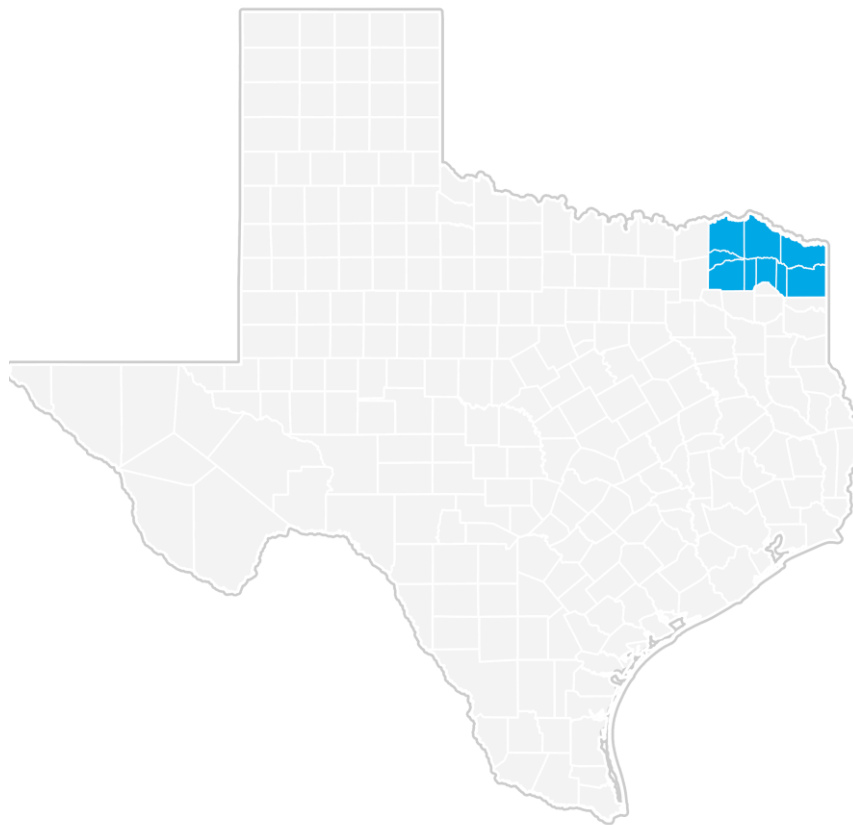


**Occupation Report for Heating, Air
Conditioning, and Refrigeration
Mechanics and Installers**
Workforce Solutions Northeast Texas



DEFINITION OF HEATING, AIR CONDITIONING, AND REFRIGERATION MECHANICS AND INSTALLERS, SOC 49-90213
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Definition of Heating, Air Conditioning, and Refrigeration Mechanics and Installers, SOC 49-9021

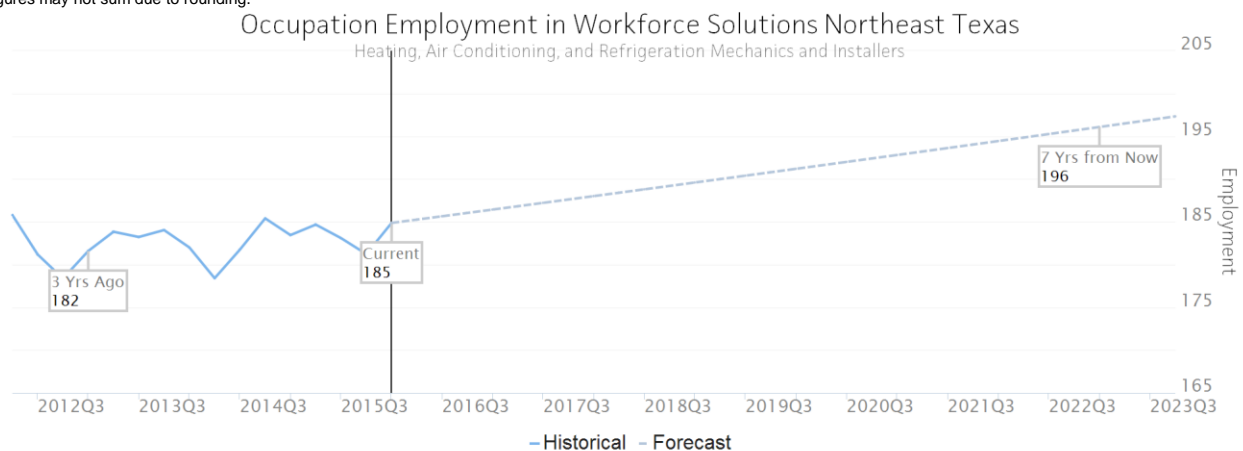
Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves.

Occupation Snapshot

As of 2016Q1, total employment for Heating, Air Conditioning, and Refrigeration Mechanics and Installers in the Workforce Solutions Northeast Texas was 185. Over the past three years, this occupation added 3 jobs in the region and is expected to increase by 11 jobs over the next seven years, or at an annual average rate of 0.8%.

Occupation Snapshot of Heating, Air Conditioning, and Refrigeration Mechanics and Installers in Workforce Solutions Northeast Texas									
Current					Historical		Forecast		
Four Quarters Ending with 2016q1			2016q1		Total Change over the Last 3 Years	Avg Ann % Chg in Empl 2013q1-2016q1	Over the Next 7 Years		
Empl	Avg. Annual Wages ¹	Location Quotient	Unempl	Unempl Rate	Empl	Workforce Solutions Northeast Texas	Total Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
185	\$36,800	0.76	11	5.9%	3	0.6%	22	11	0.8%

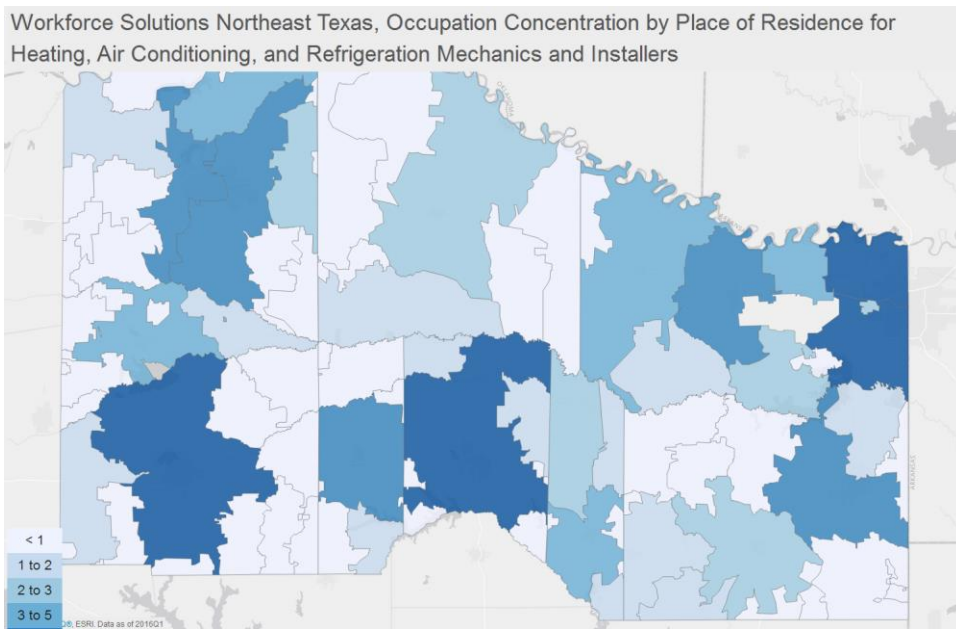
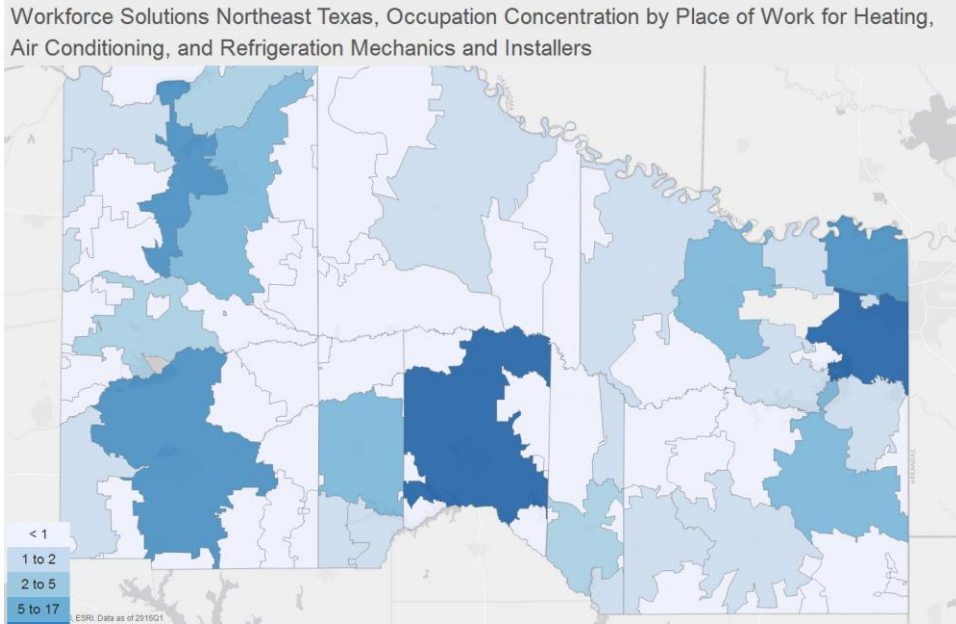
Source: JobsEQ®
 Data as of 2016Q1 unless noted otherwise
 Note: Figures may not sum due to rounding.



Occupation employment data are estimated via industry employment data and the industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2015Q3, imputed where necessary with preliminary estimates updated to 2016Q1. Wages by occupation are as of 2014 provided by the BLS and imputed where necessary. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns. Occupation unemployment figures are imputed by Chmura.

Geographic Distribution

The below maps illustrate the ZCTA-level distribution of employed Heating, Air Conditioning, and Refrigeration Mechanics and Installers in the Workforce Solutions Northeast Texas. Employment is shown by place of work and by residence.

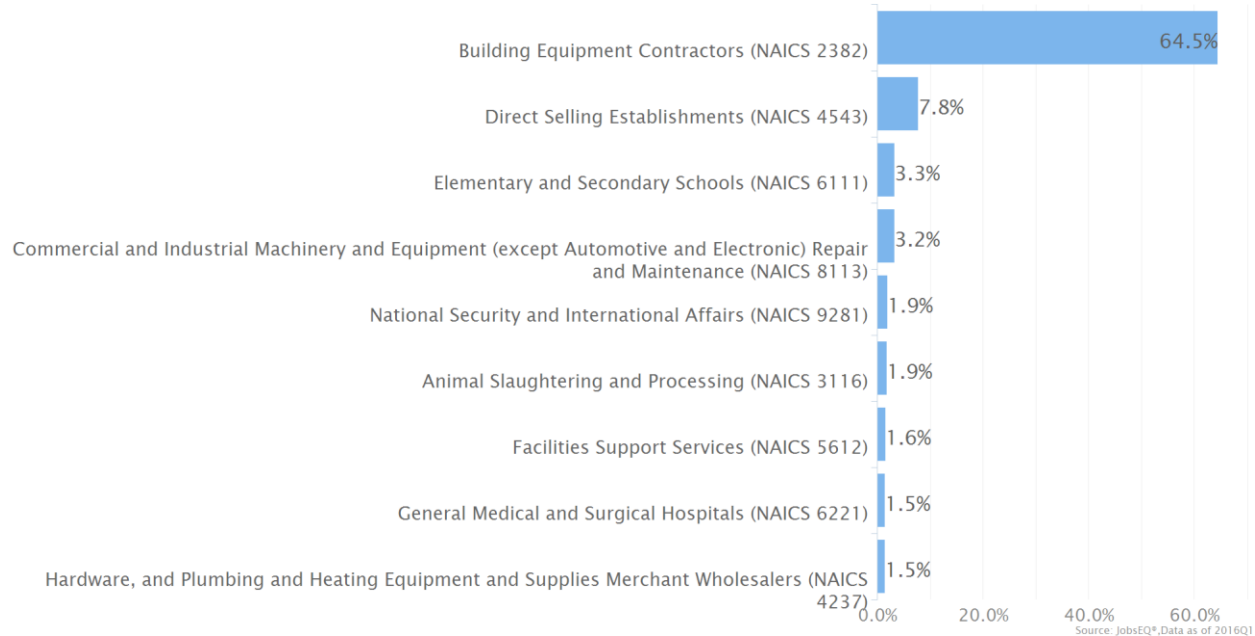


Occupation employment data are estimated via industry employment data and the industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2015Q3, imputed where necessary with preliminary estimates updated to 2016Q1. Occupation by residence data are derived from the same in addition to commuting pattern data.

Employment by Industry

The following chart and table illustrate the industries in the Workforce Solutions Northeast Texas which most employ Heating, Air Conditioning, and Refrigeration Mechanics and Installers. The single industry most employing this occupation in the region is Building Equipment Contractors, NAICS 2382. This industry employs 119 Heating, Air Conditioning, and Refrigeration Mechanics and Installers—employment which is expected to increase by 18 jobs over the next ten years; furthermore, 21 additional new workers in this occupation will be needed for this industry due to replacement demand, that is, to replace workers in this occupation and industry that retire or move into a different occupation.

Top Industries in the Workforce Solutions Northeast Texas
Heating, Air Conditioning, and Refrigeration Mechanics and Installers (49-9021)



Occupation employment data are estimated via industry employment data and the industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2015Q3, imputed where necessary with preliminary estimates updated to 2016Q1.

Top Industry Distribution for Heating, Air Conditioning, and Refrigeration Mechanics and Installers (49-9021) in Workforce Solutions Northeast Texas

NAICS Code	Industry Title	Current Occupation Employment	10-Year Repl Demand	10-Year Growth Demand	10-Year Total Demand
2382	Building Equipment Contractors	119	21	18	39
4543	Direct Selling Establishments	14	2	-2	0
6111	Elementary and Secondary Schools	6	1	0	1
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	6	1	0	1
5612	Facilities Support Services	3	1	1	1
3116	Animal Slaughtering and Processing	3	1	0	0
9281	National Security and International Affairs	4	1	0	0
6221	General Medical and Surgical Hospitals	3	0	0	1
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	3	0	0	0

**Top Industry Distribution for Heating, Air Conditioning, and Refrigeration Mechanics and Installers (49-9021) in Workforce Solutions
Northeast Texas**

NAICS Code	Industry Title	Current Occupation Employment	10-Year Repl Demand	10-Year Growth Demand	10-Year Total Demand
6112	Junior Colleges	2	0	0	0
9221	Justice, Public Order, and Safety Activities	2	0	0	0
2213	Water, Sewage and Other Systems	1	0	0	0
8114	Personal and Household Goods Repair and Maintenance	1	0	0	0
4911	Postal Service	2	0	-1	0
9211	Executive, Legislative, and Other General Government Support	1	0	0	0
6113	Colleges, Universities, and Professional Schools	1	0	0	0
	-All Others-	14	2	0	2

Source: JobsEQ®

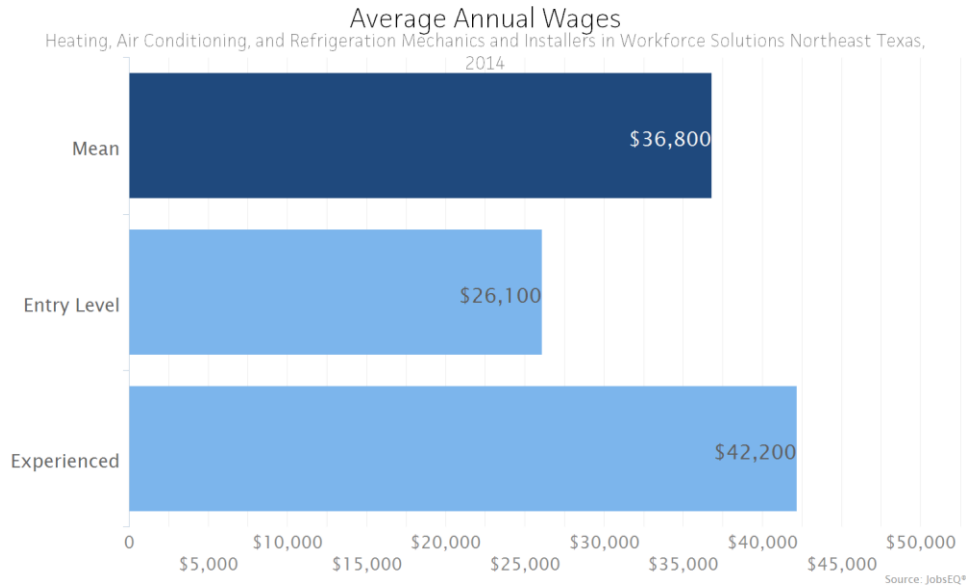
Data as of 2016Q1 except wages which are as of 2014. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.

Note: Figures may not sum due to rounding.

Occupation employment data are estimated via industry employment data and the industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2015Q3, imputed where necessary with preliminary estimates updated to 2016Q1. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

Wages

The average (mean) annual wage for Heating, Air Conditioning, and Refrigeration Mechanics and Installers was \$36,800 in the Workforce Solutions Northeast Texas as of 2014. For the same year, average entry level wages were approximately \$26,100 compared to an average of \$42,200 for experienced workers.



Occupation wages (mean, median, and percentiles) are as of 2014 provided by the BLS, modified and imputed by Chmura where necessary. Entry-level and experienced wages are derived from these source data, computed by Chmura.

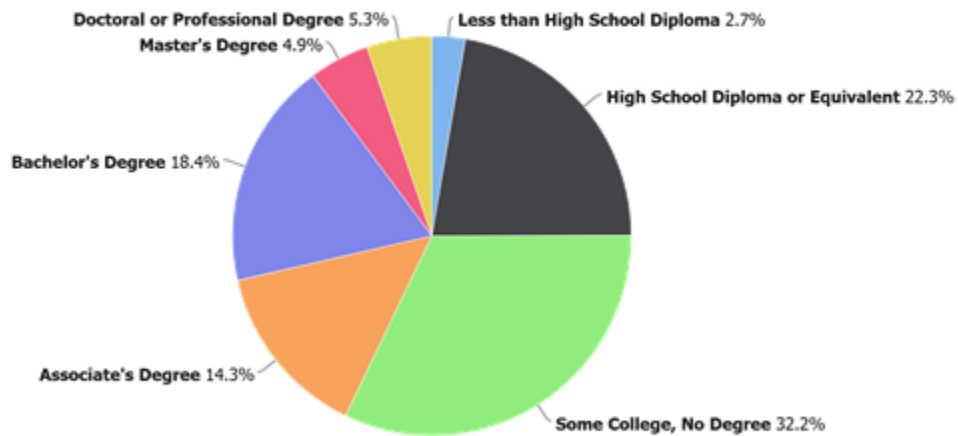
Education Profile

Typical education and training requirements for Heating, Air Conditioning, and Refrigeration Mechanics and Installers are described below.

Education and Training Requirements	
Typical Entry-Level Education:	Postsecondary non-degree award
Previous Work Experience:	None
Typical On-the-Job Training:	Long-term on-the-job training

The below education mix for Heating, Air Conditioning, and Refrigeration Mechanics and Installers is estimated from national survey data.

Educational Attainment Profile, Age 25+



Source: JobsEQ.

Education and training requirements as well as educational attainment mix data are from the Bureau of Labor Statistics.

Awards

The table below is a list of postsecondary program awards that were granted by postsecondary institutions located in the Workforce Solutions Northeast Texas in the 2014 academic year. These programs have been identified as providing training for Heating, Air Conditioning, and Refrigeration Mechanics and Installers (for further details, see the source note).

Title/School	Annual Awards - Workforce Solutions Northeast Texas		
	Certificates and 2yr Degrees	4yr Degrees	Postgraduate Degrees
47.0201 Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician			
Paris Junior College	56	0	0
Texarkana College	99	0	0
Total			
Total	155	0	0

Data as of the 2013-2014 academic year

Awards data are per the National Center for Education Statistics (NCES) and JobsEQ for the 2014 academic year. Any programs shown here have been identified as being linked with the occupation being analyzed. Other existing programs may also provide training in the region for this occupation but have not been so identified by the program-occupation crosswalk (see the FAQ section at the end of this report for more details). Furthermore, any programs shown here reflect only data reported to the NCES; reporting is required of all schools participating in any federal finance assistance program authorized by Title IV of the Higher Education Act of 1965, as amended—other training providers in the region that do not report data to the NCES are not reflected in the above.

Apprenticeships

The apprenticeable specialties associated with this occupation are:

Rapids Code	Rapids Title
0637	Heating-and-Air-Conditioning Installer-Servicer
0666	Refrigeration Mechanic
0666HY	Refrigration & Air Conditioning Mechanic
0678	Furnace Installer-and-Repairer, Hot Air
0794	Furnace Installer
0918	Refrigeration Unit Repairer
0966	Oil-Burner-Servicer-and-Installer
0990	Air and Hydronic Balancing Technician

Source: JobsEQ®

Apprenticeable occupations are identified through the Department of Labor's Registered Apprenticeship program.

CRC Profile

AM	AT	L	LI	OB	RI	TW	W
49-9021.01 - Heating and Air Conditioning Mechanics							
5	5	3	5	4	4	3	2
49-9021.02 - Refrigeration Mechanics							
4	4	n/a	4	3	4	3	n/a

AM – Applied Mathematics

AT – Applied Technology

L – Listening

LI – Locating Information

OB – Observation

RI – Reading for Information

TW – Teamwork

W – Writing

Average skill level requirements are based on ACT WorkKeys®.

Region Definition

Workforce Solutions Northeast Texas is defined as the following counties: Bowie County, Texas; Cass County, Texas; Delta County, Texas; Franklin County, Texas; Hopkins County, Texas; Lamar County, Texas; Morris County, Texas; Red River County, Texas; Titus County, Texas

FAQ

What is SOC?

The Standard Occupational Classification system (SOC) is used to classify workers into occupational categories. All workers are classified into one of over 840 occupations according to their occupational definition. To facilitate classification, occupations are combined to form 23 major groups, 97 minor groups, and 461 occupation groups. Each occupation group includes detailed occupations requiring similar job duties, skills, education, or experience.

What is a location quotient?

A location quotient (LQ) is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an occupation (or industry) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is training concentration?

The training concentration analysis compares local postsecondary training output compared to the national norm. Let's consider registered nurses as an example. If in the nation, one RN award is granted for every ten RNs employed, that 1:10 ratio is the national norm. If in your region your schools also grant one RN award for every ten RNs employed, then your region will be right at the national norm, or we say at 100% of the national norm which is termed a 100% training concentration. If your region grants two RN awards for every ten employed, your region would be at twice the national norm or have a 200% training concentration. Similarly, if your region grants one RN award for every twenty employed, your region would be at half the national norm or have a 50% training concentration.

What is the program-to-occupation crosswalk?

Training programs are classified according to the Classification of Instructional Programs (CIP codes). For relating training programs, this report uses a modified version of the CIP to SOC crosswalk from the National Center for Education Statistics (NCES). While this is a very helpful crosswalk for estimating occupation production from training program awards data, the crosswalk is neither perfect nor comprehensive. Indeed, it is hard to imagine such a crosswalk being perfect since many training program graduates for one reason or another do not end up employed in occupations that are most related to the training program from which they graduated. Therefore, the education program analyses should be considered in this light.

As an example of the many scenarios that may unfold, consider a journalism degree that crosswalks into three occupations: editors, writers, and postsecondary communications teachers. Graduates with a journalism degree may get a job in one of these occupations—and that may be the most-likely scenario—but a good number of these graduates may get a job in a different occupation altogether (the job may be somewhat related, such as a reporter, or the job may be totally unrelated, such as a real estate agent). Furthermore, a graduate may stay in school or go back to school for a degree that will lead to other occupation possibilities. Still another possibility includes the graduate not entering the labor market (maybe being unemployed, being a non-participant, or moving to another region).

What is replacement demand?

Replacement demand is the number of jobs required due to replacements—retirements and turnover resulting from workers moving from one occupation into another. Note that replacement demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. The replacement demand shown in this report may also be understated; thus, it can be taken to be a minimum measure of the number of workers who will need to be trained for the occupation due to replacements. The total projected demand for an occupation is the sum of the replacement demand and the growth demand (which is the increase or decrease of jobs in an occupation expected due to expansion or contraction of the overall number of jobs in that occupation).

What is NAICS?

The North American Industry Classification System (NAICS) is used to classify business establishments according to the type of economic activity. The NAICS Code comprises six levels, from the “all industry” level to the 6-digit level. The first two digits define the top level category, known as the “sector,” which is the level examined in this report.

About This Report

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