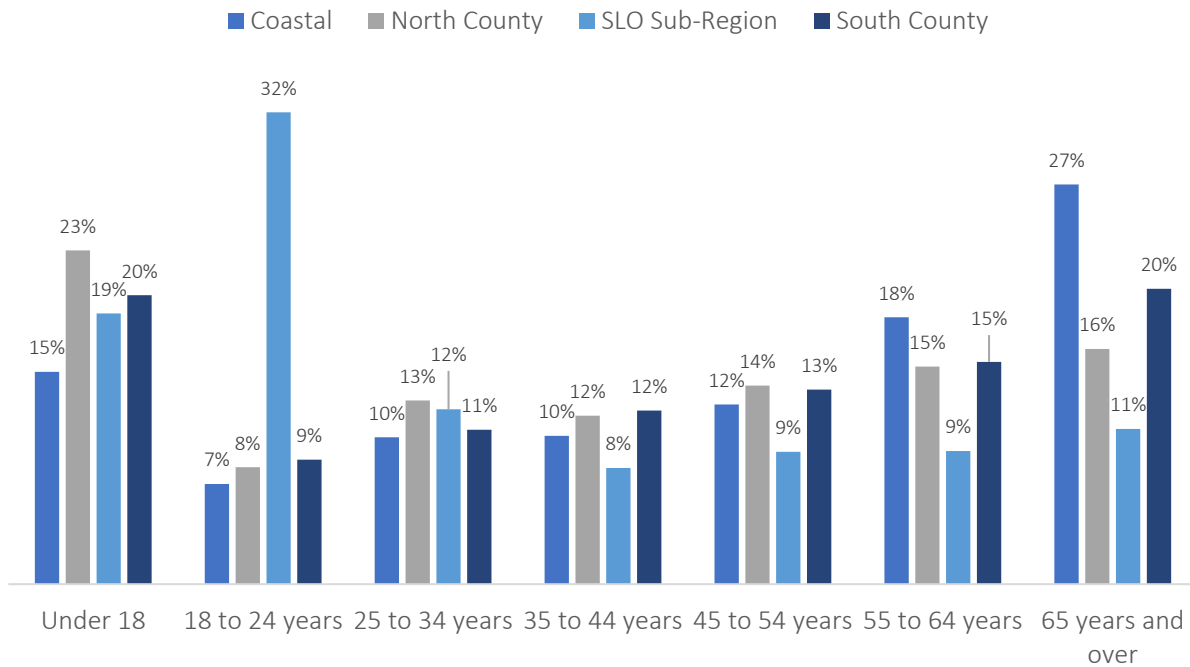


Figure 10: Age Distribution by Sub-Region, 2016⁴³



⁴² U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

⁴³ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

Educational Attainment, Language, and Ethnicity

Educational attainment in San Luis Obispo County is relatively high, with 70% of its residents having some college or more compared to the state (62%) and national (59%) averages. The Coastal sub-region and The City of SLO are particularly well-educated; 40% and 44% of their population 25 years of age or older have a bachelor’s degree or higher. Conversely, the North and South County are closer to the state average (32%) with 28% and 32% holding a bachelor’s degree or more, respectively (Figure 11).

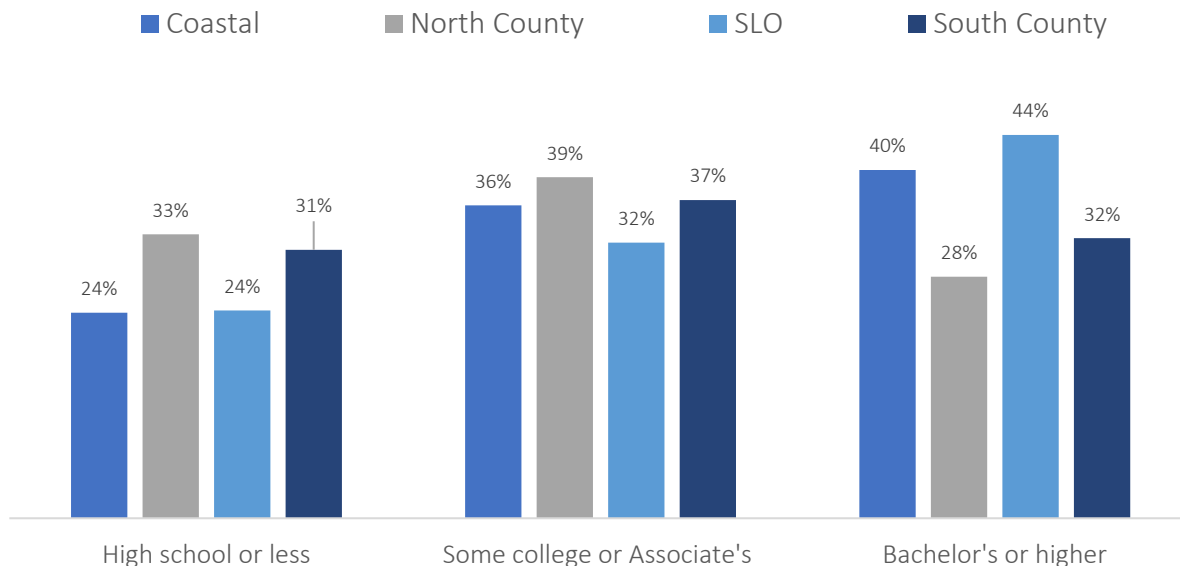
Education and Ethnicity Summary

The residents of San Luis Obispo County are well educated relative to the rest of the State and country—particularly the Coastal County and the City of San Luis Obispo, where more than two out of five residents have a bachelor’s degree or higher. The county is less diverse than the state average. All sub-regions are predominantly white; South County has the lowest proportion of white residents, though they still account for more than 63% of the population

Why is this Important?

Educational attainment provides an assessment of the talent and skill base that is available for a region’s businesses. Differences in educational attainment by sub-region also identify where populations might require more targeted training and education programs.

Figure 11: Educational Attainment for Population 25 Years and Over by Sub-Region, 2016⁴⁴



⁴⁴ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

Approximately seven-in-ten residents (69%) in the SLO County are white, 22% are Hispanic or Latino, 3.6% are Asian, 2% are black or African American, and 2% have two or more races. Diversity is higher in the South County with 65% being white, followed by the City of SLO with 69%. The largest concentration of Hispanics or Latinos are found in the South (27.1%) and the North County (24.5%) and the largest concentration of Asians are found in the City of SLO (6.6%), compared to the other sub-regions (1.6%-4.0%).

Figure 12: Ethnicity in San Luis Obispo County, 2016⁴⁵

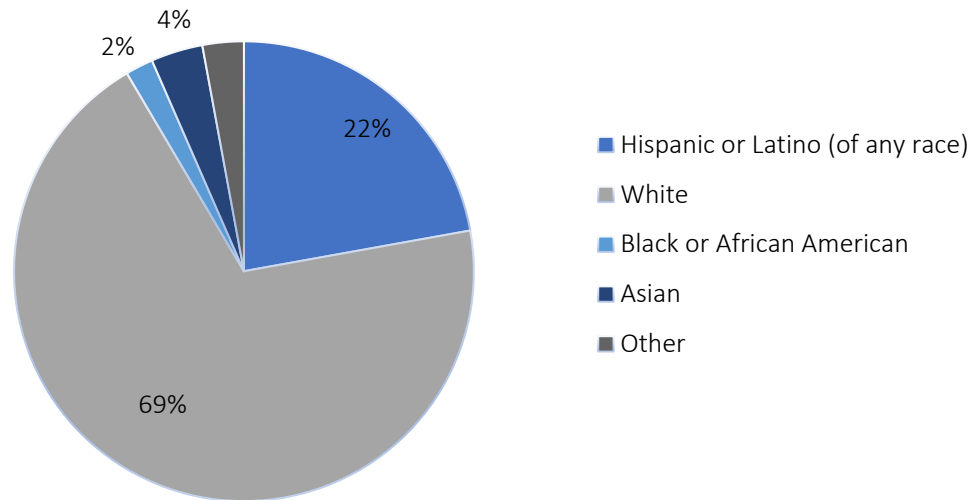


Table 26: Ethnicity by Sub-Region, 2016⁴⁶

	San Luis Obispo County	North County	City of SLO	Coastal	South County	California
White	69.7%	70.5%	69.1%	79.2%	64.7%	38.4%
Hispanic or Latino (of any race)	21.9%	24.5%	16.2%	14.4%	27.1%	38.6%
Asian	3.6%	1.6%	6.6%	2.5%	4.0%	13.7%
Black or African American	1.9%	1.3%	4.5%	0.6%	1.0%	5.6%
Other	2.9%	2.2%	3.6%	3.3%	3.2%	3.8%

⁴⁵ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

⁴⁶ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

Socioeconomic Profile

The following section highlights income distribution as well as the proportion of household income that must be spent on rent or mortgage payments for residents across San Luis Obispo County. Examining household incomes indicates what proportion of residents in the county are able to sustainably afford the 33% higher-than-average costs of living, as compared to the national average. Income inequality within the county can also be determined by looking at the income distributions within San Luis Obispo County sub-regions. At the same time, determining the proportion of households that must spend more than a third of their income on rent or mortgage payments is an indicator of the area's ability to supply affordable housing for residents.

Housing and Income Summary

About 2 in every 5 residents in San Luis Obispo County make \$75,000 or more a year, which is just below the State average. Though most of the county trends with the State average, the City of SLO is a notable exception; more than a third of the population makes less than \$35,000 a year. Though income trend with State averages, a large amount of the population spends a relatively high proportion of their income on housing.

Why is this Important?

Housing costs are most often the primary expense for a household, and the cost of housing impacts not only quality of life, but also the supply of qualified workers for businesses—higher costs might drive residents and businesses out of the region while deterring potential jobseekers from moving in. Furthermore, if unaffordable housing prompts workers to move outside the county and commute to San Luis Obispo County for work, this can have the adverse effect of increasing traffic, commute times, and wear on roads. Long commutes affect both quality of life and productivity; workers that spend more time in traffic have less time to dedicate to both work and other activities such as family time, community work, or on mental and physical well-being.

Housing and Income Distribution⁴⁷

While income distributions trend relatively close to the state average, the proportion of households with earnings of \$150,000 or more is higher in the state than in SLO County. Some sub-regions within the county also stand out. The City of SLO has a skew towards lower incomes, with almost two-fifths (36.8%) of its population reporting an annual income of less than \$35,000, which is greater than the county's and State's average of 27% and 28%. Additionally, the City of SLO also has a lower proportion of residents earning \$75,000 or more (36%), compared to the county's (43%) and state's average (43%) (Figure 13 and Figure 14).

The costs of housing in SLO County are relatively bi-polar, with the largest proportions of households either spending 35% or more, or less than 20% of their income on housing (Figure 15). Nearly half of renters (46.3%) spend 35% or more of their income on housing, and even 33.3% of homeowners spend 35% or more of their income on housing. This is important because if most of their income is spent on housing, that means little discretionary spending leftover, which is often the spending that spurs much of the local economy. There is also a substantial amount of households that spend less than 20% of their income on housing; 30% of homeowners and 21% of renters spend a relatively low proportion of their income. The fact that most residents fall into these two categories (nearly 64% of homeowners and 67% of renters) indicates that middle income earners represent a smaller proportion of the county's workers, just like it was seen with the slower-growing tier 2 jobs and the higher underemployment rates for mid-skill workers.

⁴⁷ Source: U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

Note that **college students** living away from their parental home while attending college are counted at their on-campus or off-campus residence where they live and sleep most of the time. All housemates or roommates are counted.

Figure 13: Household Income Distribution, 2016⁴⁸

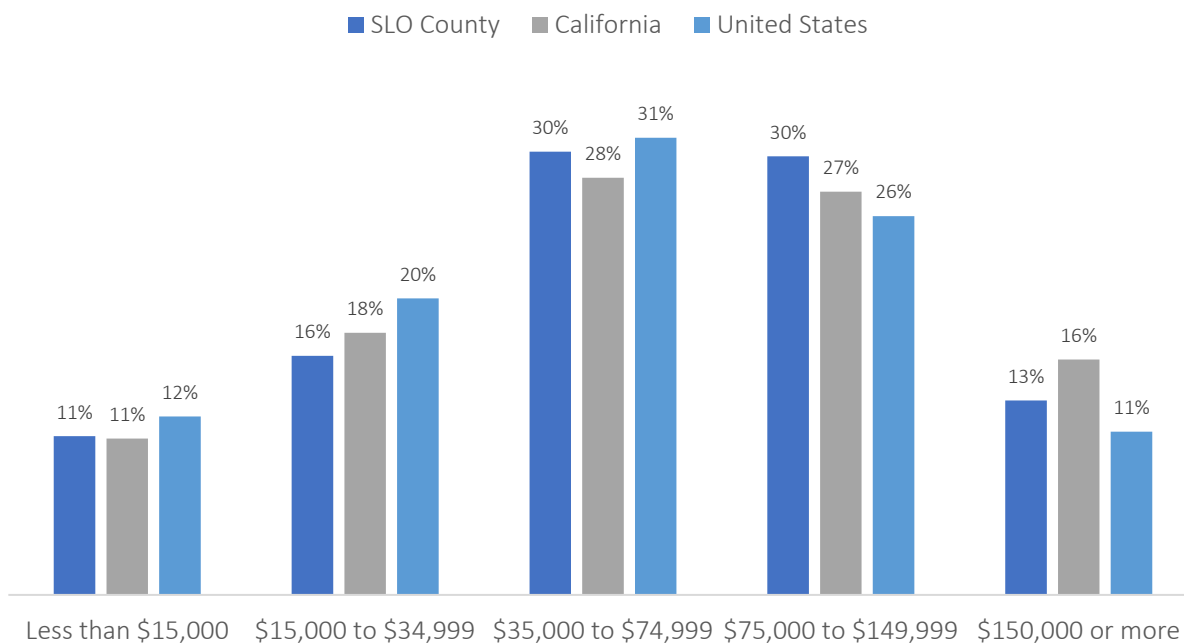
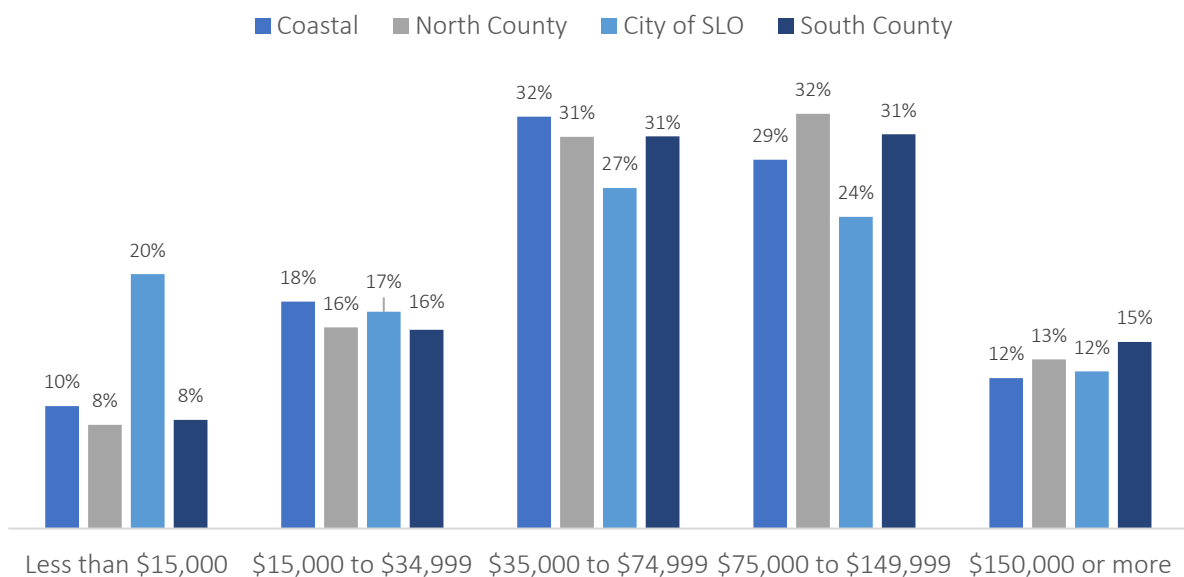


Figure 14: Household Income Distribution by SLO Region, 2016⁴⁹



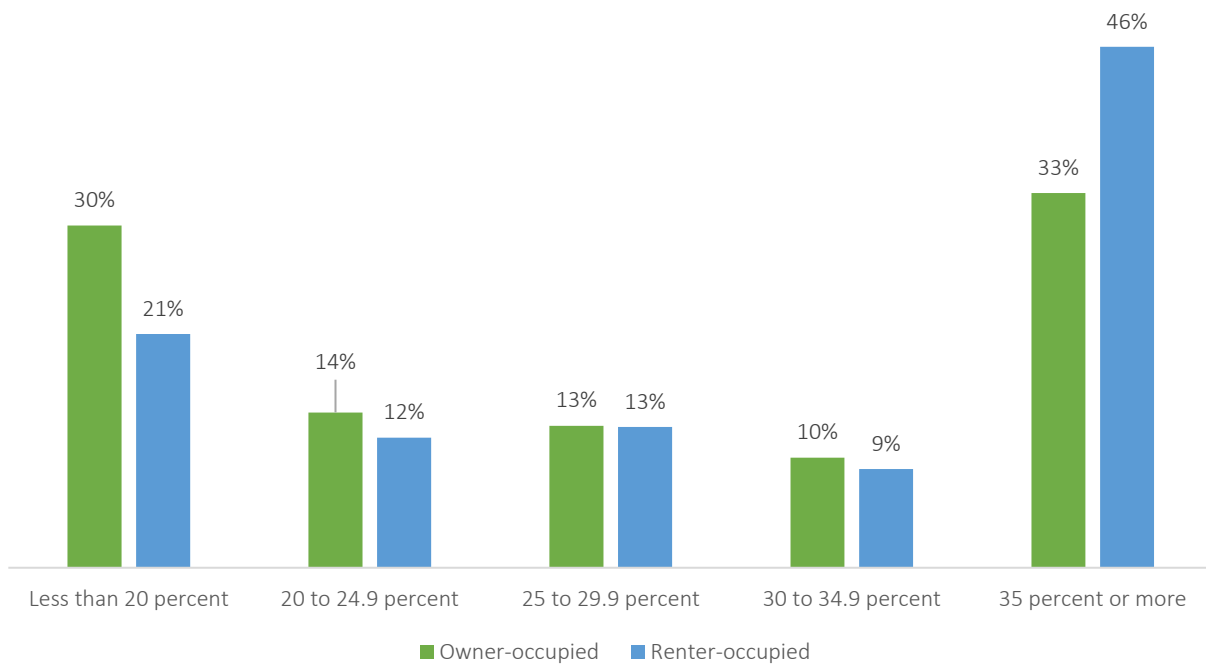
⁴⁸ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

⁴⁹ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

Table 27: Household Income Distribution by Region, 2016⁵⁰

	Less than \$35,000	\$150,000 or more
San Luis Obispo County	27.0%	13.2%
North County	23.8%	13.2%
City of SLO	36.8%	12.3%
Coastal	27.3%	11.8%
South County	24.0%	14.6%
California	28.4%	16.0%
United States	32.2%	11.1%

Figure 15: Monthly Housing Costs as a Percentage of Household Income, 2016⁵¹



⁵⁰ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

⁵¹ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

Resident Commute Patterns

SLO County's resident workforce are those individuals 16 years and older who live in SLO County and are in the labor force (58.9% of the residents 16 years and older). Of those SLO County residents in the labor force (58.1%), 54.9% are employed and 3.2% are unemployed. Of those working, almost nine-in-ten residents (89%) work in the county, contributing to a low average time to get to work of 22 minutes. Only three in ten resident workers in the county commute more than 30 minutes, a notably smaller proportion than California's average of 41% (Figure 16).

Looking at the different SLO County sub-regions, commuting times are lower in the City of SLO with more than a third of resident workers (34.9%) taking less than 15 minutes to go to work. Across all sub-regions, at least five-in-ten resident workers take less than 30 minutes to get to work (Figure 17).

Commute Summary

The majority of residents in SLO County (74%) drive alone to get to work, 11% carpool, 6% either bike or walk to work, and only 1% uses public transportation. Compared to the state, a higher proportion of residents in SLO County either walk or bike to work and work from home and a smaller portion use public transportation. In the City of SLO, the majority of commutes are under 15 minutes (57%) and almost 1-in-5 (18%) residents either walk or take a bicycle to work, which is four times higher than the state average.

Overall, San Luis Obispo County residents have shorter commute times on average compared to California residents.

Why is this Important?

Commute times and behavior have a considerable impact on residents' perceived quality of life. As mentioned above in the housing affordability section, inefficient or lengthy commuting can affect both productivity at work and the overall health and well-being of a community's residents.

Figure 16: Commute time by Region, 2016⁵²

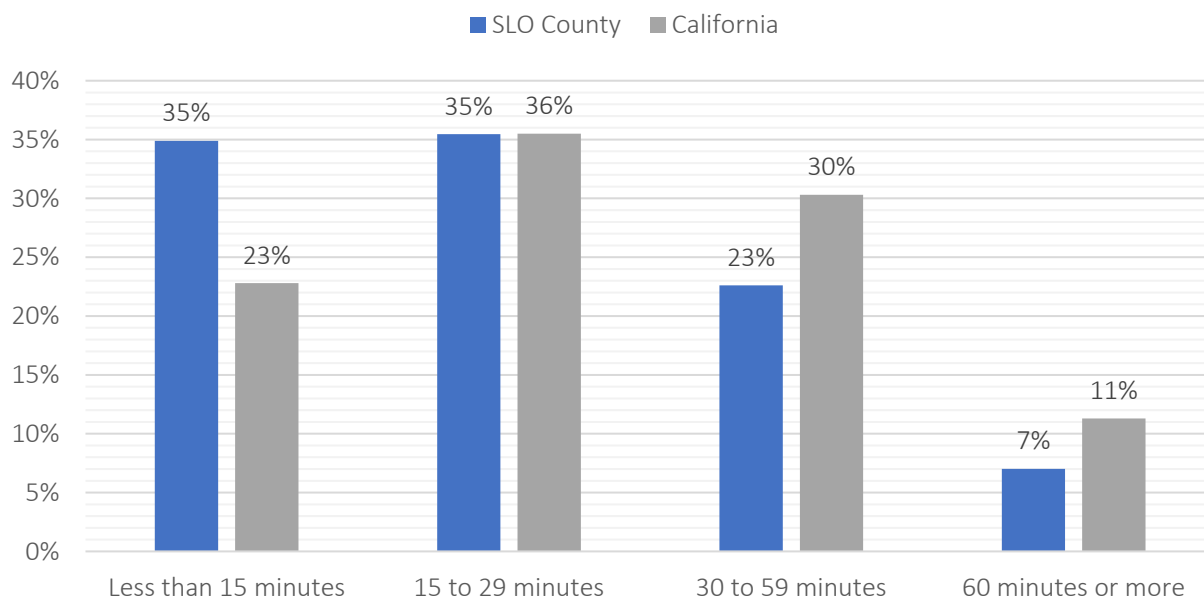
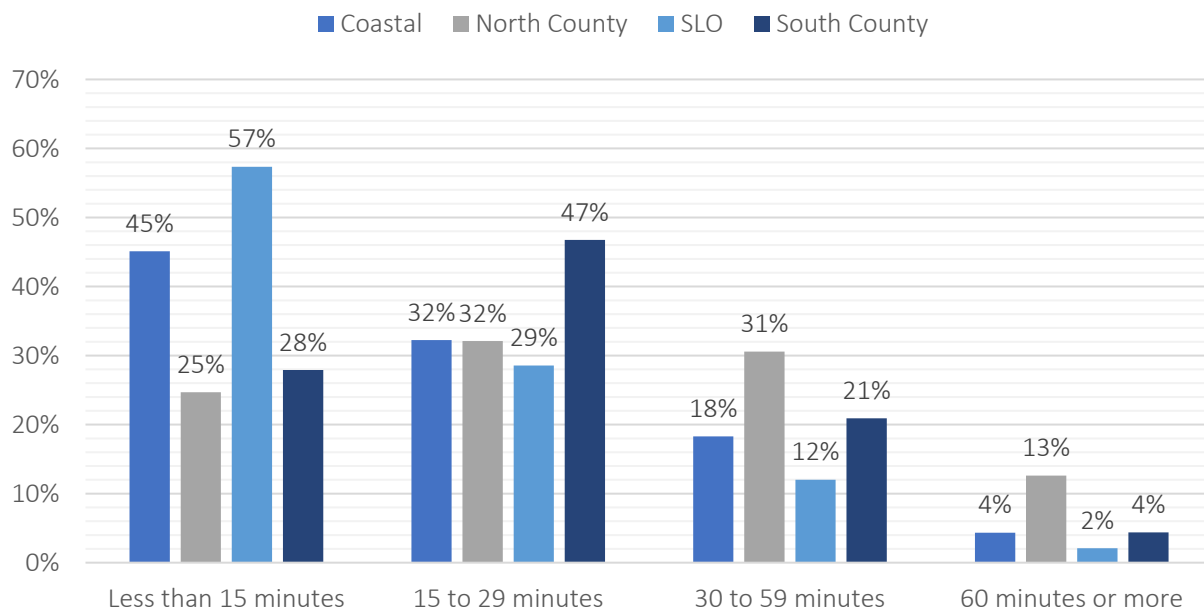


Figure 17: Commute time by SLO County Sub-Region, 2016⁵³



⁵² U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

⁵³ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

Approximately a little over seven-in-ten resident workers (74%) in SLO County drive alone to work, 11% carpool, 1% use public transportation, 8% work from home, and 6% either walk, bike, or use other means (Figure 18). Looking at the different SLO County sub-regions, in the City of SLO almost 2-in-10 workers (18%) either walk or bike to work, a much higher percentage than in the other sub-regions (4%-5%) and California’s average (4%) (Figure 19).

Figure 18: Means of Transportation to go to Work in SLO County and California, 2016⁵⁴

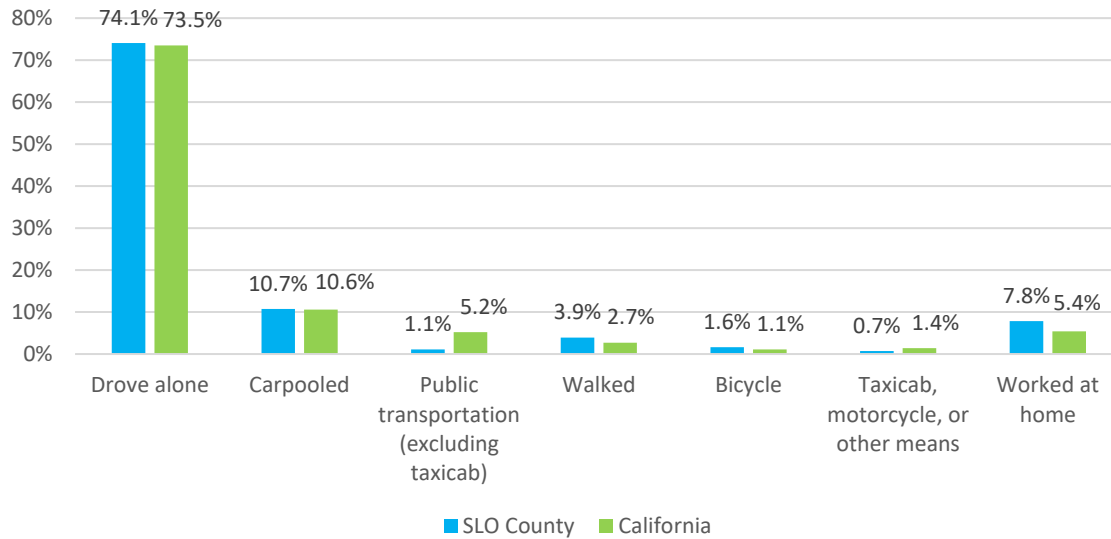
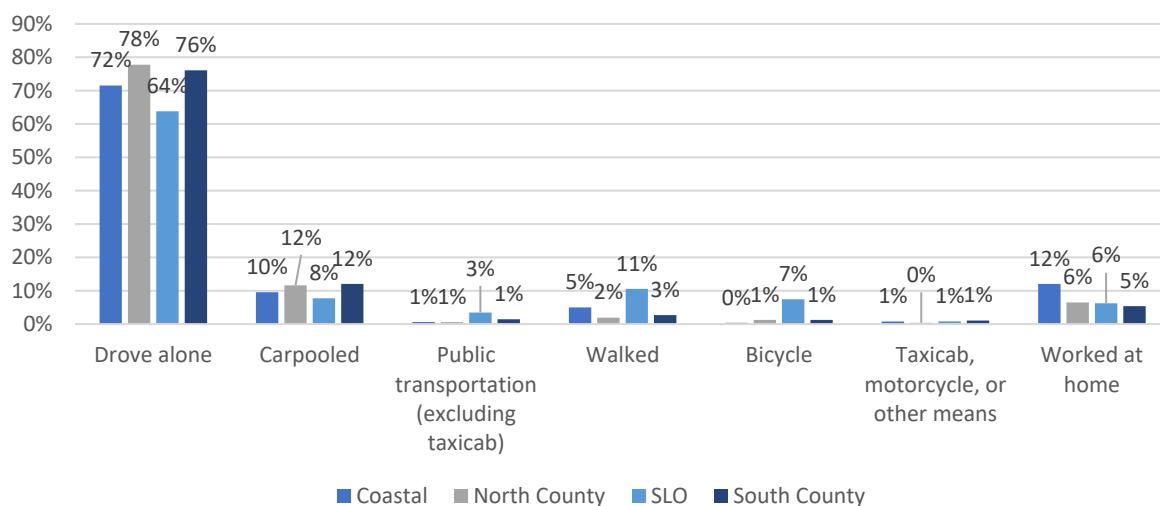


Figure 19: Means of Transportation to go to Work by SLO County Sub-Region, 2016⁵⁵



⁵⁴ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

⁵⁵ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

Resident versus Regional Workforce

The following section examines the gap in San Luis Obispo County’s resident workforce compared to the number of individuals working in the county—regardless of their residence. This analysis provides insight as to how the area is either a net importer or exporter of specific talents and skillsets by occupational categories.

As mentioned previously, SLO’s resident workforce are those individuals 16 years and older who live in SLO County and are in the labor force. SLO workers are those who work in SLO County, regardless of where they live. Assessing the ratio between these two populations provides a direct measure of how the county’s workforce intersects with the availability of jobs. This analysis has important implications for transportation and commuting, housing, employment opportunities, and ultimately the county’s economic vitality and quality of life.

There is a total of 128,359 resident workers in SLO County, compared to 122,320 people working in the County, which means approximately 5% of resident workers – or 6,039 workers – need to leave the county to go to work. SLO County is a net exporter of talent in higher-paying occupations such as management, business, science, and arts occupations and in production, transportation, and material moving occupations, meaning that there are not enough jobs in the county in these occupations to meet the needs of SLO’s resident workforce and consequently these workers need to go outside the county to work. On the other hand, the county is a net importer of talent in lower-paying occupations such as service, sales and office, and construction and maintenance occupations. This means that there are more jobs in the county in these occupations than resident workers and consequently workers from outside the county come to SLO to work and fill-in the job availability (Figure 20).

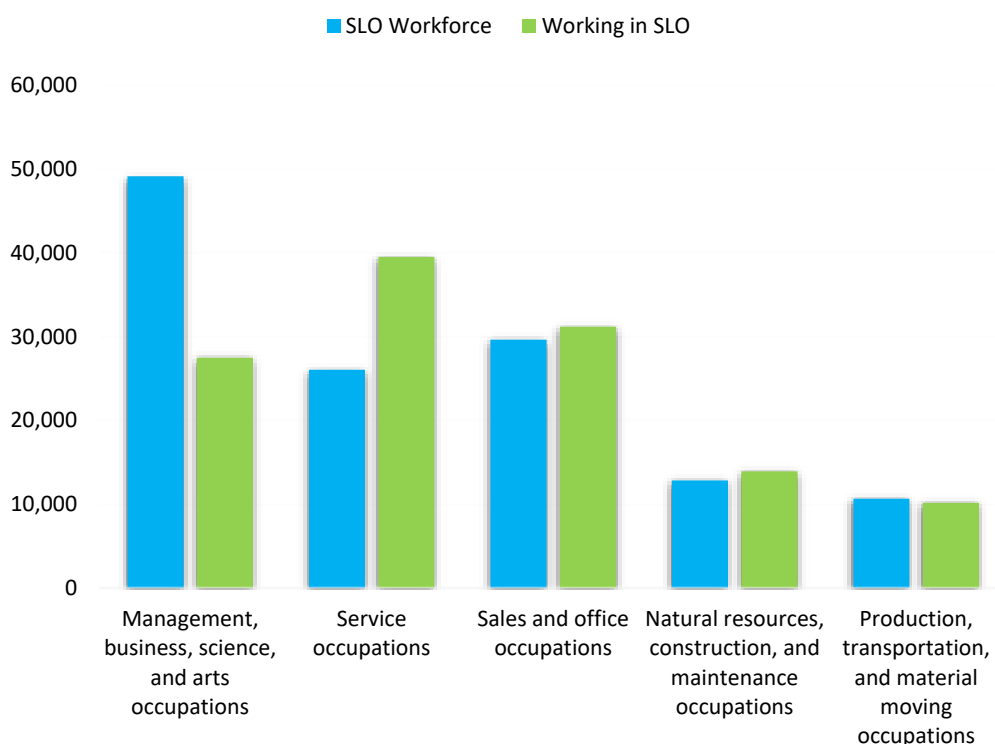
Talent Summary

San Luis Obispo County is a net exporter of higher-paying occupations, and a net importer of some lower occupations such as service, sales and office, and construction and maintenance positions. This indicates that the county lacks an adequate supply of higher-paying occupations (like management, business, and science), and simultaneously has a surplus of lower-wage jobs.

Why is this Important?

This analysis measures how an area’s workforce overlays with the availability of jobs. A workforce of high skill, high wage workers presents an opportunity to SLO County; companies might be more willing to move into a region where they know a well-trained workforce is close by.

Figure 20: Resident versus Regional Workforce, 2016⁵⁶



Opportunities and Challenges for San Luis Obispo

The following section provides a summary of the **executive interviews** conducted with key stakeholders and regional leaders from industry, education, and workforce and economic development organizations. The interviews were used to discuss responses to local and countywide economic opportunities and challenges and how-to better leverage investments for improving the workforce system and local economy as a whole. A total of 8 executive interviews were completed between July 27th to August 22nd, 2018. The major findings are provided below.

Economic Growth

The county’s support of start-up companies is an essential element for economic growth in the county, as pointed by key stakeholders during the executive interviews. Stakeholders emphasized the need to support entrepreneurship efforts and provide local businesses the resources needed to grow past their infancy stages. It is important for the county to respond to the industries’ needs so that they can grow and attract talent and other businesses to the area. For example, for information technology companies, the need to expand bandwidth and connectivity is critical so that local companies can grow and

⁵⁶ U.S. Census Bureau, American Community Survey. 2016 5-Year Estimates. Extracted July 2018.

compete effectively with other regions. Additionally, there is a very limited pool of talent in the county, so there is the need for technology training opportunities in the county.

“The county hasn’t understood how much it needs it [cybersecurity]. There is a high demand in the region for it and this field needs development.”

Most respondents discussed the overall attractiveness of the county and how it is critical to develop a business-friendly environment so that new companies can move and grow in the area. Further development of the workforce pool is also a critical element for the county’s economic growth, as companies oftentimes struggle to find local talent and hiring workers from outside the county is more expensive.

Building upon the need for qualified local talent to support local businesses, stakeholders highlighted the current “Ticket into Tech” program that combines technical training with apprenticeships so that once successful training is completed, students are placed in local companies where they can acquire additional knowledge and experience. Many benefits arrive from this type of program including students acquiring valuable technical skills that are important in different industry clusters, students having the opportunity to find employment in a local company while they gain additional knowledge and skills, and companies having access to qualified, local talent which is currently a challenge for local businesses, as expressed by stakeholders.

On the other hand, one of the biggest challenges the county faces is the fact that it is not a large urban area and it needs to compete with large urban areas such as the Bay Area and Los Angeles where access to capital, suppliers, and talent is more immediate. As such, the county struggles to provide the necessary resources for companies to continue to grow past their initial start-up point, with many of these companies having to relocate to urban settings. In fact, the county was rated poorly by stakeholders for access to capital and business loan opportunities, inhibiting the growth potential of companies.

Lastly, housing and wages were pointed as key obstacles to the county’s economic growth. Lower average wages in San Luis Obispo County, as compared to other Counties in the region, coupled with the lack of affordable housing and high living costs make living in the county not affordable for many.

“Students don’t want to leave SLO, but they have to because of the living costs.”

Economic and Workforce Development

Regarding the Workforce Development Board’s efforts, stakeholders identified the following areas of focus:

1. Expanding startup programs: in addition to continuing to support local startups, the county should model programs in regions where direct funding of local startups has occurred and has been successful.

2. Providing training opportunities to the workforce: apprenticeships and training specific skills are necessary elements for workforce and overall economic growth in the county. It is important to create efficient programs focused on providing workers additional skills that better match them with jobs in the area and allow for industry-specific growth.
3. Create strong partnerships between local businesses and schools: it is important to create partnerships between local businesses and schools so that employers can have easier access to local talent and job-seekers can more seamlessly enter the workforce. This can be done at two levels:
 - High- to Mid-skill: focus on helping these workers, such as Cal Poly graduate students, enter the world of work by developing apprenticeship and internship programs.
 - Low skill: help low-skilled workers, veterans, and re-entry population gain the necessary skills and knowledge to enter the world of work.

Diablo Canyon Power Plant

The closure of the Diablo Canyon Nuclear power plant was an issue of concern for many stakeholders. As mentioned previously, this closure will most likely disrupt the **Energy industry cluster**, as the plant's 1,500 employees (~46% of all jobs in this cluster) will face an uncertain future. Most stakeholders expressed concern about the future of these employees and the need to re-route or retrain them so that transition into equivalent jobs in the county is possible. One stakeholder representing PG&E mentioned that, depending on funding, the company plans to set up an employee resource center where employees will be introduced to other opportunities within the company as well as helped identifying work-related interests that can open opportunities for future employment.

One stakeholder mentioned that this closure is a consequence of the industrywide changes experienced in the energy industry cluster – e.g. the increased popularity of other energy sources such as solar energy - and that it is important to understand these industry-specific changes beyond the plant closing to better comprehend the potential impacts to the county.

Next Steps

The data presented in this report provides an overview of San Luis Obispo County's economic and workforce landscape, with particular attention to industry clusters, job quality and cost of living, talent and educational characteristics, and career pathway opportunities. In general, while countywide job growth has been positive over the last several years, average wages per job are below the national average. Jobseekers in San Luis Obispo County face some headwinds, as the majority of employment opportunities remain concentrated in low-skill, low-wage occupations and there are generally not enough jobs to support the county's population. These low-wage job prospects combined with above-average costs of living are affecting economic self-sufficiency for residents across the county.

To improve both economic development and overall quality of life in the county, the research team identified the following next steps or areas of focus for San Luis Obispo County's Workforce Development Board. These recommendations seek to foster job growth, expand workforce development, and improve quality of life for residents across the county.

Support innovation & entrepreneurship programs in the county. With the county's high living costs, and low-wage, tier 3 jobs outpacing the growth of higher-paying jobs, it is important for San Luis Obispo County to support industry clusters such as information and communication technologies, building and design, and biotechnology and biomedical devices, as they offer above average wages and employment that falls mostly within tier 1 and tier 2 jobs. To support the growth of these clusters, it is important to focus on Innovation & Entrepreneurship programs that provide **free business consulting and training to support businessowners and entrepreneurs** to help grow current businesses, attract more businesses, and increase job quality in the county.

Connect local talent to the world of work. Since average wages are lower in the SLO County than the state average and in neighboring Counties and high and mid-skill jobs are not growing at the same pace as low-skill jobs, it becomes challenging to retain local talent in the county as these job-seekers are trying to find employment. To address this problem, it is important to create training programs that focus on technical skills demanded by local businesses and develop and expand apprenticeship programs that will both allow students to gain experience and knowledge while working for local companies and provide businesses with qualified, local talent. By providing these opportunities, local talent will have a path into the world of work in the county and local businesses will have access to local talent.

Establish strong business partnerships to better understand the challenges and opportunities local businesses face as they try to grow in the county. Like in many other places, automation and technology advancements will impact local jobs such as changing skills and training required or changing the position and title altogether. It is important for the Workforce Development Board to work closely with local businesses and industry leaders to better understand how the world of work is changing, which resources local businesses need to grow, and what skills workers need to obtain for future careers. The feedback obtained from this partnership will inform things such as local innovation & entrepreneurship and workforce training programs.

Appendix A: Regional Definition

City	Zip	Location
Los Osos	93402	Coastal
Los Osos	93412	Coastal
Avila Beach	93424	Coastal
Cambria	93428	Coastal
Cayucos	93430	Coastal
Cambria	93435	Coastal
Morro Bay	93442	Coastal
Morro Bay	93443	Coastal
San Simeon	93452	Coastal
Atascadero	93422	North County
Atascadero	93423	North County
Creston	93432	North County
Paso Robles	93446	North County
Paso Robles	93447	North County
San Miguel	93451	North County
Pozo	93453	North County
Shandon	93461	North County
Templeton	93465	North County
San Luis Obispo	93401	SLO
San Luis Obispo	93403	SLO
San Luis Obispo	93405	SLO
San Luis Obispo	93406	SLO
San Luis Obispo	93407	SLO
San Luis Obispo	93408	SLO
San Luis Obispo	93409	SLO
San Luis Obispo	93410	SLO
Arroyo Grande	93420	South County
Arroyo Grande	93421	South County
Grover Beach	93433	South County
Nipomo	93444	South County
Oceano	93445	South County

Pismo Beach	93448	South County
Pismo Beach	93449	South County
Oceano	93475	South County
Grover Beach	93483	South County

Appendix B: Methodology

BW Research conducted secondary data analysis using data sources such as Economic Modeling Specialists Intl. (EMSI), the Census Bureau's American Community Survey, California Economic Development Department, and the Federal Reserve to understand the regional labor market and population demographics. Additionally, underemployment data from JobsEQ 2018.1 were provided to BW Research by the Workforce Development Board.

Research Objectives

Prior to beginning the project, BW Research discussed with the San Luis Obispo County Workforce Development Board's Program Manager and Board Director to determine the research objectives for this study. Some of the questions that drive this research include:

- How is the world of work changing in San Luis Obispo County and its four sub-regions (North, Coastal, City of SLO, and South)?
- What industry clusters are growing and should be the focus of workforce development efforts and which ones are in decline?
- What is San Luis Obispo County's current job quality profile?
- What types of workers are the County importing and exporting and are there opportunities to develop job prospects for local workers?
- How can the Workforce Development Board work with its partners across the county to facilitate countywide workforce and economic development strategies that connect with the needs and objectives of local job-seekers and businesses?
- How can the Workforce Development Board best support regional employers who are looking for talent?

Secondary Data Collection

Employment, population, workforce, income, and educational attainment data for the San Luis Obispo County and its sub-regions were defined by the county boundaries and its zip codes. Industry clusters were defined using the North American Industry Classification System (NAICS) codes.

Employment data were compiled from the Economic Modelling Specialists Intl. (Emsi) 2018.2 Class of Worker for SLO County and its zip codes. Additional employment datasets were also extracted from the Bureau of Labor Statistics (BLS), California Economic Development Department, the Federal Reserve, JobsEQ, and the regional living income from the Living Wage Calculator. Population and workforce statistics were compiled from the Census Bureau's American Community Survey (ACS), 2016 5-year estimate.

Primary Data Collection

BW Research conducted a series of executive interviews with key stakeholders and regional leaders from industry, education, and workforce and economic development organizations. The interviews were used to examine and discuss responses to economic opportunities and challenges in the county and to understand how-to better leverage investments for improving the workforce system and local economy as a whole. A total of 8 executive interviews were completed by phone between July 27th to August 22nd, 2018, with all contacts being provided by the San Luis Obispo's Workforce Development Board.

Appendix C: Industry Clusters by NAICS

Information & Communication Technologies (ICT)	
NAICS	Description
334111	Electronic Computer Manufacturing
334112	Computer Storage Device Manufacturing
334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing
334210	Telephone Apparatus Manufacturing
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing
334290	Other Communications Equipment Manufacturing
334310	Audio and Video Equipment Manufacturing
334412	Bare Printed Circuit Board Manufacturing
334413	Semiconductor and Related Device Manufacturing
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing
334417	Electronic Connector Manufacturing
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing
334419	Other Electronic Component Manufacturing
334613	Blank Magnetic and Optical Recording Media Manufacturing
334614	Software and Other Prerecorded Compact Disc, Tape, and Record Reproducing
511210	Software Publishers
517311	Wired Telecommunications Carriers
517312	Wireless Telecommunications Carriers (except Satellite)
517410	Satellite Telecommunications
517911	Telecommunications Resellers
517919	All Other Telecommunications
518210	Data Processing, Hosting, and Related Services
519110	News Syndicates
519120	Libraries and Archives
519130	Internet Publishing and Broadcasting and Web Search Portals
519190	All Other Information Services
541511	Custom Computer Programming Services
541512	Computer Systems Design Services
541513	Computer Facilities Management Services
541519	Other Computer Related Services
Defense, Aerospace & Transportation Manufacturing (DATM)	
325920	Explosives Manufacturing
332992	Small Arms Ammunition Manufacturing
332993	Ammunition (except Small Arms) Manufacturing

332994	Small Arms, Ordnance, and Ordnance Accessories Manufacturing
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing
334519	Other Measuring and Controlling Device Manufacturing
336111	Automobile Manufacturing
336112	Light Truck and Utility Vehicle Manufacturing
336120	Heavy Duty Truck Manufacturing
336211	Motor Vehicle Body Manufacturing
336212	Truck Trailer Manufacturing
336213	Motor Home Manufacturing
336214	Travel Trailer and Camper Manufacturing
336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing
336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing
336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing
336340	Motor Vehicle Brake System Manufacturing
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing
336360	Motor Vehicle Seating and Interior Trim Manufacturing
336370	Motor Vehicle Metal Stamping
336390	Other Motor Vehicle Parts Manufacturing
336411	Aircraft Manufacturing
336412	Aircraft Engine and Engine Parts Manufacturing
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing
336414	Guided Missile and Space Vehicle Manufacturing
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing
336510	Railroad Rolling Stock Manufacturing
336611	Ship Building and Repairing
336612	Boat Building
336991	Motorcycle, Bicycle, and Parts Manufacturing
336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing
336999	All Other Transportation Equipment Manufacturing
423110	Automobile and Other Motor Vehicle Merchant Wholesalers
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers
423130	Tire and Tube Merchant Wholesalers
423140	Motor Vehicle Parts (Used) Merchant Wholesalers
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers
Biotechnology & Medical Devices (B&BD)	
325120	Industrial Gas Manufacturing
325193	Ethyl Alcohol Manufacturing

325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing
325199	All Other Basic Organic Chemical Manufacturing
325311	Nitrogenous Fertilizer Manufacturing
325312	Phosphatic Fertilizer Manufacturing
325314	Fertilizer (Mixing Only) Manufacturing
325320	Pesticide and Other Agricultural Chemical Manufacturing
325411	Medicinal and Botanical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing
333314	Optical Instrument and Lens Manufacturing
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use
334514	Totalizing Fluid Meter and Counting Device Manufacturing
334516	Analytical Laboratory Instrument Manufacturing
334517	Irradiation Apparatus Manufacturing
339112	Surgical and Medical Instrument Manufacturing
339113	Surgical Appliance and Supplies Manufacturing
339114	Dental Equipment and Supplies Manufacturing
339115	Ophthalmic Goods Manufacturing
339116	Dental Laboratories
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers
423460	Ophthalmic Goods Merchant Wholesalers
424210	Drugs and Druggists' Sundries Merchant Wholesalers
424910	Farm Supplies Merchant Wholesalers
541380	Testing Laboratories
541713	Research and Development in Nanotechnology
541714	Research and Development in Biotechnology (except Nanobiotechnology)
621511	Medical Laboratories
Energy	
211120	Crude Petroleum Extraction
211130	Natural Gas Extraction
212111	Bituminous Coal and Lignite Surface Mining
212112	Bituminous Coal Underground Mining
212113	Anthracite Mining
213111	Drilling Oil and Gas Wells
213112	Support Activities for Oil and Gas Operations
213113	Support Activities for Coal Mining

221111	Hydroelectric Power Generation
221112	Fossil Fuel Electric Power Generation
221113	Nuclear Electric Power Generation
221114	Solar Electric Power Generation
221115	Wind Electric Power Generation
221116	Geothermal Electric Power Generation
221117	Biomass Electric Power Generation
221118	Other Electric Power Generation
221121	Electric Bulk Power Transmission and Control
221122	Electric Power Distribution
221210	Natural Gas Distribution
221330	Steam and Air-Conditioning Supply
237120	Oil and Gas Pipeline and Related Structures Construction
237130	Power and Communication Line and Related Structures Construction
324110	Petroleum Refineries
324191	Petroleum Lubricating Oil and Grease Manufacturing
324199	All Other Petroleum and Coal Products Manufacturing
333611	Turbine and Turbine Generator Set Units Manufacturing
333612	Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing
333613	Mechanical Power Transmission Equipment Manufacturing
333618	Other Engine Equipment Manufacturing
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables
335110	Electric Lamp Bulb and Part Manufacturing
335121	Residential Electric Lighting Fixture Manufacturing
335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing
335129	Other Lighting Equipment Manufacturing
335311	Power, Distribution, and Specialty Transformer Manufacturing
335312	Motor and Generator Manufacturing
335313	Switchgear and Switchboard Apparatus Manufacturing
335314	Relay and Industrial Control Manufacturing
335911	Storage Battery Manufacturing
335912	Primary Battery Manufacturing
335921	Fiber Optic Cable Manufacturing
335929	Other Communication and Energy Wire Manufacturing
335931	Current-Carrying Wiring Device Manufacturing
335932	Noncurrent-Carrying Wiring Device Manufacturing
335991	Carbon and Graphite Product Manufacturing
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing

486110	Pipeline Transportation of Crude Oil
486210	Pipeline Transportation of Natural Gas
486910	Pipeline Transportation of Refined Petroleum Products
486990	All Other Pipeline Transportation
Tourism, Hospitality & Recreation	
481111	Scheduled Passenger Air Transportation
481211	Nonscheduled Chartered Passenger Air Transportation
481219	Other Nonscheduled Air Transportation
483112	Deep Sea Passenger Transportation
483114	Coastal and Great Lakes Passenger Transportation
483212	Inland Water Passenger Transportation
485310	Taxi Service
485320	Limousine Service
485510	Charter Bus Industry
487110	Scenic and Sightseeing Transportation, Land
487210	Scenic and Sightseeing Transportation, Water
487990	Scenic and Sightseeing Transportation, Other
488111	Air Traffic Control
488119	Other Airport Operations
488190	Other Support Activities for Air Transportation
488210	Support Activities for Rail Transportation
532111	Passenger Car Rental
532112	Passenger Car Leasing
532120	Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing
561510	Travel Agencies
561520	Tour Operators
561591	Convention and Visitors Bureaus
561599	All Other Travel Arrangement and Reservation Services
561920	Convention and Trade Show Organizers
711110	Theater Companies and Dinner Theaters
711120	Dance Companies
711130	Musical Groups and Artists
711190	Other Performing Arts Companies
711211	Sports Teams and Clubs
711212	Racetracks
711219	Other Spectator Sports
711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities
711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities

711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures
711510	Independent Artists, Writers, and Performers
712110	Museums
712120	Historical Sites
712130	Zoos and Botanical Gardens
712190	Nature Parks and Other Similar Institutions
713110	Amusement and Theme Parks
713120	Amusement Arcades
713210	Casinos (except Casino Hotels)
713290	Other Gambling Industries
713910	Golf Courses and Country Clubs
713920	Skiing Facilities
713930	Marinas
713940	Fitness and Recreational Sports Centers
713950	Bowling Centers
713990	All Other Amusement and Recreation Industries
721110	Hotels (except Casino Hotels) and Motels
721120	Casino Hotels
721191	Bed-and-Breakfast Inns
721199	All Other Traveler Accommodation
721211	RV (Recreational Vehicle) Parks and Campgrounds
721214	Recreational and Vacation Camps (except Campgrounds)
721310	Rooming and Boarding Houses, Dormitories, and Workers' Camps
722310	Food Service Contractors
722320	Caterers
722330	Mobile Food Services
722410	Drinking Places (Alcoholic Beverages)
722511	Full-Service Restaurants
722513	Limited-Service Restaurants
722515	Snack and Nonalcoholic Beverage Bars
Retail	
4251	Wholesale Electronic Markets and Agents and Brokers
4411	Automobile Dealers
4412	Other Motor Vehicle Dealers
4413	Automotive Parts, Accessories, and Tire Stores
4421	Furniture Stores
4422	Home Furnishings Stores
4431	Electronics and Appliance Stores

4441	Building Material and Supplies Dealers
4442	Lawn and Garden Equipment and Supplies Stores
4451	Grocery Stores
4452	Specialty Food Stores
4453	Beer, Wine, and Liquor Stores
4461	Health and Personal Care Stores
4471	Gasoline Stations
4481	Clothing Stores
4482	Shoe Stores
4483	Jewelry, Luggage, and Leather Goods Stores
4511	Sporting Goods, Hobby, and Musical Instrument Stores
4512	Book Stores and News Dealers
4522	Department Stores
4523	General Merchandise Stores, including Warehouse Clubs and Supercenters
4531	Florists
4532	Office Supplies, Stationery, and Gift Stores
4533	Used Merchandise Stores
4539	Other Miscellaneous Store Retailers
4541	Electronic Shopping and Mail-Order Houses
4542	Vending Machine Operators
4543	Direct Selling Establishments
Logistics	
423210	Furniture Merchant Wholesalers
423220	Home Furnishing Merchant Wholesalers
423410	Photographic Equipment and Supplies Merchant Wholesalers
423420	Office Equipment Merchant Wholesalers
423440	Other Commercial Equipment Merchant Wholesalers
423490	Other Professional Equipment and Supplies Merchant Wholesalers
423510	Metal Service Centers and Other Metal Merchant Wholesalers
423520	Coal and Other Mineral and Ore Merchant Wholesalers
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers
423620	Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers
423690	Other Electronic Parts and Equipment Merchant Wholesalers
423830	Industrial Machinery and Equipment Merchant Wholesalers
423840	Industrial Supplies Merchant Wholesalers
423850	Service Establishment Equipment and Supplies Merchant Wholesalers
423910	Sporting and Recreational Goods and Supplies Merchant Wholesalers

423920	Toy and Hobby Goods and Supplies Merchant Wholesalers
423930	Recyclable Material Merchant Wholesalers
423940	Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers
423990	Other Miscellaneous Durable Goods Merchant Wholesalers
424110	Printing and Writing Paper Merchant Wholesalers
424120	Stationery and Office Supplies Merchant Wholesalers
424130	Industrial and Personal Service Paper Merchant Wholesalers
424310	Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers
424320	Men's and Boys' Clothing and Furnishings Merchant Wholesalers
424330	Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers
424340	Footwear Merchant Wholesalers
424410	General Line Grocery Merchant Wholesalers
424420	Packaged Frozen Food Merchant Wholesalers
424430	Dairy Product (except Dried or Canned) Merchant Wholesalers
424440	Poultry and Poultry Product Merchant Wholesalers
424450	Confectionery Merchant Wholesalers
424460	Fish and Seafood Merchant Wholesalers
424470	Meat and Meat Product Merchant Wholesalers
424480	Fresh Fruit and Vegetable Merchant Wholesalers
424490	Other Grocery and Related Products Merchant Wholesalers
424510	Grain and Field Bean Merchant Wholesalers
424520	Livestock Merchant Wholesalers
424590	Other Farm Product Raw Material Merchant Wholesalers
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers
424690	Other Chemical and Allied Products Merchant Wholesalers
424710	Petroleum Bulk Stations and Terminals
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)
424920	Book, Periodical, and Newspaper Merchant Wholesalers
424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers
424940	Tobacco and Tobacco Product Merchant Wholesalers
424950	Paint, Varnish, and Supplies Merchant Wholesalers
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers
481112	Scheduled Freight Air Transportation
481212	Nonscheduled Chartered Freight Air Transportation
482110	Rail transportation
483111	Deep Sea Freight Transportation
483113	Coastal and Great Lakes Freight Transportation
483211	Inland Water Freight Transportation

484110	General Freight Trucking, Local
484121	General Freight Trucking, Long-Distance, Truckload
484122	General Freight Trucking, Long-Distance, Less Than Truckload
484210	Used Household and Office Goods Moving
484220	Specialized Freight (except Used Goods) Trucking, Local
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance
488310	Port and Harbor Operations
488320	Marine Cargo Handling
488330	Navigational Services to Shipping
488390	Other Support Activities for Water Transportation
488510	Freight Transportation Arrangement
488991	Packing and Crating
488999	All Other Support Activities for Transportation
492110	Couriers and Express Delivery Services
492210	Local Messengers and Local Delivery
493110	General Warehousing and Storage
493120	Refrigerated Warehousing and Storage
493130	Farm Product Warehousing and Storage
493190	Other Warehousing and Storage
Healthcare	
621111	Offices of Physicians (except Mental Health Specialists)
621112	Offices of Physicians, Mental Health Specialists
621210	Offices of Dentists
621310	Offices of Chiropractors
621320	Offices of Optometrists
621330	Offices of Mental Health Practitioners (except Physicians)
621340	Offices of Physical, Occupational and Speech Therapists, and Audiologists
621391	Offices of Podiatrists
621399	Offices of All Other Miscellaneous Health Practitioners
621410	Family Planning Centers
621420	Outpatient Mental Health and Substance Abuse Centers
621491	HMO Medical Centers
621492	Kidney Dialysis Centers
621493	Freestanding Ambulatory Surgical and Emergency Centers
621498	All Other Outpatient Care Centers
621512	Diagnostic Imaging Centers
621610	Home Health Care Services
621910	Ambulance Services

621991	Blood and Organ Banks
621999	All Other Miscellaneous Ambulatory Health Care Services
622110	General Medical and Surgical Hospitals
622210	Psychiatric and Substance Abuse Hospitals
622310	Specialty (except Psychiatric and Substance Abuse) Hospitals
623110	Nursing Care Facilities (Skilled Nursing Facilities)
623210	Residential Intellectual and Developmental Disability Facilities
623220	Residential Mental Health and Substance Abuse Facilities
623311	Continuing Care Retirement Communities
623312	Assisted Living Facilities for the Elderly
623990	Other Residential Care Facilities
624110	Child and Youth Services
624120	Services for the Elderly and Persons with Disabilities
624190	Other Individual and Family Services
624210	Community Food Services
624221	Temporary Shelters
624229	Other Community Housing Services
624230	Emergency and Other Relief Services
902622	Hospitals (State Government)
903622	Hospitals (Local Government)
Professional & Business Services	
541110	Offices of Lawyers
541191	Title Abstract and Settlement Offices
541199	All Other Legal Services
541211	Offices of Certified Public Accountants
541213	Tax Preparation Services
541214	Payroll Services
541219	Other Accounting Services
541430	Graphic Design Services
541490	Other Specialized Design Services
541611	Administrative Management and General Management Consulting Services
541612	Human Resources Consulting Services
541613	Marketing Consulting Services
541614	Process, Physical Distribution, and Logistics Consulting Services
541618	Other Management Consulting Services
541620	Environmental Consulting Services
541690	Other Scientific and Technical Consulting Services
541810	Advertising Agencies

541820	Public Relations Agencies
541830	Media Buying Agencies
541840	Media Representatives
541850	Outdoor Advertising
541860	Direct Mail Advertising
541870	Advertising Material Distribution Services
541890	Other Services Related to Advertising
541921	Photography Studios, Portrait
541922	Commercial Photography
541930	Translation and Interpretation Services
551112	Offices of Other Holding Companies
551114	Corporate, Subsidiary, and Regional Managing Offices
561110	Office Administrative Services
561210	Facilities Support Services
561311	Employment Placement Agencies
561312	Executive Search Services
561320	Temporary Help Services
561330	Professional Employer Organizations
561410	Document Preparation Services
561421	Telephone Answering Services
561422	Telemarketing Bureaus and Other Contact Centers
561431	Private Mail Centers
561439	Other Business Service Centers (including Copy Shops)
561440	Collection Agencies
561450	Credit Bureaus
561491	Repossession Services
561492	Court Reporting and Stenotype Services
561499	All Other Business Support Services
561611	Investigation Services
561612	Security Guards and Patrol Services
561613	Armored Car Services
561621	Security Systems Services (except Locksmiths)
561622	Locksmiths
561710	Exterminating and Pest Control Services
561720	Janitorial Services
561730	Landscaping Services
561740	Carpet and Upholstery Cleaning Services
561790	Other Services to Buildings and Dwellings

561910	Packaging and Labeling Services
561990	All Other Support Services
Financial & Banking, Insurance, Real Estate (FIRE)	
521110	Monetary Authorities-Central Bank
522110	Commercial Banking
522120	Savings Institutions
522130	Credit Unions
522190	Other Depository Credit Intermediation
522210	Credit Card Issuing
522220	Sales Financing
522291	Consumer Lending
522292	Real Estate Credit
522293	International Trade Financing
522294	Secondary Market Financing
522298	All Other Nondepository Credit Intermediation
522310	Mortgage and Nonmortgage Loan Brokers
522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities
522390	Other Activities Related to Credit Intermediation
523110	Investment Banking and Securities Dealing
523120	Securities Brokerage
523130	Commodity Contracts Dealing
523140	Commodity Contracts Brokerage
523210	Securities and Commodity Exchanges
523910	Miscellaneous Intermediation
523920	Portfolio Management
523930	Investment Advice
523991	Trust, Fiduciary, and Custody Activities
523999	Miscellaneous Financial Investment Activities
524113	Direct Life Insurance Carriers
524114	Direct Health and Medical Insurance Carriers
524126	Direct Property and Casualty Insurance Carriers
524127	Direct Title Insurance Carriers
524128	Other Direct Insurance (except Life, Health, and Medical) Carriers
524130	Reinsurance Carriers
524210	Insurance Agencies and Brokerages
524291	Claims Adjusting
524292	Third Party Administration of Insurance and Pension Funds
524298	All Other Insurance Related Activities

525110	Pension Funds
525120	Health and Welfare Funds
525190	Other Insurance Funds
525910	Open-End Investment Funds
525920	Trusts, Estates, and Agency Accounts
525990	Other Financial Vehicles
531110	Lessors of Residential Buildings and Dwellings
531120	Lessors of Nonresidential Buildings (except Miniwarehouses)
531130	Lessors of Miniwarehouses and Self-Storage Units
531190	Lessors of Other Real Estate Property
531210	Offices of Real Estate Agents and Brokers
531311	Residential Property Managers
531312	Nonresidential Property Managers
531320	Offices of Real Estate Appraisers
531390	Other Activities Related to Real Estate
532411	Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing
532412	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing
532420	Office Machinery and Equipment Rental and Leasing
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing
533110	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)
551111	Offices of Bank Holding Companies
Information & Communications	
323111	Commercial Printing (except Screen and Books)
323113	Commercial Screen Printing
323117	Books Printing
323120	Support Activities for Printing
511110	Newspaper Publishers
511120	Periodical Publishers
511130	Book Publishers
511140	Directory and Mailing List Publishers
511191	Greeting Card Publishers
511199	All Other Publishers
512110	Motion Picture and Video Production
512120	Motion Picture and Video Distribution
512131	Motion Picture Theaters (except Drive-Ins)
512132	Drive-In Motion Picture Theaters
512191	Teleproduction and Other Postproduction Services
512199	Other Motion Picture and Video Industries

512230	Music Publishers
512240	Sound Recording Studios
512250	Record Production and Distribution
512290	Other Sound Recording Industries
515111	Radio Networks
515112	Radio Stations
515120	Television Broadcasting
515210	Cable and Other Subscription Programming
519110	News Syndicates
519120	Libraries and Archives
519130	Internet Publishing and Broadcasting and Web Search Portals
519190	All Other Information Services
Education & Knowledge Creation	
485410	School and Employee Bus Transportation
541720	Research and Development in the Social Sciences and Humanities
541910	Marketing Research and Public Opinion Polling
541990	All Other Professional, Scientific, and Technical Services
611110	Elementary and Secondary Schools
611210	Junior Colleges
611310	Colleges, Universities, and Professional Schools
611410	Business and Secretarial Schools
611420	Computer Training
611430	Professional and Management Development Training
611511	Cosmetology and Barber Schools
611512	Flight Training
611513	Apprenticeship Training
611519	Other Technical and Trade Schools
611610	Fine Arts Schools
611620	Sports and Recreation Instruction
611630	Language Schools
611691	Exam Preparation and Tutoring
611692	Automobile Driving Schools
611699	All Other Miscellaneous Schools and Instruction
611710	Educational Support Services
624310	Vocational Rehabilitation Services
624410	Child Day Care Services
902611	Elementary and Secondary Schools (State Government)
902612	Colleges, Universities, and Professional Schools (State Government)

902619	All Other Schools and Educational Support Services (State Government)
903611	Elementary and Secondary Schools (Local Government)
903612	Colleges, Universities, and Professional Schools (Local Government)
903619	All Other Schools and Educational Support Services (Local Government)
Agriculture & Food	
111000	Crop Production
112000	Animal Production
113110	Timber Tract Operations
113210	Forest Nurseries and Gathering of Forest Products
113310	Logging
114111	Finfish Fishing
114112	Shellfish Fishing
114119	Other Marine Fishing
114210	Hunting and Trapping
115111	Cotton Ginning
115112	Soil Preparation, Planting, and Cultivating
115113	Crop Harvesting, Primarily by Machine
115114	Postharvest Crop Activities (except Cotton Ginning)
115115	Farm Labor Contractors and Crew Leaders
115116	Farm Management Services
115210	Support Activities for Animal Production
115310	Support Activities for Forestry
311211	Flour Milling
311212	Rice Milling
311213	Malt Manufacturing
311221	Wet Corn Milling
311224	Soybean and Other Oilseed Processing
311225	Fats and Oils Refining and Blending
311230	Breakfast Cereal Manufacturing
311313	Beet Sugar Manufacturing
311314	Cane Sugar Manufacturing
311340	Nonchocolate Confectionery Manufacturing
311351	Chocolate and Confectionery Manufacturing from Cacao Beans
311352	Confectionery Manufacturing from Purchased Chocolate
311411	Frozen Fruit, Juice, and Vegetable Manufacturing
311412	Frozen Specialty Food Manufacturing
311421	Fruit and Vegetable Canning
311422	Specialty Canning

311423	Dried and Dehydrated Food Manufacturing
311511	Fluid Milk Manufacturing
311512	Creamery Butter Manufacturing
311513	Cheese Manufacturing
311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing
311520	Ice Cream and Frozen Dessert Manufacturing
311611	Animal (except Poultry) Slaughtering
311612	Meat Processed from Carcasses
311613	Rendering and Meat Byproduct Processing
311615	Poultry Processing
311710	Seafood Product Preparation and Packaging
311811	Retail Bakeries
311812	Commercial Bakeries
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing
311821	Cookie and Cracker Manufacturing
311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour
311830	Tortilla Manufacturing
311911	Roasted Nuts and Peanut Butter Manufacturing
311919	Other Snack Food Manufacturing
311920	Coffee and Tea Manufacturing
311930	Flavoring Syrup and Concentrate Manufacturing
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing
311942	Spice and Extract Manufacturing
311991	Perishable Prepared Food Manufacturing
311999	All Other Miscellaneous Food Manufacturing
312111	Soft Drink Manufacturing
312112	Bottled Water Manufacturing
312113	Ice Manufacturing
312120	Breweries
312130	Wineries
312140	Distilleries
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers
424810	Beer and Ale Merchant Wholesalers
424820	Wine and Distilled Alcoholic Beverage Merchant Wholesalers
541940	Veterinary Services
Building & Design	
236115	New Single-Family Housing Construction (except For-Sale Builders)
236116	New Multifamily Housing Construction (except For-Sale Builders)

236117	New Housing For-Sale Builders
236118	Residential Remodelers
236210	Industrial Building Construction
236220	Commercial and Institutional Building Construction
237210	Land Subdivision
238110	Poured Concrete Foundation and Structure Contractors
238120	Structural Steel and Precast Concrete Contractors
238130	Framing Contractors
238140	Masonry Contractors
238150	Glass and Glazing Contractors
238160	Roofing Contractors
238170	Siding Contractors
238190	Other Foundation, Structure, and Building Exterior Contractors
238210	Electrical Contractors and Other Wiring Installation Contractors
238220	Plumbing, Heating, and Air-Conditioning Contractors
238290	Other Building Equipment Contractors
238310	Drywall and Insulation Contractors
238320	Painting and Wall Covering Contractors
238330	Flooring Contractors
238340	Tile and Terrazzo Contractors
238350	Finish Carpentry Contractors
238390	Other Building Finishing Contractors
238910	Site Preparation Contractors
238990	All Other Specialty Trade Contractors
327310	Cement Manufacturing
327320	Ready-Mix Concrete Manufacturing
327331	Concrete Block and Brick Manufacturing
327332	Concrete Pipe Manufacturing
327390	Other Concrete Product Manufacturing
332311	Prefabricated Metal Building and Component Manufacturing
332312	Fabricated Structural Metal Manufacturing
332313	Plate Work Manufacturing
332321	Metal Window and Door Manufacturing
332322	Sheet Metal Work Manufacturing
332323	Ornamental and Architectural Metal Work Manufacturing
333413	Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing
333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing

423310	Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers
423320	Brick, Stone, and Related Construction Material Merchant Wholesalers
423330	Roofing, Siding, and Insulation Material Merchant Wholesalers
423390	Other Construction Material Merchant Wholesalers
423710	Hardware Merchant Wholesalers
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers
423730	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers
423740	Refrigeration Equipment and Supplies Merchant Wholesalers
423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers
541310	Architectural Services
541320	Landscape Architectural Services
541330	Engineering Services
541340	Drafting Services
541350	Building Inspection Services
541360	Geophysical Surveying and Mapping Services
541370	Surveying and Mapping (except Geophysical) Services
541410	Interior Design Services
541420	Industrial Design Services
Water	
221310	Water Supply and Irrigation Systems
221320	Sewage Treatment Facilities
237110	Water and Sewer Line and Related Structures Construction
Other Manufacturing	
212210	Iron Ore Mining
212221	Gold Ore Mining
212222	Silver Ore Mining
212230	Copper, Nickel, Lead, and Zinc Mining
212291	Uranium-Radium-Vanadium Ore Mining
212299	All Other Metal Ore Mining
212311	Dimension Stone Mining and Quarrying
212312	Crushed and Broken Limestone Mining and Quarrying
212313	Crushed and Broken Granite Mining and Quarrying
212319	Other Crushed and Broken Stone Mining and Quarrying
212321	Construction Sand and Gravel Mining
212322	Industrial Sand Mining
212324	Kaolin and Ball Clay Mining
212325	Clay and Ceramic and Refractory Minerals Mining
212391	Potash, Soda, and Borate Mineral Mining

212392	Phosphate Rock Mining
212393	Other Chemical and Fertilizer Mineral Mining
212399	All Other Nonmetallic Mineral Mining
213114	Support Activities for Metal Mining
213115	Support Activities for Nonmetallic Minerals (except Fuels) Mining
311111	Dog and Cat Food Manufacturing
311119	Other Animal Food Manufacturing
312230	Tobacco Manufacturing
313110	Fiber, Yarn, and Thread Mills
313210	Broadwoven Fabric Mills
313220	Narrow Fabric Mills and Schiffli Machine Embroidery
313230	Nonwoven Fabric Mills
313240	Knit Fabric Mills
313310	Textile and Fabric Finishing Mills
313320	Fabric Coating Mills
314110	Carpet and Rug Mills
314120	Curtain and Linen Mills
314910	Textile Bag and Canvas Mills
314994	Rope, Cordage, Twine, Tire Cord, and Tire Fabric Mills
314999	All Other Miscellaneous Textile Product Mills
315110	Hosiery and Sock Mills
315190	Other Apparel Knitting Mills
315210	Cut and Sew Apparel Contractors
315220	Men's and Boys' Cut and Sew Apparel Manufacturing
315240	Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing
315280	Other Cut and Sew Apparel Manufacturing
315990	Apparel Accessories and Other Apparel Manufacturing
316110	Leather and Hide Tanning and Finishing
316210	Footwear Manufacturing
316992	Women's Handbag and Purse Manufacturing
316998	All Other Leather Good and Allied Product Manufacturing
321113	Sawmills
321114	Wood Preservation
321211	Hardwood Veneer and Plywood Manufacturing
321212	Softwood Veneer and Plywood Manufacturing
321213	Engineered Wood Member (except Truss) Manufacturing
321214	Truss Manufacturing
321219	Reconstituted Wood Product Manufacturing

321911	Wood Window and Door Manufacturing
321912	Cut Stock, Resawing Lumber, and Planing
321918	Other Millwork (including Flooring)
321920	Wood Container and Pallet Manufacturing
321991	Manufactured Home (Mobile Home) Manufacturing
321992	Prefabricated Wood Building Manufacturing
321999	All Other Miscellaneous Wood Product Manufacturing
322110	Pulp Mills
322121	Paper (except Newsprint) Mills
322122	Newsprint Mills
322130	Paperboard Mills
322211	Corrugated and Solid Fiber Box Manufacturing
322212	Folding Paperboard Box Manufacturing
322219	Other Paperboard Container Manufacturing
322220	Paper Bag and Coated and Treated Paper Manufacturing
322230	Stationery Product Manufacturing
322291	Sanitary Paper Product Manufacturing
322299	All Other Converted Paper Product Manufacturing
324121	Asphalt Paving Mixture and Block Manufacturing
324122	Asphalt Shingle and Coating Materials Manufacturing
325110	Petrochemical Manufacturing
325130	Synthetic Dye and Pigment Manufacturing
325180	Other Basic Inorganic Chemical Manufacturing
325211	Plastics Material and Resin Manufacturing
325212	Synthetic Rubber Manufacturing
325220	Artificial and Synthetic Fibers and Filaments Manufacturing
325611	Soap and Other Detergent Manufacturing
325612	Polish and Other Sanitation Good Manufacturing
325613	Surface Active Agent Manufacturing
325620	Toilet Preparation Manufacturing
325910	Printing Ink Manufacturing
325991	Custom Compounding of Purchased Resins
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing
326111	Plastics Bag and Pouch Manufacturing
326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing
326121	Unlaminated Plastics Profile Shape Manufacturing

326122	Plastics Pipe and Pipe Fitting Manufacturing
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing
326140	Polystyrene Foam Product Manufacturing
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing
326160	Plastics Bottle Manufacturing
326191	Plastics Plumbing Fixture Manufacturing
326199	All Other Plastics Product Manufacturing
326211	Tire Manufacturing (except Retreading)
326212	Tire Retreading
326220	Rubber and Plastics Hoses and Belting Manufacturing
326291	Rubber Product Manufacturing for Mechanical Use
326299	All Other Rubber Product Manufacturing
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing
327120	Clay Building Material and Refractories Manufacturing
327211	Flat Glass Manufacturing
327212	Other Pressed and Blown Glass and Glassware Manufacturing
327213	Glass Container Manufacturing
327215	Glass Product Manufacturing Made of Purchased Glass
327410	Lime Manufacturing
327420	Gypsum Product Manufacturing
327910	Abrasive Product Manufacturing
327991	Cut Stone and Stone Product Manufacturing
327992	Ground or Treated Mineral and Earth Manufacturing
327993	Mineral Wool Manufacturing
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing
331110	Iron and Steel Mills and Ferroalloy Manufacturing
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel
331221	Rolled Steel Shape Manufacturing
331222	Steel Wire Drawing
331313	Alumina Refining and Primary Aluminum Production
331314	Secondary Smelting and Alloying of Aluminum
331315	Aluminum Sheet, Plate, and Foil Manufacturing
331318	Other Aluminum Rolling, Drawing, and Extruding
331410	Nonferrous Metal (except Aluminum) Smelting and Refining
331420	Copper Rolling, Drawing, Extruding, and Alloying
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)
331511	Iron Foundries

331512	Steel Investment Foundries
331513	Steel Foundries (except Investment)
331523	Nonferrous Metal Die-Casting Foundries
331524	Aluminum Foundries (except Die-Casting)
331529	Other Nonferrous Metal Foundries (except Die-Casting)
332111	Iron and Steel Forging
332112	Nonferrous Forging
332114	Custom Roll Forming
332117	Powder Metallurgy Part Manufacturing
332119	Metal Crown, Closure, and Other Metal Stamping (except Automotive)
332215	Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing
332216	Saw Blade and Handtool Manufacturing
332410	Power Boiler and Heat Exchanger Manufacturing
332420	Metal Tank (Heavy Gauge) Manufacturing
332431	Metal Can Manufacturing
332439	Other Metal Container Manufacturing
332510	Hardware Manufacturing
332618	Other Fabricated Wire Product Manufacturing
332710	Machine Shops
332721	Precision Turned Product Manufacturing
332722	Bolt, Nut, Screw, Rivet, and Washer Manufacturing
332811	Metal Heat Treating
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring
332991	Ball and Roller Bearing Manufacturing
332996	Fabricated Pipe and Pipe Fitting Manufacturing
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
333111	Farm Machinery and Equipment Manufacturing
333112	Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing
333120	Construction Machinery Manufacturing
333131	Mining Machinery and Equipment Manufacturing
333132	Oil and Gas Field Machinery and Equipment Manufacturing
333241	Food Product Machinery Manufacturing
333242	Semiconductor Machinery Manufacturing
333243	Sawmill, Woodworking, and Paper Machinery Manufacturing
333244	Printing Machinery and Equipment Manufacturing
333249	Other Industrial Machinery Manufacturing
333316	Photographic and Photocopying Equipment Manufacturing

333318	Other Commercial and Service Industry Machinery Manufacturing
333511	Industrial Mold Manufacturing
333514	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing
333515	Cutting Tool and Machine Tool Accessory Manufacturing
333517	Machine Tool Manufacturing
333519	Rolling Mill and Other Metalworking Machinery Manufacturing
333912	Air and Gas Compressor Manufacturing
333914	Measuring, Dispensing, and Other Pumping Equipment Manufacturing
333921	Elevator and Moving Stairway Manufacturing
333922	Conveyor and Conveying Equipment Manufacturing
333923	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing
333924	Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing
333991	Power-Driven Handtool Manufacturing
333992	Welding and Soldering Equipment Manufacturing
333993	Packaging Machinery Manufacturing
333994	Industrial Process Furnace and Oven Manufacturing
333995	Fluid Power Cylinder and Actuator Manufacturing
333996	Fluid Power Pump and Motor Manufacturing
333997	Scale and Balance Manufacturing
333999	All Other Miscellaneous General Purpose Machinery Manufacturing
335210	Small Electrical Appliance Manufacturing
335220	Major Household Appliance Manufacturing
337110	Wood Kitchen Cabinet and Countertop Manufacturing
337121	Upholstered Household Furniture Manufacturing
337122	Nonupholstered Wood Household Furniture Manufacturing
337124	Metal Household Furniture Manufacturing
337125	Household Furniture (except Wood and Metal) Manufacturing
337127	Institutional Furniture Manufacturing
337211	Wood Office Furniture Manufacturing
337212	Custom Architectural Woodwork and Millwork Manufacturing
337214	Office Furniture (except Wood) Manufacturing
337215	Showcase, Partition, Shelving, and Locker Manufacturing
337910	Mattress Manufacturing
337920	Blind and Shade Manufacturing
339910	Jewelry and Silverware Manufacturing
339920	Sporting and Athletic Goods Manufacturing
339930	Doll, Toy, and Game Manufacturing
339940	Office Supplies (except Paper) Manufacturing

339950	Sign Manufacturing
339991	Gasket, Packing, and Sealing Device Manufacturing
339992	Musical Instrument Manufacturing
339993	Fastener, Button, Needle, and Pin Manufacturing
339994	Broom, Brush, and Mop Manufacturing
339995	Burial Casket Manufacturing
339999	All Other Miscellaneous Manufacturing
Other Services	
485111	Mixed Mode Transit Systems
485112	Commuter Rail Systems
485113	Bus and Other Motor Vehicle Transit Systems
485119	Other Urban Transit Systems
485210	Interurban and Rural Bus Transportation
485991	Special Needs Transportation
485999	All Other Transit and Ground Passenger Transportation
532210	Consumer Electronics and Appliances Rental
532281	Formal Wear and Costume Rental
532282	Video Tape and Disc Rental
532283	Home Health Equipment Rental
532284	Recreational Goods Rental
532289	All Other Consumer Goods Rental
532310	General Rental Centers
562111	Solid Waste Collection
562112	Hazardous Waste Collection
562119	Other Waste Collection
562211	Hazardous Waste Treatment and Disposal
562212	Solid Waste Landfill
562213	Solid Waste Combustors and Incinerators
562219	Other Nonhazardous Waste Treatment and Disposal
562910	Remediation Services
562920	Materials Recovery Facilities
562991	Septic Tank and Related Services
562998	All Other Miscellaneous Waste Management Services
722514	Cafeterias, Grill Buffets, and Buffets
811111	General Automotive Repair
811112	Automotive Exhaust System Repair
811113	Automotive Transmission Repair
811118	Other Automotive Mechanical and Electrical Repair and Maintenance

811121	Automotive Body, Paint, and Interior Repair and Maintenance
811122	Automotive Glass Replacement Shops
811191	Automotive Oil Change and Lubrication Shops
811192	Car Washes
811198	All Other Automotive Repair and Maintenance
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
811411	Home and Garden Equipment Repair and Maintenance
811412	Appliance Repair and Maintenance
811420	Reupholstery and Furniture Repair
811430	Footwear and Leather Goods Repair
811490	Other Personal and Household Goods Repair and Maintenance
812111	Barber Shops
812112	Beauty Salons
812113	Nail Salons
812191	Diet and Weight Reducing Centers
812199	Other Personal Care Services
812210	Funeral Homes and Funeral Services
812220	Cemeteries and Crematories
812310	Coin-Operated Laundries and Drycleaners
812320	Drycleaning and Laundry Services (except Coin-Operated)
812331	Linen Supply
812332	Industrial Launderers
812910	Pet Care (except Veterinary) Services
812921	Photofinishing Laboratories (except One-Hour)
812922	One-Hour Photofinishing
812930	Parking Lots and Garages
812990	All Other Personal Services
813110	Religious Organizations
813211	Grantmaking Foundations
813212	Voluntary Health Organizations
813219	Other Grantmaking and Giving Services
813311	Human Rights Organizations
813312	Environment, Conservation and Wildlife Organizations
813319	Other Social Advocacy Organizations
813410	Civic and Social Organizations
813910	Business Associations
813920	Professional Organizations
813930	Labor Unions and Similar Labor Organizations

813940	Political Organizations
813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)
814110	Private Households
Public Services & Infrastructure	
237310	Highway, Street, and Bridge Construction
237990	Other Heavy and Civil Engineering Construction
488410	Motor Vehicle Towing
488490	Other Support Activities for Road Transportation
491110	Postal Service
901149	US Postal Service
901199	Federal Government, Civilian, Excluding Postal Service
902999	State Government, Excluding Education and Hospitals
903999	Local Government, Excluding Education and Hospitals