

SPRING 2019



# REGIONAL LABOR MARKET PROFILE

EAST TEXAS I-20 CORRIDOR ALLIANCE

# ACKNOWLEDGEMENTS

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**TIP STRATEGIES, INC.** is a privately held Austin-based firm providing consulting and advisory services to public and private sector clients. Established in 1995, the firm's core competency in strategic planning for economic development has broadened to include expertise in talent strategies and organizational development.

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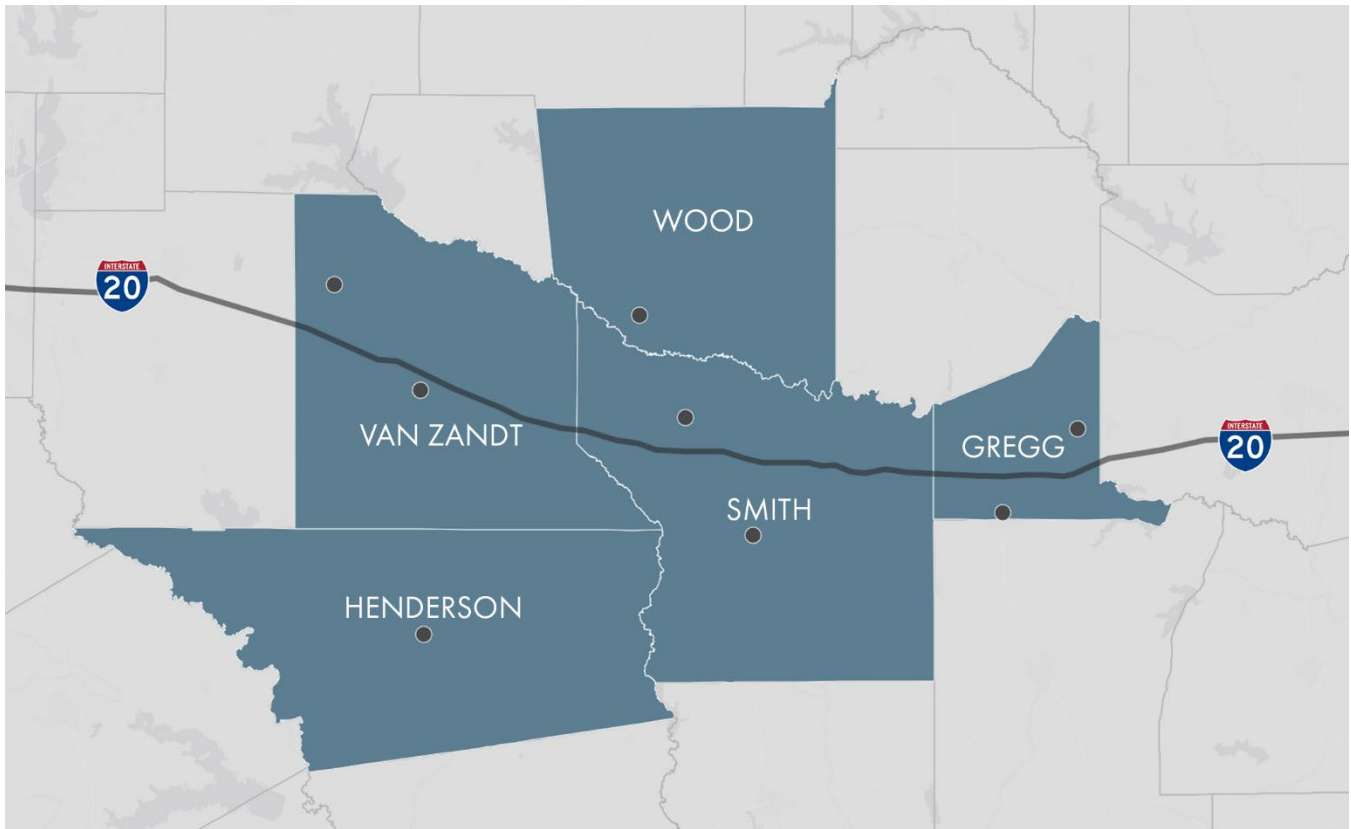
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# INTRODUCTION

The East Texas I-20 Corridor Alliance is a consortium of communities along the Interstate 20 corridor between Dallas, Texas, and Shreveport, Louisiana, spanning approximately 188 miles. Member communities include the following.:

- Athens (Henderson County)
- Mineola (Wood County)
- Canton (Van Zandt County)
- Longview (Gregg County)
- Kilgore (Gregg & Rusk Counties)
- Tyler (Smith County)
- Lindale (Smith County)
- Wills Point (Van Zandt County)

Combined, the I-20 Alliance Region has a population over 531,000 and a civilian labor force of almost 250,000 workers. Major population centers include the cities of Tyler and Longview. With over 260,000 jobs, the region is an economic hub in East Texas and home to major healthcare and higher education institutions and employers.



The member communities of the East Texas I-20 Corridor Alliance came together to promote the region as a destination for business. As part of this effort, the alliance hired TIP Strategies to create a profile of the regional labor market and workforce. The components of the profile include population & demographics, labor force characteristics and mobility, occupational structure, educational infrastructure, and drivers of workforce demand.

# LABOR MARKET PROFILE

The following is a summary of the key findings that distinguish the regional labor market and workforce.

## POPULATION AND MIGRATION

- The I-20 Alliance Region has a population of more than 531,000. Strong domestic in-migration and steady natural increase have contributed to **strong population growth**. Since 2010, the population has increased 5.4 percent.
- The I-20 Alliance Region's population has a larger cohort of seniors than the state and US. The share of the regional population age 25 and over with a bachelor's degree or higher is smaller than that of the state and the US. However, **the population with at least a high school diploma but less than a bachelor's degree is significantly larger than the state and the US**.
- Most counties in the region are experiencing net in-migration of residents. Gregg County is the only county experiencing out-migration. **Smith County experienced the highest net gain**, resulting primarily from foreign migration.

## LABOR MARKET CHARACTERISTICS AND MOBILITY

- The region has a civilian labor force of almost 250,000. With an unemployment rate near 3.5 percent as of November of 2018, the region's labor market is **on par with the state and the US**.
- **The I-20 Alliance Region is an economic hub**, with many people who both live and work in the region. In addition, the number of workers who commute into the region for work is higher than the number of workers who live in the region and work elsewhere, which means **the region is a net importer of labor**. Smith County and Gregg County are the largest employment centers and the largest sources of workers.

## OCCUPATIONAL STRUCTURE

- Construction & Extraction, Healthcare Support, and Healthcare Practitioners & Technical are occupational groups with concentrations significantly above the US level, signifying a relative advantage.
- In general, the I-20 Alliance Region has **lower wages than the US**. Transportation & Material Moving occupations and Community & Social Service occupations are two groups that have wages slightly higher than the US median.
- The region has **a lower percentage of high-skill jobs** than the US (19 percent compared to 25 percent). Over the next 5 years, the I-20 Region is expected to add more low-skill jobs than middle or high skill.
- The region's **occupational strengths are related to the oil and gas industry, healthcare, and production**.
- One component of the region's available labor force is resident workers who are currently working outside of the region. A comparison of the occupational categories of jobs in the region and the occupational categories of working residents reveals where there are likely **surpluses of resident workers**. The occupational categories where there are more resident workers than jobs in the region include

**Transportation & Material Moving, Computer & Mathematical, Protective Service, and Business & Financial Operations.**

- Another component of the region’s available labor force is unemployed workers. The occupational categories with the highest numbers of unemployed workers are **Office & Administrative Support, Construction & Extraction, Sales & Related, Management, and Production.**

**EDUCATION**

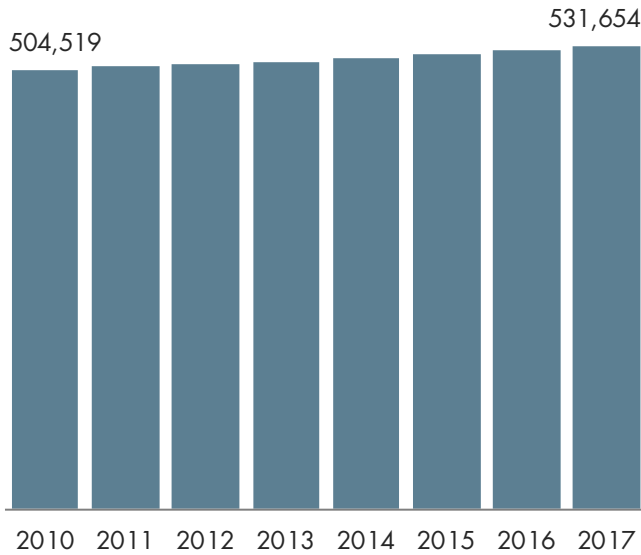
- The region’s school districts graduate more than 5,000 students annually. Of these graduates, about half enroll in two-year or four-year post-secondary institutions.
- The I-20 Alliance Region is served by **eight colleges and universities**. The University of Texas at Tyler and Tyler Junior College are the two largest institutions.
- The eight institutions graduated almost 8,000 students in 2017. The most popular fields of study are registered nursing, business administration, and general studies/liberal arts, which are often transfer degrees.

**DEMAND DRIVERS**

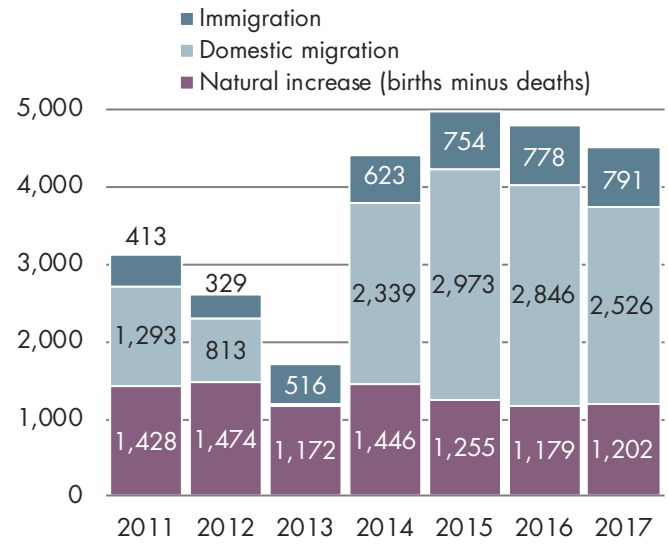
- Between 2008 and 2018, employment in the region grew from a low of just under 228,000 in 2010 to almost 245,000 in 2018, an increase of 7.5 percent. Though the region suffered during the Great Recession, it recovered by 2013 and has continued to grow.
- The three largest industries by share of total employment for the region are **Healthcare & Social Assistance, Retail Trade, and Education.**
- The industries with the highest concentrations relative to the US are **Mining (including oil & gas), Construction, Agriculture & Forestry, Healthcare, and Personal Services.**
- Over the next 5 years, **the region is expected to gain more than 17,000 jobs.** The Healthcare & Social Assistance industry is expected to gain the most jobs (4,900+), followed by Lodging, Restaurants, & Bars (1,800+) and Education (1,600+).

## POPULATION AND MIGRATION

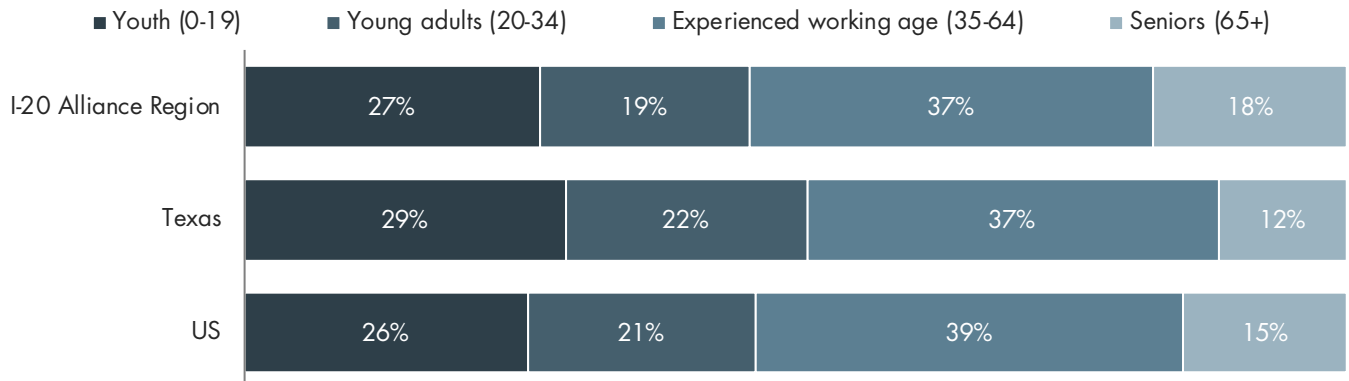
**FIGURE 1. I-20 ALLIANCE REGION POPULATION CHANGE, 2010-2017**



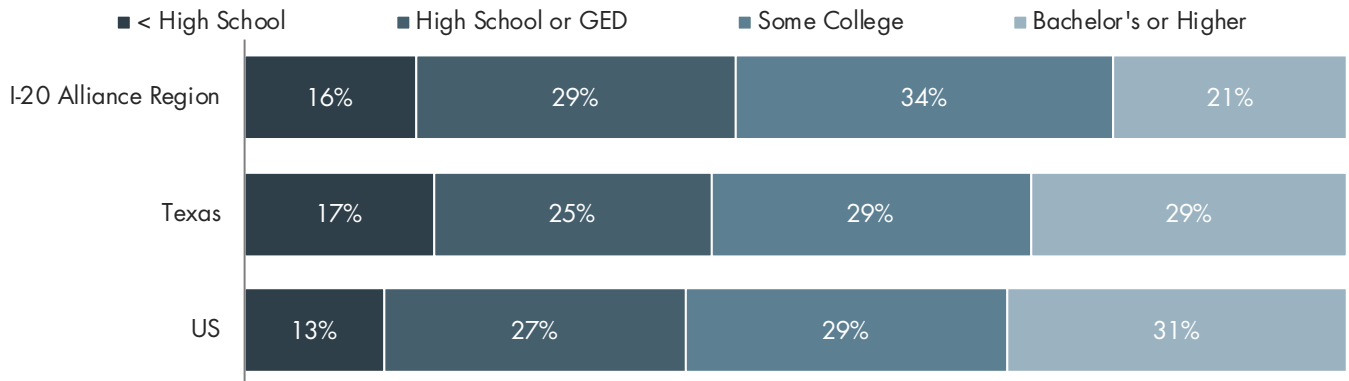
**FIGURE 2. I-20 ALLIANCE REGION COMPONENTS OF POPULATION CHANGE 2011-2017**



**FIGURE 3. AGE STRUCTURE OF POPULATION**



**FIGURE 4. EDUCATIONAL ATTAINMENT, POPULATION 25YRS+**



Sources: (Figure 1 and Figure 2) US Census Bureau, Population Estimates Program; (Figure 3 and Figure 4) American Community Survey, 5-year averages for the period 2013-2017.

**FIGURE 5. TOTAL NET MIGRATION FLOWS BY SOURCE COUNTY (IN MIGRATION MINUS OUT MIGRATION), 2016**

TYPE OF MIGRATION	GREGG COUNTY	HENDERSON COUNTY	SMITH COUNTY	VAN ZANDT COUNTY	WOOD COUNTY
US & Foreign	-1,216	691	1,081	936	698
US	-1,216	691	1,084	936	698
Same State	-1,302	572	604	715	527
Different State	86	119	480	221	171
Foreign	0	0	-3	0	0

**FIGURE 6. TOP SOURCES OF MIGRATION FOR GREGG COUNTY, 2016**

	IN MIGRATION	OUT MIGRATION
Total migration: US	7,237	8,453
Harrison	1,062	1,206
Upshur	880	1,188
Rusk	848	918
Smith	524	743
Dallas	215	377
Harris	157	232
Panola	151	61
Tarrant	144	288
Caddo	104	60
Denton	93	140
Travis	86	95
Marion	83	83
Morris	81	69
Wood	74	125
Collin	62	120
Camp	50	0
Titus	48	37
Cass	39	57
Bowie	37	64
Henderson	37	0

**FIGURE 7. TOP SOURCES OF MIGRATION FOR HENDERSON COUNTY, 2016**

	IN MIGRATION	OUT MIGRATION
Total migration: US	4,780	4,089
Kaufman	639	477
Smith	623	649
Dallas	570	348
Van Zandt	268	272
Tarrant	221	153
Anderson	205	217
Collin	126	61
Navarro	100	53
Denton	99	75
Ellis	84	86
Harris	84	61
Cherokee	64	76
Travis	43	28
Gregg	0	37

Source (all tables): IRS, Migration Data.



**FIGURE 8. TOP SOURCES OF MIGRATION FOR SMITH COUNTY, 2016**

	IN MIGRATION	OUT MIGRATION
Total migration: US	11,408	10,324
Gregg	743	524
Cherokee	686	620
Henderson	649	623
Dallas	618	643
Harris	422	487
Tarrant	418	445
Wood	401	321
Van Zandt	390	367
Rusk	373	267
Anderson	240	226
Collin	229	235
Denton	201	241
Upshur	199	167
Travis	160	206
Harrison	147	114
Bexar	127	162
Nacogdoches	123	69
Montgomery	107	129
Kaufman	103	97
Williamson	73	73

**FIGURE 9. TOP SOURCES OF MIGRATION FOR WOOD COUNTY, 2016**

	IN MIGRATION	OUT MIGRATION
Total migration: US	2,973	2,275
Smith	321	401
Dallas	210	82
Hopkins	192	138
Van Zandt	131	70
Gregg	125	74
Collin	122	60
Tarrant	119	82
Upshur	114	164
Franklin	110	120
Rains	96	90
Denton	84	0
Harris	51	39
Hunt	49	0

**FIGURE 10. TOP SOURCES OF MIGRATION FOR VAN ZANDT COUNTY, 2016**

	IN MIGRATION	OUT MIGRATION
Total migration: US	3,406	2,470
Kaufman	487	285
Dallas	465	204
Smith	367	390
Henderson	272	268
Tarrant	128	71
Collin	114	70
Hunt	104	87
Denton	85	42
Harris	77	0
Wood	70	131
Rockwall	54	53
Rains	38	61

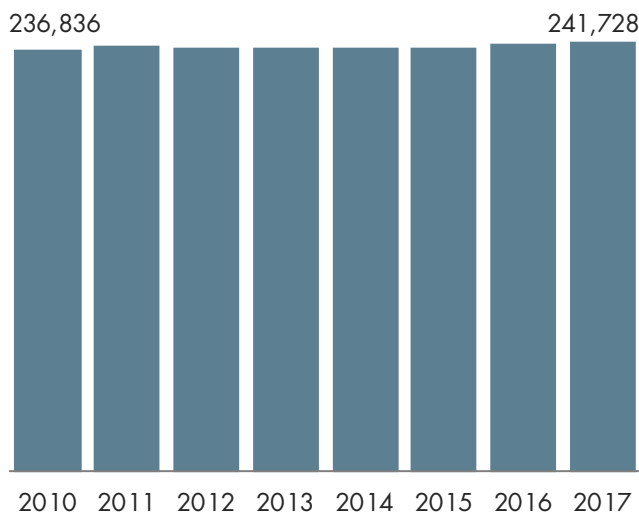
Source: (all tables) IRS, Migration Data.

## LABOR MARKET CHARACTERISTICS AND MOBILITY

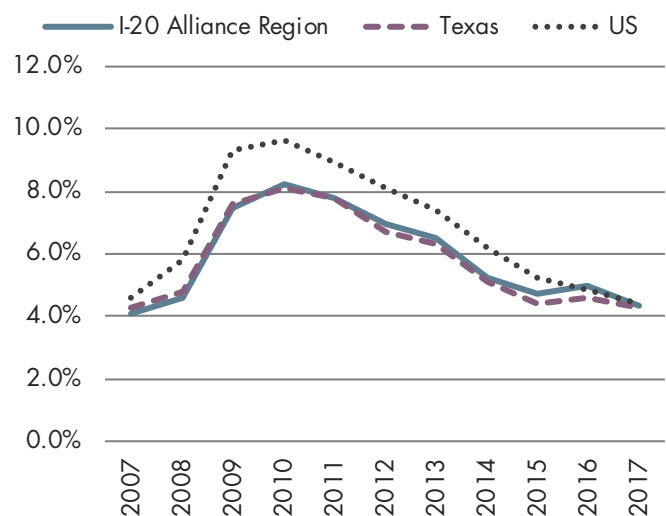
**FIGURE 11. LABOR MARKET OVERVIEW, NOVEMBER 2018**  
IN THOUSANDS

GEOGRAPHY	CIVILIAN LABOR FORCE	EMPLOYMENT	UNEMPLOYMENT	UNEMPLOYMENT RATE
I-20 Alliance Region	249	240	9	3.5%
Texas	13,937	13,454	483	3.5%
US	162,665	157,015	5,650	3.5%

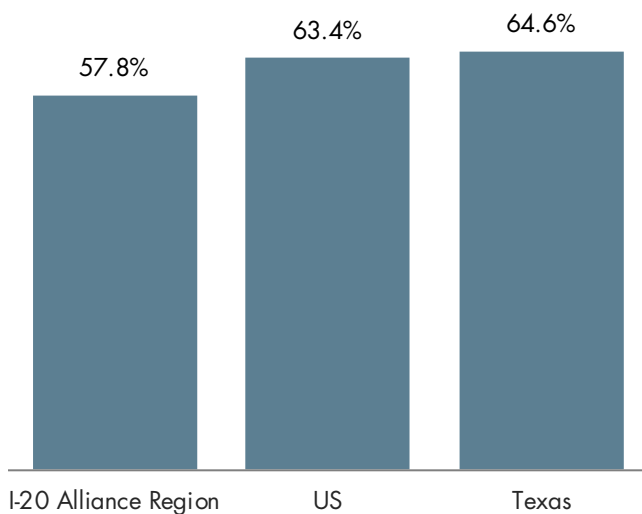
**FIGURE 12. I-20 ALLIANCE REGION CIVILIAN LABOR FORCE TREND, 2010-2017**



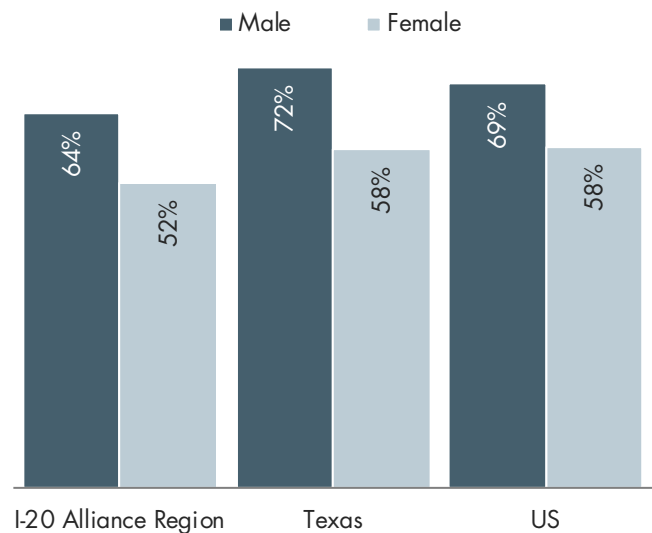
**FIGURE 13. COMPARATIVE UNEMPLOYMENT RATES, 2007-2017**



**FIGURE 14. LABOR FORCE PARTICIPATION RATES**



**FIGURE 15. LABOR FORCE PARTICIPATION RATES BY GENDER**

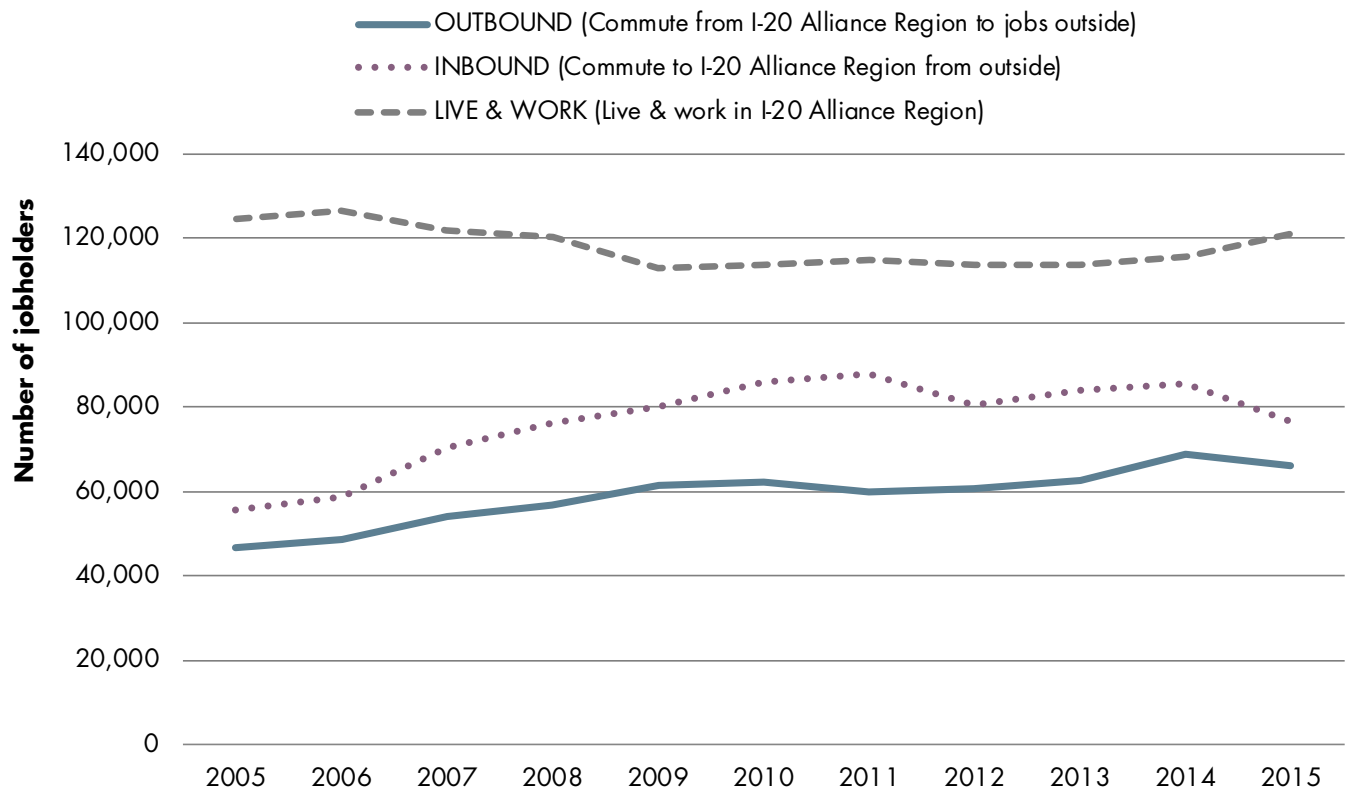


Sources: (Figure 11, Figure 12, and Figure 13) US Bureau of Labor Statistics, Local Area Unemployment Statistics (state and local), Current Population Survey (national); (Figure 14 and Figure 15) US Census Bureau, American Community Survey, 5-year averages for the period 2013-2017.

**FIGURE 16. INFLOW/OUTFLOW FOR I-20 ALLIANCE REGION, 2015**  
FLOW OF WORKERS TO/FROM THE AREA



**FIGURE 17. COMMUTING FLOWS, 2005-2015**

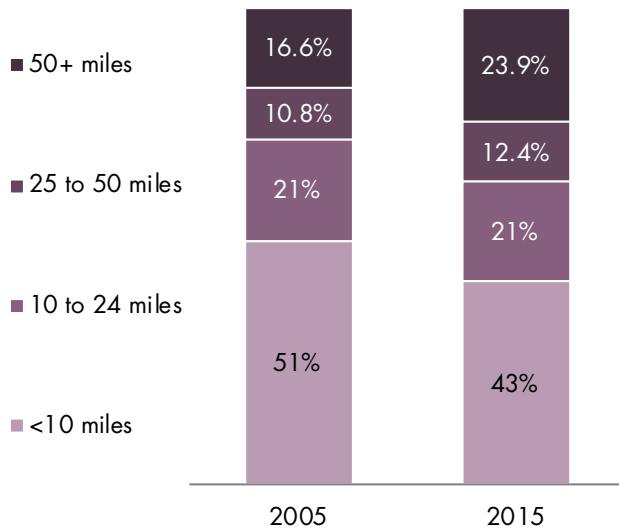


Source: (all figures) US Census Bureau, LEHD Origin-Destination Employment Statistics.

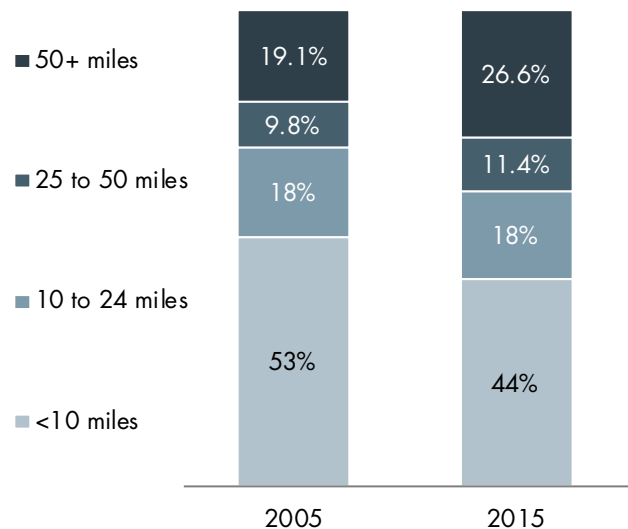
Note: (Figure 16) Overlay arrows are for illustrative purposes and do not indicate directionality of worker flow between home and employment locations.

**FIGURE 18. COMMUTING DISTANCE TRAVELED, 2005 VS. 2015**  
SHARE OF JOB HOLDERS

PEOPLE WHO WORK IN I-20 Alliance Region



EMPLOYED PEOPLE WHO LIVE IN I-20 Alliance Region



**FIGURE 19. COMMUTING DESTINATIONS, 2015**  
TOP 10 COUNTIES

Where I-20 Alliance Region WORKERS LIVE

County	Count	Share
1 Smith County, TX	60,649	30.7%
2 Gregg County, TX	31,474	15.9%
3 Henderson County, TX	12,939	6.5%
4 Van Zandt County, TX	8,881	4.5%
5 Harrison County, TX	7,937	4.0%
6 Wood County, TX	7,240	3.7%
7 Rusk County, TX	6,647	3.4%
8 Upshur County, TX	6,527	3.3%
9 Dallas County, TX	4,733	2.4%
10 Harris County, TX	4,536	2.3%
All Other Locations	46,130	23.3%
<b>Total</b>	<b>197,693</b>	<b>100.0%</b>

Where employed I-20 Alliance Region RESIDENTS WORK

County	Count	Share
1 Smith County, TX	64,451	34.4%
2 Gregg County, TX	35,533	19.0%
3 Dallas County, TX	11,338	6.0%
4 Henderson County, TX	9,831	5.2%
5 Van Zandt County, TX	6,555	3.5%
6 Harris County, TX	6,011	3.2%
7 Wood County, TX	4,813	2.6%
8 Tarrant County, TX	4,270	2.3%
9 Harrison County, TX	3,670	2.0%
10 Kaufman County, TX	3,188	1.7%
All Other Locations	37,828	20.2%
<b>Total</b>	<b>187,488</b>	<b>100.0%</b>

Source: (all figures) US Census Bureau, LEHD Origin-Destination Employment Statistics.

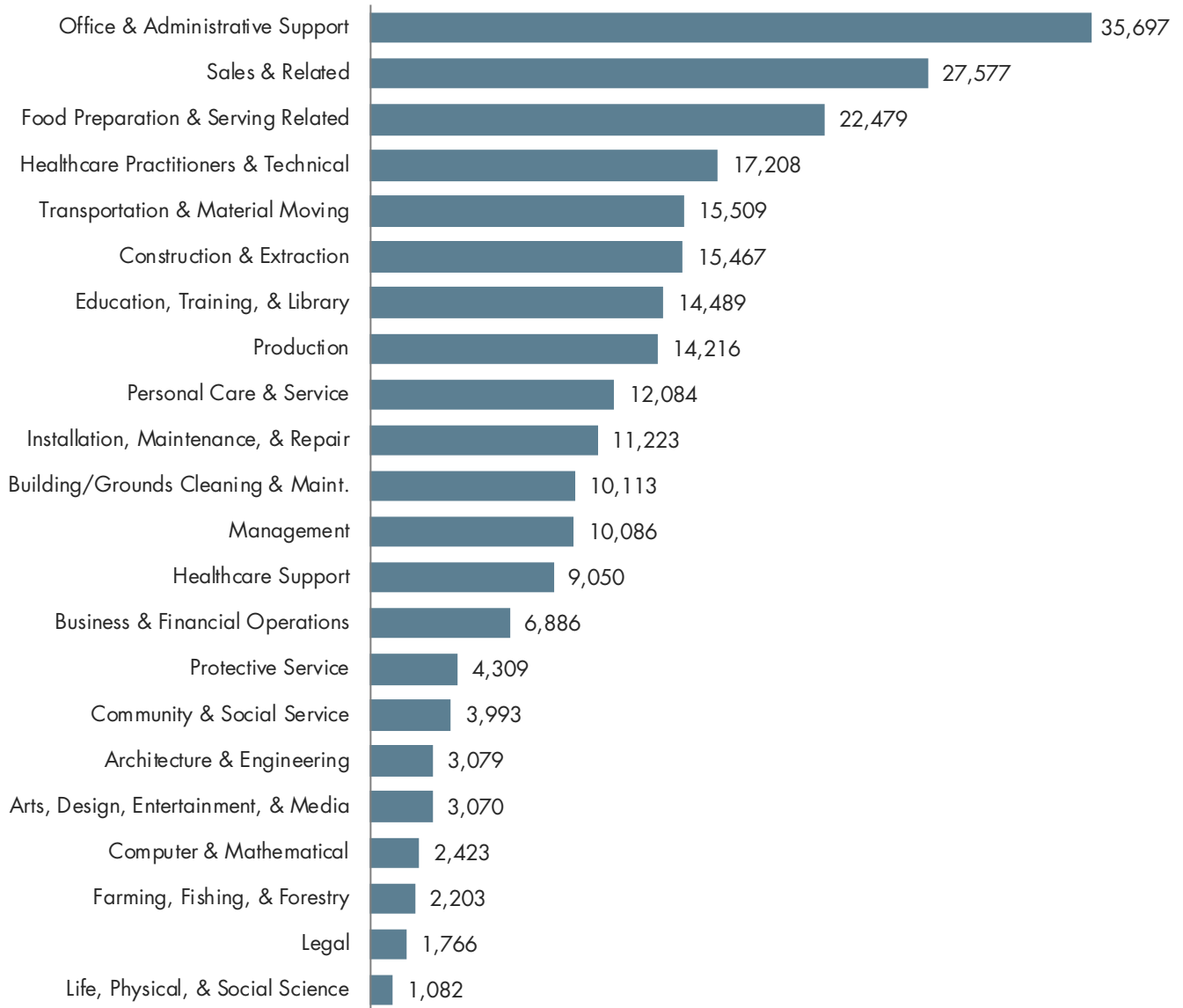
**FIGURE 20. TOP 20 SOURCES OF WORKERS, 2015**  
 AREAS WHERE I-20 ALLIANCE REGION WORKERS LIVE AND WORK WITH NET FLOW

	<b>People who WORK in I-20 Alliance Region and live in this county</b>	<b>People who LIVE in I-20 Alliance Region and work in this county</b>	<b>Net flow</b>
1 Smith County, TX	60,649	64,451	-3,802
2 Gregg County, TX	31,474	35,533	-4,059
3 Henderson County, TX	12,939	9,831	+3,108
4 Van Zandt County, TX	8,881	6,555	+2,326
5 Harrison County, TX	7,937	3,670	+4,267
6 Wood County, TX	7,240	4,813	+2,427
7 Rusk County, TX	6,647	2,421	+4,226
8 Upshur County, TX	6,527	1,623	+4,904
9 Dallas County, TX	4,733	11,338	-6,605
10 Harris County, TX	4,536	6,011	-1,475
11 Cherokee County, TX	4,088	2,217	+1,871
12 Tarrant County, TX	3,543	4,270	-727
13 Anderson County, TX	1,879	1,710	+169
14 Collin County, TX	1,701	2,523	-822
15 Kaufman County, TX	1,638	3,188	-1,550
16 Denton County, TX	1,508	1,182	+326
17 Bowie County, TX	1,287	924	+363
18 Panola County, TX	1,113	612	+501
19 Angelina County, TX	964	669	+295
20 Hopkins County, TX	878	914	-36

Source: US Census Bureau, LEHD Origin-Destination Employment Statistics.

# OCCUPATIONAL STRUCTURE

**FIGURE 21. I-20 ALLIANCE REGION EMPLOYMENT BY OCCUPATION, 2018**



Source: EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.  
 Notes: Excludes military and unclassified occupations.

**FIGURE 22. OCCUPATIONAL DISTRIBUTION (PERCENT OF TOTAL), 2018**  
 COMPARISON OF I-20 ALLIANCE REGION WITH SELECTED GEOGRAPHIES AND US

SOC Code & Description	I-20 Alliance Region	Texas	US
43 Office & Administrative Support	14.6%	15.8%	14.7%
41 Sales & Related	11.3%	10.5%	10.0%
35 Food Preparation & Serving Related	9.2%	8.7%	8.4%
29 Healthcare Practitioners & Technical	7.0%	5.2%	5.6%
53 Transportation & Material Moving	6.3%	6.9%	6.7%
47 Construction & Extraction	6.3%	5.7%	4.5%
25 Education, Training, & Library	5.9%	5.8%	5.7%
51 Production	5.8%	5.1%	5.8%
39 Personal Care & Service	4.9%	4.0%	4.3%
49 Installation, Maintenance, & Repair	4.6%	4.3%	3.9%
37 Building/Grounds Cleaning & Maint.	4.1%	3.6%	3.7%
11 Management	4.1%	4.5%	5.6%
31 Healthcare Support	3.7%	2.6%	2.7%
13 Business & Financial Operations	2.8%	4.8%	5.2%
33 Protective Service	1.8%	2.3%	2.3%
21 Community & Social Service	1.6%	1.3%	1.7%
17 Architecture & Engineering	1.3%	1.8%	1.7%
27 Arts, Design, Entertainment, & Media	1.3%	1.6%	1.8%
15 Computer & Mathematical	1.0%	2.8%	2.9%
45 Farming, Fishing, & Forestry	0.9%	0.5%	0.8%
23 Legal	0.7%	0.8%	0.8%
19 Life, Physical, & Social Science	0.4%	0.6%	0.8%

Source: EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.  
 Notes: Excludes military and unclassified employment. Three largest occupations are highlighted.

**FIGURE 23. OCCUPATIONAL CONCENTRATION (LQ), 2018**  
 COMPARISON OF I-20 ALLIANCE REGION WITH SELECTED GEOGRAPHIES AND US

SOC Code & Description	I-20 Alliance Region	Texas	US
47 Construction & Extraction	<b>1.39</b>	<b>1.26</b>	1.00
31 Healthcare Support	<b>1.36</b>	0.95	1.00
29 Healthcare Practitioners & Technical	<b>1.27</b>	0.94	1.00
45 Farming, Fishing, & Forestry	1.18	0.69	1.00
49 Installation, Maintenance, & Repair	1.17	1.10	1.00
39 Personal Care & Service	1.15	0.94	1.00
41 Sales & Related	1.13	1.05	1.00
37 Building/Grounds Cleaning & Maint.	1.12	0.98	1.00
35 Food Preparation & Serving Related	1.10	1.04	1.00
25 Education, Training, & Library	1.04	1.03	1.00
51 Production	1.00	0.88	1.00
43 Office & Administrative Support	0.99	1.08	1.00
21 Community & Social Service	0.99	0.76	1.00
53 Transportation & Material Moving	0.94	1.03	1.00
23 Legal	0.87	0.91	1.00
33 Protective Service	0.78	1.03	1.00
17 Architecture & Engineering	0.75	1.10	1.00
11 Management	0.74	0.81	1.00
27 Arts, Design, Entertainment, & Media	0.69	0.85	1.00
19 Life, Physical, & Social Science	0.55	0.80	1.00
13 Business & Financial Operations	0.54	0.92	1.00
15 Computer & Mathematical	0.35	0.98	1.00

**ABOUT LOCATION QUOTIENTS (LQS)**

Location quotient analysis is a statistical technique used to suggest areas of relative advantage based on a region’s employment base. LQs are calculated as an occupation’s share of total local employment divided by the same occupation’s share of employment at the national level:

$$\frac{(\text{local employment in occupation } x / \text{total local employment -all occupations})}{(\text{national employment in occupation } x / \text{total national employment-all occupations})}$$

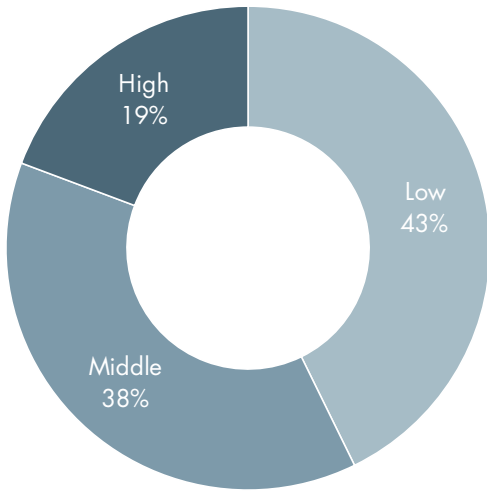
If the local occupation and national occupation are perfectly proportional, the LQ will be 1.00. LQs greater than 1.25 are presumed to indicate a comparative advantage; those below 0.75 suggest areas of weakness but also point to opportunities for expansion or attraction.

Source: EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

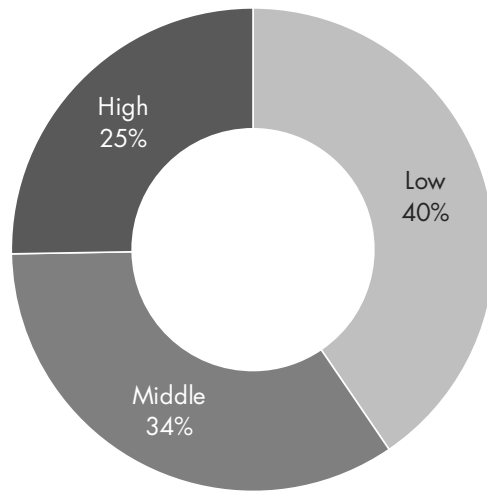
Notes: Excludes military and unclassified employment. LQs greater than 1.25 are presumed to show competitive advantage and are highlighted.



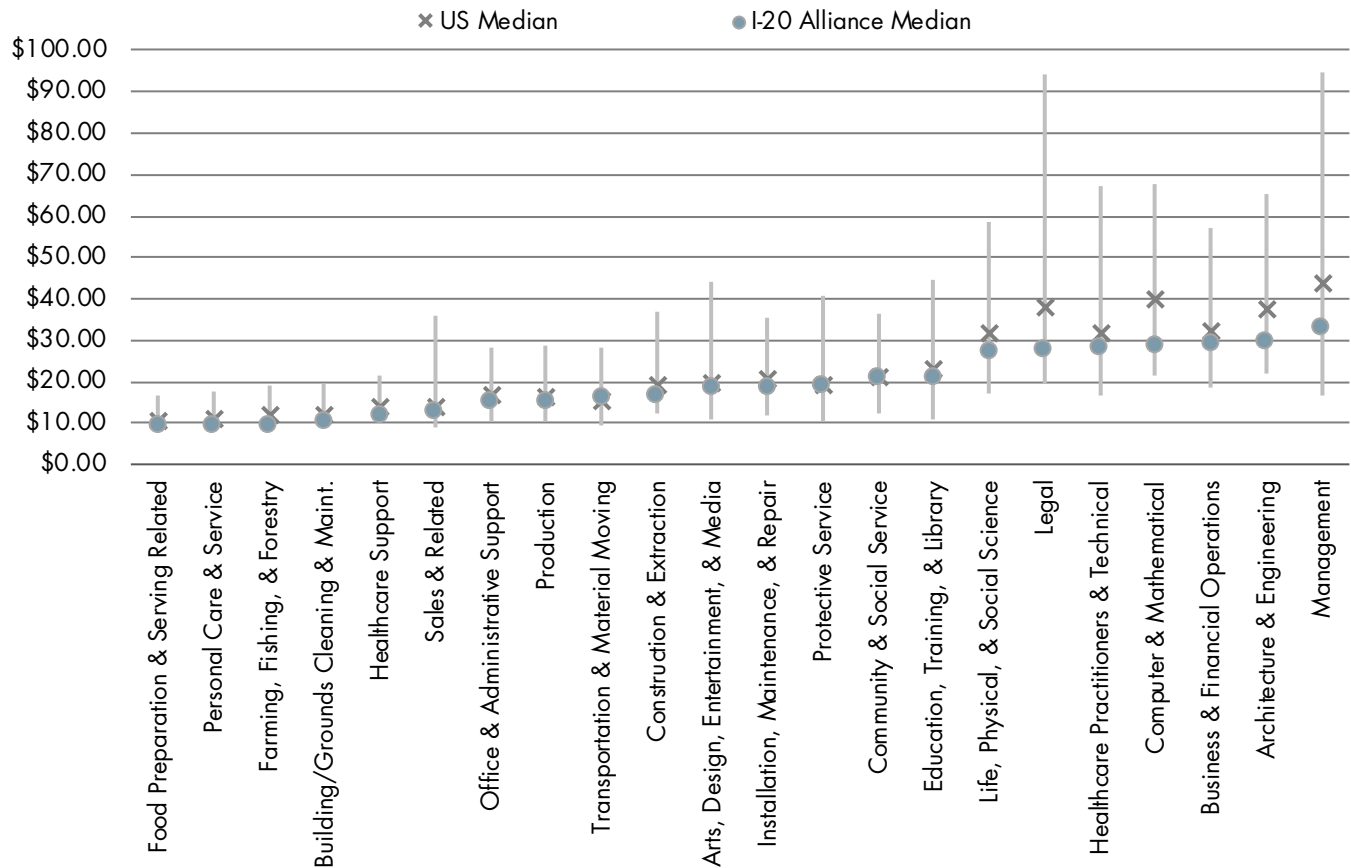
**FIGURE 24. OCCUPATIONS BY SKILL LEVEL, 2018\***  
I-20 ALLIANCE REGION



**FIGURE 25. OCCUPATIONS BY SKILL LEVEL, 2018\***  
US



**FIGURE 26. I-20 ALLIANCE REGION WAGES IN THE CONTEXT OF THE NATIONAL WAGE RATES BY MAJOR OCCUPATIONAL GROUP**



Source: (all figures) EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

Notes: (Figure 26) Figures exclude military occupations. Line = US wage range from the 10th to the 90th percentile. Markers = Median hourly wage rates for US (x) and I-20 Alliance Region (dot)

\* Middle skill jobs require at least a high school diploma but less than a four-year degree. High skill jobs require a bachelor’s degree or higher.

**FIGURE 27. I-20 ALLIANCE REGION OCCUPATIONAL STRENGTHS, 2018**  
TOP LQS

SOC CODE	DESCRIPTION	2018 JOBS	2018 LQ	MEDIAN HOURLY EARNINGS	REGIONAL MEDIAN/US MEDIAN
47-5013	Service Unit Operators, Oil, Gas, & Mining	871	13.13	\$20.17	0.87
25-2023	Career/Tech. Educ. (CTE), Middle School	221	12.20	\$24.00	0.86
47-5011	Derrick Operators, Oil & Gas	136	8.39	\$19.94	0.90
47-5012	Rotary Drill Operators, Oil & Gas	179	6.89	\$23.96	0.92
47-2132	Insulation Workers, Mechanical	266	6.73	\$19.86	0.91
47-5081	Helpers–Extraction Workers	165	6.05	\$16.22	0.94
47-5071	Roustabouts, Oil & Gas	488	5.90	\$17.78	1.00
17-2171	Petroleum Engineers	290	5.40	\$50.17	0.79
49-3043	Rail Car Repairers	181	4.59	\$19.72	0.72
47-4031	Fence Erectors	185	4.37	\$13.19	0.87
19-4041	Geological & Petroleum Technicians	107	4.20	\$26.28	1.01
53-7072	Pump Operators, Except Wellhead Pumps	96	4.15	\$23.79	1.09
47-5099	Extraction Workers, All Other	35	3.99	\$21.24	0.89
49-9012	Control/Valve Install. & Repair, Except Mech. Door	288	3.91	\$24.42	0.91
53-7073	Wellhead Pumps	82	3.84	\$27.73	1.07
47-2131	Insulation Workers, Floor, Ceiling, & Wall	179	3.64	\$16.30	0.92
29-2054	Respiratory Therapy Technicians	49	3.37	\$19.91	0.82
47-2011	Boilermakers	79	3.23	\$25.43	0.85
47-4021	Elevator Installers & Repairers	128	3.21	\$35.17	0.92
17-3031	Surveying & Mapping Technicians	276	3.14	\$17.47	0.81
51-9195	Molders, Shapers, & Casters, Except Metal/Plastic	224	3.11	\$12.24	0.75
31-1013	Psychiatric Aides	317	2.97	\$12.14	0.93
43-6013	Medical Secretaries	2,653	2.90	\$13.95	0.84
51-2093	Timing Device Assemblers & Adjusters	<10	2.74	Insf. Data	Insf. Data
17-3022	Civil Engineering Technicians	292	2.57	\$20.83	0.84
49-2096	Electronic Equip. Install/Repair, Motor Vehicles	43	2.35	\$13.78	0.83
51-4052	Pourers & Casters, Metal	26	2.27	\$16.61	0.90
29-1124	Radiation Therapists	59	2.22	\$30.25	0.78
51-4121	Welders, Cutters, Solderers, & Brazers	1,392	2.21	\$18.36	0.97
51-4062	Patternmakers, Metal/Plastic	11	2.20	\$18.12	0.84

Source: EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

**FIGURE 28. ESTIMATED WORKFORCE AVAILABILITY BY OCCUPATION, 2018**  
 JOBS IN THE I-20 REGION RELATIVE TO RESIDENTS WHO WORK IN THE OCCUPATION

SOC CODE	DESCRIPTION	2018 RESIDENTS WORKING IN OCCUPATION	JOBS IN I-20 ALLIANCE REGION	POTENTIAL AVAILABLE WORKFORCE
53	Transportation & Material Moving	16,262	15,509	753
15	Computer & Mathematical	3,007	2,423	584
33	Protective Service	4,812	4,309	503
13	Business & Financial Operations	7,378	6,886	492
25	Education, Training, & Library	14,686	14,489	197
17	Architecture & Engineering	3,113	3,079	34
11	Management	10,100	10,086	13
51	Production	14,226	14,216	11
45	Farming, Fishing, & Forestry	2,194	2,203	-9
19	Life, Physical, & Social Science	996	1,082	-87
21	Community & Social Service	3,900	3,993	-93
27	Arts, Design, Entertainment, & Media	2,902	3,070	-168
23	Legal	1,594	1,766	-171
49	Installation, Maintenance, & Repair	10,961	11,223	-263
31	Healthcare Support	8,762	9,050	-288
43	Office & Administrative Support	35,228	35,697	-469
37	Building/Grounds Cleaning & Maintenance	9,571	10,113	-542
47	Construction & Extraction	14,869	15,467	-598
39	Personal Care & Service	11,440	12,084	-643
29	Healthcare Practitioners & Technical	16,504	17,208	-704
35	Food Preparation & Serving Related	21,513	22,479	-965
41	Sales & Related	25,989	27,577	-1,588

Source: EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

**FIGURE 29. UNEMPLOYMENT BY OCCUPATION, 2018**  
 I-20 REGION (INCLUDING SHARE OF TOTAL UNEMPLOYMENT FOR REGION AND US)

SOC	UNEMPLOYED	% OF TOTAL UNEMPLOYMENT	
		I-20 Alliance Region	US
43 Office and Administrative Support	1,186	12%	13%
47 Construction and Extraction	1,122	12%	9%
41 Sales and Related	900	9%	8%
11 Management	850	9%	9%
51 Production	791	8%	8%
31 Healthcare Support	682	7%	3%
49 Installation, Maintenance, and Repair	606	6%	3%
35 Food Preparation and Serving Related	579	6%	7%
53 Transportation and Material Moving	576	6%	8%
13 Business and Financial Operations	370	4%	4%
25 Education, Training, and Library	360	4%	4%
29 Healthcare Practitioners and Technical	252	3%	2%
39 Personal Care and Service	243	3%	3%
37 Building and Grounds Cleaning and Maintenance	204	2%	3%
21 Community and Social Service	129	1%	1%
15 Computer and Mathematical	104	1%	2%
17 Architecture and Engineering	101	1%	1%
27 Arts, Design, Entertainment, Sports, and Media	92	1%	2%
45 Farming, Fishing, and Forestry	86	1%	2%
33 Protective Service	85	1%	1%
23 Legal	59	1%	0%
19 Life, Physical, and Social Science	15	0%	1%

Sources: US Bureau of Labor Statistics, LAUS; EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

## EDUCATION

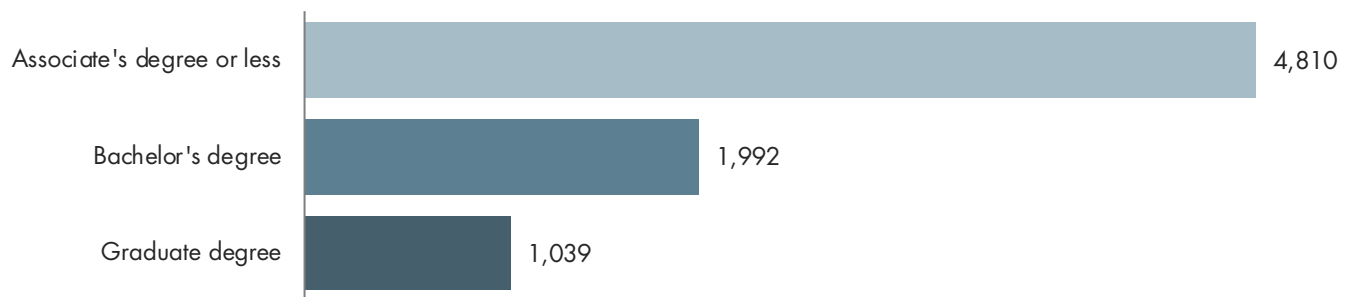
**FIGURE 30. HIGH SCHOOL GRADUATES ENROLLED IN HIGHER EDUCATION BY COUNTY**  
FOR THE 2014-2015 SCHOOL YEAR\*

	Number of School Districts	Total High School Graduates		Enrolled in Texas Public 4-year Universities		Enrolled in Texas Public 2-year Colleges	
Smith County	10	2,143	100%	281	13.1%	753	35.1%
Gregg County	8	1,512	100%	168	11.1%	523	34.6%
Van Zandt County	8	697	100%	123	17.6%	204	29.3%
Henderson County	8	594	100%	77	13.0%	206	34.7%
Wood County	6	407	100%	59	14.5%	137	33.7%

**FIGURE 31. REGIONAL INSTITUTIONS BY COMPLETIONS, 2017**  
I-20 ALLIANCE REGION

INSTITUTION NAME	COUNTY	TYPE	2017 COMPLETIONS
The University of Texas at Tyler	Smith County	Public, 4+ yrs.	2,276
Tyler Junior College	Smith County	Public, 4+ yrs.	2,161
Trinity Valley Community College	Henderson County	Public, At least 2 but <4 yrs.	1,354
Kilgore College	Gregg County	Public, At least 2 but <4 yrs.	1,187
LeTourneau University	Gregg County	Private not-for-profit, 4+ yrs.	572
Texas College	Smith County	Private not-for-profit, 4+ yrs.	126
Jarvis Christian College	Wood County	Private not-for-profit, 4+ yrs.	84
University of Texas Health Science Center at Tyler	Smith County	Public, 4+ yrs.	10

**FIGURE 32. DISTRIBUTION OF FOR-CREDIT COMPLETIONS BY AWARD LEVEL, 2017**  
I-20 ALLIANCE REGION

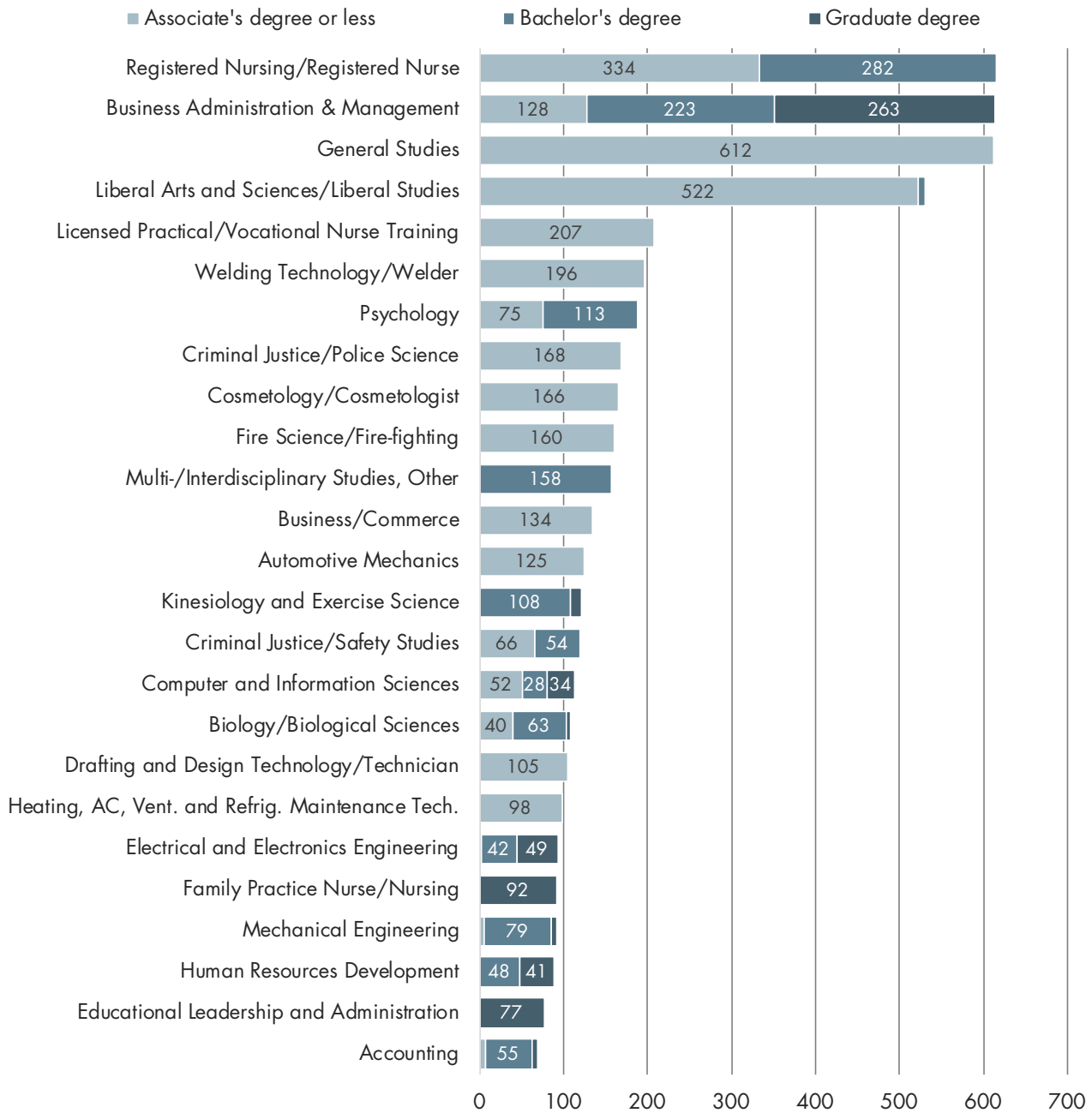


\*Most recent data available

Sources: (Figure 31) Texas Education Agency and Texas Public Education Information Resource; (Figure 31 and Figure 32) National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS).

Note: IPEDS data include only schools eligible to participate in federal financial aid programs.

**FIGURE 33. LARGEST FIELDS OF STUDY RANKED BY COMPLETIONS (ALL AWARD LEVELS), 2017**  
I-20 ALLIANCE REGION

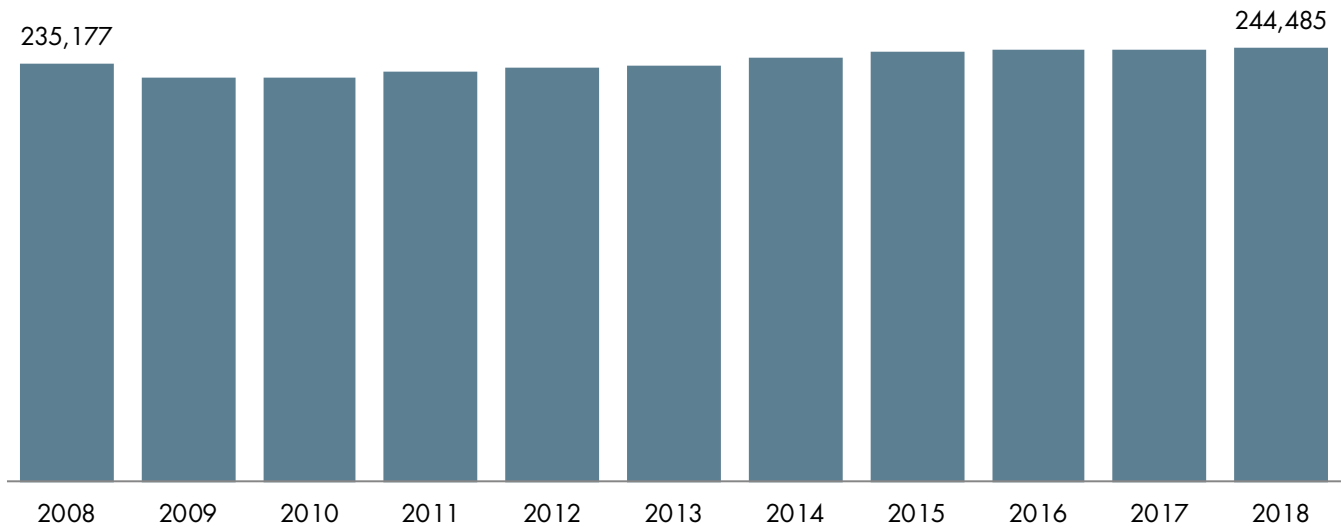


Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

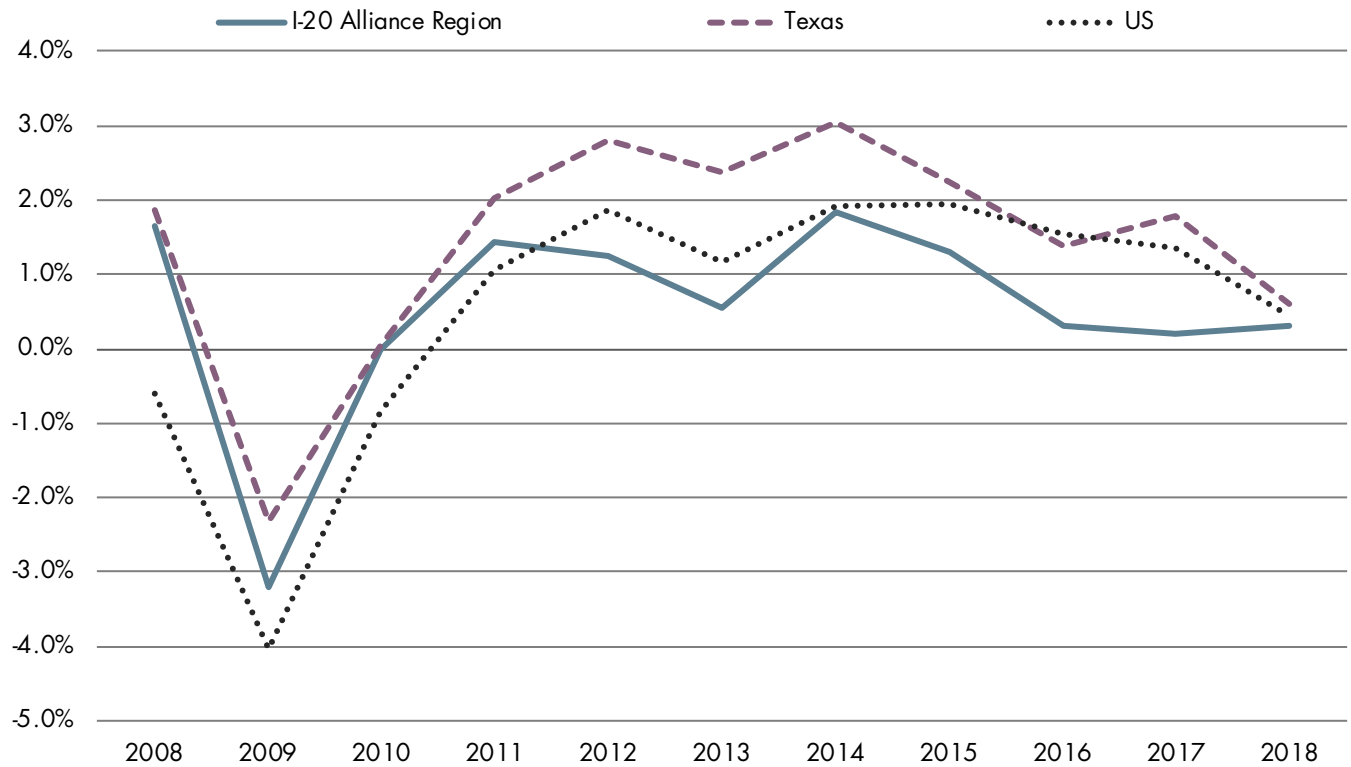
Note: IPEDS data include only schools eligible to participate in federal financial aid programs. Data labels for values under 25 have been omitted for readability.

## DEMAND DRIVERS

**FIGURE 34. I-20 ALLIANCE REGION EMPLOYMENT, 2008-2018**



**FIGURE 35. ANNUAL JOB GROWTH (PERCENT CHANGE), 2008-2018**



Source: (all figures) EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

**FIGURE 36. INDUSTRY DISTRIBUTION (PERCENT OF TOTAL)**  
 COMPARISON OF I-20 ALLIANCE REGION WITH SELECTED GEOGRAPHIES AND US

NAICS Code & Description	I-20 Alliance Region	Texas	US
62 Healthcare & social assistance*	<b>17.0%</b>	<b>12.0%</b>	<b>13.5%</b>
44-45 Retail trade	<b>11.9%</b>	<b>10.3%</b>	<b>10.3%</b>
61 Education*	<b>9.3%</b>	<b>10.0%</b>	<b>9.3%</b>
72 Lodging, restaurants, & bars	8.9%	9.0%	8.7%
23 Construction	7.9%	6.9%	5.6%
31-33 Manufacturing	7.2%	6.5%	8.0%
81 Personal & other services	6.1%	5.0%	4.9%
56 Administrative & support services	5.0%	6.7%	6.3%
42 Wholesale trade	4.0%	4.5%	3.8%
54 Professional services	3.9%	6.4%	6.5%
48-49 Transportation & warehousing*	3.6%	4.3%	4.0%
52 Finance & insurance	3.0%	4.3%	4.1%
9039 Local government	2.9%	2.9%	3.6%
21 Mining (incl. oil & gas)	2.5%	1.7%	0.4%
11 Agriculture & forestry	1.6%	0.8%	1.2%
53 Property sales & leasing	1.5%	2.0%	1.7%
71 Arts, entertainment, & recreation	1.0%	1.3%	1.7%
51 Information	1.0%	1.6%	1.9%
9029 State government	0.7%	1.1%	1.4%
22 Utilities	0.4%	0.4%	0.4%
55 Corporate & regional offices	0.4%	1.0%	1.4%
9011 Federal government (civilian)	0.2%	1.2%	1.4%

\*Includes related public-sector employment (e.g., education includes public schools, colleges, and universities; healthcare includes public hospitals; and transportation and warehousing includes US Postal Service workers).

Source: EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: Three largest industries are highlighted.



**FIGURE 37. INDUSTRY CONCENTRATION (LQ)**  
 COMPARISON OF I-20 ALLIANCE REGION WITH SELECTED GEOGRAPHIES AND US

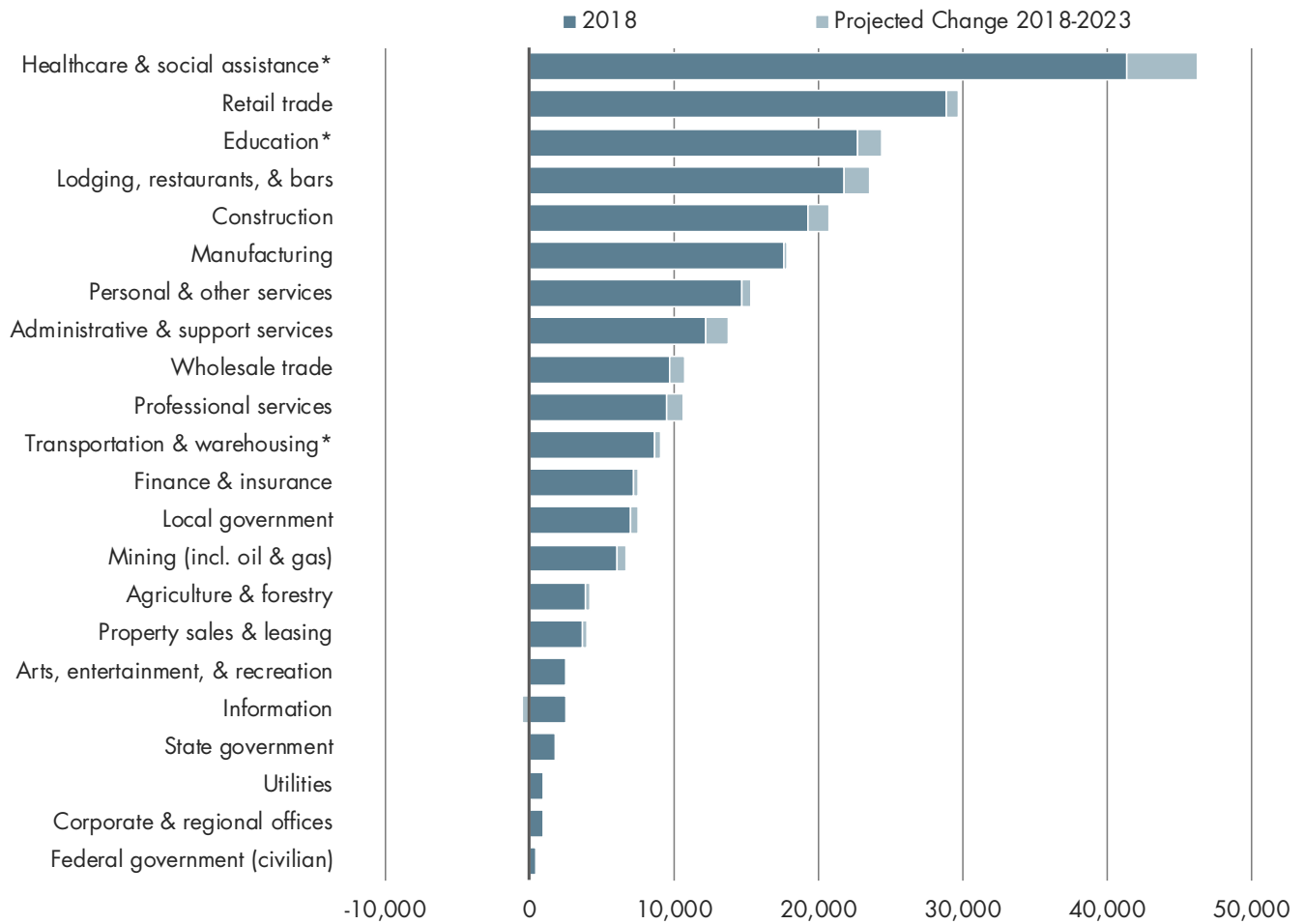
NAICS Code & Description	I-20 Alliance Region	Texas	US
21 Mining (incl. oil & gas)	<b>6.17</b>	<b>4.22</b>	1.00
23 Construction	<b>1.43</b>	1.24	1.00
11 Agriculture & forestry	<b>1.33</b>	0.67	1.00
62 Healthcare & social assistance*	<b>1.26</b>	0.89	1.00
81 Personal & other services	<b>1.25</b>	1.03	1.00
44-45 Retail trade	1.16	1.00	1.00
22 Utilities	1.10	1.09	1.00
42 Wholesale trade	1.06	1.19	1.00
72 Lodging, restaurants, & bars	1.04	1.03	1.00
61 Education*	1.00	1.07	1.00
31-33 Manufacturing	0.92	0.82	1.00
48-49 Transportation & warehousing*	0.90	1.09	1.00
53 Property sales & leasing	0.90	1.15	1.00
9039 Local government	0.81	0.82	1.00
56 Administrative & support services	0.80	1.06	1.00
52 Finance & insurance	0.73	1.07	1.00
54 Professional services	0.60	0.98	1.00
71 Arts, entertainment, & recreation	0.59	0.75	1.00
51 Information	0.55	0.85	1.00
9029 State government	0.52	0.75	1.00
55 Corporate & regional offices	0.26	0.68	1.00
901199 Federal government (civilian)	0.13	0.85	1.00

\*Includes related public-sector employment (e.g., education includes public schools, colleges, and universities; healthcare includes public hospitals; and transportation and warehousing includes US Postal Service workers).

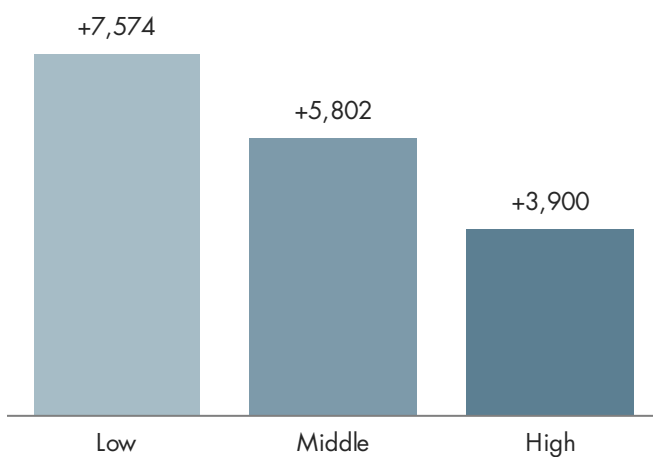
Source: EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

Note: LQs greater than 1.25 are presumed to show competitive advantage and are highlighted.

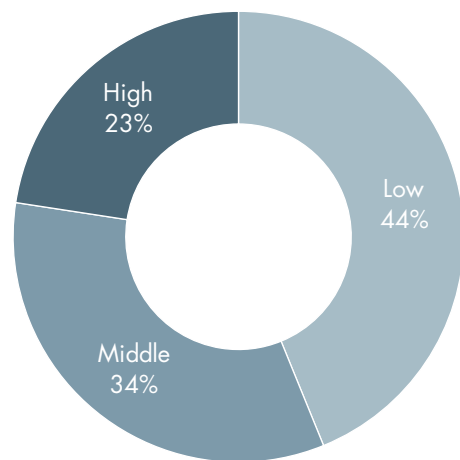
**FIGURE 38. TOTAL EMPLOYMENT BY INDUSTRY**  
2018 JOB BASE PLUS PROJECTED 5-YEAR CHANGE



**FIGURE 39. PROJECTED JOB CHANGE BY SKILL LEVEL, 2018-2023**



**FIGURE 40. PROJECTED DISTRIBUTION OF JOB CHANGE, 2018-2023**



\*Includes related public-sector employment (e.g., education includes public schools, colleges, and universities; healthcare includes public hospitals; and transportation and warehousing includes US Postal Service workers).

Source: (all figures) EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.

**FIGURE 41. I-20 ALLIANCE REGION DEMAND FACTORS BY SKILL LEVEL**

SOC CODE	DESCRIPTION	2018 Jobs	DEMAND FACTORS				
			Projected Openings (2018-2023)	Net Job Change (2018-2023)	Regional Median Hourly Wage / US Median	% 55-64 Years	% 65+ Years
<b>LOW-SKILL</b> ( <i>High school or less</i> )							
35-3021	Combined Food Prep. & Servers, Incl. Fast Food	8,281	8,613	790	0.93	7%	4%
39-9021	Personal Care Aides	5,776	5,402	1,032	0.83	20% ◀	11% ◀
35-3031	Waiters & Waitresses	4,318	4,471	298	0.90	5%	3%
43-9061	Office Clerks, General	6,915	4,322	242	0.97	20% ◀	9%
37-2011	Janitors & Cleaners, Exc. Maids & Housekeepers	3,585	3,155	665	0.82	22% ◀	10% ◀
53-7062	Laborers/Freight, Stock, & Material Movers, Hand	3,149	2,477	266	1.09	12%	4%
43-6014	Secretaries/Admin. Asst., Exc. Legal, Med., & Exec.	4,368	2,442	95	0.83	24% ◀	10% ◀
43-5081	Stock Clerks & Order Fillers	3,217	2,180	120	0.94	14%	5%
37-2012	Maids & Housekeepers	2,921	2,114	157	0.91	17%	6%
43-4051	Customer Service Representatives	2,449	2,028	375	0.84	13%	10% ◀
31-1011	Home Health Aides	2,442	2,006	525	0.83	17%	7%
47-2061	Construction Laborers	2,768	1,840	359	0.94	12%	3%
37-3011	Landscaping & Groundskeeping Workers	2,628	1,828	220	0.88	14%	-
45-2092	Farmworkers & Laborers, Crop & Greenhouse	1,460	1,254	106	0.79	17%	-
53-3033	Light Truck or Delivery Services Drivers	1,840	1,091	96	0.88	18%	10% ◀
35-2021	Food Preparation Workers	1,041	969	72	0.89	10%	5%
43-4171	Receptionists & Information Clerks	1,157	944	154	0.88	15%	9%
35-2012	Cooks, Institution & Cafeteria	909	706	56	0.86	16%	6%
33-9032	Security Guards	798	609	67	0.92	19%	14% ◀
53-7051	Industrial Truck & Tractor Operators	855	555	66	0.95	15%	3%
<b>MIDDLE-SKILL</b> ( <i>More than high school, less than four years</i> )							
53-3032	Heavy & Tractor-Trailer Truck Drivers	4,336	2,827	425	0.94	20% ◀	7%
43-6013	Medical Secretaries	2,653	1,779	300	0.84	20% ◀	7%
35-2014	Cooks, Restaurant	2,004	1,641	187	0.87	20% ◀	4%
43-3031	Bookkeeping, Accounting, & Auditing Clerks	2,686	1,590	74	0.96	24% ◀	10% ◀
41-4012	Sales Reps., Whls. & Mfg., Exc. Tech. & Scientific	2,500	1,548	238	0.91	22% ◀	8%
49-9071	Maintenance & Repair Workers, General	2,425	1,418	207	0.87	24% ◀	8%
25-9041	Teacher Assistants	1,971	1,263	219	0.80	18%	4%
35-1012	First-Line Supvrs., Food Prep. & Servers	1,412	1,137	109	1.15	9%	4%

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**FIGURE 41. I-20 ALLIANCE REGION DEMAND FACTORS BY SKILL LEVEL (CONTINUED)**

SOC CODE	DESCRIPTION	2018 Jobs	DEMAND FACTORS				
			Projected Openings (2018-2023)	Net Job Change (2018-2023)	Regional Median Hourly Wage / US Median	% 55-64 Years	% 65+ Years
<b>MIDDLE-SKILL</b> <i>(More than high school, less than four years)</i>							
43-1011	First-Line Supvsr., Office & Admin. Support	1,865	1,082	145	0.96	20% ◀	6%
31-9092	Medical Assistants	1,352	1,026	257	0.90	8%	2%
47-1011	First-Line Supvsr., Constr. Trades & Extraction	1,737	994	111	0.91	20%	6%
29-2061	Licensed Practical/Vocational Nurses	2,350	946	78	0.97	18%	5%
49-3023	Automotive Service Technicians & Mechanics	1,369	763	97	0.95	13%	3%
41-3021	Insurance Sales Agents	1,227	699	72	0.78	19%	9%
47-2073	Operating Eng. & Other Constr. Equip. Operators	878	697	178	0.78	17%	5%
47-2111	Electricians	1,077	675	69	0.83	16%	4%
47-5013	Service Unit Operators, Oil, Gas, & Mining	871	618	82	0.87	8%	1%
51-1011	First-Line Supvsr., Production & Operating Workers	1,031	540	36	0.97	23% ◀	5%
43-3021	Billing & Posting Clerks	848	522	87	0.92	17%	6%
11-9013	Farmers, Ranchers, & Other Agricultural Mgrs.	1,128	519	29	0.95	26% ◀	18% ◀
<b>HIGH SKILL</b> <i>(Four-year degree or above)</i>							
29-1141	Registered Nurses	5,766	1,961	430	0.88	19%	4%
11-1021	General & Operations Managers	3,144	1,605	293	0.89	20% ◀	5%
25-3098	Substitute Teachers	1,476	946	119	0.70	17%	7%
13-2011	Accountants & Auditors	1,490	755	85	0.94	22% ◀	9%
21-2011	Clergy	775	521	84	1.05	25% ◀	21% ◀
13-1199	Business Operations Specialists, All Other	849	459	68	1.01	21% ◀	7%
11-9199	Managers, All Other	942	423	86	0.75	25% ◀	8%
11-9111	Medical & Health Services Managers	583	297	65	0.96	23% ◀	5%
23-1011	Lawyers	869	260	72	0.87	22% ◀	15% ◀
11-9032	Educ. Administrators, Elem. & Secondary	529	257	51	0.80	26% ◀	5%
11-9021	Sub. Abuse, Behavioral Disorder, & Mental Health Counselor	651	257	7	0.58	21% ◀	6%
13-1111	Management Analysts	433	249	56	1.00	27% ◀	13% ◀
13-1161	Market Research Analysts & Mktng. Specialists	265	217	75	0.89	12%	5%
11-3031	Financial Managers	368	201	59	0.84	20% ◀	6%
13-1051	Cost Estimators	315	201	41	0.83	25% ◀	13% ◀
13-2072	Loan Officers	315	154	22	1.21	16%	5%
29-1069	Physicians & Surgeons, All Other	546	142	66	1.01	20% ◀	10% ◀
29-1123	Physical Therapists	328	141	69	1.17	10%	-
11-3011	Administrative Services Managers	270	140	29	0.93	28% ◀	7%
17-2051	Civil Engineers	241	140	47	1.07	17%	11% ◀

Source: EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.  
 Highlights: Regional Median Hourly Wage/ US Median = 10% or higher than US wages; %55-64 = 20% or higher; %65+ = 10% or higher.

**FIGURE 42. TOP 10 OCCUPATIONS, BASED ON VARIOUS INDICATORS**  
I-20 ALLIANCE REGION

Employment in 2018	◀ LARGEST	Median hourly earnings
8,576	Retail Salespersons	\$10.59
8,281	Combined Food Prep. & Servers, Incl. Fast Food	\$9.03
6,915	Office Clerks, General	\$14.67
5,776	Personal Care Aides	\$9.15
5,766	Registered Nurses	\$29.52
5,752	Cashiers	\$9.06
4,368	Secretaries/Admin. Asst., Exc. Legal, Med., & Exec.	\$14.21
4,336	Heavy & Tractor-Trailer Truck Drivers	\$18.53
4,318	Waiters & Waitresses	\$9.02
3,585	Janitors & Cleaners, Exc. Maids & Housekeepers	\$9.98

Employment in 2018	HIGHEST-PAYING (\$) ▶	Median hourly earnings
232	Family & General Practitioners	\$109.47
102	Anesthesiologists	\$103.69
62	Surgeons	\$102.71
546	Physicians & Surgeons, All Other	\$97.94
80	Internists, General	\$88.07
52	Pediatricians, General	\$73.95
106	Architectural & Engineering Mgrs.	\$67.05
189	Dentists, General	\$65.22
543	Pharmacists	\$62.84
102	Nurse Anesthetists	\$62.50

Net change	◀ MOST NEW DEMAND, 2018-23 (#)	Median hourly earnings
+1,032	Personal Care Aides	\$9.15
+790	Combined Food Prep. & Servers, Incl. Fast Food	\$9.03
+665	Janitors & Cleaners, Exc. Maids & Housekeepers	\$9.98
+525	Home Health Aides	\$9.24
+430	Registered Nurses	\$29.52
+425	Heavy & Tractor-Trailer Truck Drivers	\$18.53
+375	Customer Service Representatives	\$13.36
+367	Retail Salespersons	\$10.59
+359	Construction Laborers	\$13.88
+300	Medical Secretaries	\$13.95

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**FIGURE 42. TOP 10 OCCUPATIONS, BASED ON VARIOUS INDICATORS (CONTINUED)**  
I-20 ALLIANCE REGION

% change	◀ <b>FASTEST-GROWING, 2018-23 (%)</b>	Median hourly earnings
+37%	Bill & Account Collectors	\$15.72
+29%	Parking Lot Attendants	\$10.84
+29%	Telemarketers	\$12.34
+28%	Market Research Analysts & Mktng. Specialists	\$26.83
+28%	Interpreters & Translators	\$19.72
+27%	Massage Therapists	\$14.71
+26%	Emergency Medical Techs. & Paramedics	\$14.83
+25%	Paving, Surfacing, & Tamping Equip. Operators	\$16.80
+25%	Interviewers, Except Eligibility & Loan	\$14.82
+24%	Physician Assistants	\$50.77

Net change	◀ <b>FASTEST-DECLINING, 2018-23 (#)</b>	Median hourly earnings
-158	Teachers, Postsecondary	\$31.87
-102	Telecomm. Equip. Install./Repair, Exc. Line Install.	\$22.96
-80	Tellers	\$11.83
-67	Postal Service Mail Carriers	\$25.90
-64	Molding, Coremaking, & Casting, Metal/Plastic	\$14.86
-53	Assemblers and Fabricators, All Other, Including Team Assemblers	\$12.71
-42	Telecomm. Line Installers & Repairers	\$29.78
-34	Welders, Cutters, Solderers, & Brazers	\$18.36
-25	Electrical, Electronic, and Electromechanical Assemblers	\$14.34
-20	Photographers	\$14.21

% change	◀ <b>FASTEST-DECLINING, 2018-23 (%)</b>	Median hourly earnings
-26%	Telecomm. Equip. Install./Repair, Exc. Line Install.	\$22.96
-18%	Telecomm. Line Installers & Repairers	\$29.78
-16%	Welding, Soldering, & Brazing Machine	\$16.44
-13%	Pressers, Textile, Garment, & Related	\$9.31
-13%	Molding, Coremaking, & Casting, Metal/Plastic	\$14.86
-13%	Elevator Installers & Repairers	\$35.17
-12%	Postal Service Mail Carriers	\$25.90
-11%	Electrical, Electronic, and Electromechanical Assemblers	\$14.34
-11%	Postal Service Clerks	\$26.97
-11%	New Accounts Clerks	\$15.11

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**FIGURE 42. TOP 10 OCCUPATIONS, BASED ON VARIOUS INDICATORS (CONTINUED)**  
I-20 ALLIANCE REGION

% > 55	◀ LARGEST RETIREMENT EXPOSURE (%)	Openings (2018-23)
+58%	Tailors, Dressmakers, & Custom Sewers	56
+56%	Tax Preparers	92
+55%	Morticians, Undertakers, & Funeral Directors	50
+52%	Crossing Guards	67
+45%	Farmers, Ranchers, & Other Agricultural Mgrs.	519
+43%	Chief Executives	92
+43%	Construction & Building Inspectors	77
+41%	Property, Real Estate, & Community Assoc. Mgrs.	147
+41%	Management Analysts	249
+40%	Music Directors & Composers	94

Total Openings	◀ MOST OPENINGS, 2018-23 (#)	Median hourly earnings
8,613	Combined Food Prep. & Servers, Incl. Fast Food	\$9.03
6,626	Retail Salespersons	\$10.59
5,420	Cashiers	\$9.06
5,402	Personal Care Aides	\$9.15
4,471	Waiters & Waitresses	\$9.02
4,322	Office Clerks, General	\$14.67
3,155	Janitors & Cleaners, Exc. Maids & Housekeepers	\$9.98
2,827	Heavy & Tractor-Trailer Truck Drivers	\$18.53
2,477	Laborers/Freight, Stock, & Material Movers, Hand	\$14.22
2,442	Secretaries/Admin. Asst., Exc. Legal, Med., & Exec.	\$14.21

Source: (all figures) EMSI 2018.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed.  
Notes: Excludes military and occupations.

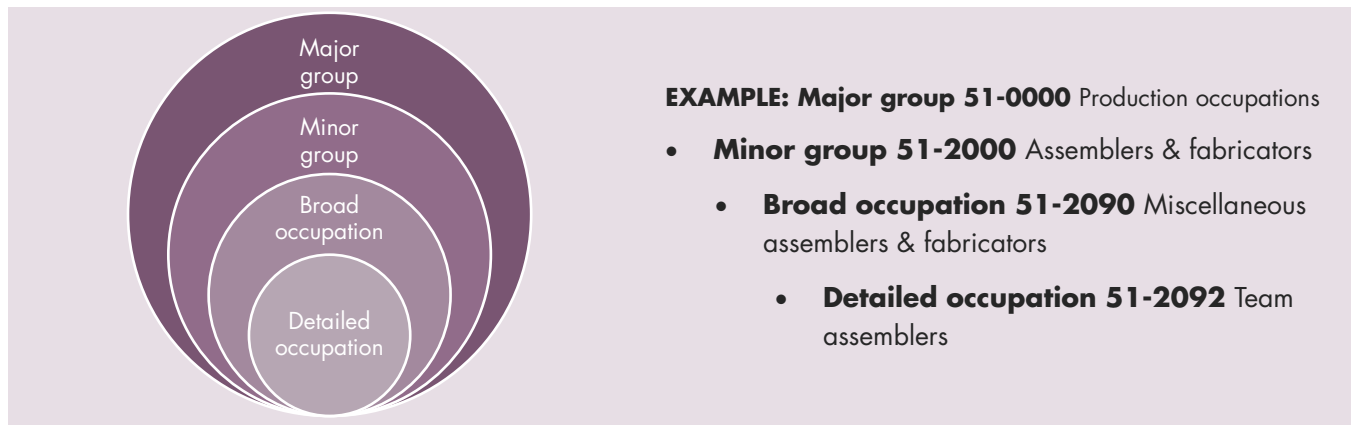
# DATA AND METHODOLOGY

## CLASSIFICATION SYSTEMS

Much of the analysis presented in this report relies on three separate classification systems. An overview of each follows.

The **Standard Occupational Classification (SOC) system** is used by federal statistical agencies to classify workers into categories for the purpose of collecting, calculating, or disseminating data. This system groups all occupations in which work is performed for pay or profit according to the type of work performed and, in some cases, on the skills, education, or training needed to perform the work at a competent level. Under the 2018 SOC system, which was finalized in late November 2017, workers are classified into one of 867 detailed occupations, which are combined to form 459 broad occupations, 98 minor groups, and 23 major groups. Federal agencies began implementing the newly updated SOC system in 2018.

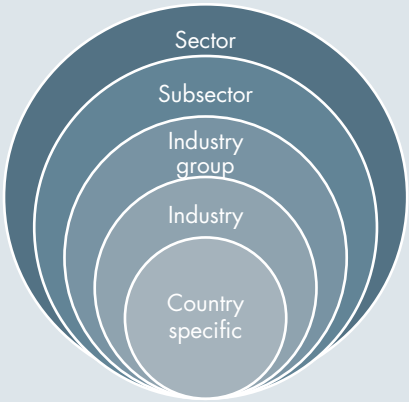
### STANDARD OCCUPATIONAL CLASSIFICATION (SOC) SYSTEM STRUCTURE AND EXAMPLE



The **North American Industry Classification System (NAICS, pronounced nakes)** was developed under the direction and guidance of the Office of Management and Budget (OMB) as the standard for use by federal statistical agencies in classifying business establishments for the collection, tabulation, presentation, and analysis of statistical data describing the US economy. The classification system was developed jointly with government agencies in Canada and Mexico to allow for a high level of comparability in business statistics among the North American countries. NAICS classifies industries into 20 sectors based on production processes. These sectors are broken into subsectors, industry groups, and individual industries, with an additional level of detail to accommodate industry codes specific to the three countries. The most recent version, 2017 NAICS, was finalized in 2016 and will continue to be implemented by agencies over the next several years.



## NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) STRUCTURE AND EXAMPLE



**EXAMPLE: Sector 31-33** Manufacturing

- **Subsector 336** Transportation equipment manufacturing
  - **Industry group 3361** Motor vehicle manufacturing
    - **Industry 33611** Automobiles & light duty motor vehicles, incl. chassis
      - **Country-specific 336111** Automobiles & light duty motor vehicles, incl. chassis

The **Classification of Instructional Programs (CIP)** is the accepted federal government statistical standard on instructional program classifications. Developed in 1980 by the National Center for Education Statistics, the CIP is used by state agencies, national associations, academic institutions, and employment counseling services for collecting, reporting, and analyzing instructional program data. The 2010 CIP is the current version of this classification system.

The CIP titles and program descriptions are intended to be generic categories into which program completions data can be placed and are not exact duplicates of specific major or field of study titles used by individual institutions. The vast majority of CIP titles correspond to academic and occupational instructional programs offered for credit at the postsecondary level. These programs result in recognized completion points and awards, including degrees, certificates, and other formal awards. The CIP also includes other types of instructional programs, such as residency programs in various dental, medical, podiatry, and veterinary specialties that might lead to advanced professional certification, personal improvement and leisure programs, and instructional programs that lead to diplomas and certificates at the secondary level only.

## DATA SOURCES

### EMPLOYMENT

The industry and occupational data presented in this report were prepared using Emsi’s foundational dataset, which integrates economic, labor market, demographic, and education data from over 90 government and private sector sources, creating a comprehensive and current database that includes both published data and detailed estimates with full coverage of the United States.

For a complete list of Emsi data sources, see: [www.economicmodeling.com/data-sources](http://www.economicmodeling.com/data-sources).

The company’s core data consists of jobs (historical and projected) and earnings (current year) by industry and occupation for every ZIP code, metropolitan statistical area, and county in the United States. Emsi data are annual averages of jobs (not workers); full-time and part-time jobs are counted equally. There are three classes of workers that are included in the core dataset.

- **QCEW Employees:** A form of the US Bureau of Labor Statistics Quarterly Census of Employment and Wages (BLS QCEW) dataset that has been modified slightly by Emsi. Suppressions have been removed, public sector employment has been reorganized, and county and NAICS changes have been modified in past years for

consistency. This dataset is designed to match QCEW in almost all cases and should be used in analyses where it is important to match official sources.

- **Non-QCEW Employees:** Attempts to cover jobs that fall under an employer-employee relationship but are not covered by QCEW. The major types of employment covered in this set include military jobs, railroad jobs, many nonprofit and religious workers, certain salespersons, miscellaneous federal government and some other government workers.
- **Self-Employed:** Covers people who, when responding to US Census Bureau surveys, consider self-employment to be a significant part of their income or time spent working. Most people normally considered “self-employed” would fall into this dataset.

With occupational data, beginning with its 2017.3 data run, Emsi uses the new BLS “occupational separations” methodology in its calculation of replacements and therefore openings. The BLS updated its methodology for calculating replacements because the old methodology (known as the “replacements” methodology) significantly undercounted the number of workers leaving occupations. This resulted in an artificially low number of replacements and openings. The BLS new methodology corrects the problem and provides a better estimate of true replacement needs. See [kb.economicmodeling.com/how-does-ems-i-calculate-job-openings](http://kb.economicmodeling.com/how-does-ems-i-calculate-job-openings).

## **EDUCATION AND TRAINING**

Under the Higher Education Act of 1965, every college, university, and vocational or technical institution that participates in federal financial student aid programs, such as Pell Grants or federally backed student loans, is required to report annually to the US Department of Education on a range of indicators. Data are collected through a system of interrelated surveys and are made available through the Integrated Postsecondary Education Data System (IPEDS).

Each fall, institutions report on the number of awards conferred for credit by field of study, by award level, and by the gender and race or ethnicity of the recipient. These data are referred to as “completions.” Data on completions for the most recent academic year available was downloaded from IPEDS for all schools in the region that participate in IPEDS surveys, except for schools in which training was limited to cosmetology.