

GREATER DUBUQUE REGION SKILLS GAP ANALYSIS

FALL 2019



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Introduction

Background

In 2014, Greater Dubuque Development Corporation contracted with Smart Solutions to develop a regional Skills Gap Analysis to identify both skill and training deficiencies in the local economy. The purpose of the Skills Gap Analysis is to provide economic developers, workforce developers, and educators with information on projected workforce shortages (gaps) and to identify strategies to mitigate these shortages.

In 2015, Northeast Iowa Community College (**NICC**) obtained access to EMSI Analyst through a statewide grant awarded to Iowa's community colleges through the Department of Labor. The College partnered with Greater Dubuque Development Corporation on the implementation of EMSI Analyst and the development of the 2015 Skills Gap Analysis, as well as this 2019 Analysis.

EMSI is a leading provider of historical databases of economic, industry, occupation, demographic, and education completion data. EMSI's primary data sources for this skills gap analysis are the Bureau of Labor Statistics and the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS). This report utilizes EMSI and IPEDS data as primary sources, based on EMSI's 2019 3rd and 4th quarter data release. EMSI recommends *not* comparing annual releases because data 'noise' introduced by process improvements [EMSI 2014.4 Release Notes].

Region

This analysis contains data for seven counties:

Clayton, IA Dubuque, IA Jones, IA Grant, WI
Delaware, IA Jackson, IA Jo Daviess, IL



The analysis also covers the Dubuque Metropolitan Statistical Area (MSA), defined by the Office of Management and Budget as, "urban areas in the United States centered on an urban cluster with a population of 50,000 or more." Dubuque's MSA is the same as Dubuque County.

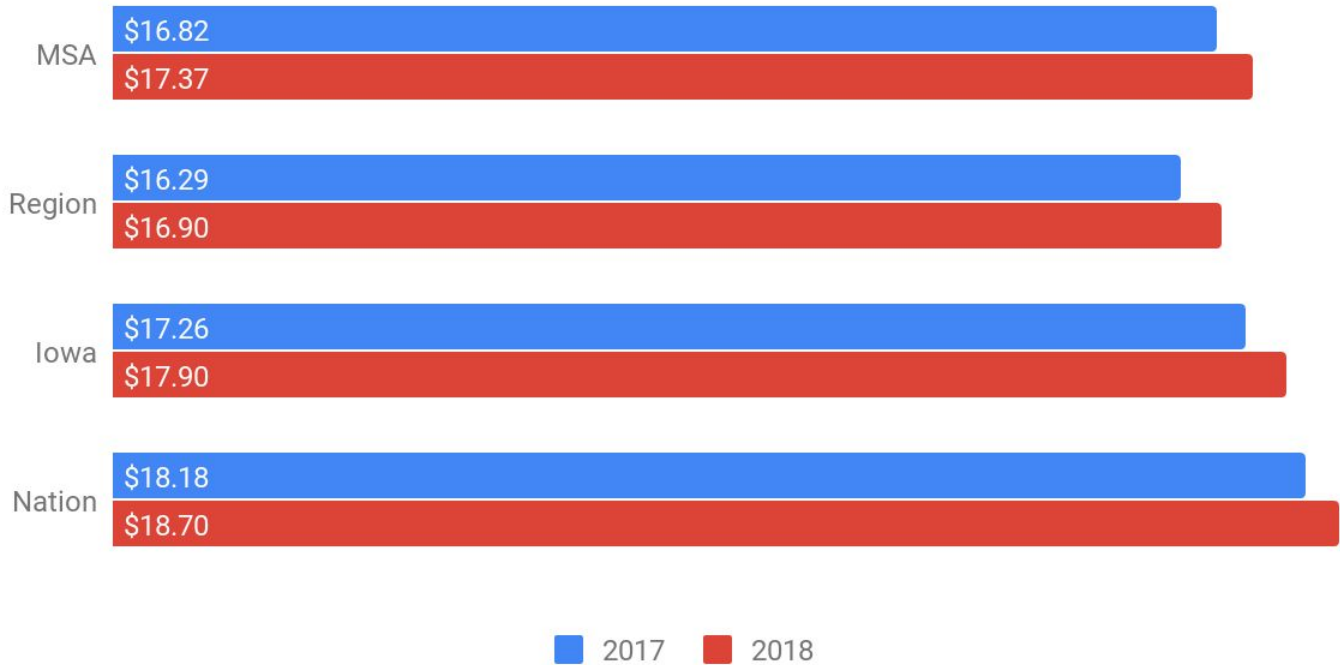
Definitions

This report provides the following information:

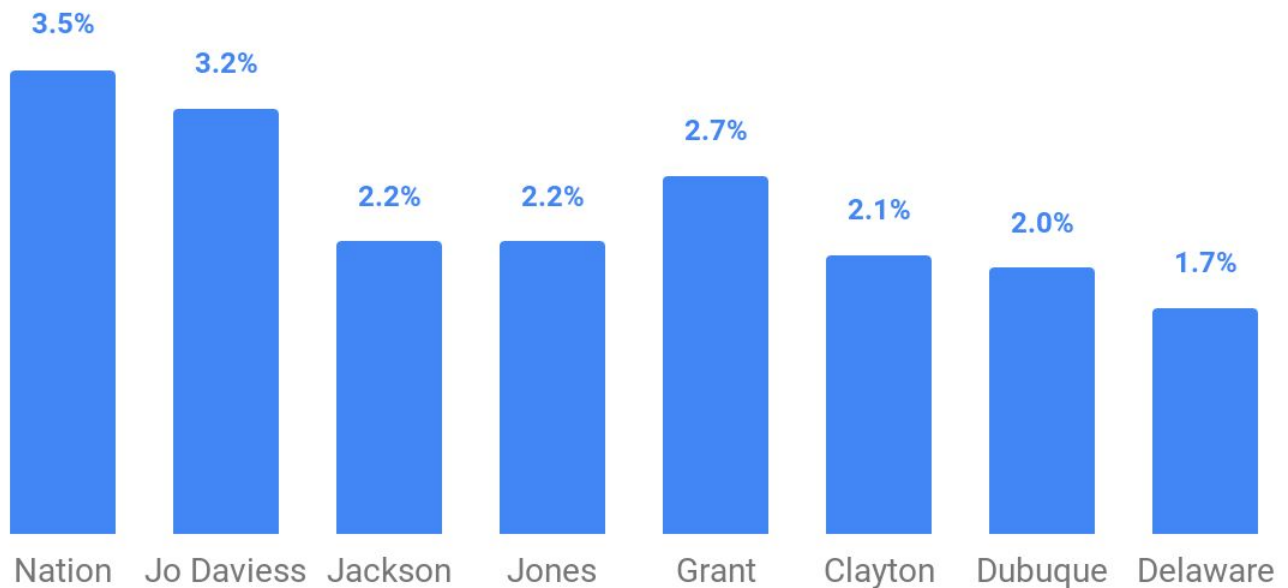
- Annual Opening: the estimated employment change and turnover for an occupation for a given year.
- Turnover: Includes workers who leave the workforce entirely (i.e. retired or choose to stay at home or go to school), and workers who transfer to a different occupation group. It does not include turnover from one opening in the same occupation to another.
- Change is defined as the net increase or decrease in regional an occupation jobs in an occupation over the selected timeframe.
- Annual Completions: The number of degrees or certificates conferred for a specific course of study in a given year. Includes all award levels. May be greater than the actual number of students who graduated [source: EMST]. IPEDS completion data is collected for the following institutions: Capri College (Dubuque), Carlson College of Massage, Clarke University, Divine Word College, Emmaus Bible College, Loras College, Northeast Iowa Community College (Peosta/Dubuque), Southwest Wisconsin Technical College, University of Dubuque, University of WI-Platteville
- Median Wage: The hourly earnings for occupations, excluding benefits, of a worker in that group. Median earnings of \$15/hr would mean that half of the workers in that occupation make more, and half make less. In the occupational report, it represents the midpoint of the wage distribution for an occupation: half of the workers make more, half of them make less [source: EMSI].
- Wage data is always one year behind the publication. This edition contains 2018 wage data. The prior year would then be 2017.
- Working Age: Between the ages of 15-69 years old.

Labor Market Overview

Median Wages by Location (2017 vs 2018)

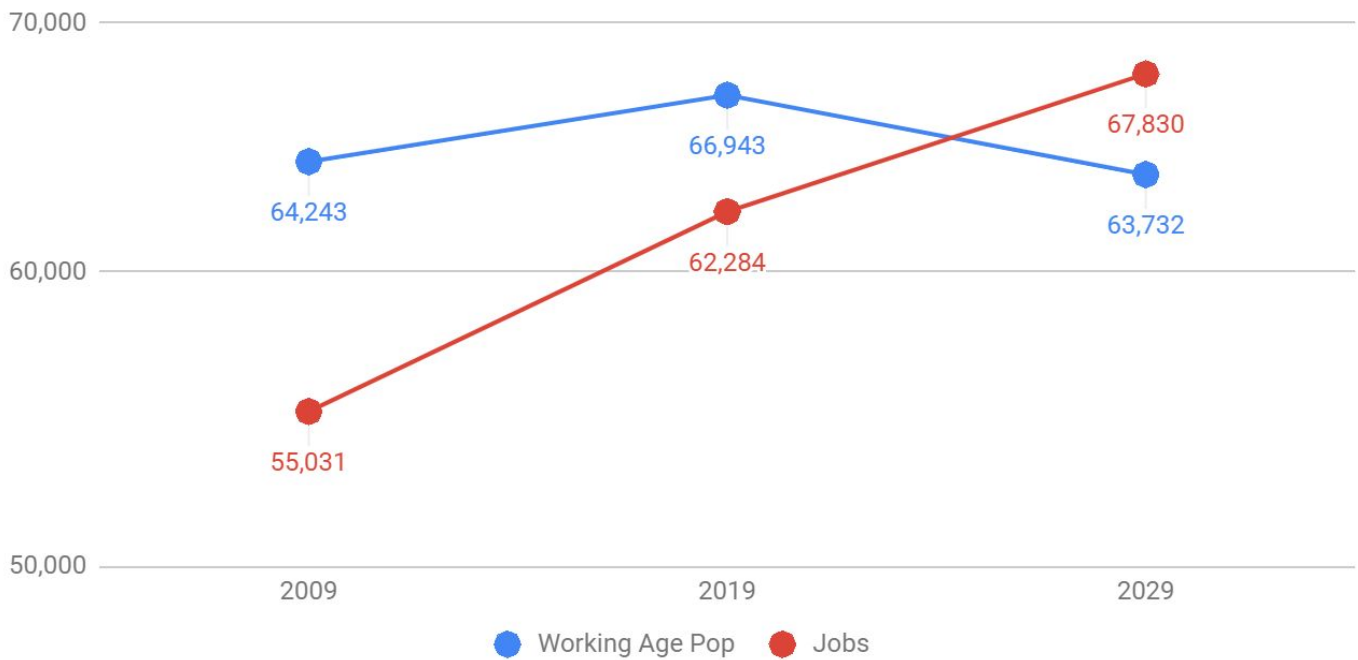


Unemployment by County (September 2019)

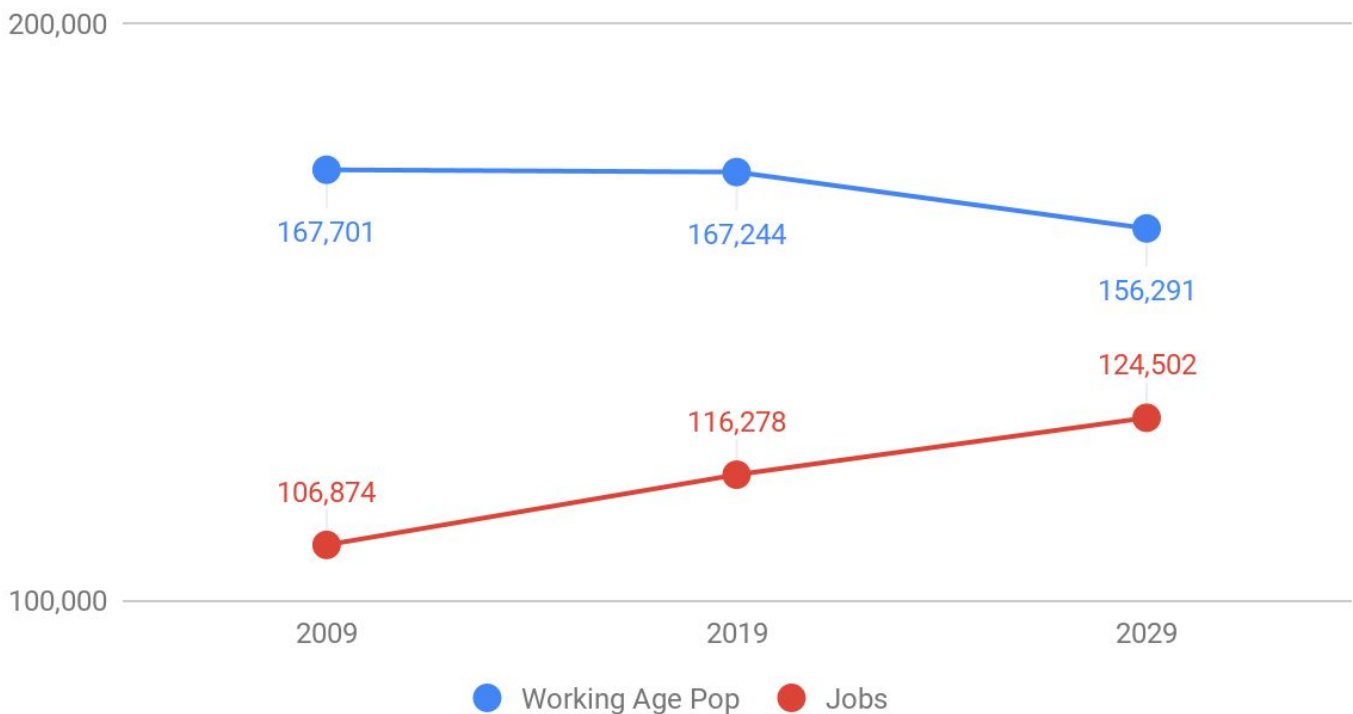


Labor Market Overview (continued)

Working Age Population and Jobs 2009 to 2029 (MSA)



Working Age Population and Jobs 2009 to 2029 (Region)



Labor Market Overview (continued)

Employment Growth		
Region	'09-'19 Chg	'19-'29 Chg
Dubuque MSA	13.2%	8.9%
Dubuque Region	8.8%	7.1%
State	8.5%	6.9%
Nation	15.4%	8.0%

Working Age Growth		
Region	'09-'19 Chg	'19-'29 Chg
Dubuque MSA	4.2%	-4.8%
Dubuque Region	-0.3%	-6.5%
State	3.7%	-3.2%
Nation	6.5%	-1.2%

- Employment in the Dubuque MSA is projected to grow (8.9%) above the projections for the region (7.1%), State of Iowa (6.9%) and the Nation (8.0%).
- While the working age population (age 15 to 69) is projected to decline nationally (-1.2%), greater declines are projected in Iowa (-3.2%), the Dubuque MSA (-4.8%), and the region (-6.5%).
- The region's unemployment rate remains low and below the national unemployment rate.
- The Dubuque MSA's median hourly earnings per worker of \$16.78 is (4.2%) increase over 2018 Median Hourly Earnings. The earnings are less (-6.5%) than the National median.
- Of the 8 MSAs in the tri-state area, Dubuque ranks 6th in Median Hourly Wage.

Rochester \$20.23	Cedar Rapids \$19.15	Iowa City \$19.03	Davenport \$17.61
Dubuque \$17.73	Waterloo \$16.80	LaCrosse \$17.61	Platteville \$16.61

MSA Median Wage Change

Area	2014	2015	2016	2017	2018	1yr Chg	5yr Chg	Rank
Rochester	\$18.26	\$18.45	\$19.20	\$20.03	\$20.23	4%	5%	1
Cedar Rapids	\$17.50	\$17.65	\$18.04	\$18.48	\$19.15	2%	3%	2
Iowa City	\$17.55	\$17.53	\$17.71	\$18.38	\$19.03	1%	1%	3
Quad Cities	\$15.61	\$16.00	\$16.59	\$17.07	\$17.61	4%	6%	4
La Crosse	\$16.05	\$15.88	\$16.31	\$16.92	\$17.61	3%	2%	5
Dubuque	\$15.45	\$15.71	\$16.02	\$16.82	\$17.37	2%	4%	6
Waterloo	\$15.56	\$15.78	\$16.16	\$16.30	\$16.80	2%	4%	7
Platteville	\$14.58	\$14.84	\$15.40	\$15.83	\$16.61	4%	6%	8

Demographic Information

ALL demographic data is from the U.S. Census Bureau's Population Estimates program and the U.S. Census Bureau and Bureau of Labor Statistics Current Population Survey. Information in this report has been modified to bring the data in line with hierarchy outlined in Federal Register 59267 and other reports published by Northeast Iowa Community College.

Projected Working Age Population

7 County Region				
Age Group	2019	2029	'09-'19 Chg	'19-'29 Chg
15 to 19 years	16,298	16,164	-10.9%	-0.8%
20 to 24 years	18,005	15,317	6.2%	-14.9%
25 to 29 years	13,963	11,736	2.9%	-15.9%
30 to 34 years	13,847	14,164	11.3%	2.3%
35 to 39 years	13,719	14,645	4.6%	6.8%
40 to 44 years	12,632	13,957	-16.1%	10.5%
45 to 49 years	13,021	13,707	-29.2%	5.3%
50 to 54 years	14,985	12,550	-18.9%	-16.2%
55 to 59 years	17,625	12,972	4.8%	-26.4%
60 to 64 years	17,565	14,550	29.2%	-17.2%
65 to 69 years	15,585	16,528	41.8%	6.0%
Working Age Total	167,244	156,291	0.3%	-6.5%
Total Population	245,677	246,290	1.1%	0.2%

Dubuque MSA				
	2019	2029	'09-'19 Chg	'19-'29 Chg
	6,701	6,592	-3.7%	-1.6%
	6,762	6,196	-0.4%	-8.4%
	6,259	5,503	6.9%	-12.1%
	6,164	5,897	22.6%	-4.3%
	5,826	6,247	13.5%	7.2%
	5,071	6,067	-15.3%	19.6%
	5,222	5,710	-24.1%	9.4%
	5,958	4,929	-11.9%	-17.3%
	6,627	5,000	6.5%	-24.6%
	6,554	5,623	36.2%	-14.2%
	5,798	5,969	52.1%	2.9%
	66,943	63,732	4.2%	-4.8%
	97,664	99,033	5.1%	1.4%

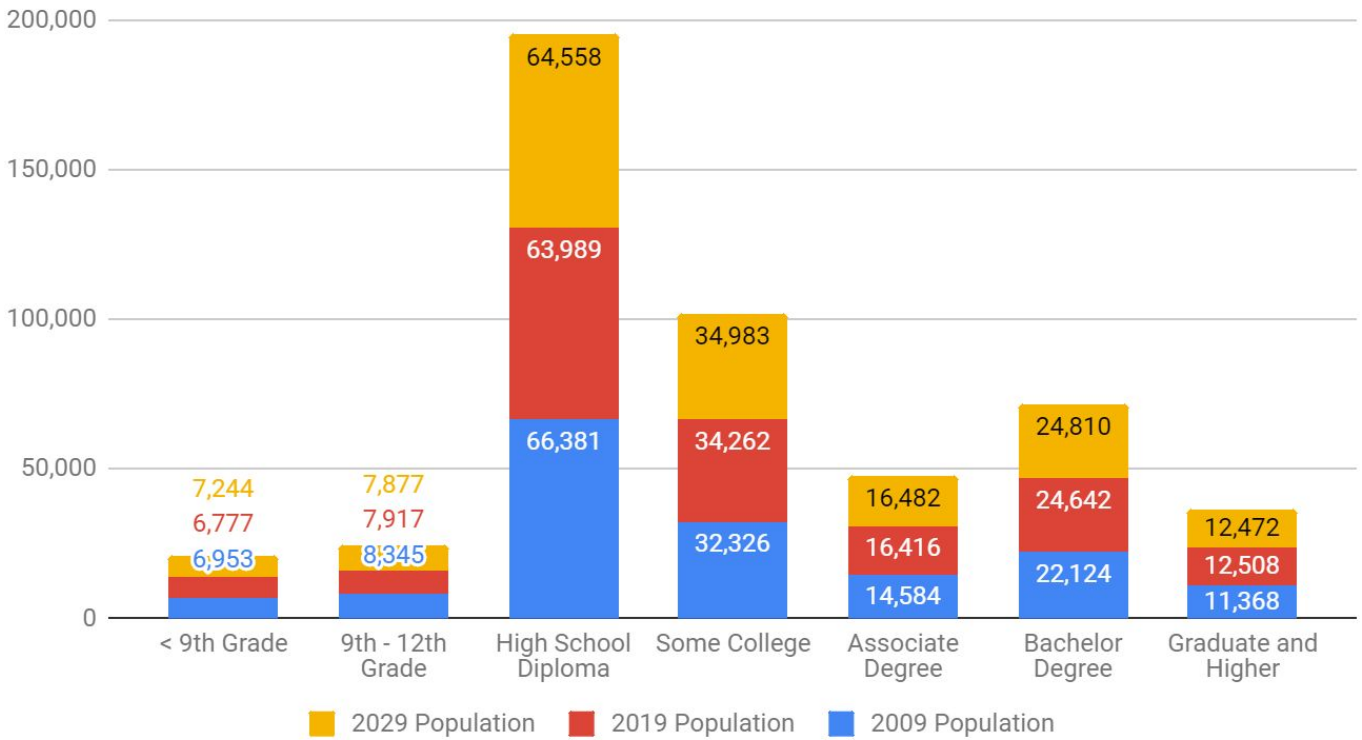
Projected Population by Race/Ethnicity

7 County Region Population			
Ethnicity/Race	2019	%	'19-'29 Chg
White	228,437	93.0%	-0.9%
Black	5,429	2.2%	18.5%
Hispanic (White)	4,788	1.9%	13.2%
Two or More Races	2,866	1.2%	14.1%
Asian	2,286	0.9%	9.9%
American or Alaskan Native	466	0.2%	8.7%
Pacific Islander	627	0.3%	25.2%
Hispanic (Multiple)	214	0.1%	19.2%
Hispanic (American/Alaskan Native)	261	0.1%	30.0%
Hispanic (Black)	206	0.1%	18.2%
Hispanic (Asian)	75	0.0%	21.9%
Hispanic (Pacific Islander)	21	0.0%	10.8%
Total	245,677	100.0%	0.2%

Dubuque MSA			
	2019	%	'19-'29 Chg
	88,038	90.1%	-0.2%
	3,621	3.7%	21.1%
	2,135	2.2%	12.7%
	1,510	1.5%	14.3%
	1,321	1.4%	7.8%
	440	0.5%	27.6%
	188	0.2%	11.0%
	115	0.1%	18.6%
	122	0.1%	16.7%
	117	0.1%	21.8%
	47	0.0%	22.0%
	10	0.0%	1.8%
	97,664	100.0%	1.4%

Educational Attainment Overview

Educational Attainment 2009-2029 (Region)



7 County Region			
Demographic	2019	'09-'19 Chg	% of '19 Pop
< 9th Grade	6,777	-2.5%	4.3%
9th - 12th Grade	7,917	-5.1%	4.7%
High School Diploma	63,989	-3.6%	38.3%
Some College	34,262	6.0%	20.8%
Associate's Degree	16,416	12.6%	9.8%
Bachelor's Degree	24,642	11.4%	14.7%
Graduate and Higher	12,508	10.0%	7.4%
Total	166,511	2.7%	100%

Dubuque MSA			
Demographic	2019	'09-'19 Chg	% of '19 Pop
< 9th Grade	2,120	-14.6%	3.3%
9th - 12th Grade	3,068	-5.7%	4.5%
High School Diploma	22,631	-0.5%	34.2%
Some College	13,266	9.7%	20.9%
Associate's Degree	5,906	22.5%	9.1%
Bachelor's Degree	12,450	23.0%	19.0%
Graduate and Higher	6,071	11.9%	9.0%
Total	65,512	7.5%	100%

Notes:

- Column [% Chg] is collected in educational attainment groups and the 2019 population is divided by the 2009 population.
- Column [% Pop] is the percentage of the 2019 population the group represents.
- The adult population is defined as the population 25 and older for the purposes of this analysis.
- The data in the tables above represents the highest level of education attained by the total adult population of each set. For example, in the Dubuque MSA there is not a 34% graduation rate of High School Students; the table shows that 34% of the Dubuque MSA population has a High School Diploma as their highest level of educational achievement.

Occupational Outlook

- The top 85 jobs in descending order for the 7 County Region in 2019.
- Historic annual wages are *not* adjusted for Cost-of-Living, Locality, or Inflation.
- An Info column value of 'AD' denotes jobs that typically require an advanced degree, 'XP' denotes jobs that typically require workplace experience to advance, and '<HS' denotes jobs that typically do not require training beyond high school and do not have associated completions.

Description	2019 Jobs	2029 Jobs	'19-'29 Change	Annual Openings	2018 Median Hourly Earnings	2013 Median Hourly Earnings	Annual Completions	Info
Retail Salespersons	3,475	3,502	27	506	\$10.94	\$9.59	0	<HS
Cashiers	3,100	3,091	-9	582	\$9.77	\$8.64	0	<HS
Combined Food Prep & Serving Workers, incl Fast Food	2,855	3,084	229	562	\$9.31	\$8.51	0	<HS
Office Clerks, General	2,576	2,601	25	308	\$14.88	\$12.99	73	
Customer Service Representatives	2,393	2,536	143	327	\$16.95	\$13.24	387	
Registered Nurses	2,362	2,677	315	158	\$27.15	\$23.91	146	
Heavy & Tractor-Trailer Truck Drivers	2,274	2,489	215	274	\$20.59	\$17.46	27	
Assemblers & Fabricators (Other), incl Team Assemblers	1,869	1,814	-55	217	\$16.38	\$15.42	0	<HS
Nursing Assistants	1,685	1,844	159	215	\$13.02	\$10.94	429	
General & Operations Managers	1,668	1,866	198	162	\$35.44	\$31.30	0	XP
Teacher Assistants	1,643	1,754	111	183	\$12.47	\$11.54	18	
Janitors & Cleaners (not Maids & Housekeeping Cleaners)	1,584	1,706	122	224	\$12.63	\$11.08	0	<HS
Personal Care Aides	1,570	1,917	347	279	\$11.23	\$10.01	429	
Waiters & Waitresses	1,558	1,537	-21	291	\$9.07	\$8.45	0	<HS
Laborers & Freight, Stock, & Material Movers, Hand	1,529	1,753	224	247	\$14.83	\$11.58	0	<HS
Stock Clerks & Order Fillers	1,479	1,543	64	198	\$11.72	\$10.07	0	<HS
Sales Reps, Wholesale & Manf (not Tech & Sci Products)	1,430	1,576	146	166	\$26.13	\$23.42	391	
Secretaries & Administrative Assistants (not Legal, Med, & Exec)	1,416	1,378	-38	151	\$15.33	\$12.90	20	
Bookkeeping, Accounting, & Auditing Clerks	1,365	1,393	28	157	\$16.90	\$14.16	120	
Secondary School Teachers (not Special or CTE)	1,341	1,412	71	101	\$25.80	\$22.68	35	
Elementary School Teachers (not Special Education)	1,297	1,389	92	103	\$24.82	\$23.82	108	
Postsecondary Teachers	1,295	1,481	186	124	\$31.60	\$27.55	139	AD
Maintenance & Repair Workers, General	1,245	1,365	120	139	\$17.03	\$16.40	180	
Construction Laborers	1,028	1,155	127	124	\$17.61	\$15.27	21	
Maids & Housekeeping Cleaners	990	984	-6	130	\$10.67	\$9.66	0	<HS
Bartenders	906	869	-37	146	\$9.22	\$8.52	0	<HS
1st-Line Sprvr of Office & Administrative Support Workers	880	965	85	98	\$22.70	\$20.53	0	XP
Insurance Sales Agents	858	1,052	194	110	\$23.02	\$19.08	391	
1st-Line Sprvr of Retail Sales Workers	851	886	35	94	\$17.28	\$15.92	0	XP
Cooks, Restaurant	822	830	8	117	\$10.79	\$8.97	17	
1st-Line Sprvr of Food Prep & Serving Workers	804	828	24	117	\$13.18	\$12.37	0	XP
Industrial Truck & Tractor Ops.	797	862	65	102	\$18.33	\$14.51	9	

Description	2019 Jobs	2029 Jobs	'19-'29 Change	Annual Openings	2018 Median Hourly Earnings	2013 Median Hourly Earnings	Annual Completions	Info
1st-Line Sprvr of Production & Operating Workers	794	885	91	91	\$26.59	\$22.37	0	XP
Farmworkers & Laborers, Crop, Nursery, & Greenhouse	787	883	96	137	\$13.56	\$11.52	7	
Light Truck or Delivery Services Drivers	745	803	58	88	\$15.56	\$13.60	0	<HS
Accountants & Auditors	717	821	104	78	\$27.61	\$25.28	120	
Mechanical Engineers	703	799	96	57	\$41.07	\$32.30	194	
Welders, Cutters, Solderers, & Brazers	689	802	113	91	\$19.81	\$16.52	93	
Substitute Teachers	664	704	40	78	\$13.46	\$13.13	0	
Cooks, Institution & Cafeteria	652	708	56	101	\$12.82	\$10.87	18	
Receptionists & Information Clerks	623	660	37	87	\$13.17	\$11.78	13	
Childcare Workers	610	669	59	98	\$8.99	\$8.69	28	
Tellers	609	633	24	76	\$13.77	\$11.37	0	<HS
Automotive Service Techs & Mechanics	601	642	41	61	\$18.11	\$16.28	43	
Carpenters	573	605	32	57	\$21.34	\$19.25	10	
Electrical, Electronic, & Electromech Assemblers	556	489	-67	61	\$20.76	\$16.01	0	
Operating Engineers & Other Construction Equip. Ops.	555	633	78	72	\$22.61	\$20.02	9	
Shipping, Receiving, & Traffic Clerks	548	592	44	62	\$16.04	\$14.02	0	<HS
Landscaping & Groundskeeping Workers	525	577	52	71	\$13.38	\$10.47	0	<HS
Business Operations Specialists (Other)	524	592	68	57	\$27.19	\$21.86	402	
Financial Managers	488	598	110	51	\$46.03	\$41.51	0	XP
Computer Systems Analysts	462	456	-6	30	\$40.68	\$33.48	90	
Preschool Teachers (not Special Education)	461	525	64	54	\$11.54	\$11.98	19	
1st-Line Sprvr of Construction Trades & Extraction Workers	460	526	66	54	\$29.40	\$24.56	0	XP
Counter Attendants, Cafeteria, Food Concession, & Coffee Shop	457	527	70	114	\$9.57	\$8.99	0	<HS
Driver/Sales Workers	450	427	-23	47	\$9.78	\$11.94	0	<HS
Licensed Practical & Licensed Vocational Nurses	449	502	53	39	\$20.04	\$18.50	56	
Inspectors, Testers, Sorters, Samplers, & Weighers	443	447	4	55	\$18.10	\$16.50	18	
Packaging & Filling Machine Ops. & Tenders	439	520	81	64	\$12.80	\$12.90	0	<HS
Machinists	438	532	94	59	\$19.53	\$17.95	23	
Police & Sheriff's Patrol Officers	423	423	0	28	\$27.19	\$23.57	208	
Coaches & Scouts	410	435	25	58	\$11.73	\$10.03	71	
Medical Assistants	391	452	61	51	\$15.91	\$14.60	63	
Middle School Teachers (not Special & CTE)	384	426	42	33	\$26.04	\$24.22	30	
Packers & Packers, Hand	383	430	47	66	\$13.31	\$11.24	0	<HS

Description	2019 Jobs	2020 Jobs	'19-'20 Change	Annual Openings	2018 Median Hourly Earnings	2019 Median Hourly Earnings	Annual Completions	Info
Loan Officers	380	422	42	37	\$30.08	\$26.53	96	
Electricians	380	442	62	51	\$27.86	\$22.86	3	
Plumbers, Pipefitters, & Steamfitters	369	433	64	48	\$26.11	\$23.79	11	
Customer Service Reps	368	433	65	54	\$24.19	\$20.25	388	
Correctional Officers & Jailers	368	329	-39	28	\$18.71	\$19.71	200	
Industrial Machinery Mechanics	367	431	64	41	\$22.27	\$20.94	50	
Food Prep Workers	362	383	21	65	\$9.59	\$9.59	0	<HS
Insurance Claims & Policy Processing Clerks	362	480	118	54	\$19.77	\$15.58	19	
Pharmacy Techs	357	362	5	29	\$13.16	\$12.84	0	
Education Administrators, Postsecondary	352	386	34	31	\$52.24	\$29.48	0	AD
Human Resources Specialists	351	380	29	38	\$23.54	\$22.86	17	
Medical & Health Services Managers	348	403	55	34	\$37.68	\$34.40	0	XP
1st-Line Sprvr of Mechanics, Installers, & Repairers	347	387	40	35	\$29.18	\$25.78	0	XP
Dining Room & Cafeteria Attendants & Bartender Helpers	344	341	-3	58	\$9.01	\$8.65	0	<HS
Security Guards	332	323	-9	43	\$11.63	\$12.94	0	<HS
Postal Service Mail Carriers	326	283	-43	20	\$24.24	\$24.05	0	
Market Research Analysts & Marketing Specialists	326	412	86	44	\$24.48	\$21.96	109	
Cleaners of Vehicles & Equip.	323	346	23	49	\$10.29	\$9.24	0	<HS
Executive Secretaries & Executive Administrative Assistants	322	285	-37	32	\$21.73	\$16.39	72	
Parts Salespersons	313	335	22	42	\$16.67	\$14.34	0	
1st-Line Sprvr of Transportation & Material Moving Workers	311	345	34	37	\$24.97	\$20.54	0	XP
Recreation Workers	307	338	31	56	\$11.69	\$9.67	21	
Dishwashers	306	302	-4	47	\$8.83	\$8.46	0	<HS
Hotel, Motel, & Resort Desk Clerks	304	279	-25	45	\$10.47	\$10.25	0	
Computer User Support Specialists	304	325	21	26	\$21.24	\$20.83	97	
Cutting, Punching, & Press Machine Setters, Ops., Metal & Plastic	303	320	17	38	\$16.15	\$15.51	23	
Woodworking Machine Setters, Ops. (not Sawing)	296	297	1	33	\$12.48	\$12.81	10	

Notes

Graduates may be counted in multiple occupations because their award could qualify them for many occupation (*i.e. a business grad could be an insurance agent or a sales rep*). The link between occupations and associated awards is determined by crosswalk**.

Why could we see more completions than annual openings, yet still see a workforce shortage for that occupation?

- Completion CIPs are linked to **multiple** jobs and one person will only hold one job at a time, removing them from the pool of available completers.
- We may have out-migration of skilled graduates to other communities.
- We may have unknown barriers to hiring new graduates, such as reluctance to hire and train, lack of employer or community connections with students before they graduate to keep them in the region, and/or narrow qualification requirements.

*Unless completions are otherwise noted.

**A modified version EMSI Proprietary of the NCES-BLS 2010 CIP-to-SOC crosswalk.

Appendix A - Definitions

Note: The entirety of Appendix A comes directly from EMSI.

How does EMSI calculate projections?

If you use an EMSI product or service, chances are you've seen some of our labor market projections. We provide detailed job estimates by industry and occupation, for each of the next 10 years from the current year.

A common question that we get from clients who see these figures is where do EMSI projections come from? The short answer is that we create our projections based on past trends carried forward, and published projections from state and federal sources. If you're after something a little more detailed, read on.

The first step in both our industry and occupation projections is our robust industry data. We first create, simple short-, mid-, and long-term trend lines for every industry and county based on the historical data.

Those lines are then averaged and dampened to prevent extreme change. We then incorporate national industry projections (BLS national employment projections) as well as state and regional projections provided by state labor market organizations to adjust these numbers again.

Finally, we take aggregate geography and industry group figures for 10-year percentage change and make sure it matches the corresponding published geography and industry numbers.

EMSI projections will not match the BLS or any other individual state projections at the most detailed level. This can be explained in a variety of ways.

Differences in Coverage

EMSI has broken out our labor market data into four different classes of worker that allow our clients to dig into specific elements of their economy. In most states, the first two classes of workers (QCEW Employees and Non-QCEW Employees) are most closely comparable to the industry projections from the published sources. We don't expect our self-employment and proprietors projections to match BLS and state-level projections.

We Don't Use BLS/State Occupation Projections

(except for our Annual Job Openings estimates)

Our occupation projections are based off of our industry numbers with our projected, regionalized staffing pattern applied to the figures. As a result, the occupation projections will necessarily differ from BLS occupation numbers.

Differences in Methodology

EMSI uses a combination of BLS, state, and internal projection methods. This will naturally differ from the BLS and state projections alone.

Release Lag

EMSI projections are based on the most recent available data and published projections, but the BLS and states release only long-term projections on a two-year basis. EMSI's internal projections are more heavily weighted as state/national projections age.

Occupation Data

EMSI occupation employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry.

Staffing Patterns Data

The staffing pattern data in this report are compiled from several sources using a specialized process. For QCEW and Non-QCEW Employees classes of worker, sources include Occupational Employment Statistics, the National Industry-Occupation Employment Matrix, and the American Community Survey. For the Self-Employed and Extended Proprietors classes of worker, the primary source is the American Community Survey, with a small amount of information from Occupational Employment Statistics.

State Data Sources

This report uses state data from the following agencies: Illinois Department of Employment Security, Employment Projections; Iowa Workforce Development; Wisconsin Department of Workforce Development, Bureau of Workforce Information

Jobs

A job is any position in which a worker provides labor in exchange for monetary compensation. This includes those who work as employees for businesses (a.k.a. “wage and salary” employees) and proprietors who work for themselves.

Emsi reports employment as annual averages. The exception is the Extended Proprietors Class of Worker (Class 4), which counts proprietors that existed at any time during a given year, because those data are based on tax returns. Employment averages represent jobs, not workers, since one individual may hold multiple jobs.

Due to limitations of source data, both full- and part-time jobs are included and counted equally, i.e. job counts are not adjusted to full-time equivalents. Geographically, payroll jobs are always reported by the place of work rather than the worker’s place of residence. Conversely, self-employed and extended proprietors are always reported by their place of residence. Unpaid family workers and volunteers are excluded from all Emsi data.

Source: Emsi data based primarily on the Quarterly Census of Employment and Wages (QCEW) from the Bureau of Labor Statistics (BLS) and the Bureau of Economic Analysis (BEA).

Annual Openings Estimate

A combination of both new jobs and replacement jobs constitutes total openings. The annual openings figure is derived by dividing total openings by the number of years in the user’s selected timeframe. For example, an occupation showing 130 openings between 2016 and 2026 would result in an annual openings figure of 13.

Classification and Methodology Changes

Emsi does not recommend comparing data releases due to the large amount of noise introduced by the continuous improvement of our processes and the number of updated data sources in each release. Each data release is a self-contained time series.

Staffing Pattern Improvements. We made some improvements to our staffing pattern process to improve the loading speed of staffing pattern reports. This change will result in extremely small employment numbers clustering more tightly around disclosed data and being less widely distributed (e.g. there will be more occupations with three jobs and fewer occupations with one job).

Improved ACS Methodology. For certain records, ACS cannot determine a specific industry to classify a job as, so they place these indeterminate records in less-detailed “catchall” categories. Emsi now distributes these values among the industries represented by the catchall, instead of dropping these records. This will result in 50k-80k jobs, depending on the year, being added to self-employed.

Improved Earnings Estimations. Emsi has reduced the volatility of earnings in occupation data for areas with small employment. Year over year data should be more continuous and less erratic as a result. Occupation Hires and Separations Improvements. Previous to this release, Emsi estimated occupation hires and separations using a combination of industry data from QWI and Emsi employment staffing patterns, implicitly assuming that hires and separations rates within an industry were the same across all occupations. Emsi’s new methodology estimates occupation hires and separations by combining QWI industry hires and separations with national occupation separation rates from the BLS and regional staffing pattern growth and decline. This change will not take effect immediately in Emsi’s tools, but will be released and messaged sometime later in the quarter.

Primary Data Source Information Legend

This is a breakout of the edition of the source used by EMSI. Bolded values indicate a change from the previous set.

Name	Abbrev.	Source	Emsi 2019.4
State Personal Income	SPI	BEA	2017
Local Area Personal Income	LPI	BEA	2017
Make and Use Tables	MUTS	BEA	2017
Gross Domestic Product by State	GSP	BEA	2017
American Community Survey	ACS	Census	2017
County Business Patterns	CBP	Census	2016
ZIP Code Business Patterns	ZBP	Census	2016
Non-Employer Statistics	NES	Census	2016
Census of Employment and Wages	QCEW	BLS	2018
National Ind/Occ Employment Matrix	NIOEM	BLS	2016-2026
Occupational Employment Statistics	OES	BLS	2018
Railroad Retirement Board	RRB	RRB	2016/2015
Quarterly Workforce Indicators	QWI	Census	2019Q1
Consumer Expenditure Survey	CEX	BLS	2018
Current Population Survey	CPS	Census	2017
State and Local Finances (Census of Gov.)	COG	Census	2016
Origin-Destination Employment Statistics	LODES	Census	2017
Population Estimates	POP	Census	2018

Appendix B - Descriptions and Additional Definitions

Occupational Descriptions

In an effort to be more environmentally friendly the list of occupations and their definitions have been removed from the print version of this report. For a definition of an occupation, please use one of the following sources:

- <https://www.onetonline.org/crosswalk/SOC/>
- <https://www.bls.gov/soc/>

Complete Skills Gap Table

In an effort to be more environmentally friendly the complete skills gap table has been removed from the print version of this report. An electronic version of the table is available here:

<https://datastudio.google.com/s/pNafwcdDRs0>

Updates, Changes, and Clarifications

Median Wages by Location: Prior versions of the publication listed the publication year vs the prior. In reality the data should have always read as one year behind the publication year as it comes from QCEW data, which always lags one year behind.

3rd and 4th Quarter EMSI data: Demographic data is from the 2019.3 data set and occupational data is from the 2019.4 data set.

SOC and Occupational Title adjustments: SOC 2018 was introduced by BLS since the publication of last year's report. There has been additions, deletions, and changes as part of the system revision. As businesses align with the new system all facets of associated data will slowly change over time as a reflection. Please review the BLS link in Appendix B for more information.