

APRIL 2023

WORKFORCE COMPOSITION, TRENDS & ALIGNMENT



TX 20
TX 36

TEXAS 2036

Texas 2036 is a non-profit public policy organization building long-term, data-driven strategies to secure Texas' continued prosperity for years to come. We engage Texans and their leaders in an honest conversation about our future, focusing on the big challenges. We offer non-partisan ideas and modern solutions that are grounded in research and data to break through the gridlock on issues that matter most to all Texans. Smart strategies and systematic changes are critical to prepare Texas for the future.

CONTACT

Holly Heard, Ph.D., *VP of Data & Analytics*
holly.heard@Texas2036.org

Carlos Ignacio Navarro, *Data Analyst*
carlos.navarro@Texas2036.org

Renzo Soto, *Policy Advisor*
renzo.soto@Texas2036.org

Hans Voss, *Manager of Projects & Initiatives*
hans.voss@texas2036.org

ALEXANDER

RESEARCH & CONSULTING

Alexander Research & Consulting provides insights and support to help organizations amplify their impact. I offer a wide range of services—research, analytics, program evaluation, strategic planning, and implementation support—with a specialization in community, economic, and workforce development.

CONTACT

Caroline Alexander
Principal
caroline@alexanderrc.com



Elevating your work through elegant design.

CONTACT

Meredith Eberle
safflor@gmail.com



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TX 20
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EXECUTIVE SUMMARY



INTRODUCTION

A major policy area for Texas 2036 is education and workforce. The focus of this area is bridging the gap between educational attainment and workforce demand to better align the state's talent pipeline with the needs of employers. To identify its policy priorities, Texas 2036 is working to understand the state workforce and education systems to highlight trends and issues that require a coordinated policy response at the state level.

To do this, Texas 2036 hired Alexander Research and Consulting to conduct an in-depth study of Texas workforce trends to inform its workforce policy agenda for the 2023 legislative session. This work focused on workforce demand, skills and degree acquisition and alignment, and a more general survey of long-term, forward-looking trends that will impact workforce demand in Texas.

TEXAS 2036 STRATEGIC FRAMEWORK

The 2023 Texas 2036 Strategic Framework puts forth audacious solutions to move the state forward toward a future that provides the greatest opportunity for the greatest number of Texans.

To identify these solutions, Texas 2036 first had to measure Texas's performance against a group of competitive peer states consisting of California, Colorado, Florida, Georgia, Illinois, New York, North Carolina, Ohio, Pennsylvania, Virginia, and Washington.

This study also uses the same peer group to understand how Texas's workforce compares to its competitive peers.

Image by Perry Merritt II via Unsplash

KEY FINDINGS

Industries of opportunity drive workforce demand

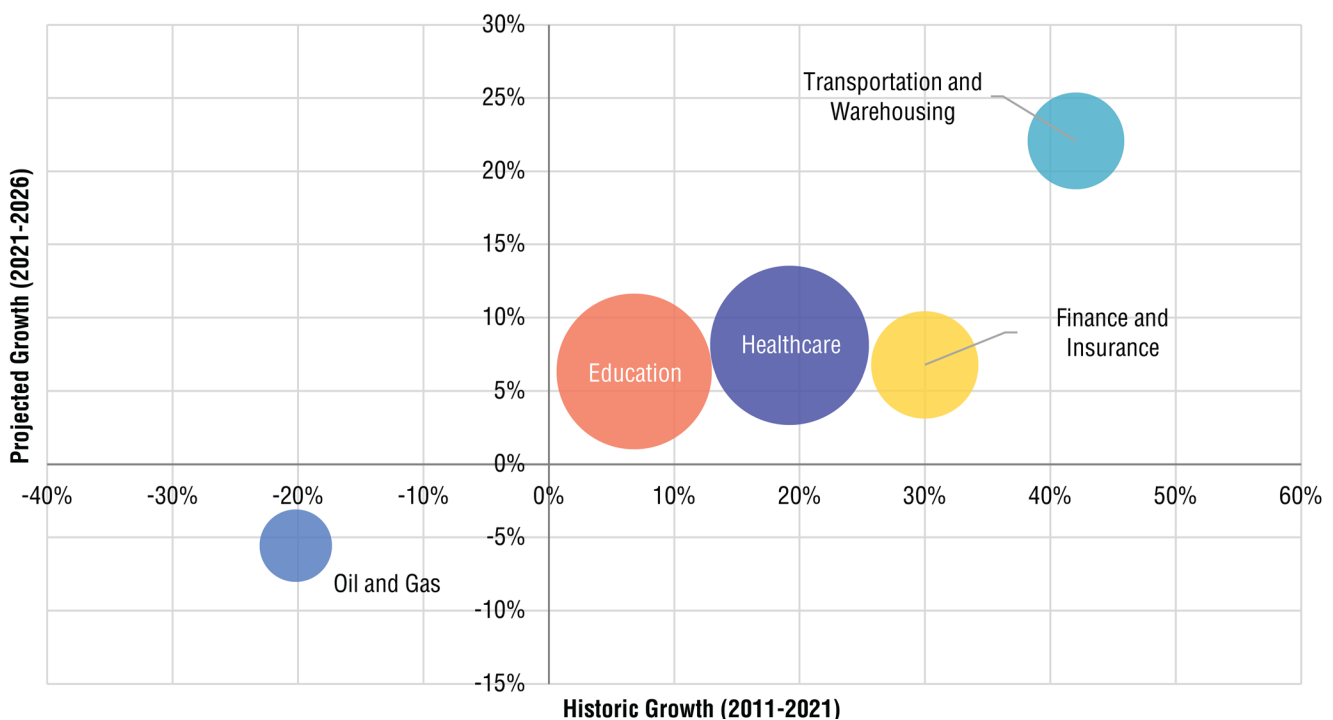
Healthcare, education, finance and insurance, transportation and warehousing, and oil and gas are Texas's top industries of opportunity and are important drivers of workforce demand. These sectors are significant in size and either primary sources of growth or employment or both.

Of the five sectors, transportation and warehousing saw the most growth over the last 10 years and is

expected to continue on a path of robust growth. Healthcare, education, and finance and insurance also saw strong growth over the last 10 years, which is expected to continue over the next decade.

The oil and gas sector, though smaller with declining employment, is an extremely important contributor to the Texas economy, both in terms of primary employment and in gross regional product.

FIGURE 1. INDUSTRIES OF OPPORTUNITY



Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

The demand for workers with postsecondary credentials is rising

More and more jobs are in occupations that require a postsecondary credential—anything from a certificate to a bachelor's degree or higher. Both before and during the COVID-19 pandemic, occupations that require postsecondary education grew by 17 percent while the demand for workers with a high school diploma or less grew by only 10 percent. Furthermore, 90 percent of the occupations that require a high school diploma

or less also require on-the-job training. This on-the-job training is frequently provided through formal training programs, often at community colleges.

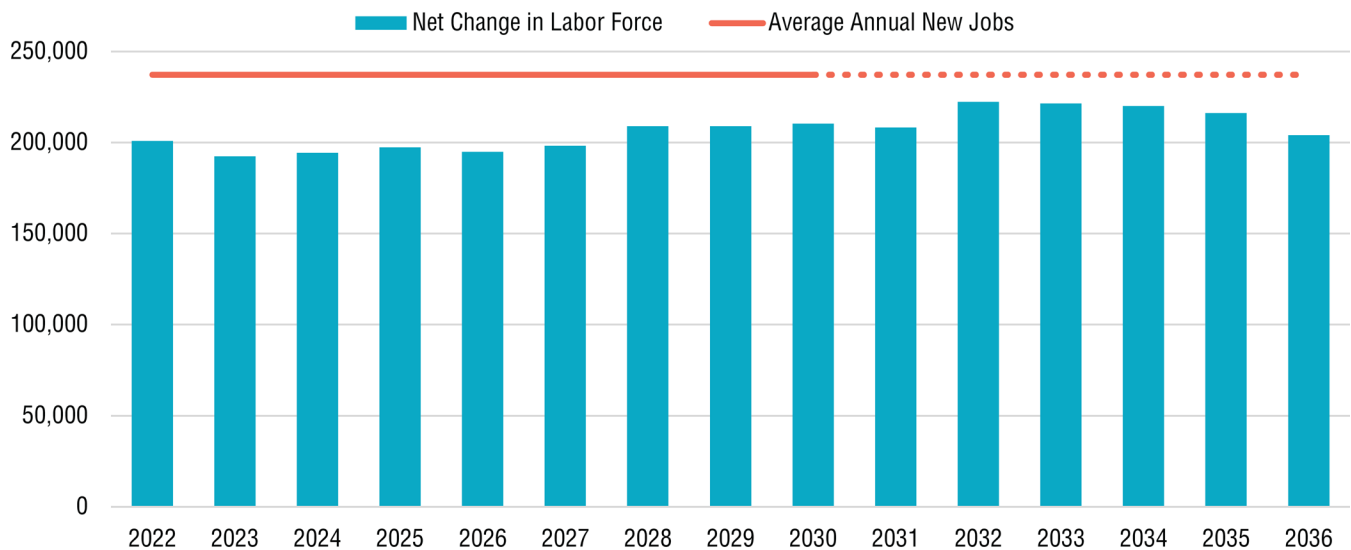
The occupations that require postsecondary education demonstrated a high degree of resilience both during the shock of the pandemic and in terms of exposure to automation risk.

Texas's educational infrastructure must be aligned with workforce demand

Currently, the largest source of talent with postsecondary or industry credentials is higher education. Many of the most popular fields of study align well with the state's industries of opportunity, particularly among sub-baccalaureate degrees. However, the full-range of occupations that support the industries of opportunity are not represented, and some of the most popular fields of study are not related to the industries of opportunity.

Apprenticeships, career and technical education, and training provided by the Texas Workforce Commission's system of eligible training providers are other sources of talent. However, a lack of data results in a lack of visibility into these systems. What data is available shows that these elements of the state's educational infrastructure could be more widely utilized and better aligned with the industries of opportunity.

FIGURE 2. COMPARISON OF AVERAGE ANNUAL NEW JOBS TO ANNUAL NET CHANGE IN LABOR FORCE



Source: US Bureau of Labor Statistics, Texas Demographic Center, Texas Workforce Commission.

Note: Labor force estimates assume 2021 labor force participation rates; the average annual new jobs is the annual change in jobs based on the Texas Workforce Commission's 2020–2030 projections.

Labor force trends highlight challenges ahead

The strength of the Texas labor force supported the state's rapid growth during the recent period of economic expansion and supported its rapid recovery during the COVID-19 pandemic. This strength, however, cannot be taken for granted.

The demographics of labor force foreshadow slowing growth. A larger portion of the Texas labor force is nearing retirement, and there are fewer young workers poised to enter the labor force.

At the same time, labor force participation declined during the pandemic. If this trend continues, Texas may not have enough workers on its own to fill new jobs if economic growth continues as expected.

Furthermore, two primary sources of growth leave the Texas labor force exposed to additional risks. Hispanic workers are the most rapidly growing segment of the Texas labor force, but the educational attainment of this group lags the rest of the adult population and labor force participation has recently been declining.

Another source of growth, historically, has been women. Although Texas women's labor force participation remained strong through the pandemic and proved more resilient than men's, more than a 10 percentage point disparity between women's and men's labor force participation remains, and future gains are partially dependent on a troubled childcare market.

PART I **OCCUPATIONAL STRUCTURE & WORKFORCE DEMAND**



OCCUPATIONAL STRUCTURE

The occupational structure of the employment base reveals, at a high level, the relative prevalence of workers in similar occupational families. The distribution of jobs across occupational families and growth patterns shows what kinds of skills are in demand and growing in the Texas economy. Comparing these patterns pre- and post-pandemic paints a picture of the pandemic's influence on occupational demand.

In addition to the COVID-19 pandemic, other major factors affecting occupational demand in Texas are the large cohort of workers retiring over the next 10 years and automation. Both of these factors influence the demand for workers and the skills those workers need. They also can contribute to skills and experience gaps that result in hiring challenges for employers across a wide range of industries.

FINDINGS

Almost one-third of Texas's 14.2 million jobs can be classified in occupations that fall into the office and administrative support, sales and related, and transportation and material moving categories. The share of these three occupational families in Texas is similar to their share in the US and Texas's peer states of California, Colorado, Florida, Georgia, Illinois, New York, North Carolina, Ohio, Pennsylvania, Virginia, and Washington.

The occupational families that grew both before and during the pandemic were management, transportation and warehousing, business and financial operations, healthcare practitioners and technical, healthcare support, and computer and mathematical.

Food preparation and serving related occupations were one of the fastest-growing families before the pandemic but one of the hardest hit during the pandemic. Construction occupations also grew substantially before the pandemic but contracted during the pandemic.

DEFINITIONS

Employment is state of being employed, which is engaging in an activity in exchange for wages. It is also the total of all jobs.

A **job** is a paid position of regular employment.

An **occupation** is a job or profession.

A **worker** is a person who performs a job.

In all, these trends in occupational demand directly impact the need for postsecondary training. Understanding the drivers of occupational demand and the corresponding postsecondary educational requirements can improve the alignment of the state's educational infrastructure and workforce with employers' needs. This alignment will, in turn, position Texas for continued economic growth.



Although office and administrative support occupations are one of the largest occupational families, this occupational family was one of the slower growing families before the pandemic, and it contracted during the pandemic. At the same time, growth has accelerated in the business and financial operations family both prior to and during the pandemic.

In Texas, 37 percent of jobs require a postsecondary credential for entry. Among its peer states, Texas ranks 11 out of 12 in terms of the percentage of jobs that require postsecondary education. Of the 5.3 million jobs that require a postsecondary credential for entry, 60 percent require a bachelor's degree and 30 percent require up to a two-year associate's degree. In addition, of the almost nine million jobs that require a high school diploma or no formal education for entry, 90 percent require some degree of on-the-job training (OJT) or an apprenticeship. More and more, this kind of training is being provided at or in partnership with a higher education institution, most often community colleges.

Both before and during the pandemic, the demand for jobs that require postsecondary credentials grew, driven by growth in jobs that require a bachelor's degree. Texas had one of the highest growth rates among its peers in jobs that require postsecondary education, both before and during the pandemic. On the other hand, demand for jobs that require a high school diploma or less grew more slowly prior to the pandemic and actually declined during the pandemic.

Of its peer states, Texas has the smallest cohort of workers nearing retirement. Nevertheless, more than one in five workers in Texas is age 55 or older. Of the occupations that have the highest percentage of workers nearing retirement, management occupations have the highest representation. A wide range of occupations both that require and do not require postsecondary education have more than one-quarter of their workers age 55 and older—including various managers, office and administrative support occupations, engineers, maintenance and repair workers, building and grounds maintenance, and production workers. Replacing these retiring workers can be difficult in occupations facing an experience and/or skills gap, which may need to be addressed through specialized training.

The automation risk of an occupation can be measured with an index based on the amount of time workers in that occupation spend on tasks that can be or are likely to be performed instead by a technology application. Occupations that do not require postsecondary education are more at risk of automation than those that require a postsecondary degree. Only nine occupations that require postsecondary education face higher-than-average automation risk; all of these require less than an associate's degree. In contrast, more than 80 detailed occupations that require a high school diploma or no formal education face higher-than-average automation risk. These workers will likely need to be reskilled or upskilled.



DATA

Under the Standard Occupational Classification (SOC) system, which is a federal statistical standard for occupational data, civilian occupations are classified into 23 occupational families. This classification system groups occupations that share similar job duties and, in some cases, skills, education, and/or training. In 2021, the largest occupational families in Texas by number of jobs were office and administrative support, sales and related, and transportation and material moving (Figure 3).

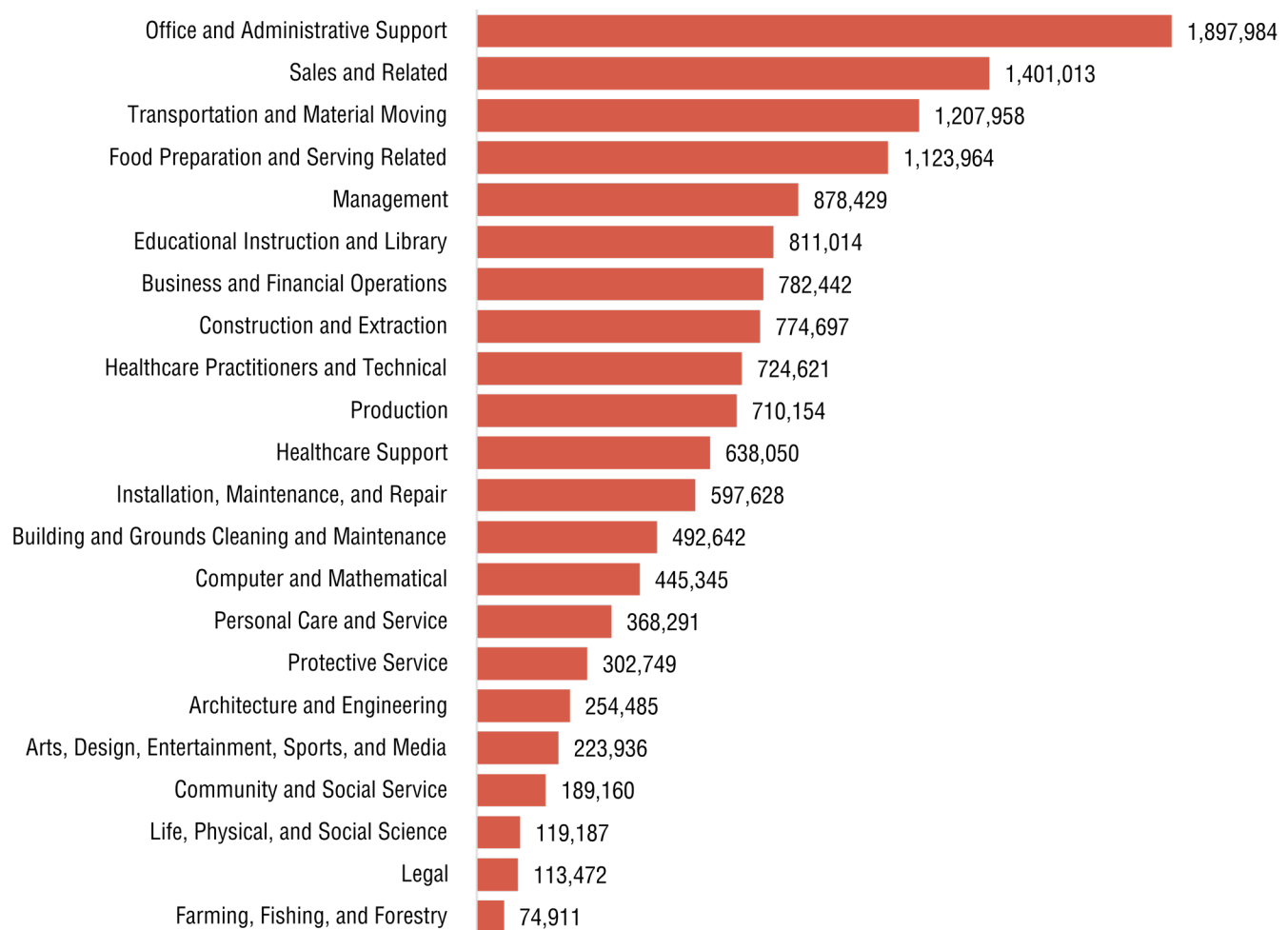
Office and administrative support occupations accounted for nearly 1.9 million jobs, or 13 percent of all civilian jobs. This family of occupations includes office clerks, customer service representatives, and administrative assistants.

Sales and related occupations accounted for another 1.4 million jobs, or 10 percent of all civilian jobs. These occupations include retail salespersons, cashiers, and first-line supervisors of retail workers.

In 2021, 1.2 million jobs, or 8 percent, were in transportation and material moving occupations. Truck drivers, freight and material movers, and stockers and order fillers were the most common occupations in this family.

Under the SOC system, all jobs are classified into one of 867 detailed occupations according to their occupational definition.

FIGURE 3. JOBS BY OCCUPATION, 2021



Source: Lightcast 2022.2—Quarterly Census of Employment and Wages (QCEW) Employees, Non-QCEW Employees, and Self-Employed.

In 2021, fast food and counter workers was the detailed occupation with the largest number of jobs (Figure 4). Retail salespersons and home health and personal care aides were the second and third largest, respectively.

Many of the occupations in the top 10 list in Figure 4 are fairly low wage for single working adults and for families. Of the top 10 detailed occupations, 2 occupations have a median hourly earning less than \$11.16, which is the household survival budget in Texas for a single adult (United Way, 2020).¹ Moreover, 6 of the top 10 have median hourly earnings less than \$16.41, which is the living wage for one working adult with no children in Texas (Glasmeier and Massachusetts Institute of Technology, 2022).² For two working adults and two kids, the wage of these occupations is less sustainable: 8 of the top 10 are less than \$32.36, the household survival budget for two adults and two

kids (United Way, 2020), and \$22.10, the living wage for two working adults with two kids (Glasmeier and Massachusetts Institute of Technology, 2022). Both the survival budget and living wage are commonly used benchmarks to measure the adequacy of wages.

General and operations managers and registered nurses were the two highest paid occupations on the list of top occupations in 2021.

In the five years leading up to the COVID-19 pandemic, employment growth was dominated by a few occupational families, reflecting the areas of marked expansion, such as construction, transportation and warehousing, and food services (Figure 5). Yet, none of the major occupational families saw a decrease in employment between 2014 and 2019.

FIGURE 4. TOP 10 OCCUPATIONS, 2021

SOC Code	Description	2021 Jobs	Median Hourly Earnings	Median Hourly Earnings/ Survival Budget	Median Hourly Earnings/ Living Wage
35-3023	Fast Food & Counter Workers	394,248	\$9.97	0.89	0.61
41-2031	Retail Salespersons	377,154	\$11.91	1.07	0.73
31-1128	Home Health & Personal Care Aides	366,926	\$10.13	0.91	0.62
43-9061	Office Clerks, General	313,388	\$16.71	1.50	1.02
43-4051	Customer Service Representatives	305,611	\$16.40	1.47	1.00
41-2011	Cashiers	297,410	\$11.19	1.00	0.68
11-1021	General & Operations Managers	242,779	\$46.74	4.19	2.85
53-3032	Heavy & Tractor-Trailer Truck Drivers	232,869	\$21.88	1.96	1.33
29-1141	Registered Nurses	227,035	\$36.20	3.24	2.21
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	219,849	\$14.42	1.29	0.88

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

1 A survival budget is the minimal estimate of the total cost of household essentials—housing, childcare, food, transportation, healthcare, and a smartphone plan, plus taxes and a miscellaneous contingency fund equal to 10 percent of the budget.
2 A living wage is the wage rate that allows residents to meet minimum standards given the local cost of living.



GROWTH OF OCCUPATIONAL FAMILIES

2014 TO 2019

OCCUPATIONAL FAMILIES THAT GREW THE MOST

- Management, primarily general & operations managers, personal services managers, & construction managers;
- Transportation & material moving, primarily truck drivers, stockers & order fillers, & freight & material movers; &
- Food preparation & serving related, primarily fast food & counter workers, restaurant cooks, & first-line supervisors.

OCCUPATIONAL FAMILIES THAT GREW THE LEAST

- Farming, fishing, & forestry, primarily farmworkers & laborers;
- Legal, primarily title examiners, abstractors, & searchers; &
- Life, physical, & social science, mostly geoscientists & technicians.

2019 TO 2021 (COVID-19 PANDEMIC)

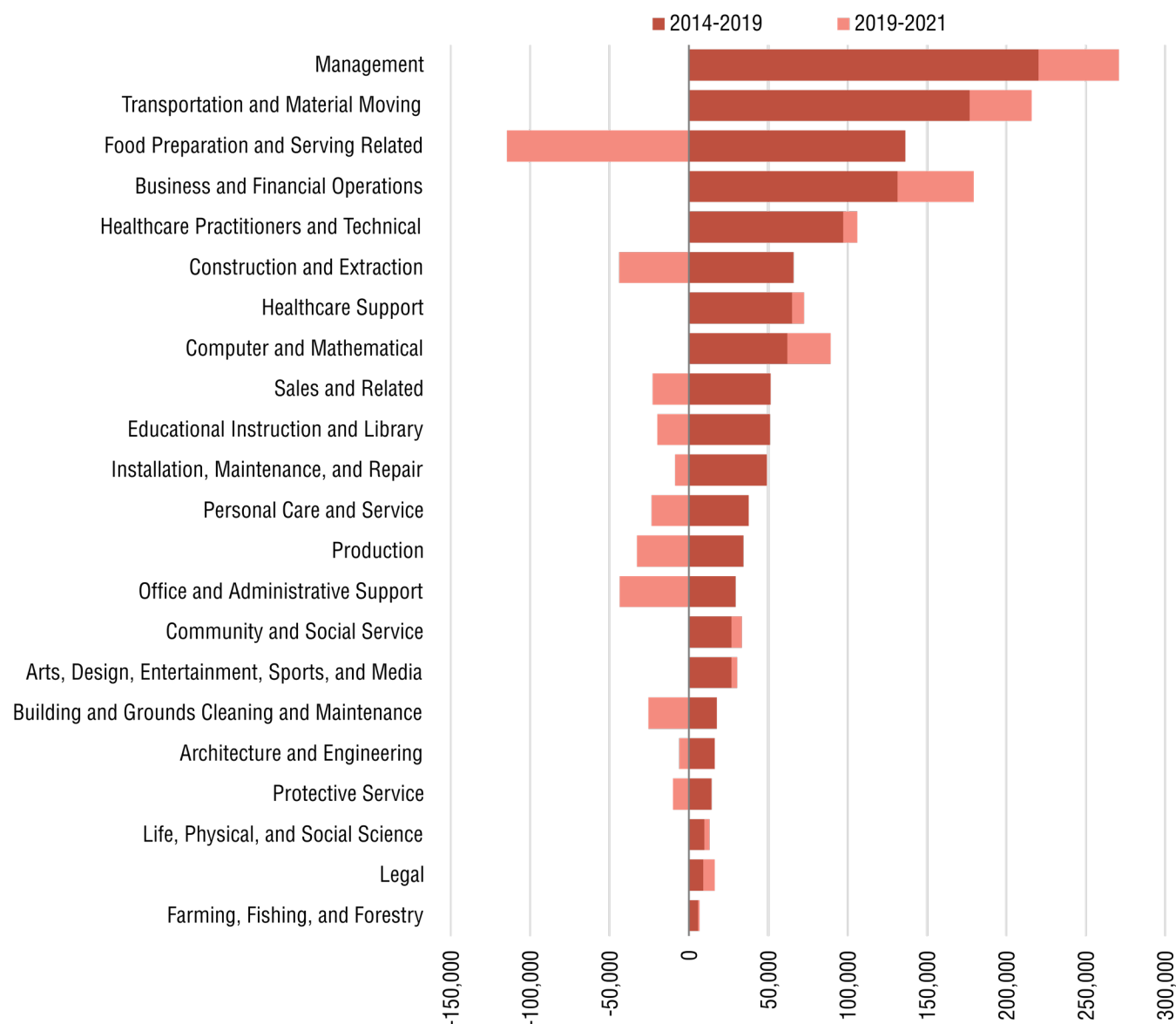
OCCUPATIONAL FAMILIES WITH CONTINUED GROWTH

- Management, in particular personal services managers, farmers & ranchers, & general & operations managers;
- Business & financial operations, in particular project management specialists, management analysts, & market research analysts; &
- Transportation & material moving, in particular stockers & order fillers, light truck drivers, & freight & material movers

OCCUPATIONS THAT LOST THE MOST JOBS

- Food preparation & serving related, mostly counter workers & waiters/waitresses;
- Construction & extraction, primarily roustabouts, service unit operators (oil & gas), & construction laborers; &
- Office & administrative support, in particular office clerks & secretaries.

FIGURE 5. CHANGE IN JOBS BY OCCUPATION, 2014–2019 AND 2019–2021

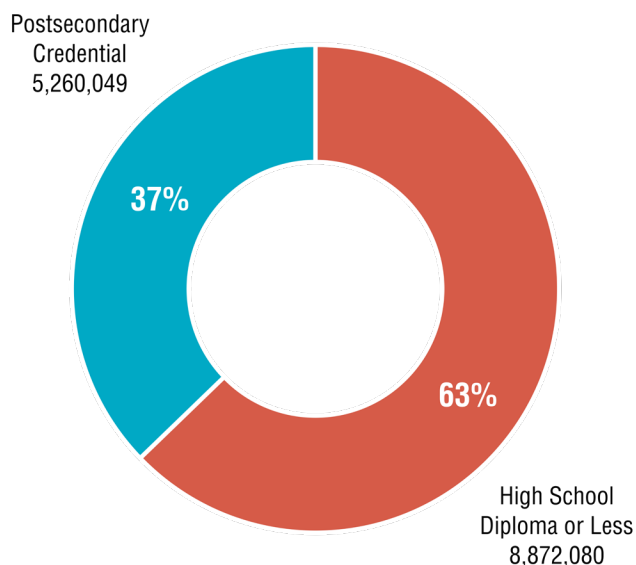


Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

The US Bureau of Labor Statistics (BLS) provides information about education and training requirements for each occupation. BLS considers any federal and state laws regulating education or training for an occupation as well as available quantitative and qualitative data to determine the typical path to entry for an occupation in terms of education, work experience, and on-the-job training. This classification is meant to reflect typical requirements of new entrants to the occupation.

Based on this determination, in 2021, about one-third of jobs in Texas required additional postsecondary education to obtain entry-level employment—either a postsecondary certificate, an associate’s degree, a bachelor’s degree, or higher. Almost two-thirds of jobs were in occupations that either required a high school diploma or did not require any formal education to obtain entry-level employment (Figure 6).

FIGURE 6. JOBS BY EDUCATION REQUIRED FOR ENTRY, 2021



Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Texas 2036 has estimated that by 2036 more than 70 percent of jobs will require workers with a postsecondary credential. This figure is higher than the percentage of jobs that require a postsecondary credential for entry because it reflects not only those workers entering an occupation but also those workers who have advanced in the occupation over time, which often requires postsecondary education. This estimate of degree demand is based on the educational attainment of workers already in the occupation and shows the variation in degree attainment among workers of different experience levels, workers who entered the occupation at different points in time where educational requirements have changed, or workers who have a degree and work in an occupation that may not actually require one.

Of the occupations that require a high school diploma or less, 90 percent require some form of additional training—short-term on-the-job training, moderate-term on-the-job training, long-term on-the-job training, or an apprenticeship (Figure 7). Short-term training is one month or less of combined experience and informal training; moderate is more than 1 month up to 12 months; and long-term is more than 12 months. More and more, this on-the-job training is provided at or in partnership with a higher education institution,

most often community colleges (Opportunity America, 2020). Degree attainment for these kinds of occupations also contributes to demand for postsecondary credentials and is captured in the estimate of jobs that will require workers with a postsecondary credential but not in the estimates of jobs that require a postsecondary credential for entry.

Of the jobs that require a postsecondary credential for entry, 60 percent require a bachelor's degree, 30 percent require up to an associate's degree, and 10 percent require an advanced degree.

The top occupations that require postsecondary training include general and operations managers, truck drivers, registered nurses, bookkeeping clerks, and project management/business operations specialists. These occupations accounted for almost one million jobs in 2021 (Figure 8).



FIGURE 7. ON-THE-JOB TRAINING REQUIRED FOR ENTRY, HS DIPLOMA OR LESS, 2021

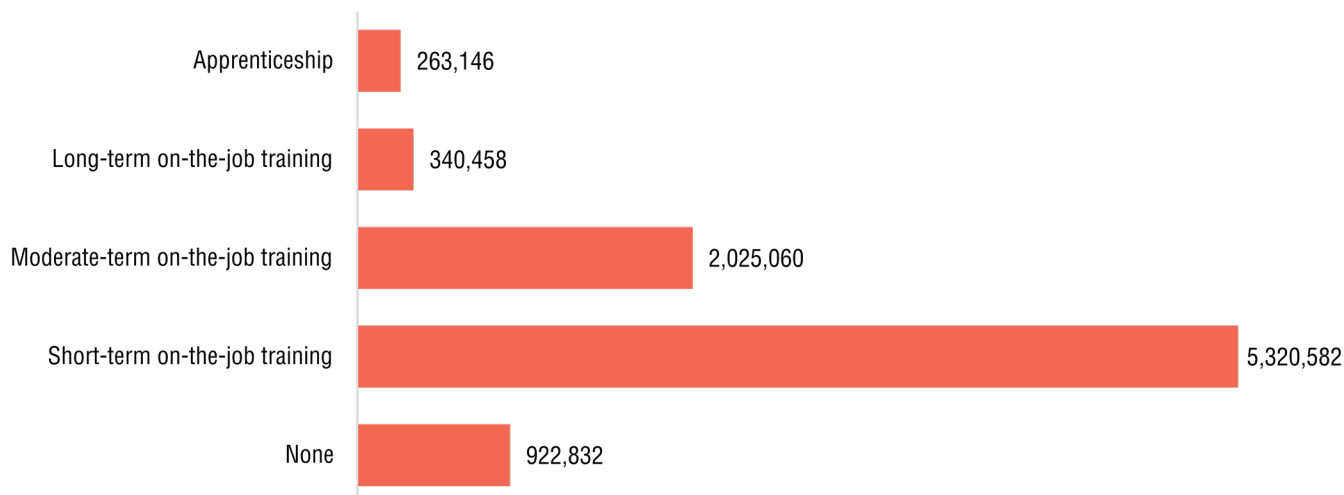
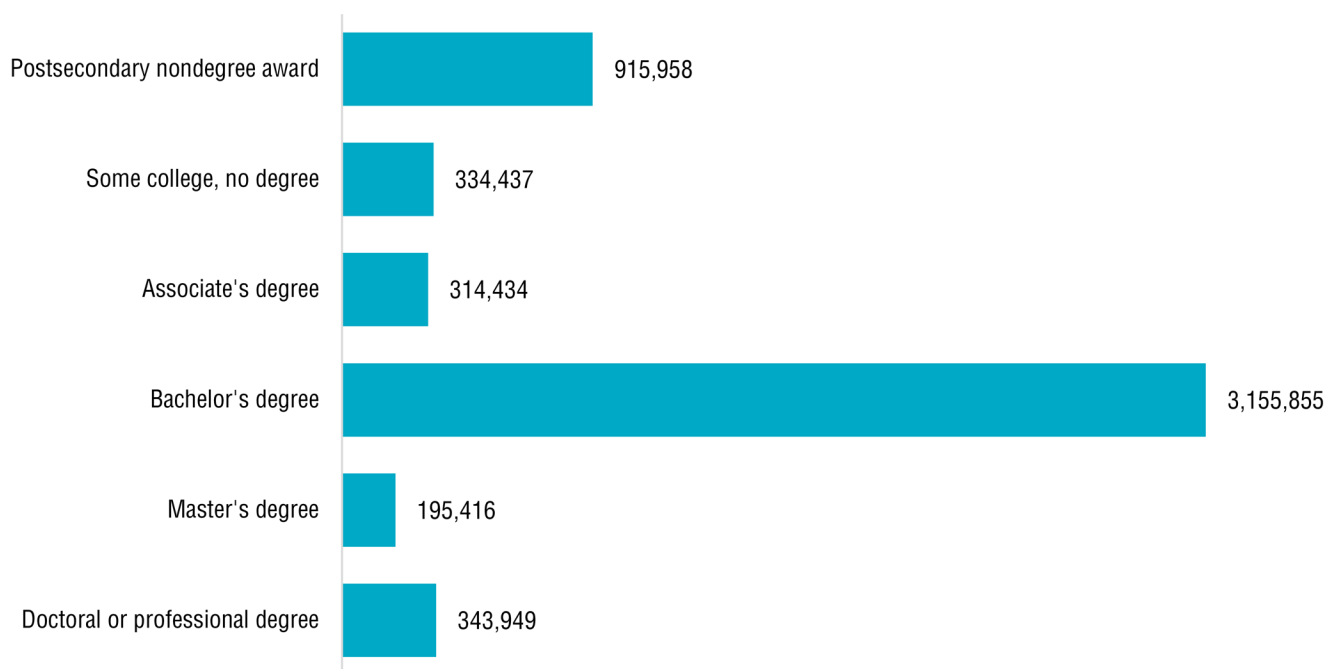


FIGURE 8. JOBS BY EDUCATION REQUIRED FOR ENTRY, POSTSECONDARY EDUCATION, 2021



Source: (both figures) Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

The most common occupational family represented in the top 10 list was education and training—elementary, secondary, and postsecondary teachers all made the list. Eight of the ten top occupations require at least a bachelor's degree. Truck drivers and bookkeeping clerks each require less than an associate's degree.

All of the top 10 occupations that require postsecondary education had median hourly earnings that met the threshold of a living wage and

covered the household survival budget for a single adult. For families of two adults and two children, 6 of the top 10 occupations provide wages to cover the household survival budget in Texas when one adult is working; 8 occupations have median hourly wages that can cover household expenses when both adults are working. Of the top 10 occupations, the lowest paid were bookkeeping clerks with median hourly earnings of \$19.78 and the highest paid were general and operations managers with median hourly earnings of \$46.74.

FIGURE 9. 10 OCCUPATIONS THAT REQUIRE POSTSECONDARY TRAINING, 2021

SOC Code	Description	2021 Jobs	Median Hourly Earnings	Median Hourly Earnings/ Survival Budget	Median Hourly Earnings/ Living Wage
LESS THAN AN ASSOCIATE'S DEGREE					
53-3032	Heavy & Tractor-Trailer Truck Drivers	232,869	\$21.88	1.96	1.33
43-3031	Bookkeeping, Accounting, & Auditing Clerks	149,585	\$19.78	1.77	1.21
BACHELOR'S DEGREE & HIGHER					
11-1021	General & Operations Managers	242,779	\$46.74	4.19	2.85
29-1141	Registered Nurses	227,035	\$36.20	3.24	2.21
13-1198	Project Mgmt. Specialists & Business Ops. Specialists, All Other	143,975	\$37.89	3.40	2.31
25-2021	Elementary School Teachers, Except Special Education	130,865	\$27.71	2.48	1.69
25-1099	Postsecondary Teachers	126,898	\$33.48	3.00	2.04
13-2011	Accountants & Auditors	129,204	\$35.30	3.16	2.15
15-1256	Software Devs. & Software Quality Assurance Analysts & Testers	128,607	\$51.86	4.65	3.16
25-2031	Secondary School Teachers, Except Special & Career/Tech. Edu.	97,239	\$28.06	2.51	1.71

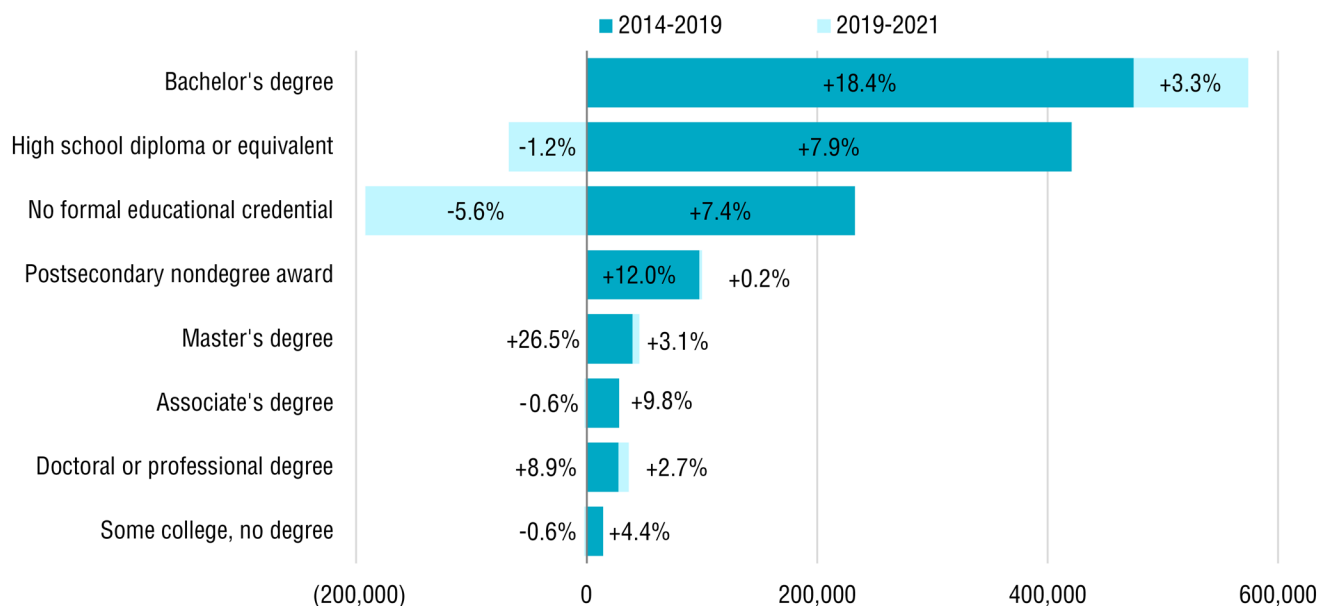
Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.



Before and during the COVID-19 pandemic, the demand for postsecondary credentials grew. Between 2014 and 2019, the number of jobs that required postsecondary credentials for entry grew by 15.3 percent. Between 2019 and 2021, the number grew by another 2.2 percent. Jobs requiring bachelor's degrees drove this growth (Figure 10).

In contrast, demand for workers with a high school diploma or less grew more slowly in the years leading up to the pandemic and declined during the pandemic. Between 2014 and 2019, the jobs that required a high school diploma or less grew by only 7.7 percent. Between 2019 and 2021, they declined by 2.8 percent.

FIGURE 10. CHANGE IN JOBS BY EDUCATION REQUIRED FOR ENTRY, 2014–2019 AND 2019–2021



Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: Data labels denote percentage change.

This analysis looks at the top 15 growing occupations both before and during the pandemic. High growth occupations are those top 15 occupations that added the largest number of jobs in absolute terms.

Of the occupations that require postsecondary education for entry, the occupational families that were most represented among the top 15 growing before the pandemic were management, business and operations, and education. During the pandemic, computer and mathematical occupations increased representation on the top 15 list while education occupations dropped off (Figure 11).

In all, more than half of the occupations that added the highest number of jobs during the pandemic were also growing in the five years prior.

Of the occupations that do not require postsecondary education for entry, the most common occupational

families represented on the list of top 15 growing occupations prior to the pandemic were transportation and material moving; food preparation and serving; and office and administrative support.

During the pandemic, transportation and material moving as well as office and administrative support occupations continued to be the most common occupational families among the top growing occupations. Sales and related occupations rose on the list, while food preparation and serving dropped off.

Figure 11 shows the top 15 growing occupations. The following symbols indicate which periods occupations were top:

- Top Occupation 2014–2019
- ◆ Top Occupation 2019–2021
- ⬠ Top Occupation Both Periods

FIGURE 11. TOP *GROWING* OCCUPATIONS

■ Top Occupation 2014–2019

◆ Top Occupation 2019–2021

⚙ Top Occupation Both Periods

TOP 15 OCCUPATIONS THAT REQUIRE POSTSECONDARY EDUCATION, 2014–2019

SOC Code	Description	Change (2014–19)
⚙ 11-1021	General & Operations Managers	55,024
⚙ 13-1198	Project Management Specialists & Business Operations Specialists, All Other	53,746
■ 53-3032	Heavy & Tractor-Trailer Truck Drivers	35,777
■ 29-1141	Registered Nurses	31,478
⚙ 15-1256	Software Developers & Software Quality Assurance Analysts & Testers	26,879
⚙ 11-9198	Personal Service Managers, All Other; Entertainment & Recreation Mgrs., Except Gambling; & Mgrs., All Other	20,985
⚙ 11-9021	Construction Managers	20,802
⚙ 31-9092	Medical Assistants	19,023
■ 11-3031	Financial Managers	18,406
■ 25-3031	Substitute Teachers, Short-Term	16,747
■ 11-9111	Medical & Health Services Managers	13,766
■ 25-9045	Teaching Assistants, Except Postsecondary	12,795
⚙ 13-1161	Market Research Analysts & Marketing Specialists	12,430
■ 15-1299	Computer Occupations, All Other	11,753
⚙ 39-5012	Hairdressers, Hairstylists, & Cosmetologists	10,203

TOP 15 OCCUPATIONS THAT REQUIRE POSTSECONDARY EDUCATION, 2019–2021

SOC Code	Description	Change (2019–21)
⚙ 13-1198	Project Management Specialists & Business Operations Specialists, All Other	14,658
⚙ 15-1256	Software Developers & Software Quality Assurance Analysts & Testers	14,504
⚙ 11-9198	Personal Service Managers, All Other; Entertainment & Recreation Mgrs., Except Gambling; & Mgrs., All Other	9,077
◆ 13-1111	Management Analysts	7,891
⚙ 11-1021	General & Operations Managers	7,754
⚙ 11-9021	Construction Managers	6,968
⚙ 31-9092	Medical Assistants	5,938
◆ 23-1011	Lawyers	5,642
⚙ 13-1161	Market Research Analysts & Marketing Specialists	5,494
◆ 11-3021	Computer & Information Systems Managers	3,892
◆ 13-2052	Personal Financial Advisors	3,416
◆ 13-1071	Human Resources Specialists	3,148
⚙ 39-5012	Hairdressers, Hairstylists, & Cosmetologists	3,028
◆ 15-1212	Information Security Analysts	2,922
◆ 21-1018	Substance Abuse, Behavioral Disorder, & Mental Health Counselors	2,541

■ Top Occupation 2014–2019

◆ Top Occupation 2019–2021

⚙️ Top Occupation Both Periods

TOP 15 OCCUPATIONS THAT **DO NOT** REQUIRE POSTSECONDARY EDUCATION, 2014–2019

SOC Code	Description	Change (2014–19)
■ 35-3023	Fast Food & Counter Workers	62,463
⚙️ 43-4051	Customer Service Representatives	54,602
⚙️ 31-1128	Home Health & Personal Care Aides	46,616
⚙️ 53-7065	Stockers & Order Fillers	34,904
■ 41-2011	Cashiers	34,780
■ 35-2014	Cooks, Restaurant	34,056
⚙️ 53-7062	Laborers & Freight, Stock, & Material Movers, Hand	33,593
⚙️ 53-7051	Industrial Truck & Tractor Operators	20,635
■ 35-1012	First-Line Supervisors of Food Preparation & Serving Workers	18,433
■ 35-3031	Waiters & Waitresses	18,201
■ 47-2061	Construction Laborers	16,752
■ 43-4171	Receptionists & Information Clerks	15,865
⚙️ 53-3033	Light Truck Drivers	13,328
■ 47-2111	Electricians	12,262
■ 43-1011	First-Line Supervisors of Office & Administrative Support Workers	11,967

TOP 15 OCCUPATIONS THAT **DO NOT** REQUIRE POSTSECONDARY EDUCATION, 2019–2021

SOC Code	Description	Change (2019–21)
⚙️ 53-7065	Stockers & Order Fillers	21,704
◆ 11-9013	Farmers, Ranchers, & Other Agricultural Managers	7,895
⚙️ 53-3033	Light Truck Drivers	7,812
⚙️ 53-7062	Laborers & Freight, Stock, & Material Movers, Hand	6,518
◆ 41-3021	Insurance Sales Agents	6,199
⚙️ 53-7051	Industrial Truck & Tractor Operators	6,169
◆ 41-9022	Real Estate Sales Agents	5,590
◆ 53-1047	First-Line Supervisors of Transport. & Material Moving Workers, Except Aircraft Cargo Handling Supervisors	4,687
◆ 43-5071	Shipping, Receiving, & Inventory Clerks	4,569
◆ 41-9099	Sales & Related Workers, All Other	4,395
⚙️ 31-1128	Home Health & Personal Care Aides	3,639
◆ 27-4021	Photographers	2,843
◆ 43-5021	Couriers & Messengers	2,689
⚙️ 43-4051	Customer Service Representatives	2,577
◆ 13-1031	Claims Adjusters, Examiners, & Investigators	2,455

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, & Self-Employed.

The top declining occupations are the top 15 occupations that experienced the largest job losses in absolute terms. The list of top 15 declining occupations includes occupations that are becoming obsolete as well as occupations that are falling out of favor among job seekers. There are also some occupations, for example, petroleum engineers, that expand and contract in sync with boom/bust cycles of their industry.

Of the top occupations requiring postsecondary education that were declining both before and during the pandemic, the most common occupational families represented were education, engineering, and installation, maintenance, and repair.

Of the top occupations that do not require postsecondary education that were declining both before and during the pandemic, the most common occupational families represented were office and administrative, sales and related, and food preparation and serving.

Figure 12, shows the top 15 declining occupations. The following symbols indicate which periods occupations were top:

- Top Occupation 2014–2019
- ◆ Top Occupation 2019–2021
- ⬠ Top Occupation Both Periods



FIGURE 12. TOP DECLINING OCCUPATIONS

■ Top Occupation 2014–2019

◆ Top Occupation 2019–2021

⚙ Top Occupation Both Periods

TOP 15 OCCUPATIONS THAT REQUIRE POSTSECONDARY EDUCATION, 2014–2019

SOC Code	Description	Change (2014–19)
⚙ 31-1131	Nursing Assistants	-7,897
■ 43-4151	Order Clerks	-7,683
■ 49-2011	Computer, Automated Teller, & Office Machine Repairers	-5,319
⚙ 41-4011	Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products	-4,213
■ 25-2022	Middle School Teachers, Except Special & Career/Technical Education	-3,697
■ 17-3023	Electrical & Electronic Engineering Technologists & Technicians	-3,425
■ 17-3022	Civil Engineering Technologists & Technicians	-3,271
■ 19-2042	Geoscientists, Except Hydrologists & Geographers	-2,787
■ 19-4099	Life, Physical, & Social Science Technicians, All Other	-2,678
■ 25-3011	Adult Basic Education, Adult Secondary Education, & English as a Second Language Instructors	-2,662
■ 21-1019	Counselors, All Other	-2,568
⚙ 25-2021	Elementary School Teachers, Except Special Education	-2,412
⚙ 49-2022	Telecommunications Equipment Installers & Repairers, Except Line Installers	-2,080
⚙ 15-1251	Computer Programmers	-2,080
■ 25-4022	Librarians & Media Collections Specialists	-1,734

TOP 15 OCCUPATIONS THAT REQUIRE POSTSECONDARY EDUCATION, 2019–2021

SOC Code	Description	Change (2019–21)
◆ 25-3031	Substitute Teachers, Short-Term	-6,397
◆ 25-2011	Preschool Teachers, Except Special Education	-5,928
◆ 25-2031	Secondary School Teachers, Except Special & Career/Technical Education	-5,301
⚙ 31-1131	Nursing Assistants	-5,231
◆ 17-2171	Petroleum Engineers	-4,153
⚙ 49-2022	Telecommunications Equipment Installers & Repairers, Except Line Installers	-2,496
◆ 29-2061	Licensed Practical & Licensed Vocational Nurses	-2,440
⚙ 41-4011	Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products	-1,973
⚙ 25-2021	Elementary School Teachers, Except Special Education	-1,586
◆ 25-9045	Teaching Assistants, Except Postsecondary	-1,460
◆ 49-3011	Aircraft Mechanics & Service Technicians	-1,368
◆ 53-3032	Heavy & Tractor-Trailer Truck Drivers	-1,298
◆ 17-2041	Chemical Engineers	-1,290
◆ 27-2022	Coaches & Scouts	-1,282
⚙ 15-1251	Computer Programmers	-1,270

■ Top Occupation 2014–2019

◆ Top Occupation 2019–2021

⚙ Top Occupation Both Periods

TOP 15 OCCUPATIONS THAT **DO NOT** REQUIRE POSTSECONDARY EDUCATION, 2014–2019

SOC Code	Description	Change (2014–19)
⚙ 43-9061	Office Clerks, General	-32,224
■ 51-9198	Helpers--Production Workers	-11,826
■ 53-7064	Packers and Packagers, Hand	-11,131
■ 31-1133	Psychiatric Aides	-9,664
⚙ 41-2031	Retail Salespersons	-9,143
■ 43-3071	Tellers	-9,094
■ 35-2011	Cooks, Fast Food	-8,500
■ 43-6011	Executive Secretaries and Executive Administrative Assistants	-7,998
⚙ 47-5013	Service Unit Operators, Oil and Gas	-7,615
■ 35-2015	Cooks, Short Order	-7,067
■ 43-6013	Medical Secretaries and Administrative Assistants	-7,049
⚙ 43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-6,480
■ 41-9041	Telemarketers	-6,276
■ 41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	-5,480
⚙ 39-9011	Childcare Workers	-5,212

TOP 15 OCCUPATIONS THAT **DO NOT** REQUIRE POSTSECONDARY EDUCATION, 2019–2021

SOC Code	Description	Change (2019–21)
◆ 35-3023	Fast Food and Counter Workers	-38,336
◆ 35-3031	Waiters and Waitresses	-36,571
⚙ 41-2031	Retail Salespersons	-24,013
◆ 37-2012	Maids and Housekeeping Cleaners	-20,375
⚙ 43-9061	Office Clerks, General	-16,734
⚙ 43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	-14,943
⚙ 39-9011	Childcare Workers	-10,590
◆ 47-5071	Roustabouts, Oil and Gas	-9,190
◆ 35-2014	Cooks, Restaurant	-8,076
◆ 35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	-6,548
◆ 35-3011	Bartenders	-6,471
◆ 53-3058	Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	-6,279
◆ 35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	-6,269
◆ 41-3091	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	-6,169
⚙ 47-5013	Service Unit Operators, Oil and Gas	-5,978

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

In Texas, 22 percent of workers are age 55 and older, a slightly smaller percentage than the US over all (24 percent). As the Texas Baby Boomers population reaches retirement age, many different occupations face retirement exposure, which means a high percentage of their workers are age 55 and older and eligible to retire over the next 10 years. This can be a problem when there are no workers to backfill the positions vacated by a retiree, either because of an experience gap in the organization or because workers are not choosing to enter that line of work.

In 2021, the top 20 occupations requiring postsecondary education that faced the highest

degree of retirement exposure included many management occupations. The next most common occupational families represented in the top 20 list were architecture and engineering, then healthcare practitioners.

The top 20 occupations requiring no postsecondary education that faced the highest degree of retirement exposure include many occupations from the office and administrative support and production families. Various occupations from the building and grounds cleaning and maintenance and installation, maintenance, and repair also have a high percentage of their workers age 55 and older.

FIGURE 13. TOP OCCUPATIONS FACING RETIREMENT EXPOSURE, 2021
TOP 20 OCCUPATIONS THAT REQUIRE POSTSECONDARY EDUCATION

SOC Code	Description	2021 Jobs	% of Workers Age 55+
21-2011	Clergy	26,012	49%
13-1051	Cost Estimators	17,516	39%
21-2021	Directors, Religious Activities & Education	13,873	39%
11-1011	Chief Executives	16,201	38%
43-3031	Bookkeeping, Accounting, & Auditing Clerks	149,585	36%
25-4022	Librarians & Media Collections Specialists	10,110	34%
23-1011	Lawyers	67,062	34%
11-3011	Administrative Services & Facilities Managers	31,291	33%
29-1021	Dentists, General	12,420	32%
13-1111	Management Analysts	64,301	32%
17-1011	Architects, Except Landscape & Naval	11,727	32%
17-2199	Engineers, All Other	11,939	30%
11-9041	Architectural & Engineering Managers	15,885	30%
11-9198	Personal Service Mgrs., All Other; Entertainment & Recreation Mgrs., Except Gambling; & Mgrs., All Other	86,390	30%
29-1228	Physicians, All Other; & Ophthalmologists, Except Pediatric	26,906	30%
11-9021	Construction Managers	67,210	29%
11-3051	Industrial Production Managers	14,360	29%
13-1028	Buyers & Purchasing Agents	39,258	29%
11-9033	Education Administrators, Postsecondary	13,439	29%
17-3023	Electrical & Electronic Engineering Technologists & Technicians	11,239	29%

TOP 20 OCCUPATIONS THAT DO NOT REQUIRE POSTSECONDARY EDUCATION

SOC Code	Description	2021 Jobs	% of Workers Age 55+
49-9071	Maintenance & Repair Workers, General	127,882	30%
51-2028	Electrical, Electronic, & Electromechanical Assemblers, Except Coil Winders, Tapers, & Finishers	22,943	30%
37-2011	Janitors & Cleaners, Except Maids & Housekeeping Cleaners	198,955	30%
43-4031	Court, Municipal, & License Clerks	14,499	30%
49-1011	First-Line Supervisors of Mechanics, Installers, & Repairers	46,898	29%
45-2092	Farmworkers & Laborers, Crop, Nursery, & Greenhouse	33,942	29%
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	118,424	29%
41-3021	Insurance Sales Agents	68,547	29%
47-1011	First-Line Supervisors of Construction Trades & Extraction Workers	78,762	29%
49-9041	Industrial Machinery Mechanics	42,449	28%
51-9061	Inspectors, Testers, Sorters, Samplers, & Weighers	50,854	28%
37-1011	First-Line Supervisors of Housekeeping & Janitorial Workers	16,251	28%
43-4199	Information & Record Clerks, All Other	18,287	27%
51-1011	First-Line Supervisors of Production & Operating Workers	50,189	27%
41-1012	First-Line Supervisors of Non-Retail Sales Workers	34,569	27%
51-4031	Cutting, Punching, & Press Machine Setters, Operators, & Tenders, Metal & Plastic	15,477	27%
37-2012	Maids & Housekeeping Cleaners	138,505	27%
43-3051	Payroll & Timekeeping Clerks	12,621	27%
47-2073	Operating Engineers & Other Construction Equipment Operators	46,415	27%
43-9061	Office Clerks, General	313,388	27%

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: Minimum 10,000 jobs in 2021.

New technologies and applications of technology are enabling the automation of many different business processes and introducing digital interfaces into all kinds of jobs. This digital transformation is changing the nature of work—requiring higher levels of digital skills, making some jobs obsolete, and creating completely new jobs.

Many tasks that workers complete in their occupations could be automated through computer-controlled equipment. Rote and repetitive tasks are the most likely to be automated. The Automation Index, created by Lightcast based on a study by Frey and Osborne (2013), measures the risk of an occupation for automation based on the amount of time workers in that occupation spend on tasks likely to be automated. An index score of 100 signifies average automation risk. In Texas, the automation index scores for detailed occupations range from a

low of 72 for special effects artists and animators to a high of 139 for floor layers. In all, 43 percent of Texas jobs and 42 percent of US jobs are in occupations that face higher-than-average automation risk with an automation index score of more than 100.

In general, few occupations that require postsecondary education face higher-than-average automation risk. Of the nine occupations that do have an automation index score higher than 100, all require less than an associate's degree.

In contrast, many different occupations that do not require postsecondary education face higher-than-average automation risk. The top 20 occupations that face the highest automation risk are primarily from the transportation and material moving, production, food preparation and service, and construction and extraction occupational families.

FIGURE 14. TOP OCCUPATIONS FACING AUTOMATION RISK, 2021
OCCUPATIONS THAT REQUIRE POSTSECONDARY EDUCATION

SOC Code	Description	2021 Jobs	Automation Index
49-9021	Heating, Air Conditioning, & Refrigeration Mechanics & Installers	35,168	113
53-3032	Heavy & Tractor-Trailer Truck Drivers	232,869	110
49-3023	Automotive Service Technicians & Mechanics	69,140	106
49-2022	Telecommunications Equipment Installers & Repairers, Except Line Installers	18,149	105
49-2011	Computer, Automated Teller, & Office Machine Repairers	10,518	104
31-9097	Phlebotomists	11,859	104
43-3031	Bookkeeping, Accounting, & Auditing Clerks	149,585	104
49-3011	Aircraft Mechanics & Service Technicians	21,340	101
33-2011	Firefighters	24,804	101

TOP 20 OCCUPATIONS THAT **DO NOT** REQUIRE POSTSECONDARY EDUCATION

SOC Code	Description	2021 Jobs	Automation Index
53-7061	Cleaners of Vehicles & Equipment	38,957	124
47-5071	Roustabouts, Oil & Gas	17,980	124
53-7064	Packers & Packagers, Hand	36,549	123
53-6031	Automotive & Watercraft Service Attendants	12,681	123
37-2011	Janitors & Cleaners, Except Maids & Housekeeping Cleaners	198,955	123
51-3011	Bakers	18,187	122
51-4121	Welders, Cutters, Solderers, & Brazers	51,465	121
35-3011	Bartenders	37,763	121
47-2073	Operating Engineers & Other Construction Equipment Operators	46,415	120
51-9198	Helpers—Production Workers	25,671	120
53-7081	Refuse & Recyclable Material Collectors	11,677	120
53-7051	Industrial Truck & Tractor Operators	76,914	120
49-3021	Automotive Body & Related Repairers	13,345	119
51-4081	Multiple Machine Tool Setters, Operators, & Tenders, Metal & Plastic	12,061	119
35-3041	Food Servers, Nonrestaurant	13,243	119
51-9124	Coating, Painting, & Spraying Machine Setters, Operators, & Tenders	14,164	118
35-9031	Hosts & Hostesses, Restaurant, Lounge, & Coffee Shop	25,626	118
47-2211	Sheet Metal Workers	11,676	118
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	219,849	117
49-9098	Helpers—Installation, Maintenance, & Repair Workers	14,979	117

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: Minimum 10,000 jobs in 2021. The Automation Index captures an occupation's risk of being affected by automation. It is presented as a scale with a base of 100. An Automation Index greater than 100 indicates a higher-than-average risk of automation; an Automation Index less than 100 indicates a lower-than-average risk of automation.

COMPARISON TO PEER STATES

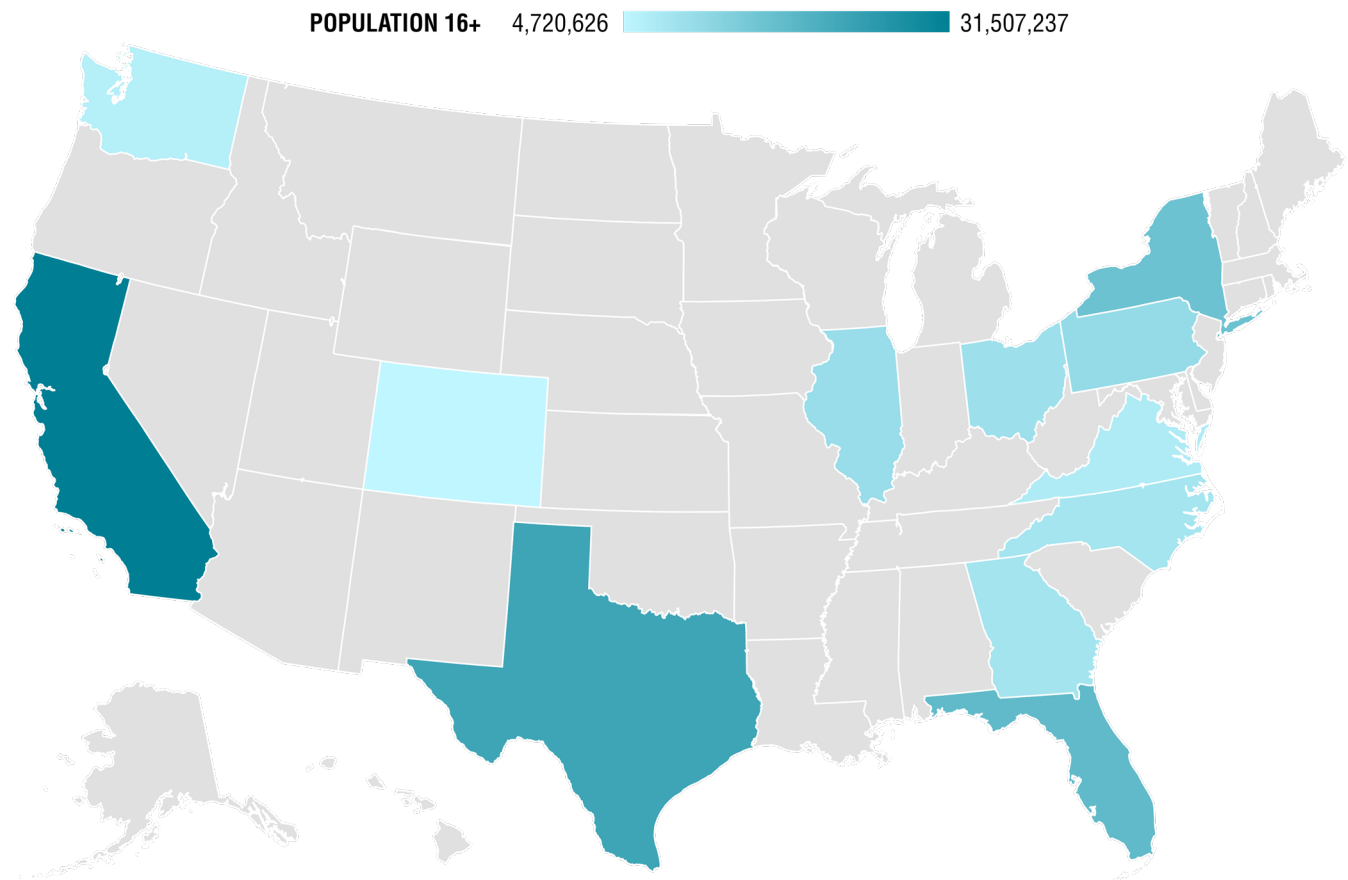
In order to contextualize the Texas occupational structure, Texas was compared to 11 other peer states: California, Colorado, Florida, Georgia, Illinois, New York, North Carolina, Ohio, Pennsylvania, Virginia, and Washington. The size of the labor markets in these states vary widely. The population 16 years and older, which is the working-age population, ranges from a high of 31.5 million in California to a low of 4.7 million in Colorado.

In 2021, Texas had the second largest number of jobs among its peers. California, with 19.3 million jobs, had the largest, while Colorado, at 3.08 million, had the smallest.

Like the US, three large occupational families account for about 30 percent of the employment in Texas and the peer states. These are office and administrative support, sales and related, and transportation and material moving.

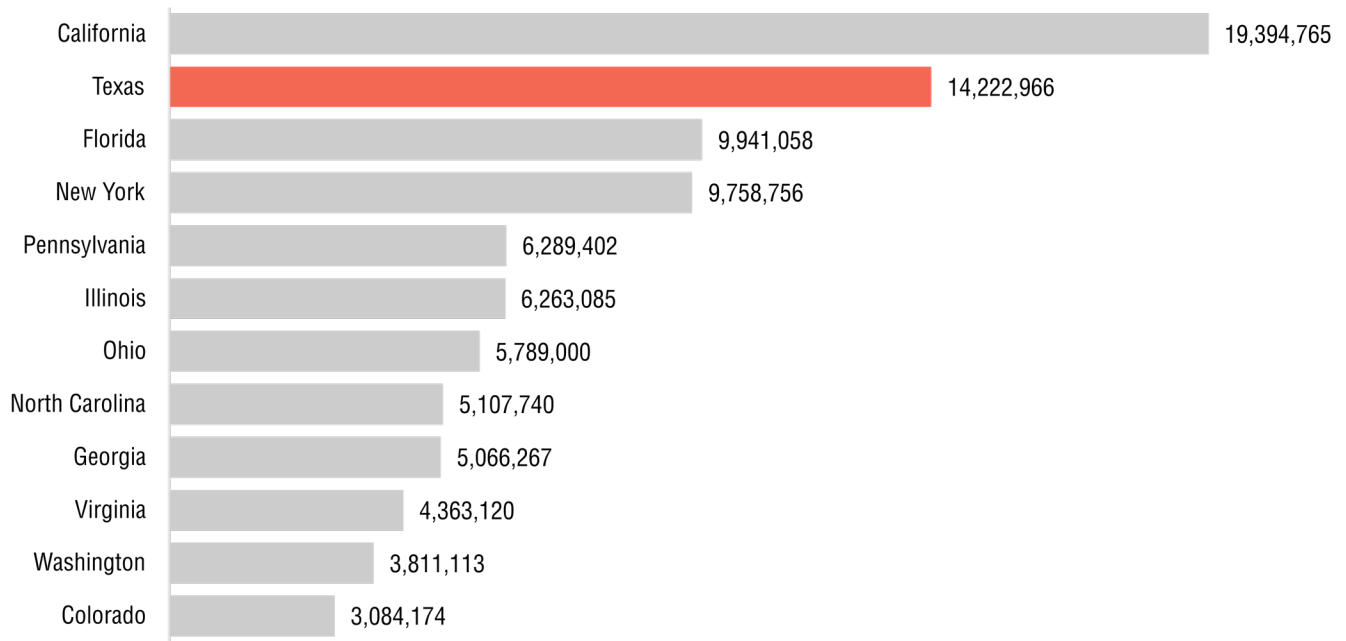
In Texas, office and administrative support, food preparation and service, and construction and extraction occupation hold a larger share of the employment base than the peer average. Business and financial operations, healthcare practitioners, and computer and mathematical occupations hold a smaller share.

FIGURE 15. PEER STATES



Sources: US Census Bureau, American Community Survey 1-year Estimates. Map powered by Bing, ©GeoNames, Microsoft, TomTom.

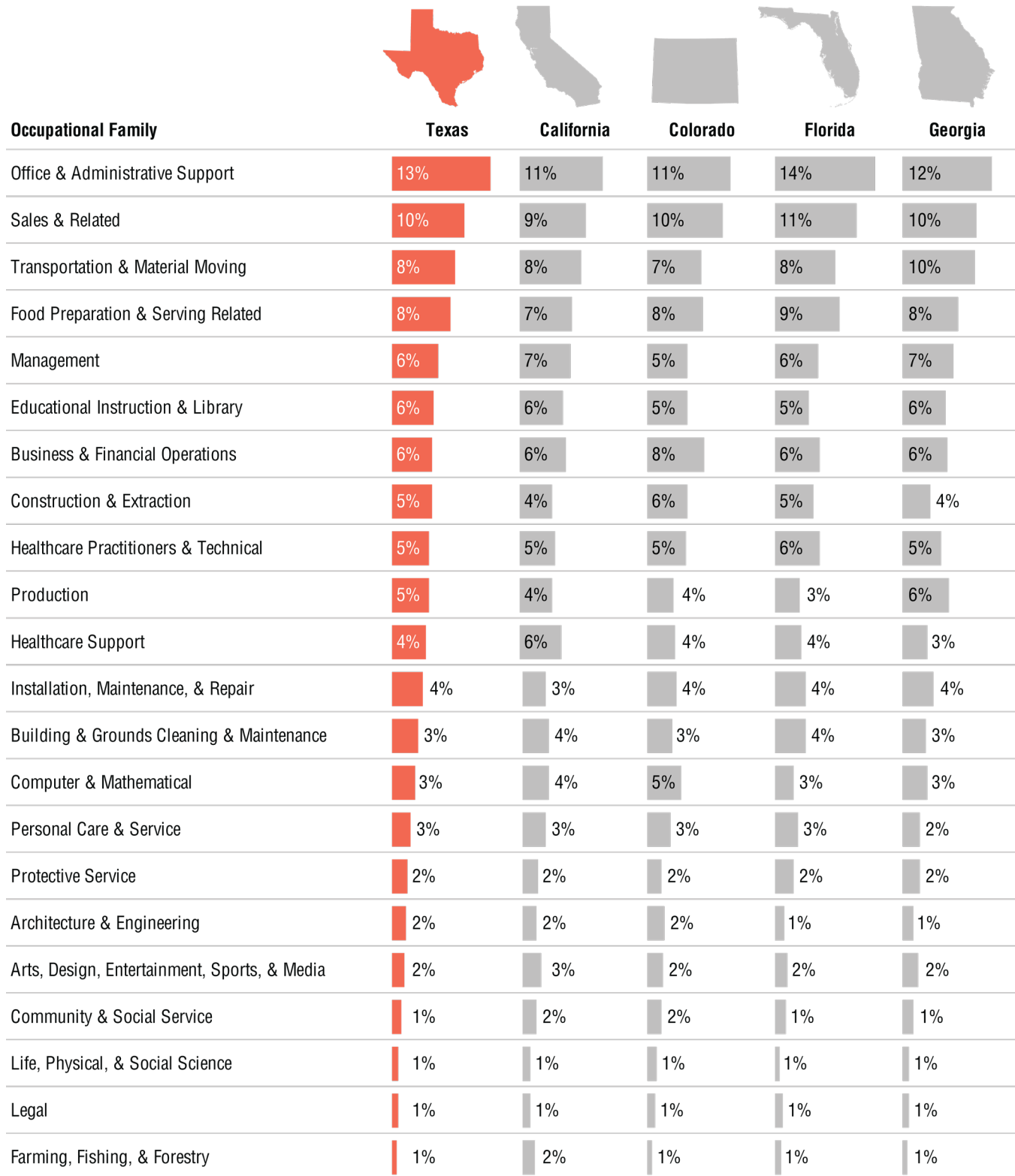
FIGURE 16. JOBS, 2021

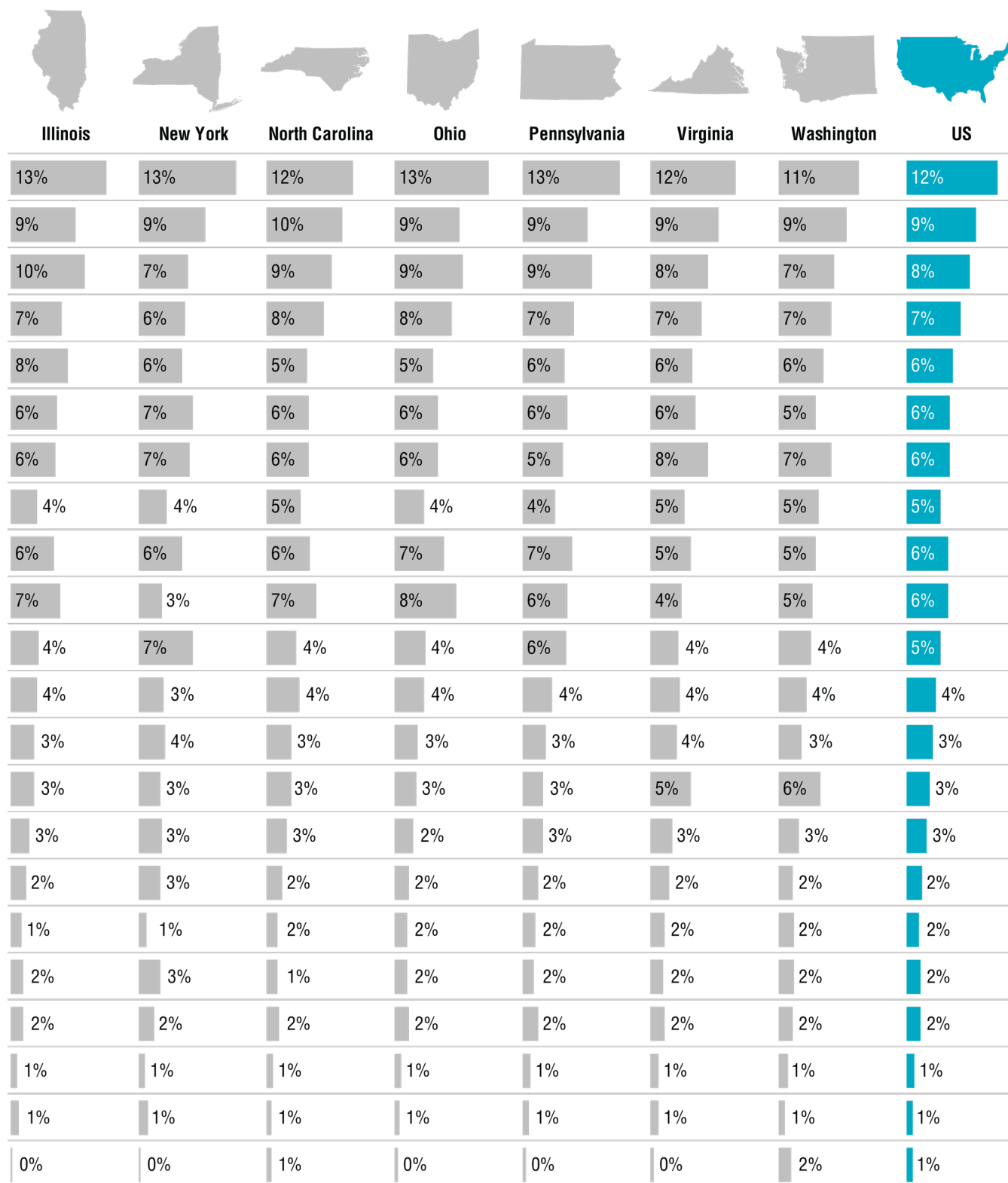


Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.



FIGURE 17. EMPLOYMENT BY OCCUPATION, SHARE OF TOTAL, 2021



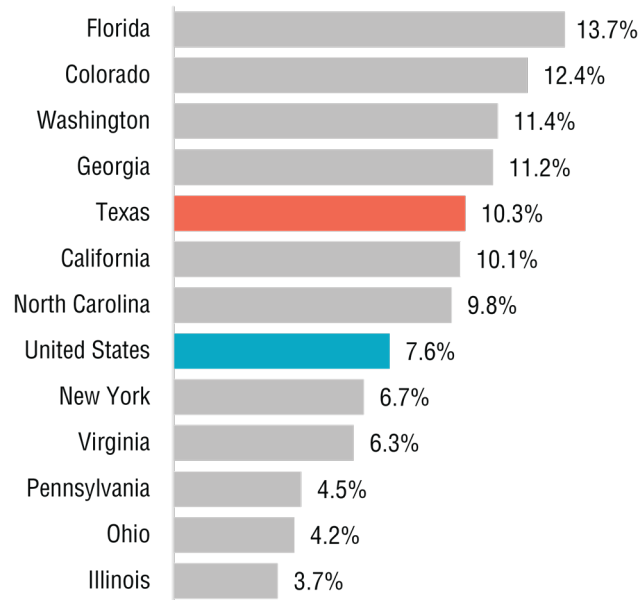


Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Prior to the pandemic, Texas added 1.3 million jobs, or 10.3 percent, to its economy between 2014 and 2019. During this period, Texas ranked fifth in percentage growth and second in the number of jobs created. Florida had the highest growth rate, while Illinois had the lowest. California added the most jobs, while Illinois added the least.

FIGURE 18. JOB GROWTH, 2014–2019

PERCENTAGE GROWTH



During the pandemic, Texas lost almost 145,000 jobs, or 1 percent, between 2019 & 2021. During this time period, North Carolina lost the fewest jobs, while California lost the most. North Carolina also lost the fewest percentage points of its job base, while New York lost the most.

NUMBER OF JOBS CREATED

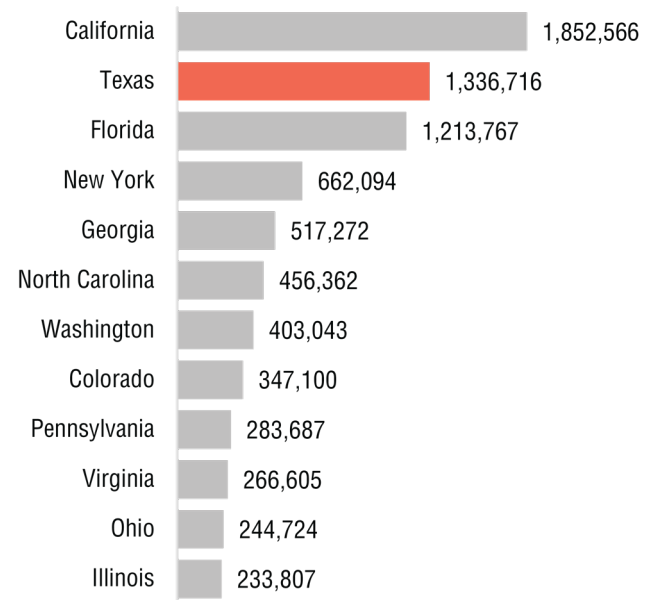
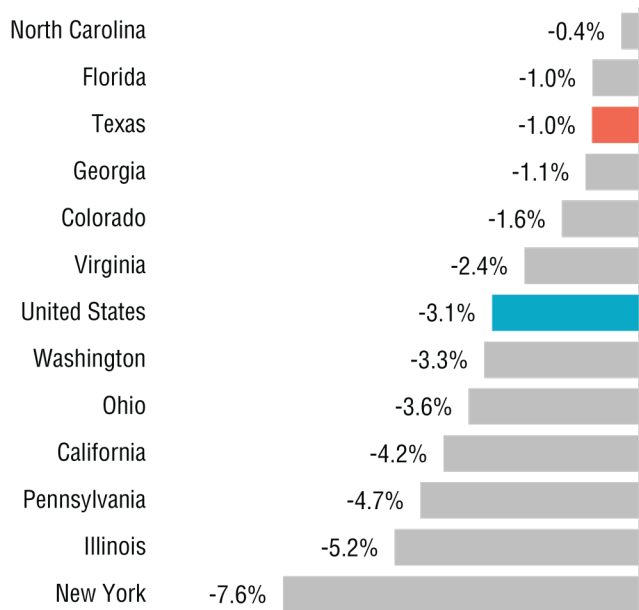
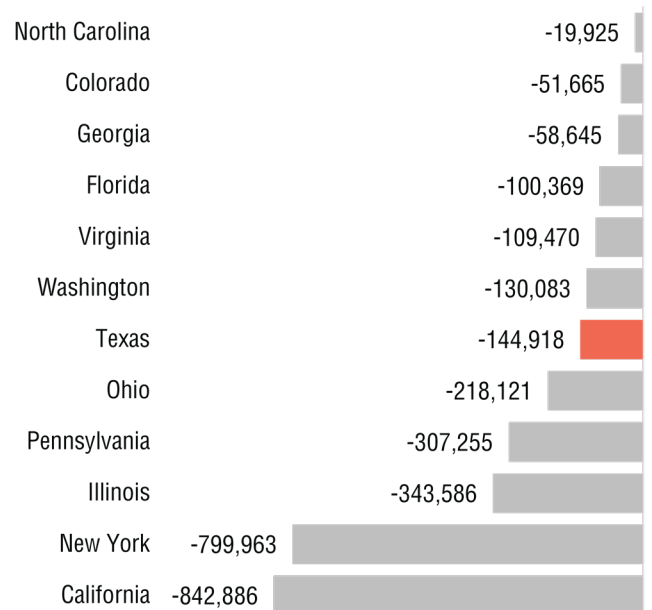


FIGURE 19. JOB LOSS, 2019–2021

PERCENTAGE LOSS



NUMBER OF JOBS LOST



Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

In Texas, 37 percent of jobs require a postsecondary credential for entry. This ranks it second from the bottom. Of the peer group, Virginia has the highest percentage of jobs that require postsecondary education, and Florida has the lowest percentage.

However, Texas had one of the highest growth rates in jobs that require postsecondary education, both before and during the pandemic. Prior to the pandemic, Texas ranked fifth and during the pandemic, Texas ranked third. Notably, Texas was one of only seven peer states that had a positive growth rate during the pandemic.

In other words, although Texas lags its peers in terms of the percent of jobs that require a postsecondary credential, recent growth trends show that Texas is quickly catching up with its peers with higher than average growth both before and during the pandemic.

FIGURE 20. PERCENTAGE OF JOBS THAT REQUIRE A POSTSECONDARY CREDENTIAL, 2021

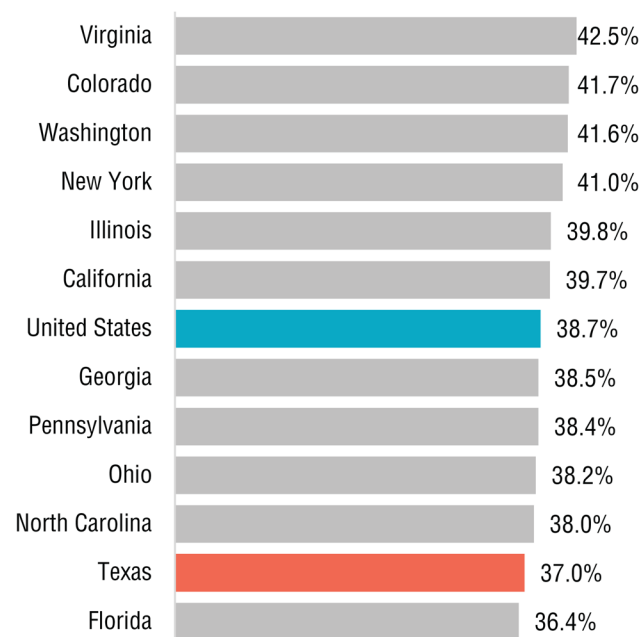
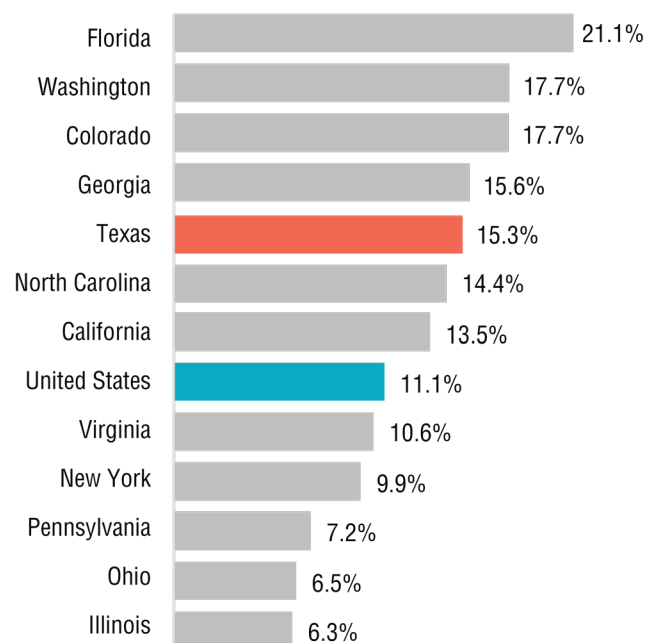
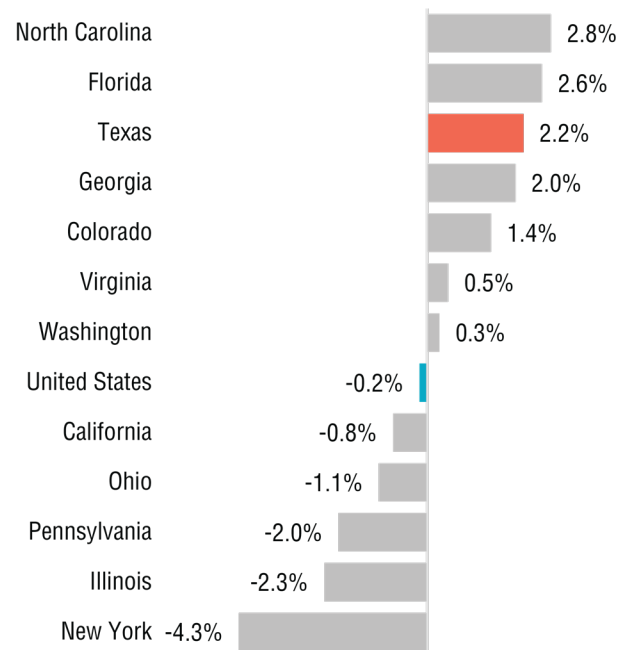


FIGURE 21. PERCENTAGE CHANGE IN JOBS THAT REQUIRE POSTSECONDARY CREDENTIAL

2014–2019



2019–2021



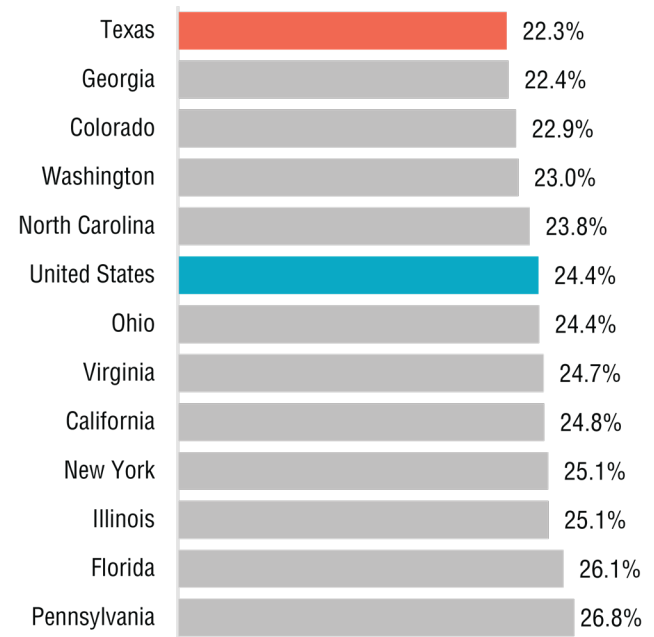
Source: (all figures) Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Texas benefits from a relatively young workforce in comparison to its peers and less retirement exposure. Texas has the smallest cohort of workers nearing retirement. Only 22.3 percent of workers in Texas are age 55 or older.

Texas is one of five peers states with retirement exposure lower than the US overall. Georgia, Colorado, Washington, and North Carolina also have smaller than average cohorts of workers age 55 or older.

Pennsylvania has the largest cohort of workers age 55 or older with 26.8 percent of its workers age 55 or older. In four peer states, more than one in four workers are nearing retirement. These states are New York, Illinois, Florida and Pennsylvania.

FIGURE 22. PERCENTAGE OF WORKERS AGE 55 OR OLDER, 2021



Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.



WORKFORCE DEMAND

Demand for workers is driven by the industrial makeup of the employment base. Texas industries of opportunity—those industries that are large, growing, and/or significant to the economy—dictate which occupations are highest in demand and where the greatest need for postsecondary training is.

DEFINITIONS

An **industry** is a group of businesses or economic units that produce a particular kind of goods or services.

An **industry sector** is a broader category of related industries.

FINDINGS

Healthcare, education, finance and insurance, transportation and warehousing, and oil and gas are industries of opportunity in Texas. These five clusters accounted for 4.3 million jobs in 2021, adding more than half a million jobs in the past 10 years.

The industries each have unique staffing patterns that drive occupational demand. Some of the occupations are industry-specific—such as teachers or roustabouts—and some are employed in more than

one of the industries—like office clerks and customer service representatives.

Although jobs in the industries of opportunity are fairly concentrated in the state's largest urban areas, almost every county in the state employs workers in one or more of the industries of opportunity. Jobs in healthcare and education, in particular, are distributed across almost every county in Texas.

DATA & INDUSTRY PROFILES

In Texas, five industry clusters account for 30 percent of the employment base. These industry clusters are large and are either the top sources of growth in the state or an important source of primary employment. They are healthcare, education, finance and insurance, transportation and warehousing, and oil and gas. With the exception of the oil and gas sector, these sectors were some of the fastest-growing segments of the state's employment base over the past 10 years and are expected to experience continued robust growth over the next 5 years. The oil and gas industry experienced a downturn during the pandemic but continues to be an important economic engine in Texas. Together, these industry sectors added more than half a million jobs to the Texas economy over the past 10 years and are expected to add almost 350,000 more jobs over the next 5 years.






Each of these industries has unique staffing patterns that include some industry-specific occupations and some cross-cutting occupations that are employed in a variety of industry settings. Figure 24 summarizes the occupational families of the top 25

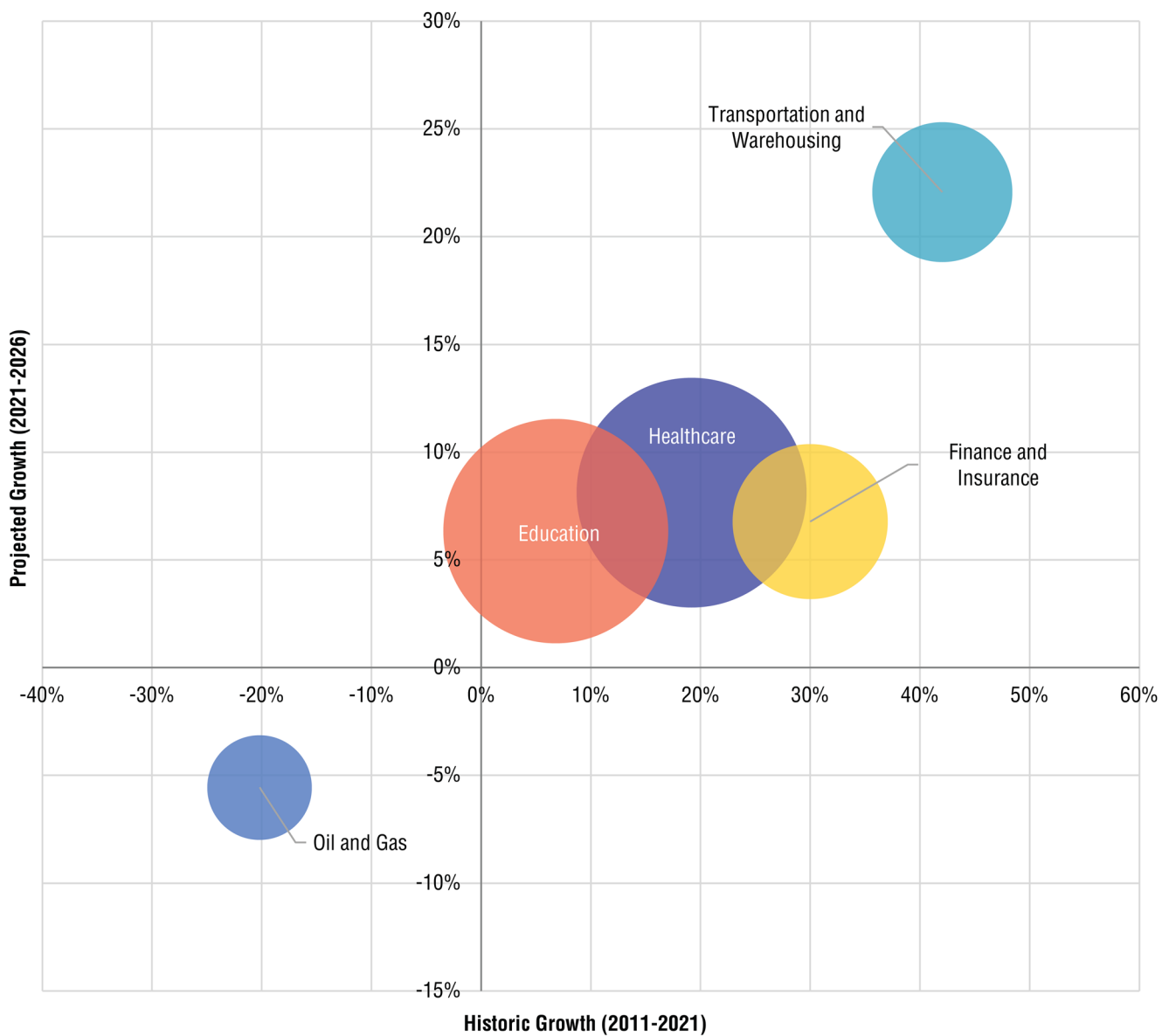
occupations that were employed in the industries of opportunity in 2021. The top three industry-specific occupational families represented are educational instruction and library, healthcare support, and construction and extraction. The top three cross-cutting occupations (used in two or more industries of opportunity) represented are office and administrative support, healthcare practitioners and technical, and transportation and material moving.

Figure 25 shows the top detailed occupations for the industries of opportunity. There are six occupations that are top occupations in three or more industries of opportunity. These include office clerks, administrative assistants, and customer services representatives. The industry-specific occupations that employ the most workers include home health and personal care aides, registered nurses, elementary school teachers, and truck drivers.

Brief profiles of each industries of opportunity begin on page 36. The profiles include the sector definitions, major employers, and staffing patterns.

FIGURE 23. INDUSTRIES OF OPPORTUNITY

					
	Healthcare	Education	Finance & Insurance	Transportation & Warehousing	Oil & Gas
2021 Jobs	1,425,672	1,361,270	649,794	527,781	294,325
Historic Growth	19%	7%	30%	42%	-20%
Projected Growth	8%	6%	7%	22%	-6%



Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

FIGURE 24. WORKFORCE DEMAND SUMMARY BY INDUSTRY AND OCCUPATIONAL FAMILY, 2021,
JOBS IN INDUSTRY, TOP OCCUPATIONAL FAMILIES BASED ON TOP 25 OCCUPATIONS IN EACH INDUSTRY

Occupational Family	Healthcare	Education	Finance & Insurance	Transportation & Warehousing	Oil & Gas	TOTAL
INDUSTRY-SPECIFIC						
Educational Instruction & Library		663,562				663,562
Healthcare Support	400,375					400,375
Construction & Extraction					68,811	68,811
Personal Care & Service		60,761				60,761
Food Preparation & Serving Related		33,910				33,910
Production					28,571	28,571
Community & Social Service		22,591				22,591
Architecture & Engineering					8,816	8,816
CROSS-INDUSTRY (TWO OR MORE INDUSTRIES)						
Office & Administrative Support	189,538	78,609	221,422	60,193	13,530	563,291
Healthcare Practitioners & Technical	399,011	10,520				409,532
Transportation & Material Moving		21,252		203,907	16,855	242,014
Business & Financial Operations			124,272		9,293	133,566
Sales & Related			112,817	3,555	4,103	120,475
Management	28,696	28,541	34,597	7,816	8,436	108,086
Building & Grounds Cleaning & Maint.	16,039	44,112				60,152
Installation, Maintenance, & Repair		13,505		14,711	6,234	34,449
Computer & Mathematical			21,101		3,154	24,255

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

FIGURE 25. TOP OCCUPATIONS BY INDUSTRY, 2021, JOBS IN INDUSTRY
CROSS-INDUSTRY

SOC Code	Description	Healthcare	Education	Finance & Insurance	Transportation & Warehousing	Oil & Gas
43-9061	Office Clerks, General	25,687	37,419	14,973	7,638	6,453
43-6014	Secretaries & Admin. Assists., Except Legal, Medical, & Executive	10,884	41,190	9,402		3,315
43-4051	Customer Service Representatives	14,960		64,172	7,660	
43-1011	First-Line Supervisors of Office & Admin. Support Workers	17,163		22,072	5,407	
11-1021	General & Operations Managers			15,772	4,825	8,436
43-3031	Bookkeeping, Accounting, & Auditing Clerks			10,896	3,975	3,762

BY INDUSTRY

SOC Code	Description	2021 Jobs in Industry
HEALTHCARE		
31-1128	Home Health & Personal Care Aides	218,297
29-1141	Registered Nurses	189,249
31-9092	Medical Assistants	70,919
43-6013	Medical Secretaries & Admin. Assistants	70,612
31-1131	Nursing Assistants	67,641
29-2061	Licensed Practical & Licensed Vocational Nurses	58,597
43-4171	Receptionists & Information Clerks	32,841
31-9091	Dental Assistants	32,401
11-9111	Medical & Health Services Managers	28,696
43-9061	Office Clerks, General	25,687
EDUCATION		
25-2021	Elementary School Teachers, Except Special Education	129,191
25-1099	Postsecondary Teachers	97,492
25-2031	Secondary School Teachers, Except Special & Career/Technical Education	95,241
25-9045	Teaching Assistants, Except Postsecondary	84,884
25-3031	Substitute Teachers, Short-Term	72,197
25-2022	Middle School Teachers, Except Special & Career/Technical Education	63,980
39-9011	Childcare Workers	60,761
37-2011	Janitors & Cleaners, Except Maids & Housekeeping Cleaners	44,112
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	41,190
43-9061	Office Clerks, General	37,419

SOC Code	Description	2021 Jobs in Industry
FINANCE & INSURANCE		
41-3021	Insurance Sales Agents	67,576
43-4051	Customer Service Representatives	64,172
41-3031	Securities, Commodities, & Financial Services Sales Agents	39,519
43-3071	Tellers	36,777
43-9041	Insurance Claims & Policy Processing Clerks	26,187
13-1031	Claims Adjusters, Examiners, & Investigators	23,128
13-2072	Loan Officers	22,790
43-1011	First-Line Supervisors of Office & Administrative Support Workers	22,072
43-4131	Loan Interviewers & Clerks	21,492
13-2052	Personal Financial Advisors	20,902
TRANSPORTATION & WAREHOUSING		
53-3032	Heavy & Tractor-Trailer Truck Drivers	97,604
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	27,892
53-7051	Industrial Truck & Tractor Operators	10,891
53-7065	Stockers & Order Fillers	4,469
43-4181	Reservation & Transportation Ticket Agents & Travel Clerks	14,671
53-2031	Flight Attendants	12,650
53-3054	Taxi Drivers	12,715
53-1047	First-Line Supervisors of Transportation & Material Moving Workers	8,452
11-1021	General & Operations Managers	4,825
49-3011	Aircraft Mechanics & Service Technicians	9,030
OIL & GAS		
47-5071	Roustabouts, Oil & Gas	16,207
47-5013	Service Unit Operators, Oil & Gas	14,775
53-3032	Heavy & Tractor-Trailer Truck Drivers	12,657
47-1011	First-Line Supervisors of Construction Trades & Extraction Workers	11,812
47-2061	Construction Laborers	10,938
51-8093	Petroleum Pump System Operators, Refinery Operators, & Gaugers	9,361
17-2171	Petroleum Engineers	8,816
11-1021	General & Operations Managers	8,436
47-2073	Operating Engineers & Other Construction Equipment Operators	6,902
43-9061	Office Clerks, General	6,453

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

HEALTHCARE

FIGURE 26. KEY INDUSTRY SEGMENTS

Segment	2021 Jobs	2021 Location Quotient	Avg. Earnings Per Job	Historic 10-Year Growth (2011–2021)	Pandemic Recovery (2019–2021)	Projected Growth (2021–2026)
Ambulatory Healthcare Services	809,251	1.11	\$72,396	28%	1.02	11%
Hospitals (Private)	332,027	0.74	\$86,877	11%	0.99	5%
Nursing & Residential Care Facilities	177,468	0.65	\$46,338	1%	0.93	5%
Hospitals (State Government)	33,501	0.96	\$123,480	19%	1.09	3%
Hospitals (Local Government)	73,425	1.23	\$87,557	24%	1.03	4%

Healthcare is Texas's largest industry of opportunity. It includes hospitals (public and private), ambulatory care, and nursing and residential care. In 2021, there were 1.4 million jobs that were in the healthcare cluster.

Although ambulatory healthcare services is the segment that employs the most workers in the cluster, the largest healthcare employers in Texas are the health systems in the state's urban centers. Dominating the list is the Texas Medical Center in Houston, which includes MD Anderson, Baylor St. Luke's, Memorial Hermann, and Houston Methodist.



FIGURE 27. LARGEST HEALTHCARE EMPLOYERS

Name	City	Employer Size
UT MD Anderson Cancer Center	Houston	10,000+
Parkland Health	Dallas	10,000+
UT Medical Branch Health System	Galveston	10,000+
Baylor St. Luke's Medical Center	Houston	5,000-9,999
CHRISTUS Santa Rosa Health System	San Antonio	5,000-9,999
Memorial Hermann Cancer Center	Houston	5,000-9,999
Houston Methodist Hospital	Houston	5,000-9,999
Methodist Healthcare	San Antonio	5,000-9,999
Shannon Medical Center	San Angelo	5,000-9,999
Harris Health System	Houston	5,000-9,999

Sources: (Figure 26) Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed. (Figure 27) Data Axle via Texas Workforce Commission.

Note: Location quotients (LQs) are ratios of an area's share of employment by industry relative to the US. If an LQ is equal to 1, then the industry has the same share of its area employment as it does in the nation. An LQ greater than 1 indicates an industry with a greater share of the local area employment than is the case nationwide.

FIGURE 28. TOP 25 OCCUPATIONS EMPLOYED IN INDUSTRY

SOC Code	Description	2021 Jobs in Industry	Total 2021 Jobs	Median Hourly Earning	Typical Education Required	Typical OJT Term
31-1128	Home Health & Personal Care Aides	218,297	366,926	\$10.13	HS or Equivalent	Short
29-1141	Registered Nurses	189,249	227,035	\$36.20	Bachelor's	None
31-9092	Medical Assistants	70,919	77,197	\$15.79	Postsecondary ND	None
43-6013	Medical Secretaries & Administrative Assistants	70,612	78,697	\$16.63	HS or Equivalent	Moderate
31-1131	Nursing Assistants	67,641	80,830	\$13.59	Postsecondary ND	None
29-2061	Licensed Practical & Licensed Vocational Nurses	58,597	71,070	\$22.95	Postsecondary ND	None
43-4171	Receptionists & Information Clerks	32,841	78,497	\$13.93	HS or Equivalent	Short
31-9091	Dental Assistants	32,401	34,619	\$18.82	Postsecondary ND	None
11-9111	Medical & Health Services Managers	28,696	37,723	\$47.86	Bachelor's	None
43-9061	Office Clerks, General	25,687	313,388	\$16.71	HS or Equivalent	Short
29-2018	Clinical Laboratory Technologists & Technicians	23,412	27,959	\$24.86	Bachelor's	None
29-1228	Physicians, All Other; & Ophthalmologists, Except Pediatric	21,910	26,906	\$100.99	Doctoral or Prof.	Internship/residency
29-2098	Medical Dosimetrists, Medical Records Specialists, & Health Technologists & Technicians, All Other	20,855	29,786	\$19.25	Postsecondary ND	None
43-3021	Billing & Posting Clerks	17,390	45,695	\$18.60	HS or Equivalent	Moderate
43-1011	First-Line Supervisors of Office & Administrative Support Workers	17,163	134,102	\$27.32	HS or Equivalent	None
37-2012	Maids & Housekeeping Cleaners	16,039	138,505	\$10.94	No Formal Edu.	Short
29-2034	Radiologic Technologists & Technicians	15,987	17,307	\$28.80	Associate's	None
29-1292	Dental Hygienists	15,187	15,835	\$37.50	Associate's	None
43-4051	Customer Service Representatives	14,960	305,611	\$16.40	HS or Equivalent	Short
29-1171	Nurse Practitioners	14,727	16,512	\$54.68	Master's Degree	None
29-1123	Physical Therapists	14,675	16,318	\$43.73	Doctoral or Prof.	None
29-2041	Emergency Medical Technicians & Paramedics	12,373	18,837	\$17.28	Postsecondary ND	None
29-1021	Dentists, General	12,039	12,420	\$75.83	Doctoral or Prof.	None
31-9097	Phlebotomists	11,116	11,859	\$16.78	Postsecondary ND	None
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	10,884	177,714	\$17.44	HS or Equivalent	Short

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: "HS or Equivalent" is high school diploma or equivalent, "Postsecondary ND" is postsecondary non-degree award and "Doctoral or Prof." is doctoral or professional degree.

EDUCATION

FIGURE 29. KEY INDUSTRY SEGMENTS

Segment	2021 Jobs	2021 Location Quotient	Avg. Earnings Per Job	Historic 10-Year Growth (2011–2021)	Pandemic Recovery (2019–2021)	Projected Growth (2021–2026)
Education (State Government)	249,822	1.08	\$69,271	10%	1.00	7%
Education (Local Government)	850,014	1.29	\$64,285	3%	0.97	5%
Private Elementary & Secondary Schools	93,758	0.87	\$49,626	54%	1.05	15%
Child Day Care Services	91,550	0.92	\$25,858	-6%	0.89	2%
Private Colleges, Universities, & Professional Schools	76,127	0.43	\$63,303	20%	1.04	11%

The education cluster is another large industry of opportunity. It includes early learning centers, public schools, private schools, and colleges and universities. Together, 1.3 million workers are employed in this industry.

Public schools are the largest segment in the cluster, accounting for 62 percent of cluster employment. The school districts that employ the most people are in the major Texas metro areas, with 5 of the top 10 districts in the Houston metro.



FIGURE 30. LARGEST SCHOOL DISTRICT EMPLOYERS

Name	City	Employer Size
Houston ISD	Houston	10,000+
Dallas ISD	Dallas	10,000+
Cypress-Fairbanks ISD	Houston	10,000+
Northside ISD	San Antonio	10,000+
Katy ISD	Katy	5,000-9,999
Fort Worth ISD	Fort Worth	5,000-9,999
Austin ISD	Austin	5,000-9,999
Fort Bend ISD	Sugar Land	5,000-9,999
Aldine ISD	Houston	5,000-9,999
Frisco ISD	Frisco	5,000-9,999

Sources: (Figure 29) Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed. (Figure 30) Data Axle via Texas Workforce Commission.

FIGURE 31. TOP 25 OCCUPATIONS EMPLOYED IN INDUSTRY

SOC Code	Description	2021 Jobs in Industry	Total 2021 Jobs	Median Hourly Earning	Typical Education Required	Typical OJT Term
25-2021	Elementary School Teachers, Except Special Education	129,191	130,865	\$27.71	Bachelor's	None
25-1099	Postsecondary Teachers	97,492	126,898	\$33.48	Doctoral or Prof.	None
25-2031	Secondary School Teachers, Except Special & Career/ Technical Education	95,241	97,239	\$28.06	Bachelor's	None
25-9045	Teaching Assistants, Except Postsecondary	84,884	91,338	\$10.70	Some College	None
25-3031	Substitute Teachers, Short-Term	72,197	79,030	\$10.78	Bachelor's	None
25-2022	Middle School Teachers, Except Special & Career/ Technical Education	63,980	64,412	\$27.75	Bachelor's	None
39-9011	Childcare Workers	60,761	128,114	\$10.07	HS or Equivalent	Short
37-2011	Janitors & Cleaners, Except Maids & Housekeeping Cleaners	44,112	198,955	\$12.18	No Formal Edu.	Short
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	41,190	177,714	\$17.44	HS or Equivalent	Short
43-9061	Office Clerks, General	37,419	313,388	\$16.71	HS or Equivalent	Short
11-9032	Education Administrators, Kindergarten through Secondary	28,541	29,090	\$40.64	Master's degree	None
25-2011	Preschool Teachers, Except Special Education	26,351	34,951	\$17.45	Associate's	None
21-1012	Educational, Guidance, & Career Counselors & Advisors	22,591	28,964	\$29.01	Master's	None
53-3058	Passenger Vehicle Drivers, Except Bus Drivers, Transit & Intercity	21,252	53,676	\$13.07	HS or Equivalent	Short
35-3023	Fast Food & Counter Workers	18,310	394,248	\$9.97	No Formal Edu.	Short
35-2012	Cooks, Institution & Cafeteria	15,601	32,079	\$12.26	No Formal Edu.	Short
25-2052	Special Education Teachers, Kindergarten & Elementary School	15,126	15,310	\$27.92	Bachelor's	None
25-2012	Kindergarten Teachers, Except Special Education	15,071	15,322	\$27.39	Bachelor's	None
25-9031	Instructional Coordinators	14,422	20,107	\$31.81	Master's	None
49-9071	Maintenance & Repair Workers, General	13,505	127,882	\$18.19	HS or Equivalent	Moderate
25-2058	Special Education Teachers, Secondary School	13,075	13,241	\$28.07	Bachelor's	None
25-9044	Teaching Assistants, Postsecondary	12,713	13,867	\$14.67	Bachelor's	None
25-3097	Tutors & Teachers & Instructors, All Other	12,062	28,942	\$17.00	Bachelor's	None
25-2032	Career/Technical Education Teachers, Secondary School	11,756	12,037	\$28.59	Bachelor's	None
29-1141	Registered Nurses	10,520	227,035	\$36.20	Bachelor's	None

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: "HS or Equivalent" is high school diploma or equivalent, "Postsecondary ND" is postsecondary non-degree award, "Some College" is some college—no degree, and "Doctoral or Prof." is doctoral or professional degree.

FINANCE & INSURANCE

FIGURE 32. KEY INDUSTRY SEGMENTS

Segment	2021 Jobs	2021 Location Quotient	Avg. Earnings Per Job	Historic 10-Year Growth (2011–2021)	Pandemic Recovery (2019–2021)	Projected Growth (2021–2026)
Credit Intermediation & Related Activities	281,488	1.17	\$113,370	15%	1.05	2%
Securities, Commodity Contracts, & Other Financial Investments & Related Activities	87,537	0.94	\$204,654	37%	1.08	11%
Insurance Carriers & Related Activities	280,769	1.06	\$98,981	47%	1.07	10%

The finance and insurance cluster includes credit intermediation, securities and investments, and insurance carriers. The sector employs almost 650,000 workers.

Credit intermediation and insurance carriers are the two principal segments and are about the same size. The largest employers in the cluster are banks, insurance, and brokerage services in the San Antonio, Houston, Dallas, and Austin regions.

The top 25 occupations in the finance and insurance cluster are shown in Figure 34.



FIGURE 33. LARGEST FINANCE AND INSURANCE EMPLOYERS

Name	City	Employer Size
Frost Brokerage Services Inc.	San Antonio	5,000-9,999
American General Life Insurance	Houston	1,000-4,999
Bank of America Mortgage	Plano	1,000-4,999
Blue Cross & Blue Shield of Texas	Richardson	1,000-4,999
Charles Schwab Corporation	Westlake	1,000-4,999
Frost Bank	San Antonio	1,000-4,999
GEICO Regional Office	Richardson	1,000-4,999
Helping Loans	Dallas	1,000-4,999
Independent Financial	Denton	1,000-4,999
Santander Consumer USA Holdings Inc.	Dallas	1,000-4,999

Sources: (Figure 32) Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed. (Figure 33) Data Axle via Texas Workforce Commission.

FIGURE 34. TOP 25 OCCUPATIONS EMPLOYED IN INDUSTRY

SOC Code	Description	2021 Jobs in Industry	Total 2021 Jobs	Median Hourly Earning	Typical Education Required	Typical OJT Term
41-3021	Insurance Sales Agents	67,576	68,547	\$24.44	HS or Equivalent	Moderate
43-4051	Customer Service Representatives	64,172	305,611	\$16.40	HS or Equivalent	Short
41-3031	Securities, Commodities, & Financial Services Sales Agents	39,519	41,632	\$28.69	Bachelor's	Moderate
43-3071	Tellers	36,777	37,418	\$14.67	HS or Equivalent	Short
43-9041	Insurance Claims & Policy Processing Clerks	26,187	30,401	\$19.19	HS or Equivalent	Moderate
13-1031	Claims Adjusters, Examiners, & Investigators	23,128	29,916	\$32.95	HS or Equivalent	Long
13-2072	Loan Officers	22,790	25,443	\$33.14	Bachelor's	Moderate
43-1011	First-Line Supervisors of Office & Administrative Support Workers	22,072	134,102	\$27.32	HS or Equivalent	None
43-4131	Loan Interviewers & Clerks	21,492	24,062	\$19.66	HS or Equivalent	Short
13-2052	Personal Financial Advisors	20,902	22,461	\$39.36	Bachelor's	Long
11-3031	Financial Managers	18,825	52,865	\$63.79	Bachelor's	None
13-2098	Financial & Investment Analysts, Financial Risk Specialists, & Financial Specialists, All Other	18,650	42,939	\$37.67	Bachelor's	Moderate
11-1021	General & Operations Managers	15,772	242,779	\$46.74	Bachelor's	None
43-9061	Office Clerks, General	14,973	313,388	\$16.71	HS or Equivalent	Short
15-1256	Software Developers & Software Quality Assurance Analysts & Testers	13,449	128,607	\$51.86	Bachelor's	None
13-2011	Accountants & Auditors	11,857	129,204	\$35.30	Bachelor's	None
43-3031	Bookkeeping, Accounting, & Auditing Clerks	10,896	149,585	\$19.78	Some College	Moderate
13-1198	Project Management Specialists & Business Operations Specialists, All Other	10,280	143,975	\$37.89	Bachelor's	None
13-2053	Insurance Underwriters	9,861	10,357	\$31.94	Bachelor's	Moderate
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	9,402	177,714	\$17.44	HS or Equivalent	Short
43-3011	Bill & Account Collectors	8,198	30,053	\$17.60	HS or Equivalent	Moderate
15-1211	Computer Systems Analysts	7,652	59,649	\$46.66	Bachelor's	None
43-4141	New Accounts Clerks	7,253	7,631	\$16.80	HS or Equivalent	Moderate
13-1111	Management Analysts	6,804	64,301	\$43.62	Bachelor's	None
41-1012	First-Line Supervisors of Non-Retail Sales Workers	5,722	34,569	\$32.67	HS or Equivalent	None

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: "HS or Equivalent" is high school diploma or equivalent, "Postsecondary ND" is postsecondary non-degree award, and "Some College" is some college—no degree.

TRANSPORTATION & WAREHOUSING

FIGURE 35. KEY INDUSTRY SEGMENTS

Segment	2021 Jobs	2021 Location Quotient	Avg. Earnings Per Job	Historic 10-Year Growth (2011–2021)	Pandemic Recovery (2019–2021)	Projected Growth (2021–2026)
Truck Transportation	178,640	1.16	\$74,944	25%	0.97	4%
Warehousing & Storage	137,167	0.95	\$48,064	197%	1.40	17%
Support Activities for Transportation	94,699	1.40	\$74,527	26%	0.97	5%
Air Transportation	61,571	1.54	\$125,129	0%	0.95	9%
Transit & Ground Passenger Transportation	32,418	0.59	\$35,438	44%	0.90	26%
Rail Transportation	18,177	0.95	\$113,327	5%	0.90	2%
Water Transportation	4,021	0.77	\$136,445	-14%	0.95	-6%
Scenic & Sightseeing Transportation	1,087	0.45	\$36,387	15%	0.91	43%

Truck transportation is the largest segment of the cluster, followed by warehousing and storage. However, the state's airports account for many of the largest employers in the cluster.

The top 25 occupations in transportation and warehousing are shown in Figure 37.

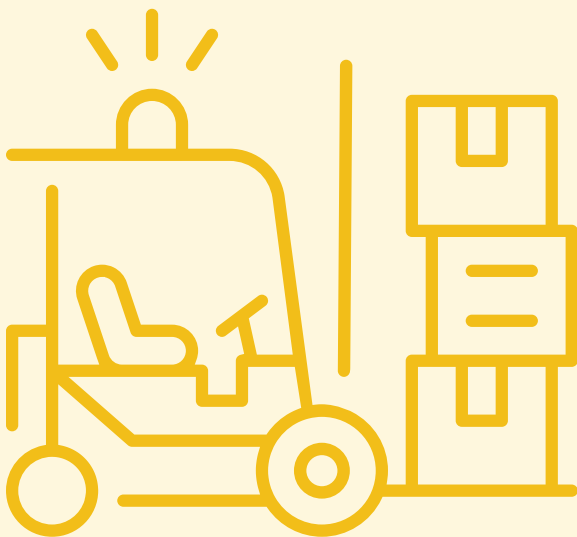


FIGURE 36. LARGEST TRANSPORTATION AND WAREHOUSING EMPLOYERS

Name	City	Employer Size
Enterprise Products	Mount Belvieu	5,000-9,999
Dallas Love Field	Dallas	5,000-9,999
Stevens Transport Inc	Dallas	5,000-9,999
American Airlines Group Inc	Fort Worth	1,000-4,999
Austin-Bergstrom Intl Airport	Austin	1,000-4,999
BNSF Railway Co	Fort Worth	1,000-4,999
Capital Metropolitan Transportation	Austin	1,000-4,999
Dallas/Fort Worth Int'l. Airport	Dallas	1,000-4,999
Echo Transportation	San Antonio	1,000-4,999
Estate Limousine Services	Tyler	1,000-4,999

Sources: (Figure 35) Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed. (Figure 36) Data Axle via Texas Workforce Commission.

FIGURE 37. TOP 25 OCCUPATIONS EMPLOYED IN INDUSTRY

SOC Code	Description	2021 Jobs in Industry	Total 2021 Jobs	Median Hourly Earning	Typical Education Required	Typical OJT Term
53-3032	Heavy & Tractor-Trailer Truck Drivers	97,604	136,950	\$21.88	Postsecondary ND	Short
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	27,892	44,483	\$14.42	No Formal Edu.	Short
53-7051	Industrial Truck & Tractor Operators	10,891	40,735	\$17.04	No Formal Edu.	Short
53-7065	Stockers & Order Fillers	4,469	31,821	\$13.93	HS or Equivalent	Short
43-4181	Reservation & Transportation Ticket Agents & Travel Clerks	14,671	15,583	\$26.62	HS or Equivalent	Short
53-2031	Flight Attendants	12,650	12,974	\$30.25	HS or Equivalent	Moderate
53-3054	Taxi Drivers	12,715	13,633	\$12.11	No Formal Edu.	Short
53-1047	First-Line Supervisors of Transportation & Material Moving Workers, Except Aircraft Cargo Handling Supervisors	8,452	11,619	\$25.85	HS or Equivalent	None
11-1021	General & Operations Managers	4,825	10,911	\$46.74	Bachelor's	None
49-3011	Aircraft Mechanics & Service Technicians	9,030	9,272	\$31.78	Postsecondary ND	None
43-4051	Customer Service Representatives	7,660	9,167	\$16.40	HS or Equivalent	Short
43-5071	Shipping, Receiving, & Inventory Clerks	5,029	9,095	\$16.32	HS or Equivalent	Short
53-3033	Light Truck Drivers	8,194	8,851	\$17.94	HS or Equivalent	Short
43-5032	Dispatchers, Except Police, Fire, & Ambulance	7,576	8,804	\$18.54	HS or Equivalent	Moderate
53-2011	Airline Pilots, Copilots, & Flight Engineers	8,539	8,714	\$82.15	Bachelor's	Moderate
43-5011	Cargo & Freight Agents	8,236	7,993	\$19.45	HS or Equivalent	Short
43-9061	Office Clerks, General	7,638	7,962	\$16.71	HS or Equivalent	Short
43-1011	First-Line Supervisors of Office & Administrative Support Workers	5,407	7,841	\$27.32	HS or Equivalent	None
49-3031	Bus & Truck Mechanics & Diesel Engine Specialists	5,680	7,359	\$23.65	HS or Equivalent	Long
41-3091	Sales Representatives of Services, Except Advertising, Insurance, Financial Services, & Travel	3,555	5,286	\$25.33	HS or Equivalent	Moderate
53-7064	Packers & Packagers, Hand	3,760	4,678	\$11.37	No Formal Edu.	Short
53-3053	Shuttle Drivers & Chauffeurs	4,525	12,710	\$13.38	No Formal Edu.	Short
53-3051	Bus Drivers, School	4,217	28,404	\$16.23	No Formal Edu.	Short
11-3071	Transportation, Storage, & Distribution Managers	2,991	4,066	\$45.90	HS or Equivalent	None
43-3031	Bookkeeping, Accounting, & Auditing Clerks	3,975	4,045	\$19.78	Some College	Moderate

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: "HS or Equivalent" is high school diploma or equivalent, "Postsecondary ND" is postsecondary non-degree award, and "Some College" is some college—no degree.

OIL & GAS

FIGURE 38. INDUSTRY SEGMENTS

Segment	2021 Jobs	2021 Location Quotient	Avg. Earnings Per Job	Historic 10-Year Growth (2011–2021)	Pandemic Recovery (2019–2021)	Projected Growth (2021–2026)
Petroleum & Coal Products Manufacturing	20,710	2.22	\$213,220	-17%	0.89	-9%
Oil & Gas Extraction	62,239	6.10	\$239,198	-30%	0.81	-11%
Support Activities for Mining	105,366	5.31	\$111,738	-26%	0.65	7%
Pipeline Transportation	18,788	4.30	\$192,163	18%	0.98	2%
Oil & Gas Field Machinery & Equipment Manufacturing	27,310	7.48	\$131,174	-41%	0.68	-38%
Oil & Gas Pipeline & Related Structures Construction	39,586	3.41	\$100,574	14%	0.63	-14%
Petroleum Bulk Stations & Terminals	5,133	1.72	\$149,241	25%	0.92	1%
Petroleum & Petroleum Products Merchant Wholesalers	15,193	2.66	\$172,180	44%	0.87	3%

The oil and gas cluster is one of the largest contributors to the state's gross domestic product and employs 294,000 workers. The largest segments are the support activities and oil and gas extraction.

The largest employers in the cluster are concentrated in Houston and on the Gulf Coast.

The top 25 occupations in education are shown in Figure 40.



FIGURE 39. LARGEST OIL & GAS EMPLOYERS

Name	City	Employer Size
Enterprise Products	Mont Belvieu	5,000-9,999
BP America Inc.	Houston	5,000-9,999
NOV Inc.	Houston	1,000-4,999
Occidental Petroleum Corporation	Houston	1,000-4,999
Shell Oil Company	Houston	1,000-4,999
CITGO Corpus Christi Refinery	Corpus Christi	1,000-4,999
ConocoPhillips Company	Borger	1,000-4,999
ExxonMobil Downstream	Spring	1,000-4,999
Ferrellgas	Beeville	1,000-4,999
Occidental Petroleum Corporation	The Woodlands	1,000-4,999

Sources: (Figure 38) Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed. (Figure 39) Data Axle via Texas Workforce Commission.

FIGURE 40. TOP 25 OCCUPATIONS EMPLOYED IN INDUSTRY

SOC Code	Description	2021 Jobs in Industry	Total 2021 Jobs	Median Hourly Earning	Typical Education Required	Typical OJT Term
47-5071	Roustabouts, Oil & Gas	16,207	17,980	\$18.72	No Formal Edu.	Moderate
47-5013	Service Unit Operators, Oil & Gas	14,775	15,998	\$21.46	No Formal Edu.	Moderate
53-3032	Heavy & Tractor-Trailer Truck Drivers	12,657	232,869	\$21.88	Postsecondary ND	Short
47-1011	First-Line Supervisors of Construction Trades & Extraction Workers	11,812	78,762	\$29.27	HS or Equivalent	None
47-2061	Construction Laborers	10,938	154,219	\$15.96	No Formal Edu.	Short
51-8093	Petroleum Pump System Operators, Refinery Operators, & Gaugers	9,361	10,378	\$39.09	HS or Equivalent	Moderate
17-2171	Petroleum Engineers	8,816	13,787	\$73.46	Bachelor's	None
11-1021	General & Operations Managers	8,436	242,779	\$46.74	Bachelor's	None
47-2073	Operating Engineers & Other Construction Equipment Operators	6,902	46,415	\$20.94	HS or Equivalent	Moderate
43-9061	Office Clerks, General	6,453	313,388	\$16.71	HS or Equivalent	Short
49-9041	Industrial Machinery Mechanics	6,234	42,449	\$26.33	HS or Equivalent	Long
51-4121	Welders, Cutters, Solderers, & Brazers	5,808	51,465	\$21.68	HS or Equivalent	Moderate
13-2011	Accountants & Auditors	5,687	129,204	\$35.30	Bachelor's	None
47-5012	Rotary Drill Operators, Oil & Gas	4,580	4,679	\$27.54	No Formal Edu.	Moderate
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	4,199	219,849	\$14.42	No Formal Edu.	Short
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	4,103	118,424	\$29.49	HS or Equivalent	Moderate
51-1011	First-Line Supervisors of Production & Operating Workers	4,083	50,189	\$30.73	HS or Equivalent	None
43-3031	Bookkeeping, Accounting, & Auditing Clerks	3,762	149,585	\$19.78	Some College	Moderate
51-2098	Miscellaneous Assemblers & Fabricators	3,720	82,763	\$14.37	HS or Equivalent	Moderate
13-1198	Project Management Specialists & Business Operations Specialists, All Other	3,606	143,975	\$37.89	Bachelor's	None
47-5081	Helpers—Extraction Workers	3,597	4,241	\$16.81	HS or Equivalent	Moderate
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	3,315	177,714	\$17.44	HS or Equivalent	Short
15-1211	Computer Systems Analysts	3,154	59,649	\$46.66	Bachelor's	None
51-9061	Inspectors, Testers, Sorters, Samplers, & Weighers	2,847	50,854	\$19.08	HS or Equivalent	Moderate
51-8092	Gas Plant Operators	2,752	3,816	\$33.83	HS or Equivalent	Long

Source: Lightcast 2022.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: "HS or Equivalent" is high school diploma or equivalent, "Postsecondary ND" is postsecondary non-degree award, and "Some College" is some college—no degree.

TX 20
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PART II EDUCATION & TRAINING INFRASTRUCTURE



EDUCATIONAL OUTPUT

The Texas workforce acquires skills through a wide range of educational institutions and training programs.

One of the primary, and best documented, components of the state's education and training infrastructure is the system of postsecondary institutions. Each institution that participates in federal financial aid is required to report the number of recognized credentials it awards for each one of its academic and vocational training programs on an annual basis. As a result, this is the component that can best be studied because of the wealth of data that is captured about the institutions, individually, and the system as a whole.

Other important components of the education and training system include registered apprenticeships, career and technical education offered at school districts, and training provided through regional workforce boards. For these components, there

is limited and often less standardized data on the programs and their outputs. In addition, the data collection and public access to the data is relatively recent and may only be available for a year or two.

DEFINITIONS

Postsecondary education is a formal instructional program. The curriculum is designed primarily for students who are beyond the compulsory age for high school. This includes programs with purposes that are academic, vocational, or continuing professional education.

Postsecondary education institutions are those institutions that primarily provide postsecondary education.

Completions are the number of postsecondary credentials conferred by completing an academic or vocational training program.

FINDINGS

Texas has almost 400 postsecondary institutions that confer, on average, 380,000 credentials annually. Of the 380,000 credentials conferred, or completions, approximately 80 percent are from public institutions. The other 20 percent is split between private not-for-profit and private for-profit institutions. In terms of credentials conferred in 2021, Texas A&M University in College Station and the University of Texas at Austin are the state's largest institutions overall. Dallas College and Lone Star College in the Houston metro area are the largest community colleges.

Both before and during the COVID-19 pandemic, Texas postsecondary institutions continued to experience robust growth in the number of credentials conferred, growing 19 percent in the five years leading up to the pandemic and 4 percent during the pandemic. By comparison, the population of Texas grew by 10 percent between 2014 and 2021. The growth in completions was split between sub-baccalaureate credentials (43 percent) and bachelor's degree and higher (57 percent). This growth was also

widespread across institutions and across the state. However, the 13 institutions that did not grow during this time period are all located in smaller population centers, such as Port Arthur, Big Spring, Kingsville, and Corsicana.

The most popular fields of study are generally well-aligned with occupations employed in the industries of opportunity with some exceptions. Occupations in healthcare, education, finance and insurance, and to a lesser degree transportation and warehousing and oil and gas, are represented in the popular fields of study. However, some popular fields of study, such as cosmetology, culinary arts, and psychology, do not align with the industries of opportunity. Furthermore, only a few occupations from the industries are represented in the popular fields of study but the full range of occupations that support the industries of opportunity is not.

Apprenticeships are another component of the training infrastructure. Though there are more than

22,000 active apprentices across 636 programs, the vast majority of the programs are in the largest, urban counties and primarily in construction and extraction occupations and installation, maintenance, and repair occupations.

Among the various career and technical education (CTE) programs offered at school districts, there are more than 60 different programs of study. The programs of study most commonly offered in school districts fall into the agriculture, food, and natural resources career cluster; health science; and business, marketing, and finance. The programs of study with the most learners are in career clusters related to health science; law and public service; and science, technology, engineering, and math.

Eligible Training Providers (ETPs), which provide training services to support adult and dislocated workers through the state's workforce centers, are also an important piece of the state's training infrastructure. There are more than 500 ETPs with more than 5,000 programs on the list. From 2018 to 2022, these programs enrolled 440,000 students. Of the students who exited the programs, 60 percent completed the programs. Of the students who had

exited the programs after at least four quarters, 73 percent were employed and 48 percent had received a recognized credential. The most popular programs provided by ETPs were related to healthcare (both practitioners and technical and support); production; and installation, maintenance, and repair.

All in all, the system of postsecondary institutions appears to be most closely aligned to the industries of opportunity. All components of the training infrastructure, in particular apprenticeship, CTE, and ETP, could benefit from more strategic alignment with both the industries of opportunity and the state's most rapidly growing occupations. In addition, apprenticeships continue to be largely used for skilled trades, although they have been shown to be effective training models for a wide range of occupation types. Finally, healthcare and health science are popular training programs across the entire system. Healthcare is a large and growing industry in the state. However, the emphasis on nursing and short-term training opportunities for nursing assistants and medical assistants means that other areas of the healthcare system, other industries of opportunity, and high-growth occupations are undersupplied.



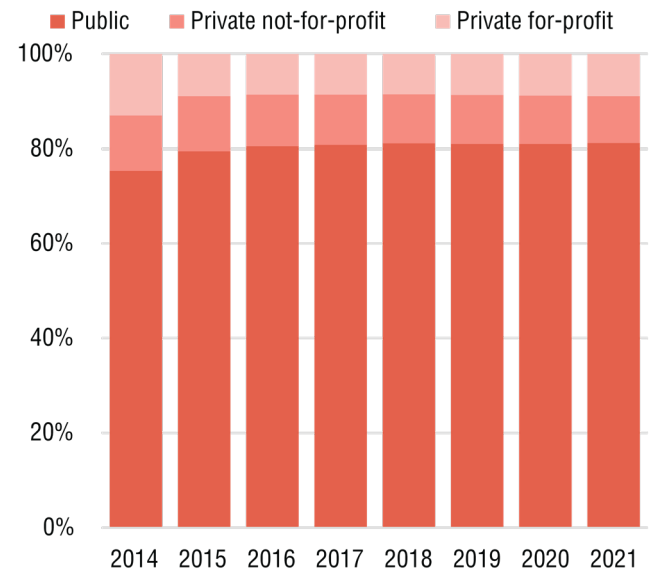
DATA

In 2021, Texas had almost 400 postsecondary institutions that reported completions to the US Department of Education's National Center for Education Statistics through the Integrated Postsecondary Education Data System. Between 2014 and 2019, the number of completions conferred by Texas institutions increased from 320,000 to 379,832, an increase of 19 percent. During this period, the annual growth rate varied from a low of 0.4 percent in 2015 to a high of 6.4 percent in 2016.

During the pandemic, the number of completions dipped slightly in 2020 (0.3 percent) but recovered in 2021.

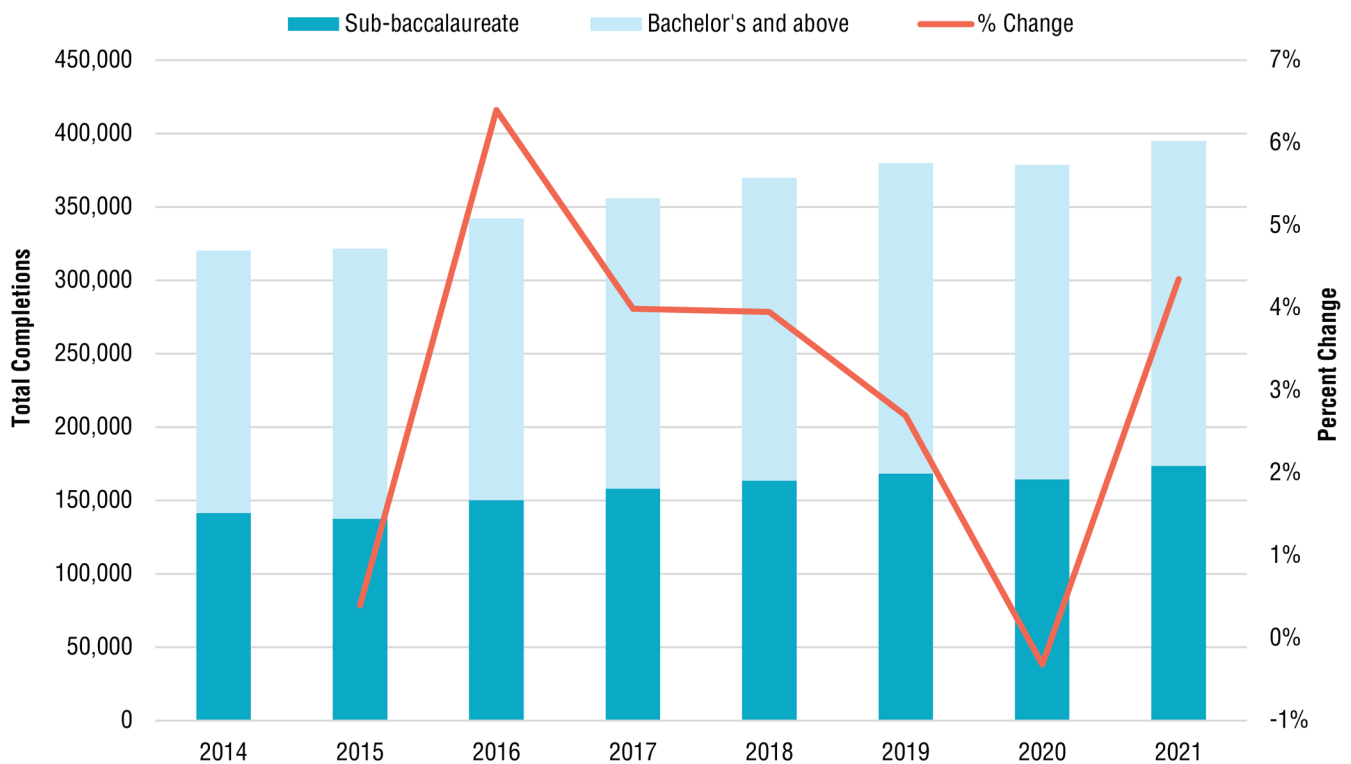
On average, public postsecondary institutions account for about 80 percent of the completions in a given year. The remaining completions are split almost evenly between private not-for-profit institutions and private for-profit institutions. In 2014, however, private institutions accounted for 25 percent of completions and public institutions accounted for 75 percent of completions.

FIGURE 41. COMPLETIONS BY INSTITUTION TYPE, 2014–2021



Source: US Department of Education, NCES, IPEDS.
Note: First majors only.

FIGURE 42. TOTAL COMPLETIONS, ALL TEXAS INSTITUTIONS, 2014–2021



Source: US Department of Education, National Center for Education Statistics (NCES), Integrated Postsecondary Education Data System (IPEDS).

Note: First majors only.

The top producing institution in Texas is Texas A&M University in College Station, which awarded 19,646 degrees in 2021. The number of completions grew 39 percent between 2014 and 2019 and slowed to 3 percent growth during the pandemic. The University of Texas at Austin was second with 17,613 completions. It was the slowest growing of the top 10 before the pandemic but was one of the fastest growing during the pandemic. Of the top 10 institutions, Lone Star College was the fastest growing both before the pandemic (2014 to 2019) and during the pandemic (2019 to 2021). Dallas College was the only institution of the top 10 that experienced a decline in

completions during the pandemic.

Of the community colleges, the top three fastest growing were Palo Alto College, Collin County Community College, and Northwest Vista College. Three of the colleges on this top 10 list grew by more than 100 percent before the pandemic. With the exception of College of the Mainland, Paris Junior College, and Blinn College, all of the colleges saw growth in completions slow during the pandemic and two—Northwest Vista College and St Phillip's College—saw completions shrink compared to their pre-pandemic levels.

FIGURE 43. TOP PRODUCING INSTITUTIONS, ALL TYPES
2021 COMPLETIONS

Institution Name	City	2021	Change 2014–2021	Change 2014–2019	Change 2019–2021
Texas A&M University in College Station	College Station	19,646	42%	39%	3%
The University of Texas at Austin	Austin	17,613	18%	5%	13%
The University of Texas at Arlington	Arlington	14,417	47%	43%	3%
Dallas College	Dallas	12,775	40%	46%	-4%
Lone Star College	The Woodlands	11,684	76%	56%	13%
University of Houston	Houston	11,581	26%	13%	11%
University of North Texas	Denton	10,600	25%	15%	8%
Texas Tech University	Lubbock	9,496	31%	17%	12%
Texas State University	San Marcos	9,201	22%	17%	4%

FIGURE 44. FASTEST-GROWING COMMUNITY COLLEGES
PERCENTAGE CHANGE 2014–2021

Institution Name	City	2021	Change 2014–2021	Change 2014–2019	Change 2019–2021
Alamo Colleges District—Palo Alto College	San Antonio	3,490	162.0%	161.4%	0.2%
Collin County Community College	McKinney	11,406	143.6%	72.5%	41.2%
Alamo Colleges District—Northwest Vista College	San Antonio	5,676	143.4%	164.0%	-7.8%
Alamo Colleges District—St. Philip's College	San Antonio	4,070	140.5%	160.9%	-7.8%
Austin Community College District	Austin	11,752	120.4%	80.9%	21.8%
College of the Mainland	Texas City	2,594	117.3%	45.4%	49.4%
Lee College	Baytown	7,368	117.1%	94.6%	11.6%
Paris Junior College	Paris	4,186	115.1%	-3.8%	123.6%
Ranger College	Ranger	968	114.2%	74.3%	22.8%
Blinn College	Brenham	6,562	106.7%	8.5%	90.5%

Source: (both figures) US Department of Education, NCES, IPEDS.

Note: (both figures) First majors only.

The community colleges that saw the largest declines in completions were Lamar State College Port Arthur, Texas Southmost College, and Central Texas College. Two of these institutions were growing before the pandemic but experienced dramatic declines in completions during the pandemic. On the other hand, Lamar State College Port Arthur and Texas Southmost College were shrinking before the pandemic and then grew during the pandemic.

The fastest-growing public universities are the University of North Texas at Dallas, the University of Texas Rio Grande Valley, and the University of Texas at Tyler. All of the top 10 institutions, with the exception of University of Houston-Downtown, were growing prior to the pandemic and continued to grow during the pandemic. Six of the institutions experienced double-digit growth during the pandemic.

FIGURE 45. FASTEST-SHRINKING COMMUNITY COLLEGES
PERCENTAGE CHANGE 2014–2021

Institution Name	City	2021	Change 2014–2021	Change 2014–2019	Change 2019–2021
Lamar State College Port Arthur	Port Arthur	1,054	-51.5%	-65.7%	41.7%
Texas Southmost College	Brownsville	1,968	-50.4%	-60.3%	24.9%
Central Texas College	Killeen	4,646	-40.8%	1.0%	-41.4%
Navarro College	Corsicana	2,650	-36.5%	-28.6%	-11.0%
Kilgore College	Kilgore	1,914	-35.5%	-19.7%	-19.6%
Weatherford College	Weatherford	1,814	-29.0%	-20.4%	-10.7%
Western Texas College	Snyder	586	-23.7%	-5.2%	-19.5%
Coastal Bend College	Beeville	1,274	-21.5%	50.1%	-47.7%
Texarkana College	Texarkana	1,474	-19.5%	-8.7%	-11.8%
Cisco College	Cisco	1,148	-8.0%	15.7%	-20.5%

FIGURE 46. FASTEST-GROWING PUBLIC UNIVERSITIES
PERCENTAGE CHANGE 2014–2021

Institution Name	City	2021	Change 2014–2021	Change 2014–2019	Change 2019–2021
The University of North Texas at Dallas	Dallas	2,134	120.9%	67.3%	32.1%
The University of Texas Rio Grande Valley	Edinburg	13,920	98.9%	65.7%	20.1%
The University of Texas at Tyler	Tyler	6,076	80.5%	79.0%	0.9%
The University of Texas Permian Basin	Odessa	2,742	74.6%	61.1%	8.4%
Lamar University	Beaumont	10,834	56.9%	36.8%	14.7%
Texas A&M International University	Laredo	3,644	54.1%	27.5%	20.9%
University of Houston-Downtown	Houston	7,502	52.4%	60.7%	-5.2%
Tarleton State University	Stephenville	7,054	47.5%	30.1%	13.4%
The University of Texas at Arlington	Arlington	28,834	47.4%	43.5%	2.7%
University of Houston-Victoria	Victoria	3,032	45.1%	-5.6%	53.8%

Source: (both figures) US Department of Education, NCES, IPEDS.
Note: (both figures) First majors only.



There are two public universities that saw declines in their completions between 2014 and 2021. These were Texas A&M University-Kingsville and Texas Southern University. Outside of these two institutions, the institutions on this top 10 list experienced positive, though relatively weak, growth in completions between 2014 and 2021.

The top fields of study at community colleges are transfer degrees—general studies, liberal arts, and business administration—which means that most of the students completing programs at these institutions have plans to pursue a four-year degree.

Of the occupation-specific fields, the fields of study align well with the industries of opportunity—registered nursing, practical nursing, emergency medical technician, and radiologic technology with healthcare; early childhood education with education; computer and information sciences and accounting with finance and insurance; welding, chemical technology, instrumentation technology with oil and gas.

FIGURE 47. SLOWEST-GROWING/FASTEST-SHRINKING PUBLIC UNIVERSITIES
PERCENTAGE CHANGE 2014–2021

Institution Name	City	2021	Change 2014–2021	Change 2014–2019	Change 2019–2021
Texas A&M University-Kingsville	Kingsville	3,534	-33.5%	-31.6%	-2.8%
Texas Southern University	Houston	2,834	-10.5%	9.5%	-18.3%
Sul Ross State University	Alpine	1,128	0.9%	5.0%	-3.9%
Texas A&M University-Texarkana	Texarkana	958	1.7%	11.3%	-8.6%
University of Houston-Clear Lake	Houston	4,944	5.8%	3.8%	2.0%
Texas A&M University-Commerce	Commerce	6,934	7.1%	2.7%	4.2%
Texas A&M University-Central Texas	Killeen	1,532	7.3%	9.7%	-2.2%
Texas Woman's University	Denton	8,594	7.5%	-2.7%	10.4%
Midwestern State University	Wichita Falls	2,698	7.5%	17.5%	-8.5%
The University of Texas Medical Branch at Galveston	Galveston	2,470	8.0%	10.8%	-2.5%

Source: US Department of Education, NCES, IPEDS.
Note: First majors only.

FIGURE 48. TOP FIELDS OF STUDY, COMMUNITY COLLEGES, 2014–2021

CIP Code	Description	2014	2015	2016	2017	2018	2019	2020	2021
24.0102	General Studies	19,152	26,174	30,100	30,273	33,318	36,192	36,479	39,515
24.0101	Liberal Arts & Sciences/Liberal Studies	12,468	11,369	13,493	15,211	15,102	13,841	13,597	14,573
51.3801	Registered Nursing/Registered Nurse	6,345	5,720	5,336	5,367	5,384	5,680	5,806	6,116
52.0201	Business Administration & Management, General	3,420	4,014	4,606	4,940	6,008	6,624	6,764	7,279
48.0508	Welding Technology/Welder	2,713	3,055	3,444	4,070	4,100	4,720	3,993	3,993
52.0101	Business/Commerce, General	2,548	2,802	2,942	3,346	3,252	3,385	3,020	3,091
51.3901	Licensed Practical/Vocational Nurse Training	2,899	2,919	2,980	2,578	2,661	2,868	2,877	2,448
43.0104	Criminal Justice/Safety Studies	1,613	1,899	2,291	2,164	2,361	2,175	1,993	1,978
47.0604	Automobile/Automotive Mechanics Technology/Technician	1,497	1,688	2,161	1,937	2,081	2,228	2,112	1,504
11.0101	Computer & Information Sciences, General	1,284	1,936	2,014	1,889	2,021	1,869	1,644	1,699
41.0301	Chemical Technology/Technician	1,134	1,359	1,793	2,042	1,881	1,835	1,884	1,718
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	1,918	1,666	1,773	1,560	1,688	1,800	1,557	1,471
43.0107	Criminal Justice/Police Science	1,496	1,475	1,626	2,478	1,450	1,581	1,498	1,552
13.1210	Early Childhood Education & Teaching	939	1,148	1,269	1,337	1,461	1,530	1,517	1,727
12.0401	Cosmetology/Cosmetologist, General	1,255	1,172	1,225	1,181	1,313	1,232	1,237	1,497
26.0101	Biology/Biological Sciences, General	1,051	1,118	1,154	1,250	1,236	1,195	1,196	1,497
47.0201	Heating, Air Conditioning, Ventilation & Refrigeration Maintenance Technology/Technician	1,226	1,034	1,070	1,269	1,265	1,323	1,098	1,135
15.1301	Drafting & Design Technology/Technician, General	1,113	1,195	1,147	1,330	1,261	1,214	960	840
52.0301	Accounting	842	974	1,086	1,152	1,121	1,084	1,018	1,034
42.0101	Psychology, General	892	974	997	1,023	910	839	809	910
43.0203	Fire Science/Fire-fighting	907	878	1,036	1,024	985	801	789	736
51.0911	Radiologic Technology/Science—Radiographer	680	858	820	824	874	895	805	782
12.0503	Culinary Arts/Chef Training	763	839	767	930	847	880	740	678
47.0605	Diesel Mechanics Technology/Technician	522	683	762	801	846	861	911	800
11.0901	Computer Systems Networking & Telecommunications	601	843	672	713	658	785	863	766

Source: US Department of Education, NCES, IPEDS.

Note: First majors only. Includes Lamar State Colleges and Texas State Technical College. CIP Code is the Classification of Instructional Programs developed by the US Department of Education.

For the most part, four-year degrees tend to be less occupation specific. However, there are clear connections between the list of fields of study and the industries of opportunity. Business, accounting, finance, computer and information science match with finance and insurance; educational leadership,

interdisciplinary studies, curriculum and instruction with education. At the same time, some of the most popular fields of study do not align with the industries of opportunity: psychology, exercise science, criminal justice, marketing, and social work.

FIGURE 49. TOP FIELDS OF STUDY, PUBLIC UNIVERSITIES, 2014–2021

CIP Code	Description	2014	2015	2016	2017	2018	2019	2020	2021
52.0201	Business Administration & Management, General	8,570	8,352	8,765	9,416	9,838	10,235	10,441	11,421
30.9999	Multi-/Interdisciplinary Studies, Other	8,837	8,588	8,967	9,297	9,629	9,985	9,599	8,688
51.3801	Registered Nursing/Registered Nurse	7,257	7,671	8,634	9,081	9,526	9,771	9,517	9,452
42.0101	Psychology, General	5,145	5,214	5,477	5,677	5,960	6,304	6,478	7,398
52.0301	Accounting	5,262	5,436	5,570	5,633	5,695	5,847	5,540	5,437
26.0101	Biology/Biological Sciences, General	3,981	4,287	4,492	4,530	4,620	4,695	4,855	5,484
31.0505	Exercise Science & Kinesiology	3,509	3,867	4,116	4,224	4,318	4,410	4,436	4,810
13.0401	Educational Leadership & Administration, General	2,595	2,756	3,496	3,553	4,580	4,112	4,337	3,941
11.0101	Computer & Information Sciences, General	1,944	2,617	3,489	3,539	3,635	3,677	4,144	4,762
43.0104	Criminal Justice/Safety Studies	2,826	2,920	3,125	3,182	3,206	3,373	3,507	3,724
52.0801	Finance, General	2,971	3,140	3,146	2,964	3,134	3,153	3,274	3,519
14.1901	Mechanical Engineering	1,987	2,143	2,657	3,048	3,470	3,647	3,511	3,472
52.1401	Marketing/Marketing Management, General	2,373	2,398	2,446	2,622	2,928	3,119	3,104	3,392
44.0701	Social Work	2,182	2,264	2,447	2,434	2,590	2,899	2,955	3,106
52.0101	Business/Commerce, General	2,286	2,455	3,166	3,023	2,561	2,460	1,891	1,930
14.1001	Electrical & Electronics Engineering	2,020	2,237	2,733	2,708	2,499	2,480	2,403	2,208
24.0102	General Studies	1,719	1,937	2,185	2,397	2,381	2,355	2,249	2,334
23.0101	English Language & Literature, General	2,174	2,091	2,066	2,038	1,974	2,086	1,950	1,958
54.0101	History, General	2,046	1,767	1,784	1,666	1,733	1,776	1,727	1,774
51.3805	Family Practice Nurse/Nursing	1,081	1,143	1,422	1,419	1,805	2,328	2,684	2,273
45.1001	Political Science & Government, General	1,770	1,609	1,578	1,615	1,682	1,882	1,891	1,982
11.0401	Information Science/Studies	997	1,240	1,622	1,856	2,010	1,596	1,618	1,542
13.0301	Curriculum & Instruction	1,340	1,302	1,592	1,366	1,603	1,552	1,589	1,724
14.0801	Civil Engineering, General	1,226	1,187	1,368	1,569	1,536	1,688	1,690	1,621
27.0101	Mathematics, General	1,318	1,260	1,322	1,404	1,487	1,558	1,532	1,470

Source: US Department of Education, NCES, IPEDS.
Note: First majors only.

Among the top certificate programs, there is a great deal of alignment with the industries of opportunity. The primary exceptions are the various cosmetology

programs—general, aesthetician, barbering, and nail technician.

FIGURE 50. TOP FIELDS OF STUDY, CERTIFICATES, 2014–2021

CIP Code	Description	2014	2015	2016	2017	2018	2019	2020	2021
51.0801	Medical/Clinical Assistant	9,710	5,362	5,556	5,721	5,962	6,297	6,462	6,783
48.0508	Welding Technology/Welder	2,804	3,317	4,127	5,215	5,395	6,303	5,787	6,149
12.0401	Cosmetology/Cosmetologist, General	6,179	5,077	4,922	5,007	5,107	4,596	4,485	5,746
52.0201	Business Administration & Management, General	1,787	1,926	2,186	2,301	2,970	3,532	3,702	4,089
51.3901	Licensed Practical/Vocational Nurse Training	4,040	3,517	3,369	3,040	3,158	3,370	3,532	3,076
12.0409	Aesthetician/Esthetician & Skin Care Specialist	995	1,105	1,127	1,301	1,581	1,971	2,109	2,348
24.0101	Liberal Arts & Sciences/Liberal Studies	1,225	1,031	847	792	1,023	731	1,232	1,758
47.0604	Automobile/Automotive Mechanics Technology/Technician	2,339	2,612	2,884	2,683	2,597	2,360	2,300	1,737
47.0201	Heating, Air Conditioning, Ventilation & Refrigeration Maintenance Technology/Technician	1,433	1,367	1,555	1,704	1,782	1,918	1,694	1,601
11.0101	Computer & Information Sciences, General	811	1,427	1,580	1,395	1,530	1,321	1,026	1,327
51.0601	Dental Assisting/Assistant	2,686	1,596	1,695	1,589	1,631	1,646	1,512	1,306
51.0904	Emergency Medical Technology/Technician (EMT Paramedic)	1,723	1,527	1,601	1,595	1,693	1,735	1,443	1,301
51.0713	Medical Insurance Coding Specialist/Coder	1,267	833	795	826	802	921	966	1,214
43.0107	Criminal Justice/Police Science	1,098	1,158	1,285	2,102	1,107	1,219	1,120	1,119
15.0501	Heating, Ventilation, Air Conditioning & Refrigeration Engineering Technology/Technician	869	602	637	865	734	963	981	1,032
47.0605	Diesel Mechanics Technology/Technician	855	845	946	963	982	1,061	1,051	998
12.0402	Barbering/Barber	868	532	570	557	716	799	676	962
51.3902	Nursing Assistant/Aide & Patient Care Assistant/Aide	1,347	1,059	964	941	1,269	1,172	1,036	933
49.0205	Truck & Bus Driver/Commercial Vehicle Operator & Instructor	264	373	316	471	377	485	710	927
30.0101	Biological & Physical Sciences								909
12.0410	Nail Technician/Specialist & Manicurist	509	472	396	382	477	574	555	769
51.0805	Pharmacy Technician/Assistant	1,132	710	563	522	474	631	704	767
41.0301	Chemical Technology/Technician	475	549	714	819	770	738	737	718
46.0302	Electrician	557	338	300	257	348	329	474	687
52.0301	Accounting	371	560	735	739	677	717	689	678

Source: US Department of Education, NCES, IPEDS.

Note: First majors only.

For associate's degree programs, there is also a great deal of alignment outside of the transfer degrees. The exception in this group is primarily culinary arts. General studies, liberal arts, and business are often

transfer degrees. That these fields of studies top the list means that many students at community colleges have plans to continue their education in pursuit of a four-year degree.

FIGURE 51. TOP FIELDS OF STUDY, ASSOCIATE'S DEGREE, 2014–2021

CIP Code	Description	2014	2015	2016	2017	2018	2019	2020	2021
24.0102	General Studies	19,171	26,205	30,139	30,314	32,887	36,146	36,414	39,440
24.0101	Liberal Arts & Sciences/Liberal Studies	11,278	10,389	12,698	14,485	14,138	13,144	12,425	12,905
51.3801	Registered Nursing/Registered Nurse	6,611	5,713	5,750	5,716	5,720	6,165	6,333	6,302
52.0201	Business Administration & Management, General	1,796	2,120	2,505	2,687	3,094	3,020	2,908	3,168
52.0101	Business/Commerce, General	2,449	2,631	2,695	3,116	3,003	3,069	2,948	3,044
13.1210	Early Childhood Education & Teaching	942	1,151	1,276	1,341	1,473	1,535	1,518	1,729
43.0104	Criminal Justice/Safety Studies	1,360	1,419	1,624	1,775	1,897	1,741	1,655	1,660
26.0101	Biology/Biological Sciences, General	956	1,030	1,170	1,260	1,257	1,204	1,208	1,520
13.1206	Teacher Education, Multiple Levels	386	467	564	736	808	827	835	1,038
41.0301	Chemical Technology/Technician	659	810	1,079	1,223	1,111	1,097	1,147	1,000
47.0604	Automobile/Automotive Mechanics Technology/Technician	445	512	633	586	760	1,099	1,060	979
42.0101	Psychology, General	801	881	1,011	1,037	919	847	816	921
51.0911	Radiologic Technology/Science—Radiographer	687	795	760	711	751	772	748	809
11.0101	Computer & Information Sciences, General	523	566	537	612	687	700	680	692
30.0101	Biological & Physical Sciences	56	137	307	285	400	446	485	550
22.0302	Legal Assistant/Paralegal	643	539	556	491	490	459	479	513
48.0508	Welding Technology/Welder	213	245	405	489	501	559	545	488
51.0000	Health Services/Allied Health/Health Sciences, General	195	230	303	456	335	449	488	485
51.0909	Surgical Technology/Technologist	220	163	237	284	379	448	419	473
51.0806	Physical Therapy Assistant	414	471	480	524	524	508	450	463
15.0404	Instrumentation Technology/Technician	307	333	404	416	473	492	437	443
43.0107	Criminal Justice/Police Science	404	322	344	378	343	365	388	437
12.0503	Culinary Arts/Chef Training	491	500	392	514	579	417	519	432
51.0910	Diagnostic Medical Sonography/Sonographer & Ultrasound Technician	288	231	308	353	415	456	445	425
23.0101	English Language & Literature, General	127	151	168	211	227	221	207	416

Source: US Department of Education, NCES, IPEDS.
Note: First majors only.

Of the bachelor's degrees, the occupation-specific fields of study—registered nursing and accounting—are well aligned with the industries of opportunity. The

more general fields of study often match with many different occupations, some of which align with the industries of opportunity and some of which do not.

FIGURE 52. TOP FIELDS OF STUDY, BACHELOR'S DEGREE, 2014–2021

CIP Code	Description	2014	2015	2016	2017	2018	2019	2020	2021
51.3801	Registered Nursing/Registered Nurse	8,481	9,096	10,020	10,668	11,220	11,546	11,514	11,857
30.9999	Multi-/Interdisciplinary Studies, Other	9,148	8,842	9,043	9,418	9,680	10,069	9,653	8,651
42.0101	Psychology, General	6,145	6,163	6,316	6,500	6,720	7,040	7,253	8,257
26.0101	Biology/Biological Sciences, General	4,793	5,189	5,193	5,302	5,437	5,500	5,577	6,255
52.0201	Business Administration & Mgmt., General	5,470	5,390	5,275	5,607	5,836	6,024	5,817	6,183
31.0505	Exercise Science & Kinesiology	3,458	3,986	4,104	4,128	4,336	4,504	4,443	4,738
52.0301	Accounting	4,165	4,447	4,633	4,571	4,460	4,721	4,489	4,304
52.0801	Finance, General	2,725	2,970	3,079	3,251	3,480	3,683	3,916	4,162
52.1401	Marketing/Marketing Management, General	2,792	2,795	2,865	3,040	3,337	3,535	3,521	3,720
43.0104	Criminal Justice/Safety Studies	2,819	2,868	3,034	3,065	3,108	3,302	3,407	3,592
11.0101	Computer & Information Sciences, General	1,181	1,500	1,731	1,979	2,234	2,528	2,869	3,148
14.1901	Mechanical Engineering	1,802	1,826	2,168	2,416	2,884	3,195	3,135	3,045
24.0102	General Studies	1,911	2,095	2,335	2,550	2,524	2,522	2,463	2,486
45.1001	Political Science & Government, General	2,022	1,894	1,840	1,937	1,994	2,235	2,234	2,350
52.0101	Business/Commerce, General	1,643	1,716	1,800	1,977	1,968	2,059	2,072	1,908
23.0101	English Language & Literature, General	2,246	2,210	2,099	2,072	2,005	2,101	1,975	1,902
54.0101	History, General	2,085	1,819	1,774	1,687	1,757	1,776	1,754	1,761
14.1001	Electrical & Electronics Engineering	1,174	1,216	1,301	1,426	1,476	1,629	1,679	1,674
09.0100	Communication, General	708	890	1,124	1,164	1,256	1,587	1,481	1,623
44.0701	Social Work	1,285	1,314	1,366	1,374	1,453	1,513	1,518	1,599
45.0601	Economics, General	1,318	1,473	1,465	1,506	1,578	1,635	1,533	1,488
27.0101	Mathematics, General	1,293	1,268	1,282	1,320	1,425	1,522	1,478	1,406
45.1101	Sociology, General	1,523	1,340	1,342	1,378	1,395	1,496	1,426	1,377
09.0101	Speech Communication & Rhetoric	999	956	918	874	748	766	1,071	1,242
11.0701	Computer Science	315	462	565	683	833	958	1,078	1,189

Source: US Department of Education, NCES, IPEDS.

Note: First majors only.

Apprenticeships are another important element of Texas's workforce training infrastructure. There were more than 22,000 active apprentices across 636 programs. By far, the most apprentices are in

programs related to construction and extraction occupations or to installation, maintenance, and repair.

FIGURE 53. APPRENTICESHIPS BY OCCUPATIONAL FAMILY
ACTIVE APPRENTICES

SOC Code	Description	Count
47-0000	Construction & Extraction Occupations	14,956
49-0000	Installation, Maintenance, & Repair Occupations	3,160
29-0000	Healthcare Practitioners & Technical Occupations	976
51-0000	Production Occupations	964
53-0000	Transportation & Material Moving Occupations	827
31-0000	Healthcare Support Occupations	301
39-0000	Personal Care & Service Occupations	206
33-0000	Protective Service Occupations	182
13-0000	Business & Financial Operations Occupations	162
15-0000	Computer & Mathematical Occupations	152
17-0000	Architecture & Engineering Occupations	97
27-0000	Arts, Design, Entertainment, Sports, & Media Occupations	71
35-0000	Food Preparation & Serving Related Occupations	65
41-0000	Sales & Related Occupations	62
19-0000	Life, Physical, & Social Science Occupations	54
43-0000	Office & Administrative Support Occupations	50
11-0000	Management Occupations	45
25-0000	Educational Instruction & Library Occupations	44
21-0000	Community & Social Service Occupations	28
37-0000	Building & Grounds Cleaning & Maintenance Occupations	1
45-0000	Farming, Fishing, & Forestry Occupations	1

Source: US Department of Labor's Employment and Training Administration, Registered Apprenticeship Partners Information Database System (RAPIDS) through FY 2022 Q2.

The occupations that have the most active apprentices are electrician, plumber, and structural steel worker. The non-construction occupations

with the most apprentices are registered nurse resident, truck driver, nurse assistant, and childcare development specialist.

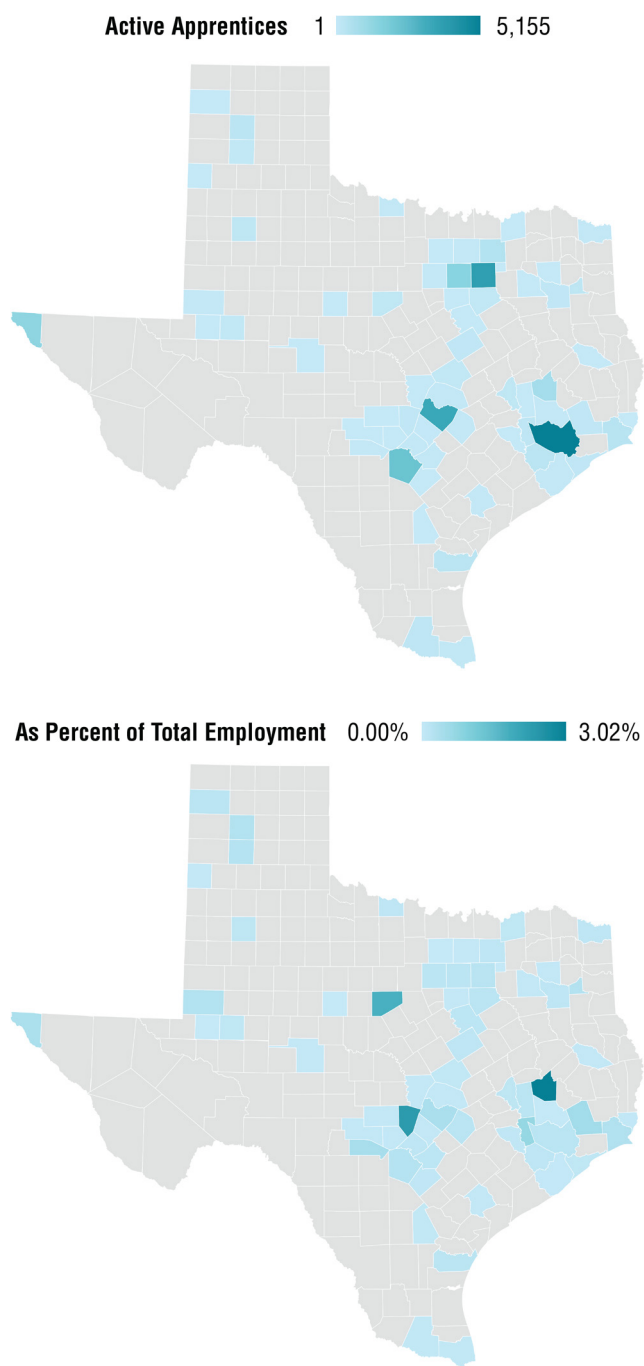
FIGURE 54. TOP APPRENTICESHIPS BY OCCUPATION
ACTIVE APPRENTICES

SOC Code	Description	Count
47-2111.00	Electrician (Alternate Title: Interior Electrician)	7,316
47-2152.02	Plumber	1,656
47-2221.00	Structural Steel Worker (Alternate Titles: Ironworker or Structural Ironworker)	1,318
47-2152.01	Pipe Fitter (Construction)	1,184
49-9052.00	Line Installer-Repairer	1,021
29-1141.00	Registered Nurse Resident	879
53-3032.02	Truck Driver, Heavy	722
47-2031.01	Carpenter	697
47-2211.00	Sheet Metal Worker	620
47-4021.00	Elevator Constructor (Alternate Title: Elevator Constructor Mechanic)	552
49-9044.00	Millwright	463
49-9021.01	Heating & Air Conditioning Mechanic & Installer	283
51-9011.00	Chemical Operator III	259
51-4121.01	Welder, Combination	250
31-1131.00	Nurse Assistant	246
49-9051.03	Line Installer-Repairer	238
49-2095.00	Electrician, Substation	224
39-9011.00	Child Care Development Specialist	191
33-2011.00	Fire Fighter	182
47-2073.01	Operating Engineer	153
47-2061.00	Construction Craft Laborer	147
47-2011.00	Boilermaker	140
49-9041.00	Industrial Machinist System Technician	138
49-9051.02	Line Erector (Power-Line Distribution Erector)	126
49-2011.00	Assembly Technician	122

Source: US Department of Labor's Employment and Training Administration, RAPIDS through FY 2022 Q2

Apprenticeship programs in Texas are highly concentrated in urban areas—Harris, Dallas, Travis, Bexar, Tarrant, and El Paso Counties—but 64 of Texas’s 254 counties have at least one apprenticeship program.

FIGURE 55. APPRENTICESHIPS BY COUNTY
ACTIVE APPRENTICES AND AS A % OF TOTAL
EMPLOYMENT



Source: US Department of Labor’s Employment and Training Administration, RAPIDS through FY 2022 Q2

The three counties that have the highest number of active apprentices as a share of total employment are Blanco County, Eastland County, and Walker County.

FIGURE 56. APPRENTICESHIPS BY COUNTY, TOP 25
PROGRAM COUNT, ACTIVE APPRENTICES, AND
APPRENTICES AS A % OF TOTAL EMPLOYMENT

County	Program Count	Active Apprentices	Percentage of Total Employment
Harris County	149	5,155	0.18%
Dallas County	74	3,772	0.19%
Travis County	40	3,393	0.38%
Bexar County	38	2,269	0.23%
Tarrant County	26	1,469	0.14%
El Paso County	83	1,335	0.37%
Walker County	20	810	3.02%
Collin County	12	487	0.09%
Jefferson County	6	355	0.29%
Nueces County	6	273	0.16%
Fort Bend County	7	266	0.12%
Potter County	5	235	0.29%
Gregg County	6	192	0.25%
Lubbock County	10	178	0.11%
Hidalgo County	9	167	0.06%
Waller County	10	160	0.70%
Brazos County	9	130	0.11%
Eastland County	1	129	1.78%
McLennan County	8	119	0.09%
Smith County	4	116	0.10%
Liberty County	2	104	0.52%
Galveston County	6	101	0.08%
Blanco County	1	95	2.33%
Bell County	4	94	0.06%
Ellis County	5	93	0.15%

Source: US Department of Labor’s Employment and Training Administration, RAPIDS through FY 2022 Q2

Career and technical education (CTE) programs offer high school students opportunities to acquire more occupation-specific training prior to graduation. There are 60 different programs of study offered across the state. The most common are agricultural engineering, animal science, healthcare therapeutics, and healthcare diagnostics.

Although the programs of study in the agriculture, food, and natural resources career cluster are not aligned with the industries of opportunity, many other popular career clusters are, including health science; business, marketing, and finance; education and training; and science, technology, engineering, and mathematics.

FIGURE 57. CAREER AND TECHNICAL EDUCATION PROGRAMS OF STUDY BY DISTRICT COUNT, TOP 25 NUMBER OF DISTRICTS THAT OFFER PROGRAM OF STUDY

Career Cluster	Program of Study	# of Districts That Offer Program
Agriculture, Food, & Natural Resources	Applied Agricultural Engineering	534
Agriculture, Food, & Natural Resources	Animal Science	526
Health Science	Healthcare Therapeutics	499
Health Science	Healthcare Diagnostics	491
Business, Marketing, & Finance	Accounting & Financial Services	473
Human Services	Family & Community Services	457
Education & Training	Teaching & Training	443
Arts, Audio/Video Technology, & Communications	Graphic Design & Multimedia Arts	408
Business, Marketing, & Finance	Business Management	404
Health Science	Medical Therapy	393
Hospitality & Tourism	Culinary Arts	373
Agriculture, Food, & Natural Resources	Plant Science	354
Business, Marketing, & Finance	Entrepreneurship	337
Arts, Audio/Video Technology, & Communications	Digital Communications	301
Education & Training	Early Learning	289
Agriculture, Food, & Natural Resources	Agribusiness	281
Agriculture, Food, & Natural Resources	Environmental & Natural Resources	243
Science, Technology, Engineering, & Mathematics	Engineering	227
Law & Public Service	Law Enforcement	226
Manufacturing	Welding	226
Health Science	Nursing Science	217
Transportation, Distribution, & Logistics	Automotive	206
Science, Technology, Engineering, & Mathematics	Cybersecurity	198
Architecture & Construction	Carpentry	196
Science, Technology, Engineering, & Mathematics	Programming & Software Development	162

Source: Texas Education Agency.

In terms of the number of students completing and concentrating in the programs of study, the most popular programs of study are all in health science—healthcare therapeutics, diagnostics, and therapy.

The health science programs also have some of the highest completion rates with more than 50 percent of learners completing programs for both healthcare therapeutics and diagnostics.

Among the top 25, the programs of study with the lowest completion rates are entrepreneurship, accounting, and business management.

DEFINITIONS

CTE Concentrator—a student who completes and passes two or more high school CTE courses for a total of at least two credits within the same program of study and who is not a CTE completer.

CTE Completer—a student who completes and masses three or more high school CTE courses for a total of four or more credits, including one level three or level four course, from within the same program of study.

CTE Learner—a student who is either a CTE concentrator or a CTE completer.

FIGURE 58. TOP 25 CAREER AND TECHNICAL EDUCATION PROGRAMS OF STUDY BY COMPLETER COUNT
NUMBER OF STUDENT CTE LEARNERS AND CTE COMPLETERS

Career Cluster	Program of Study	Completers	Learners	Completer Rate
Health Science	Healthcare Therapeutic	25,507	48,182	52.9%
Health Science	Healthcare Diagnostics	25,015	47,944	52.2%
Health Science	Medical Therapy	16,943	37,584	45.1%
Law & Public Service	Law Enforcement	7,185	18,986	37.8%
Science, Technology, Engineering, & Mathematics	Engineering	6,806	16,470	41.3%
Arts, Audio/Video Technology, & Communications	Graphic Design & Multimedia Arts	6,276	23,202	27.0%
Agriculture, Food, & Natural Resources	Animal Science	5,662	16,249	34.8%
Education & Training	Teaching & Training	5,543	19,170	28.9%
Business, Marketing, & Finance	Accounting & Financial Services	5,113	33,825	15.1%
Health Science	Nursing Science	4,853	27,659	17.5%
Hospitality & Tourism	Culinary Arts	4,632	12,825	36.1%
Human Services	Family & Community Services	4,446	25,648	17.3%
Business, Marketing, & Finance	Business Management	4,405	28,006	15.7%
Agriculture, Food, & Natural Resources	Applied Agricultural Engineering	3,917	12,352	31.7%
Arts, Audio/Video Technology, & Communications	Digital Communications	3,606	11,136	32.4%
Business, Marketing, & Finance	Entrepreneurship	2,948	19,822	14.9%
Transportation, Distribution, & Logistics	Automotive	2,812	5,781	48.6%
Science, Technology, Engineering, & Mathematics	Cybersecurity	2,563	11,005	23.3%
Agriculture, Food, & Natural Resources	Plant Science	2,296	10,677	21.5%
Human Services	Cosmetology & Personal Care Services	2,285	2,952	77.4%
Education & Training	Early Learning	2,142	9,863	21.7%
Architecture & Construction	Architectural Design	1,867	4,281	43.6%
Agriculture, Food, & Natural Resources	Agribusiness	1,701	5,437	31.3%
Manufacturing	Welding	1,556	3,368	46.2%
Architecture & Construction	Carpentry	1,535	3,675	41.8%

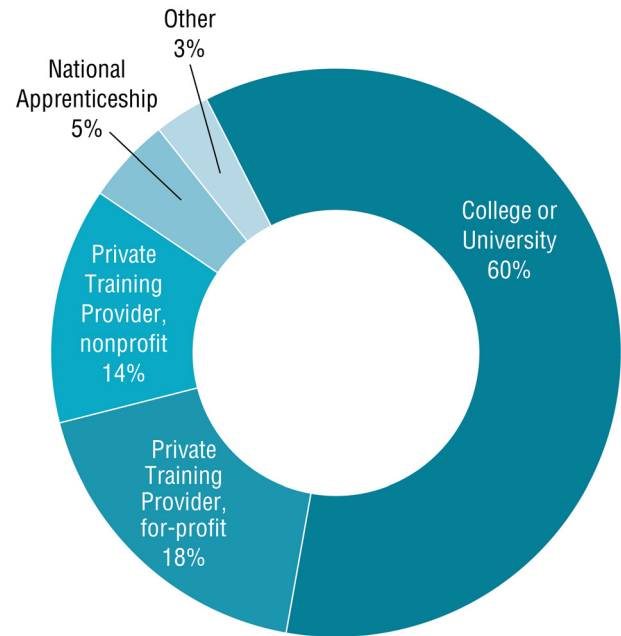
Source: Texas Education Agency.

Eligible Training Providers (ETPs) are entities with job training programs approved by the Texas Workforce Commission to provide training services funded by the Workforce Innovation and Opportunity Act (WIOA) through Individual Training Accounts. These training services are for adult and dislocated workers.

As of December 2022, there were 519 institutions and more than 5,000 programs on the ETP list. Sixty percent of the programs are offered through a college or university; some but not all of these programs are captured in the IPEDS data. Private training providers, both for-profit and nonprofit, account for 32 percent of the programs. Apprenticeships account for only 5 percent of programs.

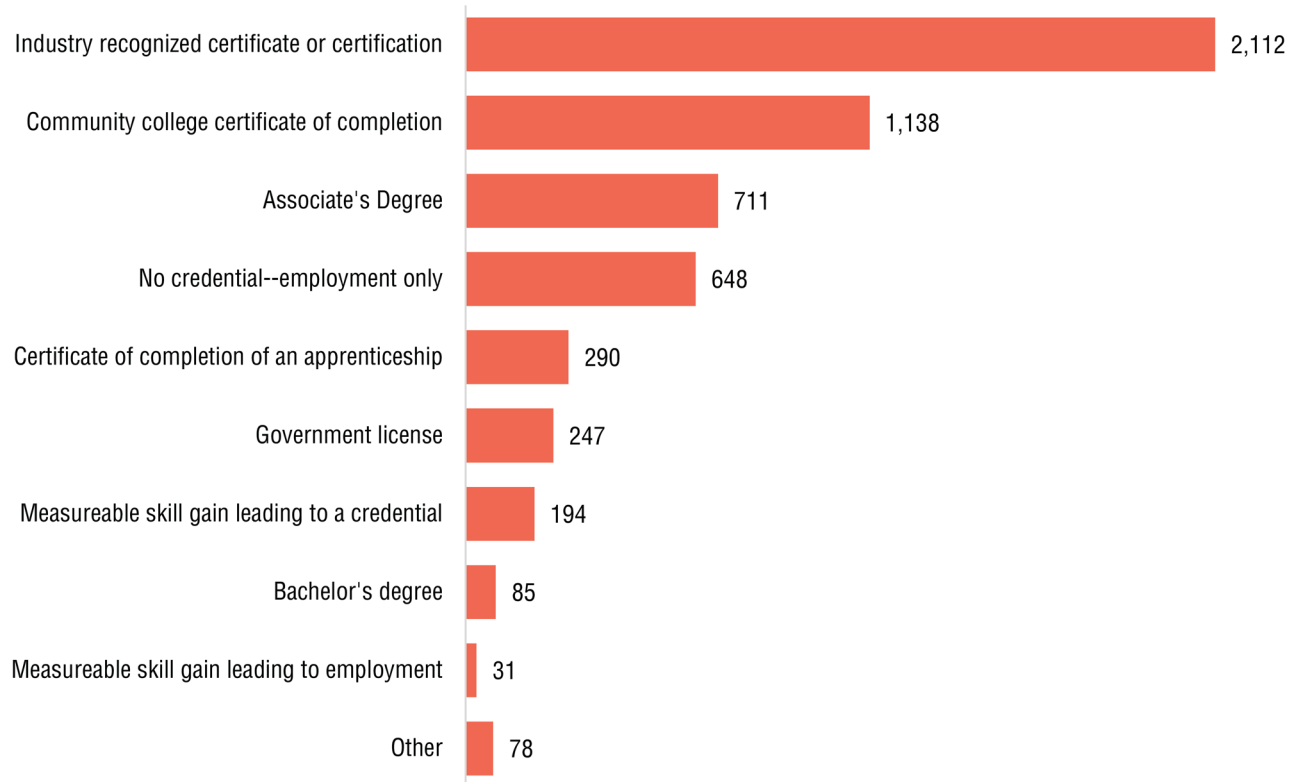
Of the more than 5,000 programs, about 2,000 programs provide students who complete the program with an industry-recognized certificate or certification. Another 1,000 programs result in certificates of completion from a community college. Only about 800 programs lead to an associate's or bachelor's degree.

FIGURE 59. ETP PROGRAM COUNT BY INSTITUTION TYPE, 2022



Source: Texas Workforce Commission.

FIGURE 60. ETP PROGRAM COUNT BY PROGRAM OUTCOME, 2022



Source: (both figures) Texas Workforce Commission.

For the approved programs that reported performance data to the Texas Workforce Commission, the overall completion rate was 60 percent. In the fourth quarter after a student exited a program, 73 percent were employed and 48 percent had received a credential.

The occupational families with the highest number of students exiting a related program during this time period (2018 to 2022) were healthcare practitioners and technical occupations, healthcare support, and production. The occupational families with the lowest

number of exiters were building and grounds cleaning and maintenance; farming, fishing, and forestry; and arts and design.

The occupational families with the highest completion rates are sales and related and transportation and material moving. The families with the highest employment rates are protective services and healthcare practitioners. The families with the highest credential rate are arts and design and sales and related.

FIGURE 61. ETP PERFORMANCE SUMMARY
APPROVED PROGRAMS JULY 1, 2020, THROUGH JUNE 30, 2022



Source: Texas Workforce Commission.



FIGURE 62. ETP PERFORMANCE BY OCCUPATIONAL FAMILY
APPROVED PROGRAMS JULY 1, 2020, THROUGH JUNE 30, 2022

Occupational Family	Exiters (7/1/2018– 6/30/2022)	% Completed Program	% Employed in 4th Quarter after Exit	% Received Credential by 4th Quarter after Exit
Healthcare Practitioners & Technical	77,027	51%	78%	40%
Healthcare Support	39,935	72%	73%	53%
Production	33,197	63%	70%	53%
Installation, Maintenance, & Repair	31,435	62%	72%	53%
Transportation & Material Moving	23,746	89%	69%	81%
Computer & Mathematical	19,077	58%	68%	37%
Management	9,932	34%	69%	27%
Office & Administrative Support	9,173	54%	67%	34%
Educational Instruction & Library	8,188	52%	72%	47%
Construction & Extraction	6,029	67%	70%	53%
Architecture & Engineering	5,865	44%	72%	33%
Protective Service	3,127	57%	80%	52%
Business & Financial Operations	3,061	37%	70%	36%
Legal	2,642	51%	70%	46%
Life, Physical, & Social Science	1,991	61%	73%	50%
Community & Social Service	291	68%	66%	46%
Personal Care & Service	212	41%	64%	32%
Sales & Related	167	96%	50%	82%
Food Preparation & Serving Related	104	91%	74%	32%
Arts, Design, Entertainment, Sports, & Media	42	100%	58%	100%
Farming, Fishing, & Forestry	13	92%	n/a	n/a
Building & Grounds Cleaning & Maintenance	0	n/a	n/a	n/a

Source: Texas Workforce Commission.

Note: Percent Employed and percent Received Credential based on exiters from 7/1/2018 to 6/20/2021.

The top occupations that ETPs are training for are registered nurses, licensed practical and vocational nurses, and truck drivers. These three occupations have high employment rates, but only 44 percent of exiters from the registered nursing program complete the program and only 35 percent receive a credential.

The occupations with the highest completion rate are nursing assistants, truck drivers, and electricians. The occupations with the lowest completion rate are general and operations managers, radiologic technologists, and registered nurses.

All of the occupations in the top 25 have employment rates at 65 percent or above. The occupations with the highest employment rates are elementary school teachers, licensed practical/vocational nurses, and registered nurses.

The credential rate is much more variable. The occupations with the highest credential rate (greater than 65 percent) are truck drivers, nursing assistants, and teachers. The occupations with the lowest credential rate (less than 26 percent) are radiologic technologists, bookkeepers, and general and operations managers.

FIGURE 63. TOP 25 OCCUPATIONS THAT ETPS ARE TRAINING FOR
APPROVED PROGRAMS JULY 1, 2020, THROUGH JUNE 30, 2022

SOC Code	Description	Program Count	Exiters (7/1/2018–6/30/2022)	% Completed Program	% Employed in 4th Quarter after Exit	% Received Credential by 4th Quarter after Exit
29-1141	Registered Nurses	125	34,718	44%	79%	35%
29-2061	Licensed Practical & Licensed Vocational Nurses	119	16,894	62%	80%	53%
53-3032	Heavy & Tractor-Trailer Truck Drivers	114	20,477	88%	69%	79%
31-9092	Medical Assistants	176	17,980	65%	75%	48%
51-4121	Welders, Cutters, & Welder Fitters	205	16,653	66%	68%	56%
49-9021	Heating & Air Conditioning Mechanics & Installers	108	10,814	75%	70%	66%
51-4121	Welders, Cutters, Solderers, & Brazers	127	8,002	59%	70%	51%
11-1021	General & Operations Managers	103	4,563	28%	71%	26%
31-1014	Nursing Assistants	101	7,880	90%	70%	70%
29-2071	Medical Records & Health Information Technicians	138	6,203	65%	71%	49%
31-9091	Dental Assistants	83	6,065	70%	75%	44%
15-1122	Information Security Analysts	85	3,670	56%	71%	34%
29-2034	Radiologic Technologists	30	3,312	30%	77%	23%
51-8091	Chemical Plant & System Operators	23	3,291	47%	78%	44%
43-3031	Bookkeeping, Accounting, & Auditing Clerks	117	3,637	53%	67%	24%
15-1142	Network & Computer Systems Administrators	161	2,861	42%	69%	34%
49-3023	Automotive Service Technicians & Mechanics	41	2,674	49%	69%	42%
49-3031	Bus & Truck Mechanics & Diesel Engine Specialists	59	3,338	47%	72%	39%
47-2111	Electricians	92	1,768	78%	72%	59%
23-2011	Paralegals & Legal Assistants	32	2,636	51%	70%	46%
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	73	2,525	51%	67%	49%
29-2052	Pharmacy Technicians	78	3,153	51%	70%	38%
15-1121	Computer Systems Analysts	37	1,148	62%	67%	51%
25-2021	Elementary School Teachers, Except Special Education	23	1,094	74%	84%	65%
51-4122	Welding, Soldering, & Brazing Machine Setters, Operators, & Tenders	25	1,840	63%	65%	42%

Source: Texas Workforce Commission.

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PART III TRENDS IN THE TEXAS LABOR FORCE



INTRODUCTION

The COVID-19 pandemic was a significant disruption to the labor force. In Texas, 758,000 workers, or 5.4 percent, exited the labor force between February 2020 and April 2020. This was a slightly larger loss than the US overall, which lost 5.0 percent of its labor force.

By September 2020, the Texas labor force had recovered to its February 2020 size and by the end of 2021, the labor force was 2.2 percent larger than it was in February 2020. The US labor force, on the other hand, was still 1.2 percent smaller in December 2021 than it was in February 2020.

Even when measured against what the labor force would have been without the pandemic, the Texas labor force has more than recovered. By the end of 2021, the labor force in Texas was only 0.3 percent smaller than it

would have been had there been no pandemic. By the end of 2022, it was 0.7 percent larger.

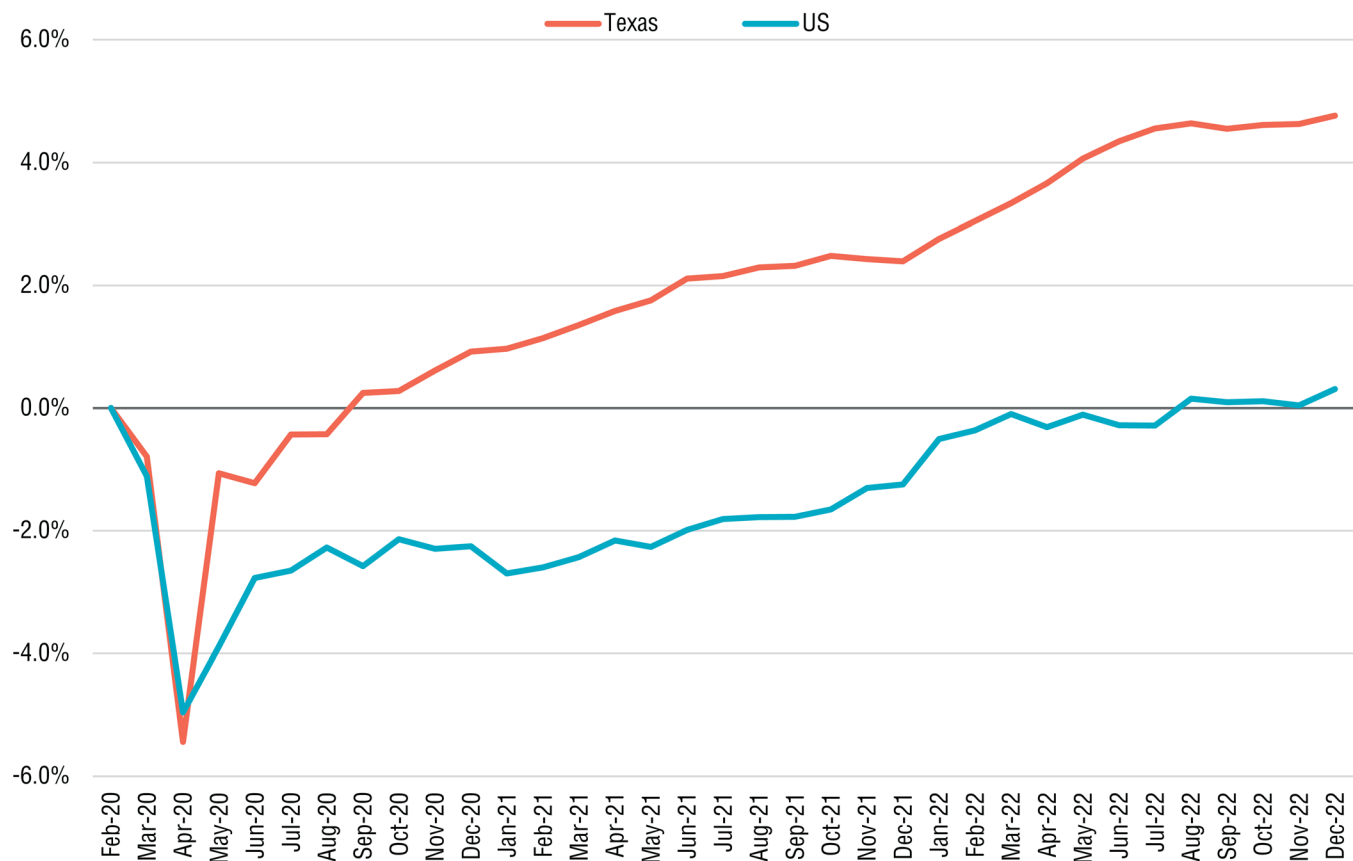
Compared to its peers and the US overall, the Texas labor force recovered more quickly. While the Texas labor force has regained its pre-pandemic strength, its peers, with the exception of Florida, and the US are struggling to recover to that point.

DEFINITIONS

The **labor force** includes all people age 16 and older who are either working or actively looking for work.

The **labor force participation rate** is the percentage of the population age 16 and older who is either working or actively looking for work.

FIGURE 64. CHANGE IN LABOR FORCE SINCE FEBRUARY 2020



Source: US Bureau of Labor Statistics.

FIGURE 65. COMPARISON OF ACTUAL LABOR FORCE TO PRE-PANDEMIC TREND, 2019–2022

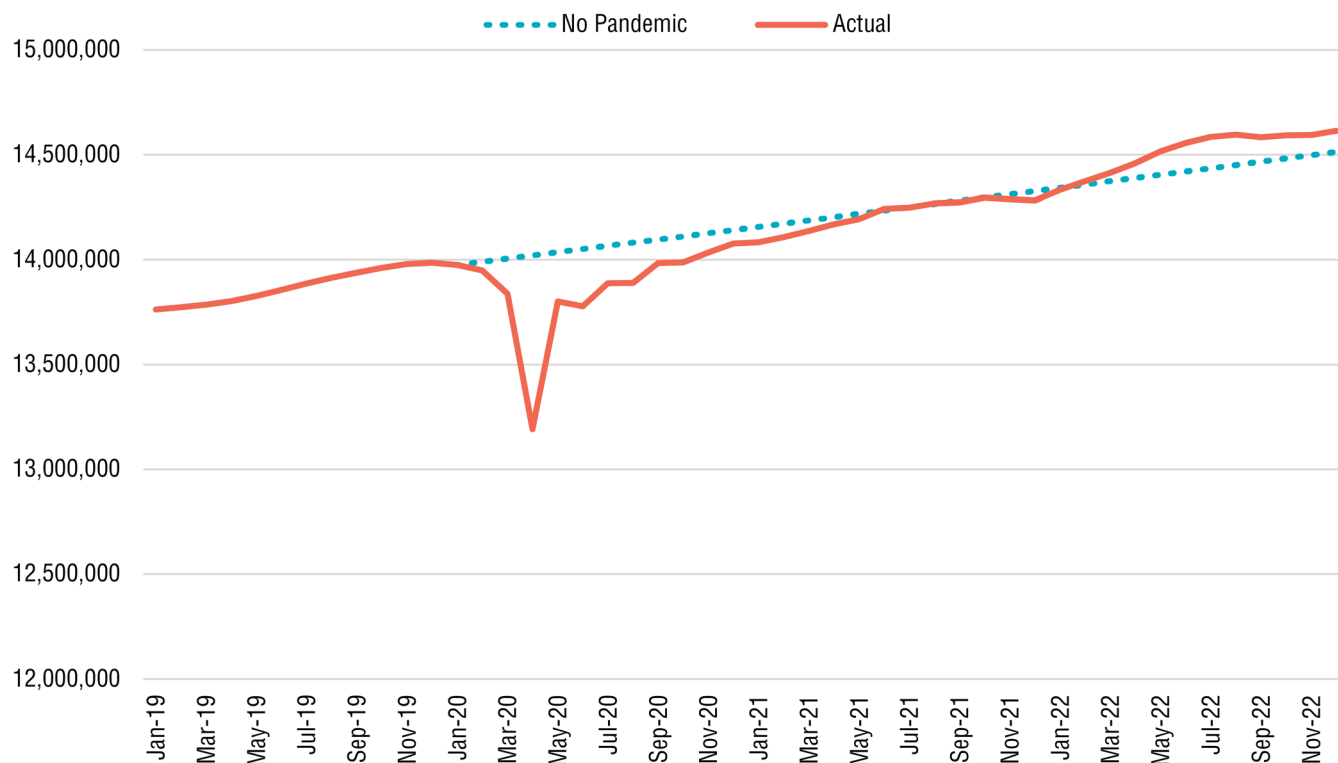
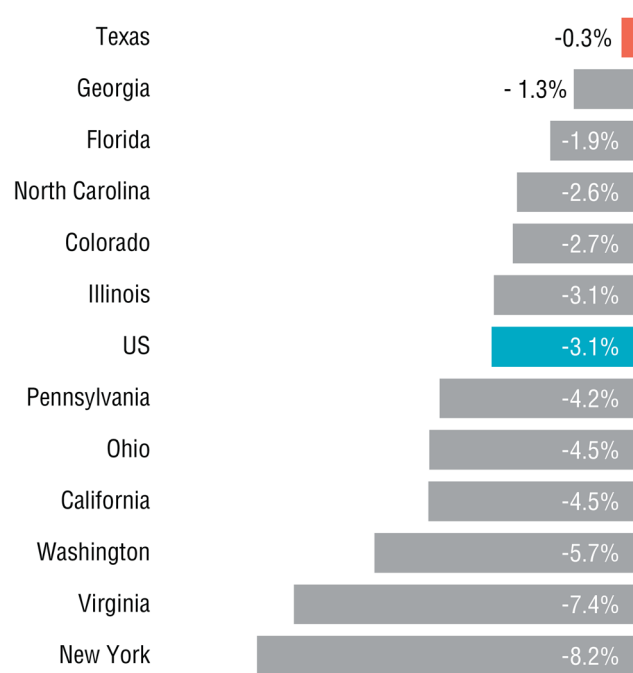
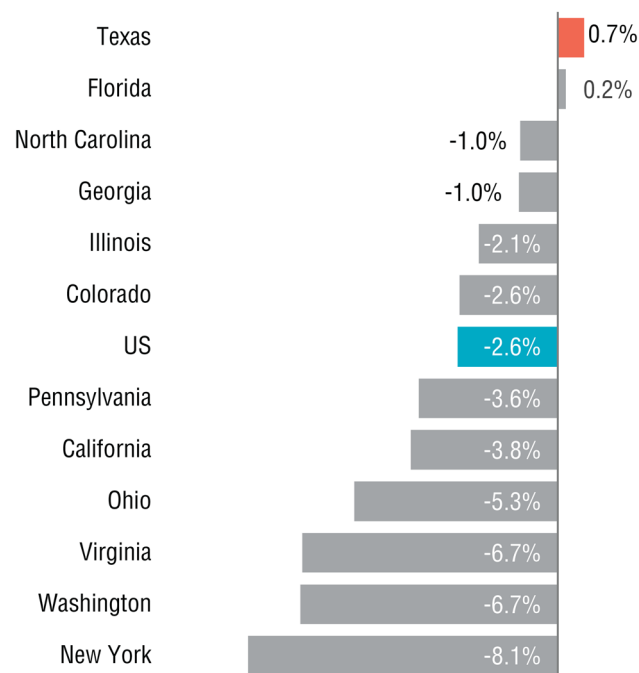


FIGURE 66. PEER COMPARISON OF LABOR FORCE RECOVERY, DIFFERENCE BETWEEN ACTUAL LABOR FORCE AND PRE-PANDEMIC TREND

AS OF DECEMBER 2021

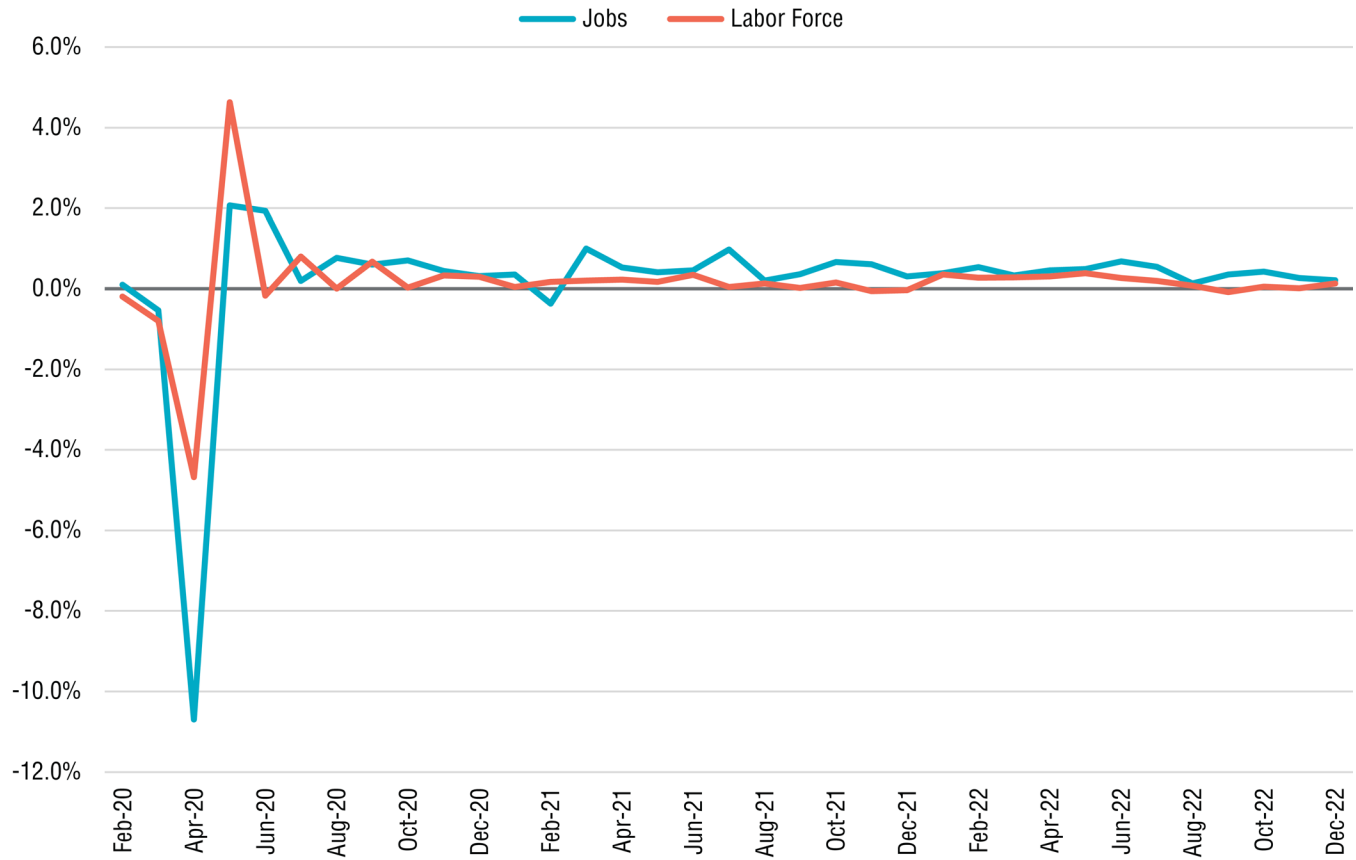


AS OF DECEMBER 2022



Source: (Both figures) US Bureau of Labor Statistics.

FIGURE 67. COMPARISON OF MONTHLY CHANGE IN JOBS TO CHANGE IN LABOR FORCE, 2020–2022



Source: US Bureau of Labor Statistics, Current Employment Statistics and Local Area Unemployment Statistics.



The strength of the labor force recovery in Texas reflects the timing of the recovery in jobs. After the sharp job losses in April 2020, the Texas economy returned to positive job gains, which drew workers back into the labor market.

Although the labor force has recovered in size from the pandemic, not all demographic segments of the labor force have recovered in the same way and long-term demographic trends continue to impact the labor force. The following sections explore three trends that materially influence the availability of the labor force to support Texas's future economic growth.

1. The age and participation of those age cohorts in the labor force.
2. The size, labor force participation, and educational attainment of the Hispanic/Latino population.
3. The participation of women in the labor force.

1. AN AGING WORKFORCE

The Texas workforce continues to age while labor force participation declined during the pandemic.

The share of Texans age 24 and younger is declining and the share of Texans age 55 and older is increasing. This trend reflects the size of Generations Z and Alpha relative to the Baby Boomer generation and was happening before the COVID-19 pandemic began. While this trend is pronounced in national data, the situation in Texas is evident but not as dire.

Prior to the start of the pandemic, the working-age population was aging both in the US and in Texas. Between 2014 and 2019, the share of people age 55 and older increased from 34.0 percent to 36.6 percent in the US and from 29.4 percent to 31.3 percent in Texas. Meanwhile, the share of people age 24 and younger declined 15.7 percent to 14.7 percent in the US & from 17.1 percent to 16.3 percent in Texas.

During the pandemic, this trend continued. By 2021, 37.0 percent of the working-age population in the US was age 55 and older and 31.5 percent in Texas.

The percentage of the working-age population 24 or younger fell slightly to 14.6 percent in the US and 16.2 percent in Texas.

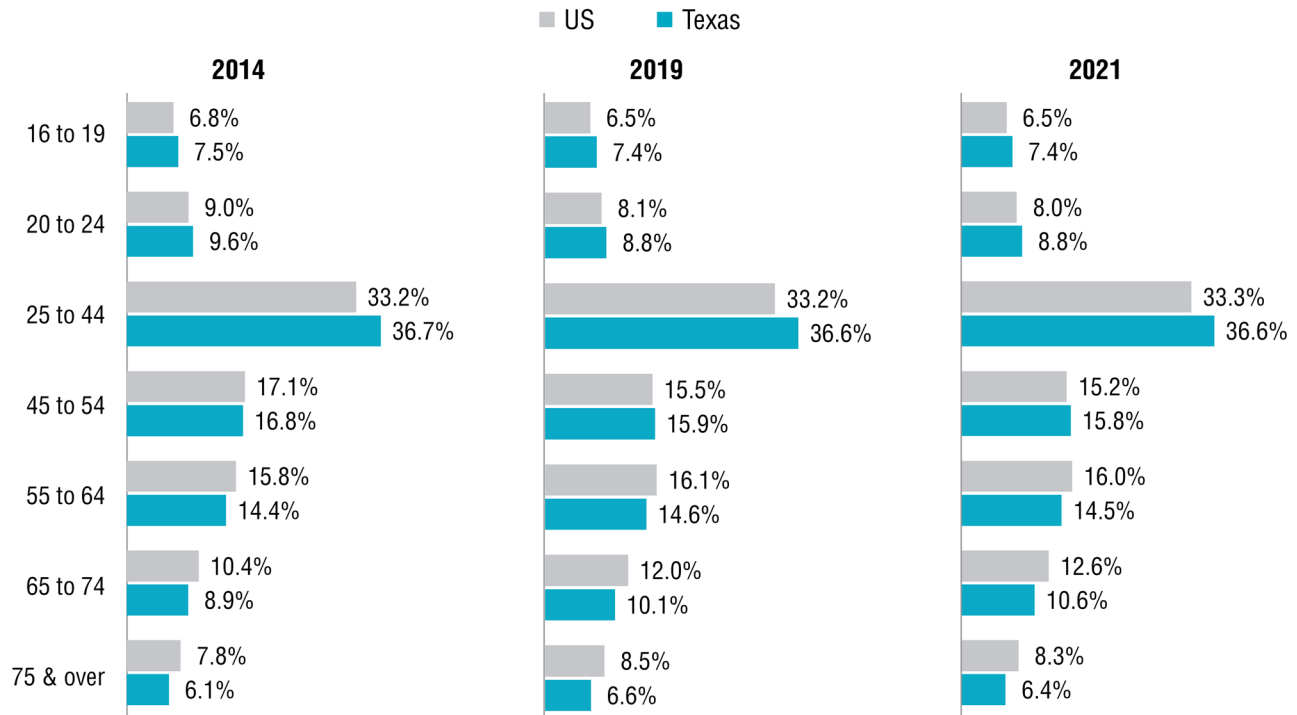
What changed during the pandemic was labor force participation. Prior to the pandemic, the labor force participation rate for every age cohort both in the US and in Texas increased. Overall, the labor force participation rate increased from 63.3 percent to 63.6 percent in the US and from 64.5 percent to 65.0 percent in Texas between 2014 and 2019. During the pandemic, however, the labor force participation rates fell to 63.0 percent in the US and 64.6 percent in Texas. Every age cohort but 45 to 55 year olds and 75 and over experienced declines in their labor force participation rates between 2019 and 2021. Thus, at the same time the working-age population was continuing to age, its participation in the labor force declined.

Nationally, several factors have been cited as contributing to lower participation rates: early retirements, continuing effects of COVID-19 (long COVID and caretaking responsibilities) as well as other illnesses, lack of childcare, and a puzzling trend of prime working-age men (ages 25 to 54) staying on the sidelines (DePillis, 2022) (Picchi, 2022). It is unknown how much these factors explain the decline in Texas.

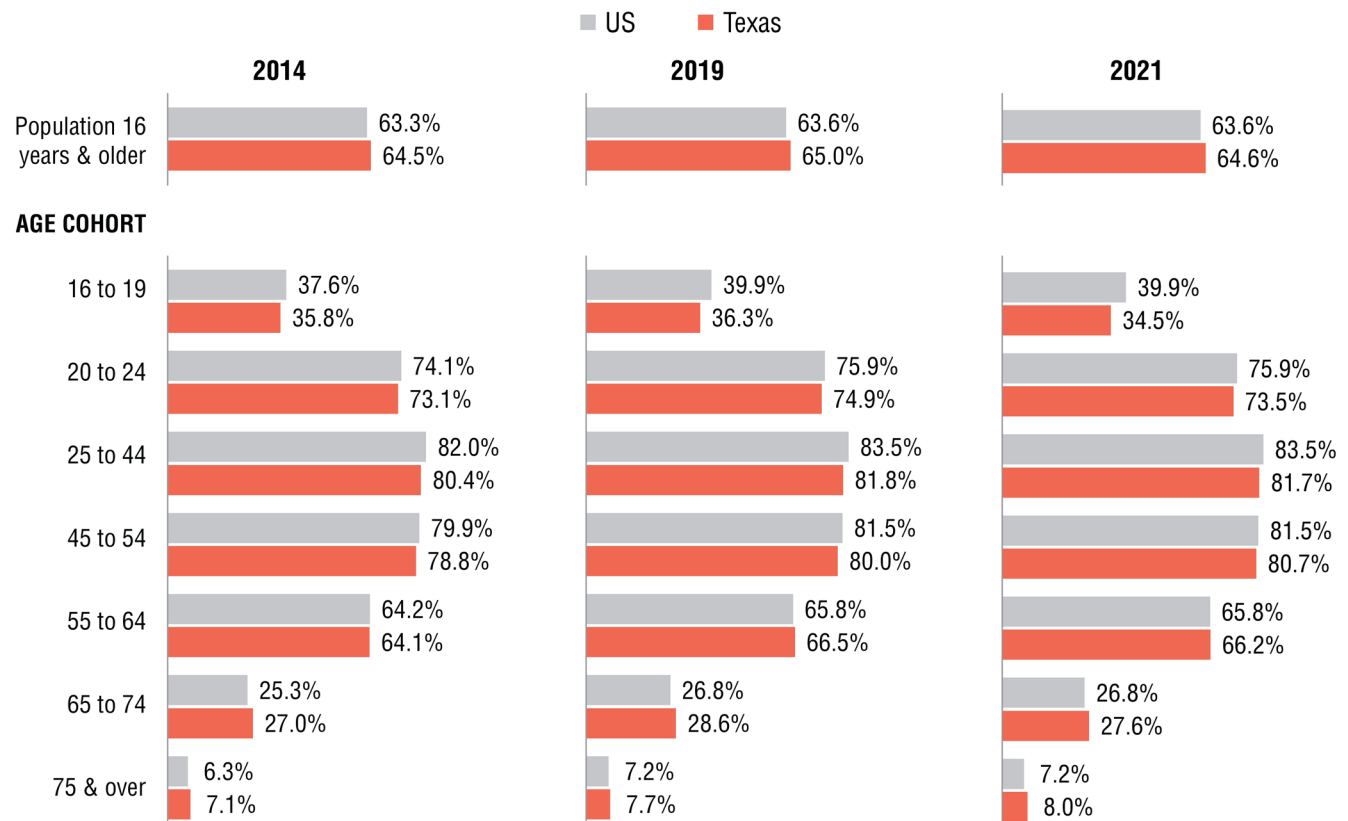


FIGURE 68. WORKING-AGE POPULATION AND LABOR FORCE PARTICIPATION BY AGE COHORT

SHARE OF WORKING-AGE POPULATION (16 AND OLDER)



LABOR FORCE PARTICIPATION RATES



Source: US Census Bureau, American Community Survey 1-year Estimates.

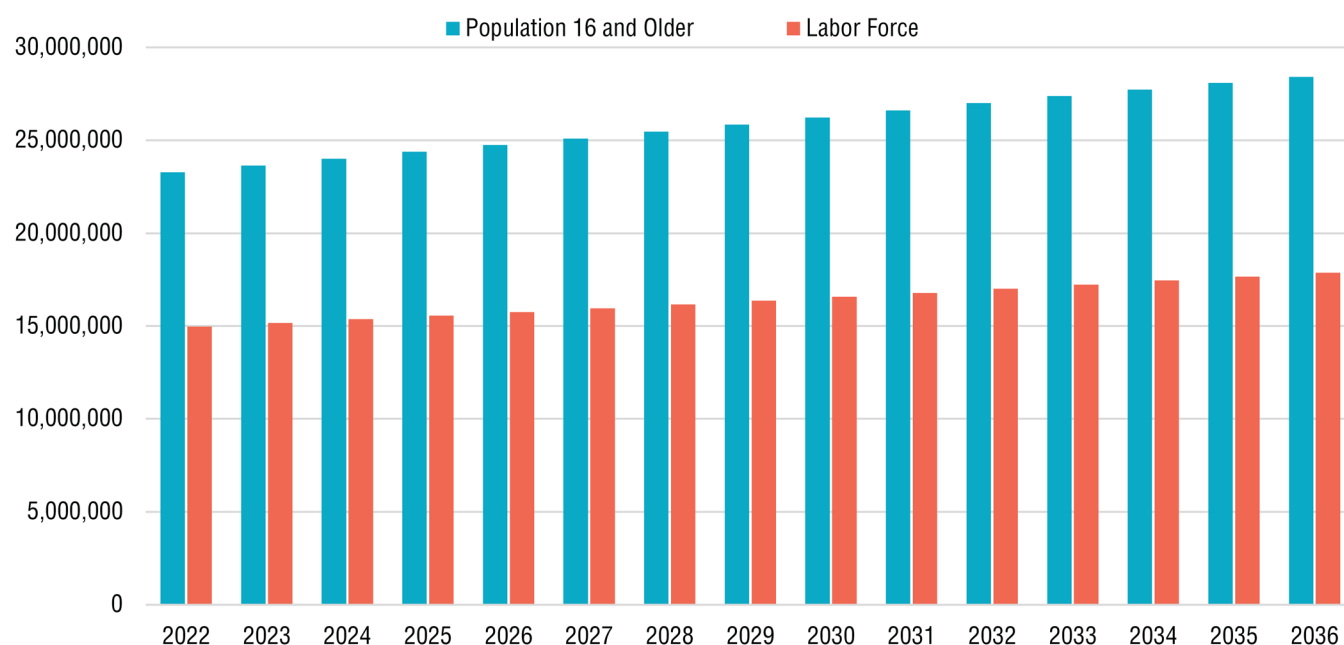


The Texas Demographic Center estimates that the working-age population in Texas will grow from 23.3 million in 2022 to 28.4 million in 2036, assuming migration stays constant. The cohort of people age 24 and younger is expected to grow 9.9 percent between 2022 and 2036 while the cohort of people age 55 and older is expected to grow 28.9 percent. Furthermore, in 2034 through 2036, the cohort of 16 to 19 year olds is expected to shrink.

Assuming 2021 labor force participation rates, this translates to the Texas labor force growing from 15.0 million to 17.9 million. Almost half of this growth is in the cohort of 25- to 44-year-olds and only 8 percent of the growth is from workers age 24 or younger while 18 percent of the growth is from workers age 55 and older. With slower growth in young workers and faster growth in older workers, the Texas workforce, overall, is expected to continue to age and at a faster rate. A return to 2019 labor force participation rates would add an additional 70,000 workers to the Texas economy, with all other variables constant.

Comparing the projected number of new jobs added to the Texas economy, on average, to the annual net change in the labor force, Texas is likely to see a persistent shortage of workers.

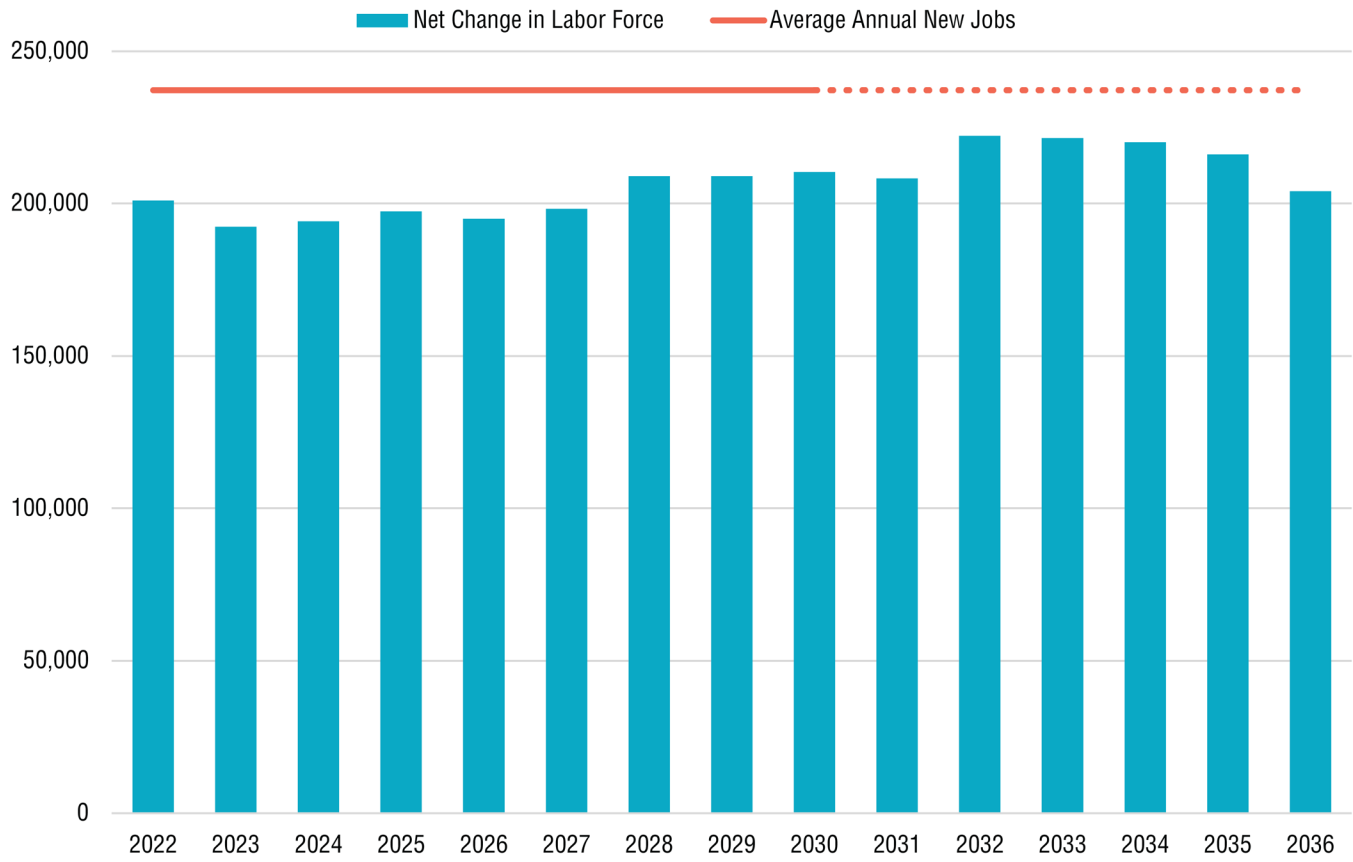
FIGURE 69. TEXAS POPULATION 16 AND OLDER AND LABOR FORCE, 2022–2036



Source: Texas Demographic Center, US Census Bureau American Community Survey.

Note: These labor force estimates assume 2021 labor force participation rates.

FIGURE 70. COMPARISON OF AVERAGE ANNUAL NEW JOBS TO ANNUAL NET CHANGE IN LABOR FORCE



Source: US Bureau of Labor Statistics, Texas Demographic Center, Texas Workforce Commission.

Note: Labor force estimates assume 2021 labor force participation rates; the average annual new jobs is the annual change in jobs based on the Texas Workforce Commission's 2020–2030 projections.



2. GROWTH OF HISPANIC POPULATION

The Hispanic working-age population continues to grow, but labor force participation declined during the pandemic and educational attainment continues to lag.

In Texas, more than one-third of the working-age population is of Hispanic or Latino origin, which is more than double the Hispanic share of the working-age population in the US.

In both the US and in Texas, the share of working-age population of Hispanic origin increased both prior to the pandemic and during the pandemic. Between 2014 and 2019, the share increased from 15.5 percent to 16.6 percent in the US and from 35.3 percent to 36.9 percent in Texas. By 2021, the share reached 17.2 percent in the US and 37.5 percent in Texas. In contrast, the share of the working-age population that is White alone, not Hispanic or Latino, and Black or African American alone shrunk in both the US and in Texas between 2014 and 2021.



The Hispanic labor force participation rate is consistently higher than the labor force participation rates of both the US & Texas overall and is higher in the US than in Texas. In Texas, however, the Hispanic labor force participation rate lags that of the Black and Asian working-age populations, while in the US, it is the highest of all the racial and ethnic groups.

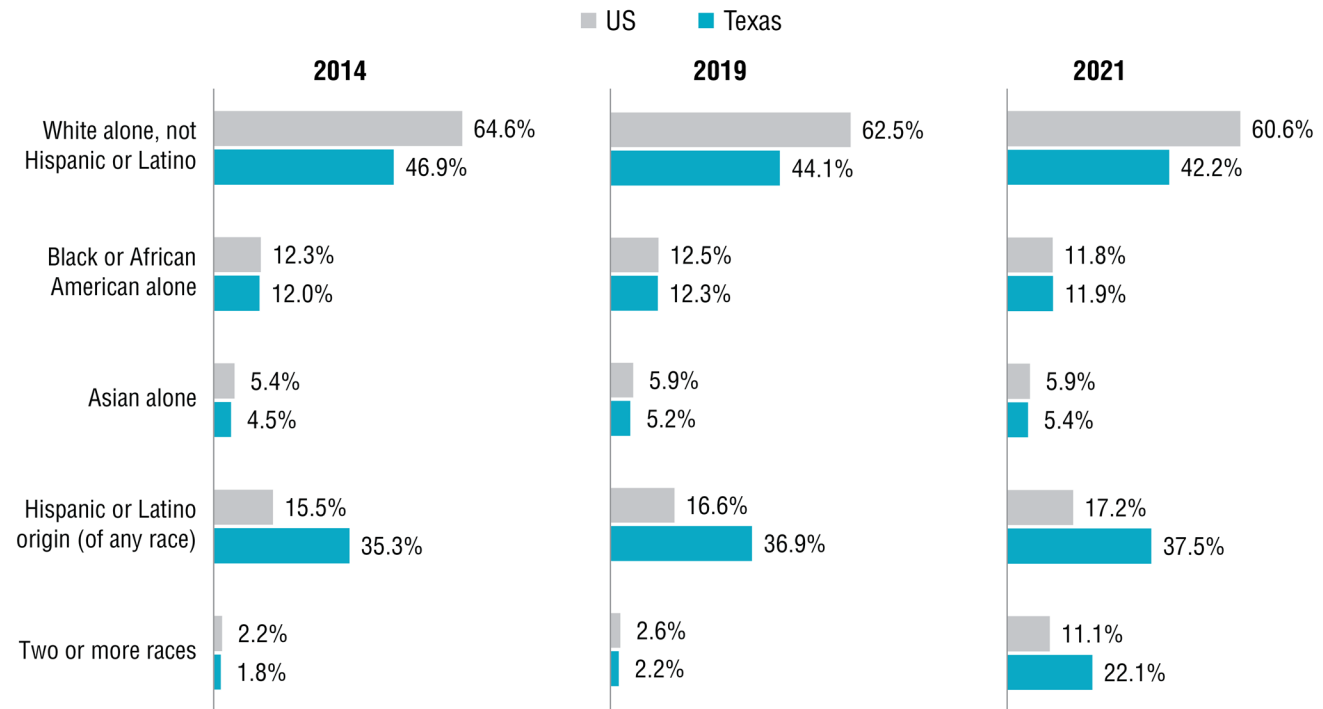
In the years leading up to the pandemic, the Hispanic labor force participation rate increased. Between 2014 and 2019, it increased from 67.1 percent to 68.2 percent in the US and from 65.9 percent to 66.6 percent in Texas.

During the pandemic, labor force participation declined across the board, but particularly among Hispanics of working age. By 2021, the Hispanic labor force participation rate reached 67.5 percent in the US and 66.0 percent in Texas.

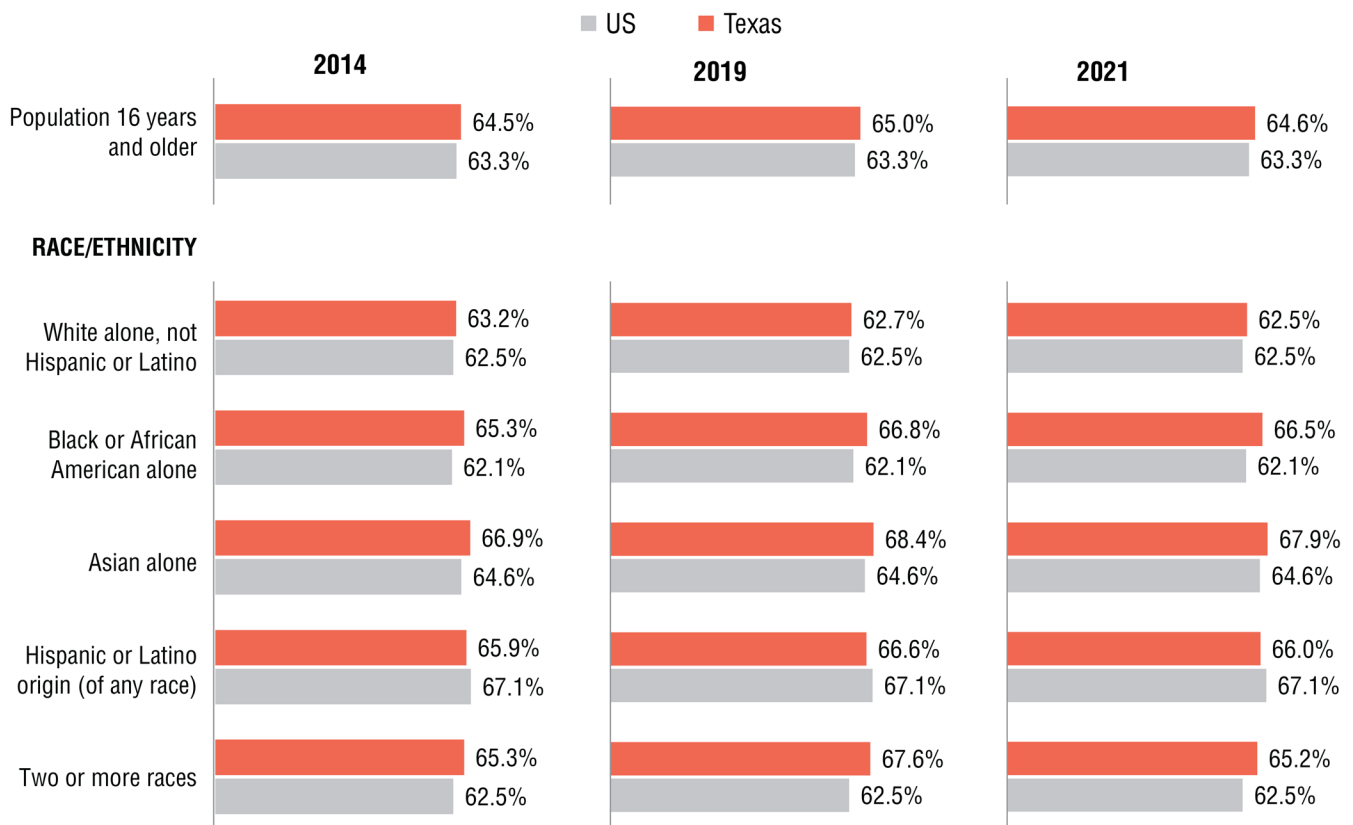
Several factors could be responsible for this decline, but further research is needed to confirm causality. One reason could be that many Hispanics work in the industries that were slowest to recover, namely accommodation and food service and construction (Subin, 2022). One in five Hispanic workers in Texas work in these two industries, but by the end of 2021, these two industries still employed 100,000 fewer workers than they did pre-pandemic. Unless they were able to find work in other occupations, the Hispanic workers who were laid off from these industries at the beginning of the pandemic would have had difficulty finding employment again by the end of 2021.

Another reason for the decline could be that the Hispanic population was hard hit by COVID-19. Even into 2023, COVID-19 continues to impact people's ability to work—between 250 and 400 US families lose a loved one to COVID-19 every day, workers still lose workdays due to illness or caregiving related to illness, and some workers continue to suffer from long COVID (McKinsey and Company, 2023). In Texas, the Hispanic population accounts for 41.4 percent of COVID-19 fatalities but only 40.2 percent of the population (Texas Department of Health and Human Services, 2023). Thus, Hispanic workers are likely to suffer disproportionately more from the continued effects of COVID-19.

FIGURE 71. WORKING-AGE POPULATION AND LABOR FORCE PARTICIPATION BY RACE AND ETHNICITY
SHARE OF WORKING-AGE POPULATION (16 AND OLDER)



LABOR FORCE PARTICIPATION RATES



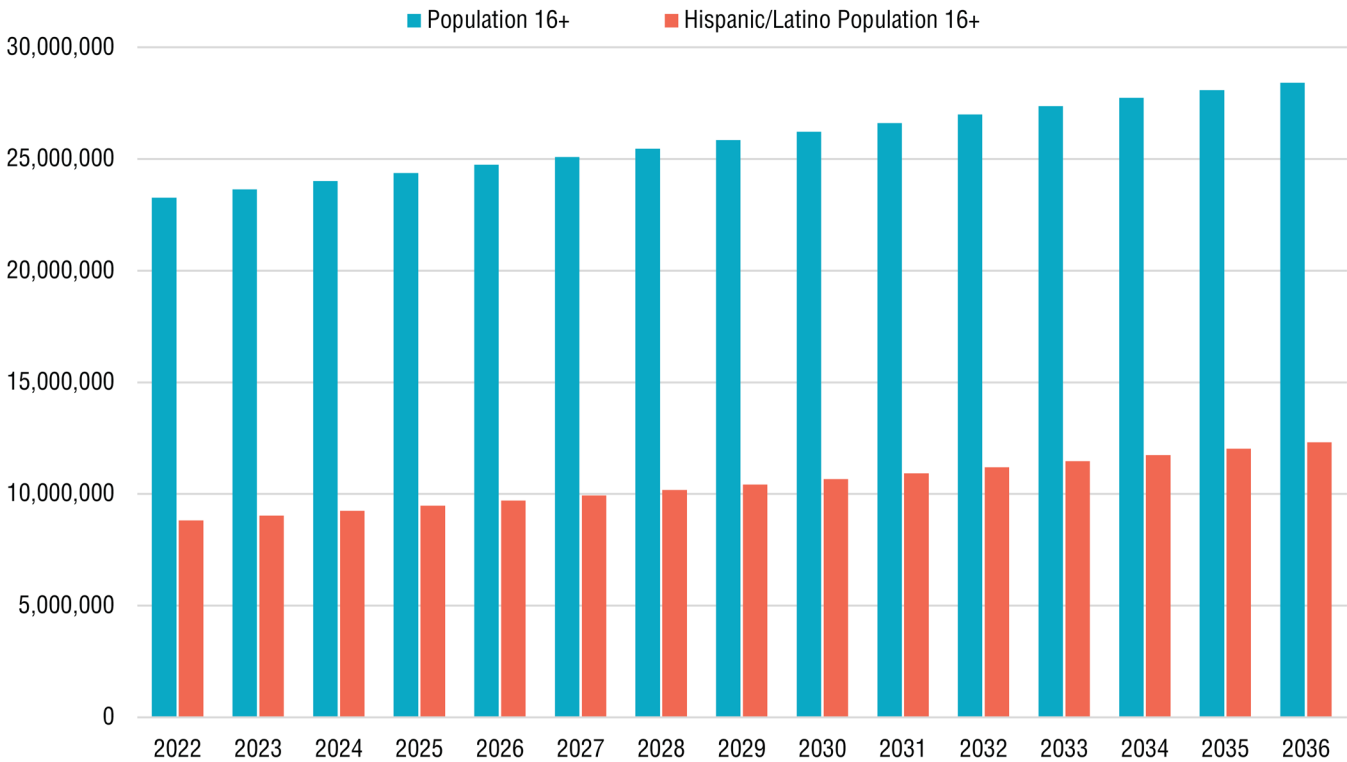
Source: US Census Bureau, American Community Survey 1-year Estimates.
Note: Hispanic/Latino ethnicity included in race categories unless otherwise noted.

If the Hispanic/Latino population 16 and older continues to grow at the same compound annual growth rate that it did between 2014 and 2021, the share of the Hispanic/Latino working-age population in Texas will increase to 42.7 percent by 2036. In this scenario, the Hispanic/Latino population in Texas will increase by 3.5 million, which accounts for more than two-thirds of the growth in the population 16 and older

forecast by the Texas Demographic Center.

Increasing the labor force participation rate of the Hispanic/Latino population back to its 2019 level would add 21,000 workers to the Texas labor force. If the labor force participation of Hispanics or Latinos in Texas were to reach parity with the 2021 rate in the US, there would be an additional 53,000 workers.

FIGURE 72. TEXAS AND HISPANIC/LATINO POPULATION 16 AND OLDER, 2022–2036



Source: Texas Demographic Center, US Census Bureau American Community Survey.
Note: The Hispanic/Latino population estimates assume the 2014–2021 compound annual growth rate.

One important difference between the Hispanic/Latino population and the total population is educational attainment. The percentage of the population age 25 and older who held a bachelor's degree or higher in 2021 was 33.1 percent in the US and 35.0 percent in Texas. For the Hispanic/Latino population, the percentage who held a bachelor's degree or higher was 19.7 percent in the US and 18.1 percent in Texas. This means that the fastest-growing segment of the Texas working-age population has the lowest likelihood of attaining at least a bachelor's degree.

Between 2014 and 2021, the share of Hispanics/

Latinos age 25 or older with at least a bachelor's degree increased dramatically in both the US and in Texas, increasing at least five percentage points in each geography. However, a wide disparity remains.

This disparity in educational attainment between the Hispanic/Latino population and the population as a whole is widespread and exists in all of the peer states. Virginia and Ohio are the states with the smallest disparity, while Colorado and California are the states with the largest disparity. Texas is second to last in terms of the educational attainment of the Hispanic/Latino population but is right in the middle of its peer in terms of the disparity.

The implications of the low educational attainment of the Hispanic/Latino population are widespread. Most important, the fastest-growing segment of the labor force is not as likely to have the qualifications required for many of the jobs that will be most in demand. This could exacerbate the anticipated talent shortage. In

addition, lagging educational attainment may confine Hispanic/Latino workers to jobs that do not require postsecondary credentials, which are often lower wage and more exposed to automation risks, leaving a significant portion of this fastest-growing segment of the labor force more vulnerable.

FIGURE 73. EDUCATIONAL ATTAINMENT OF POPULATION AGE 25 AND OLDER BY RACE AND ETHNICITY
PERCENTAGE BACHELOR'S DEGREE OR HIGHER, 2021

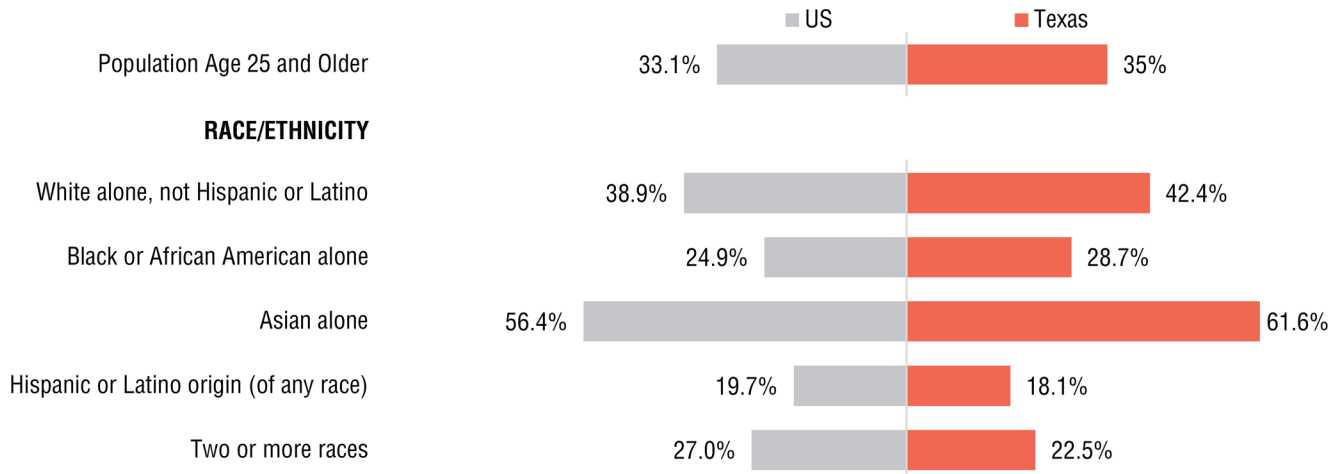
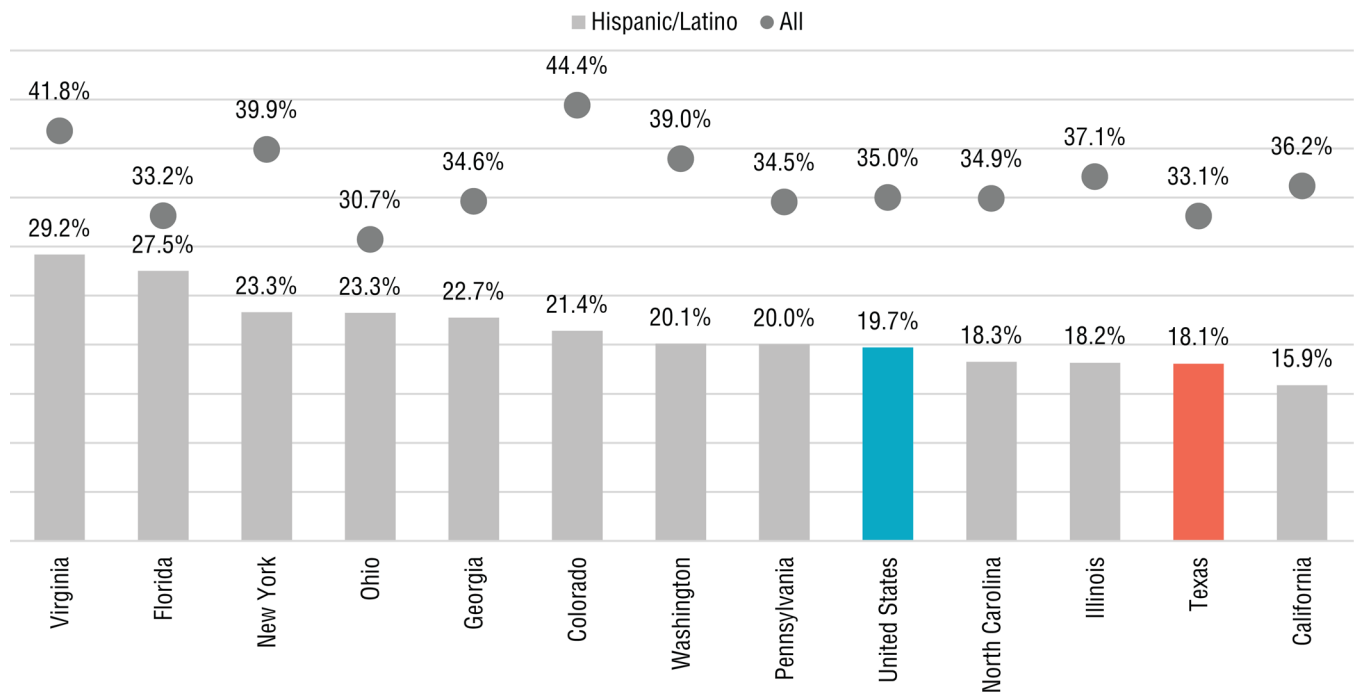


FIGURE 74. COMPARATIVE EDUCATIONAL ATTAINMENT OF POPULATION AGE 25 AND OLDER
PERCENTAGE BACHELOR'S DEGREE OR HIGHER, 2021



Source: (Both figures) US Census Bureau, American Community Survey 1-year Estimates

3. UNEVEN GENDER PARTICIPATION

Texas women did not leave the workforce during the pandemic; men did.

In both the US and in Texas, women and men account for almost equal shares of the working-age population age 20 to 64, though the share of women has fallen slightly since 2014. In the segment of the working-age population age 20 to 64, men's labor force participation rate is above 80 percent while women's labor force participation rate is about 70 percent.

Prior to the pandemic, both men's and women's labor force participation rates increased. Between 2014 and 2019, men's increased from 81.8 percent to 82.8 percent in the US and from 83.3 percent to 84.4 percent in Texas; women's increased from 71.9 percent to 73.9 percent in the US and from 69.0 percent to 70.8 percent in Texas.

During the pandemic, labor force participation for men and women in the US declined. In Texas, however, labor force participation for women increased from 70.8 to 71.1 percent in 2021 while labor force participation for men decreased from 84.4 to 83.9 percent.

In the US, about 7 percent of women age 20 to 64 have children under six, and, in Texas, about 8 percent of women in the same age range have children under six. This is the population who would likely be most impacted by the disruption in the childcare sector. Women with children under six do have lower labor force participation rates than the female population overall.

Prior to the pandemic, women with children under six were increasingly joining the labor force both in the US and in Texas. Between 2014 and 2019, mothers of young children increased their labor force participation rate from 67.3 percent to 70.0 percent in the US and from 61.6 percent to 64.2 percent in Texas. During the pandemic, the labor force participation rate for mothers of young children in the US overall fell to 69.4 percent. However, in Texas, these mothers' labor force participation rate continued to increase to 64.5 percent. It is unclear how working

mothers with young children are finding affordable, high-quality childcare given the significant loss of childcare workers, which reflects a reduction in the capacity of early learning programs in Texas overall.

The decline in men's labor force participation could be caused by various factors. Without more visibility into the characteristics of the men leaving the labor force, it is impossible to know for certain. However, one reason could be that men account for a larger share of the newly retired, including those who have reached retirement age and those who are retiring early.

DEEP DIVE: CHILDCARE

Childcare is a critical service that impacts the ability of parents to participate in the labor force. During the pandemic, the availability of childcare across the US declined as some centers shut down and others reduced enrollment. As the economy opened back up, childcare centers faced staffing shortages and difficulty finding and retaining full-time and substitute staff. In a household pulse survey conducted at the end of 2021 and early 2022, one in four households nationally reported that they had a child under five who was unable to attend childcare or their usual childcare arrangement.

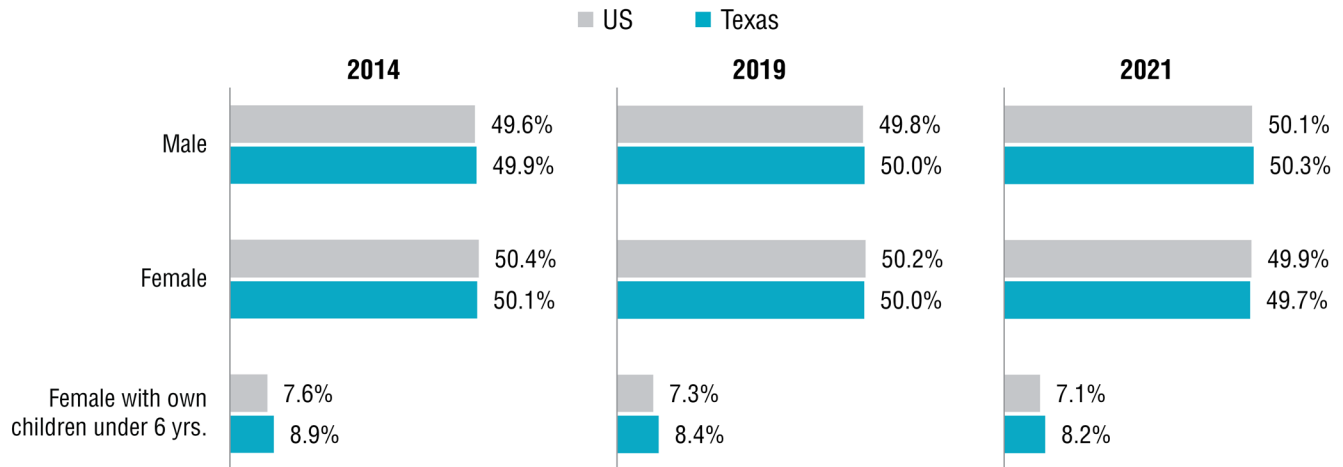
By the end of 2021, the childcare sector in Texas employed 19,000, or 14 percent, fewer childcare workers. With a median hourly wage of \$10.58, childcare workers are one of the lowest-paid occupations and have one of the highest turnover rates—68 percent.

Childcare is an essential support for working parents, and staffing stability is critical to a viable childcare sector. In the tight pandemic labor market, where wages in many occupations with similar educational requirements have risen substantially, it is no wonder that staffing shortages and high turnover persists in childcare, which can impact the quality and continuity of care.

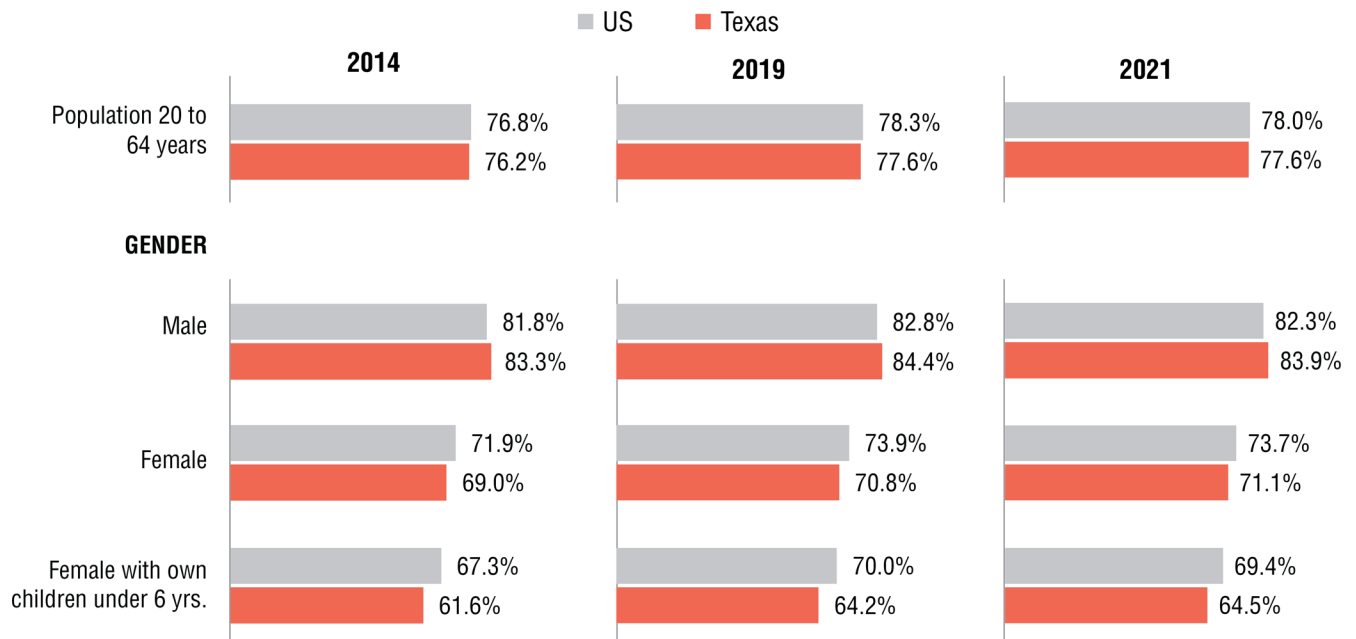
Although the labor force participation rate of women with young children continued to rise during the pandemic, it is unclear how long this trend can continue without a healthier childcare market.

FIGURE 75. WORKING-AGE POPULATION AND LABOR FORCE PARTICIPATION BY GENDER

SHARE OF WORKING-AGE POPULATION (16 AND OLDER)



LABOR FORCE PARTICIPATION RATES



Source: US Census Bureau, American Community Survey 1-year Estimates.

CONCLUSION

The Texas labor force was almost unfazed by the pandemic. Fueled by strong job growth, it recovered quickly and continued on a pre-pandemic growth trajectory. However, there are a number of long-term threats to the Texas labor force, which must be addressed to maintain the robust Texas economy and mitigate the likely talent shortage that is forecast for the next decade.

The retirements of the Baby Boomer generation must be countered with new entrants to the labor market. However, if labor force participation rates continue to decline, this cannot happen. A concerted effort to

address barriers to work and draw people into the labor force is necessary.

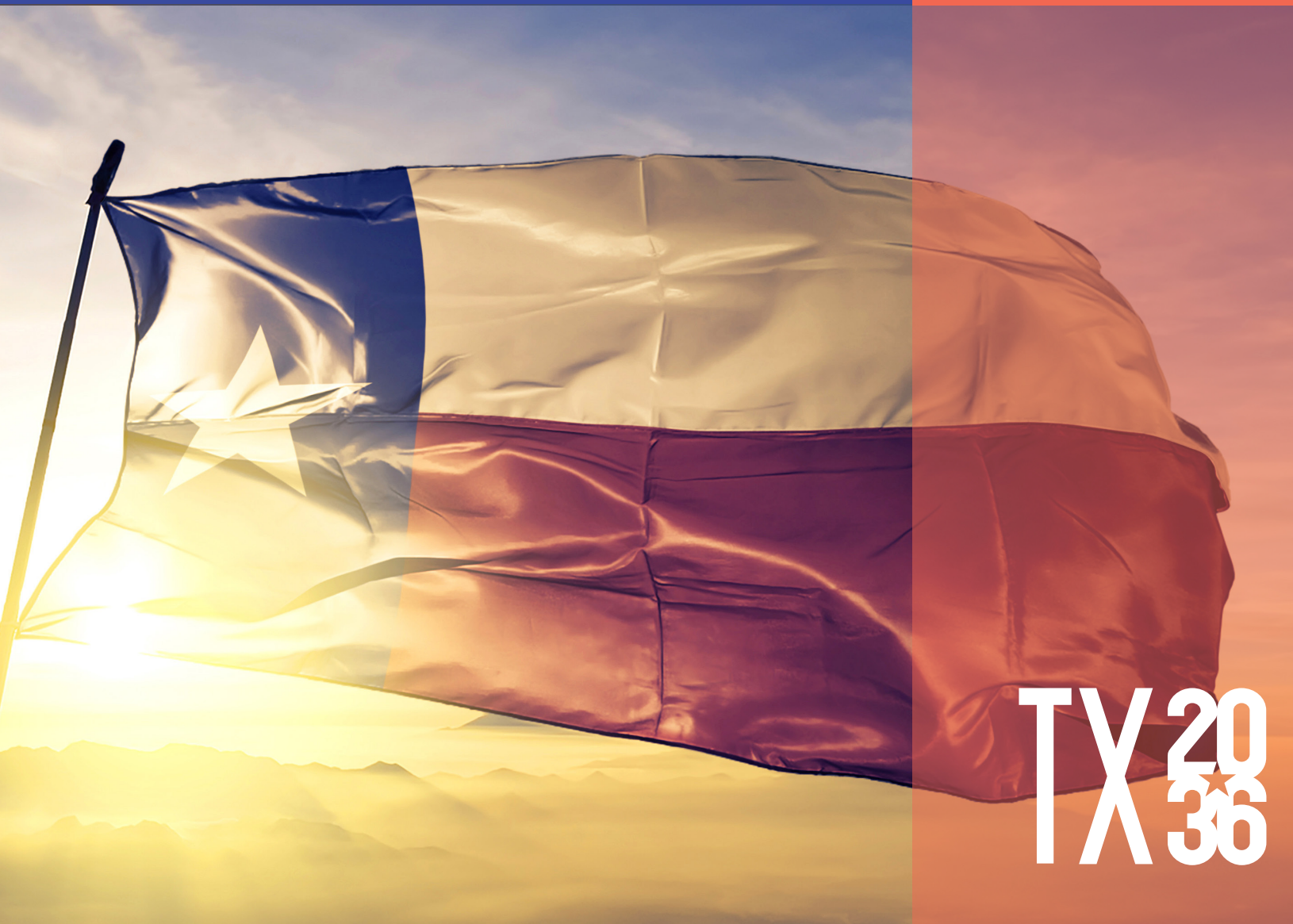
Additionally, ensuring that workers have the skills needed for in-demand jobs will be critical. As mentioned, the fastest-growing segment of the Texas labor force is the least likely to have a bachelor's degree or higher. Yet, jobs requiring bachelor's degree have been the fastest-growing segment of the Texas employment base. Although great strides have been made to raise the educational attainment of the Hispanic/Latino population, more work remains to be done.



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3889 Maple Avenue, Suite 210
Dallas, TX 75219-3209

www.texas2036.org



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