

Positively Productive



A Snapshot of Manufacturing and Production Workers Online Job Ads, March - April 2016

What is the significance of Manufacturing to the New Hampshire economy? Despite rumors of the demise of manufacturing in New Hampshire, manufacturing firms still make strong contributions to the state's economy.

- Manufacturing accounted for about 12 percent of the state's 2015 gross domestic product (GDP), producing goods and services with market value of just under \$8 billion.¹
- The value of total exports of merchandise from New Hampshire was \$4 billion in 2015.²
- An average of 67,220 workers was employed in Manufacturing in 2015, the third largest number of workers among all private industry sectors, after Retail trade and Health care and social assistance.³
- About 2,000 manufacturing establishments paid workers close to \$4.5 billion in wages, salaries, and bonuses in 2015, with an average weekly wage of \$1,287.⁴
- The location quotient for manufacturing employment in New Hampshire was 1.2.⁵ This means that there were 12 manufacturing workers in New Hampshire for every 10 manufacturing workers nationally.
- As of March 2015, about a third of manufacturing firms employed between one and four workers, but these firms employed just two percent of all manufacturing workers. Only one percent of manufacturing firms employed 500 or more workers, but these firms employed about 23 percent of all manufacturing workers.⁶

The Face of Manufacturing Employment in New Hampshire

Employment in the manufacturing industry tends to be male dominated; seven out of every ten manufacturing workers were male. The age of New Hampshire's manufacturing workforce is also a

¹ US Department of Commerce, Bureau of Economic Analysis. www.bea.gov

² US Exports by Origin State, US Census Bureau. www.census.gov/foreign-trade/statistics/state/data/nh.html

³ Preliminary 2015 Annual Average New Hampshire Quarterly Census of Employment and Wages (QCEW), Bureau of Labor Statistics. www.bls.gov

⁴ Ibid.

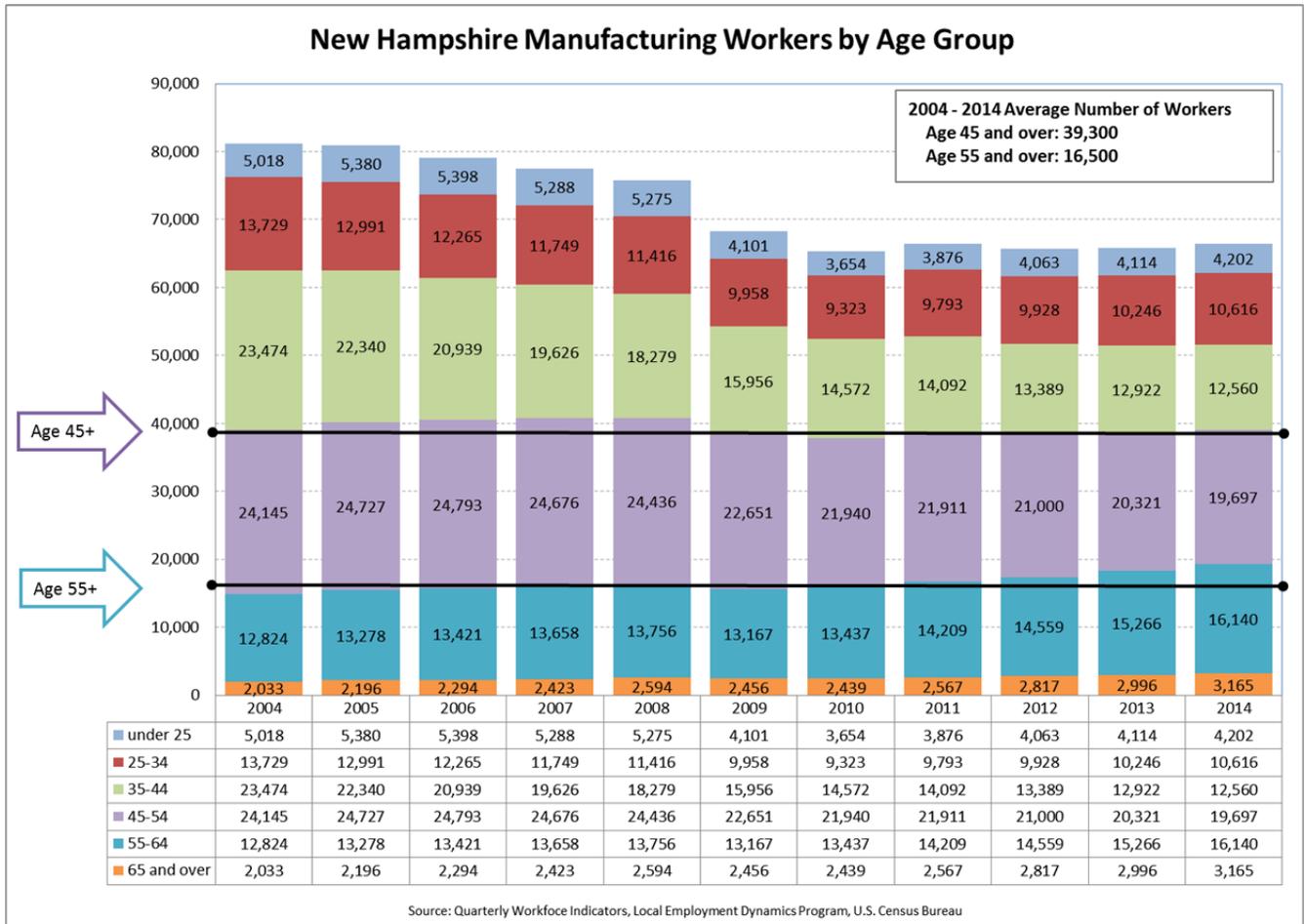
⁵ Ibid.

⁶ Firms by Size, 2015 Q1. Economic and Labor Market Information Bureau, New Hampshire Employment Security. www.nhes.nh.gov/elmi/statistics/fbs.htm

significant issue. Manufacturing workers age 45 or older account for 59.2 percent of manufacturing employment, compared to 48.8 percent of workers among all industries.⁷

In 2004, there were 80,000 manufacturing workers in New Hampshire, and that number shrank to just over 67,000 workers in 2015. Manufacturing had roughly equal shares of workers under and over age 45 in 2004. As a result of the Great Recession from 2007 through 2010, it appears that manufacturing companies practiced the rule of “last in – first out,” and the number of workers under age 45 experienced more significant reductions than workers age 45 and over. Since 2010, the number of workers age 55 to 64 and those age 65 and over has increased, as incumbent workers continue to age. An aging manufacturing workforce will eventually need to be replaced as they retire or leave manufacturing occupations for other reasons.

Most startling is the reduction in workers age 35 to 44, which dropped by close to half between 2004 and 2014, from 23,474 to 12,560. This decline was by far the largest reduction in workers for any age group over the ten-year period. The drop in workers in this age group significantly impacts employers’ ability to attract workers with manufacturing experience to fill available jobs.

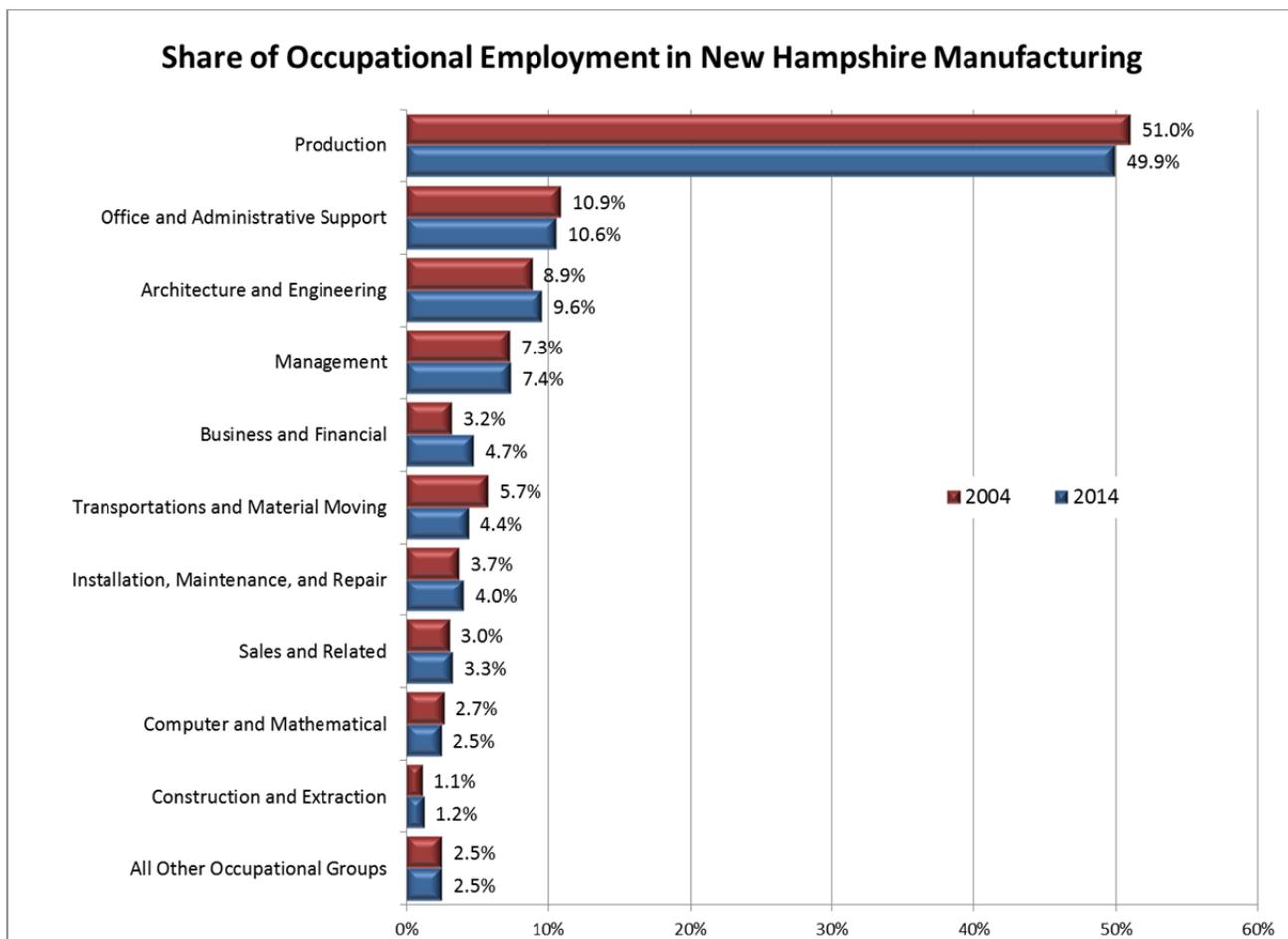


⁷ US Census Longitudinal-Employer Household Dynamics Program LED 2015 Q3. <http://ledextract.ces.census.gov/>

The difference between manufacturing and production workers

As used to define the labor market, manufacturing is an *industry*. Business establishments engage in activities to produce goods including the entire process from product concept to design, from materials to product production, from testing to marketing and delivery of the final product. Production workers, on the other hand, are people who perform the tasks required to make the product. Production workers account for roughly half of employment in manufacturing establishments; the other half is in other occupational groups.⁸

In New Hampshire, manufacturing accounted for 12.2 percent of total private employment in 2015, a drop of 2.9 percentage points from 2004. What is not easily discernible is the reason for the reduction in employment. The introduction of advanced manufacturing processes has contributed to the reduction in workforce. Education and training for workers also shifted with the advanced machinery, requiring longer training periods, and even college degrees, where historically a high school diploma or less was sufficient.



⁸ 2015 Occupational Staffing Patterns, New Hampshire Occupational Employment Statistics program

Business practices have also changed over time, and the occupations employed by manufacturers have shifted. Each occupation's share of manufacturing industry employment, known as a reverse staffing pattern, illustrates this change.⁹ In 2004, for example, the share of transportation and material moving workers employed by manufacturers in New Hampshire was 5.7 percent, compared to 4.4 percent in 2014. This is indicative of manufacturing companies hiring shipping companies rather than supporting a fleet of trucks and drivers. The portion of manufacturing workers in production occupations also declined, from 51.0 percent in 2004 to 49.9 percent in 2014. At the same time, the share of manufacturing workers in business and financial occupations increased, from 3.2 percent in 2004 to 4.7 percent in 2014. Three occupational groups — architectural and engineering occupations; installation, maintenance, and repair occupations; and life, physical, and social science occupations — each accounted for a larger share of manufacturing employment in 2014 than in 2004.

Online Job Postings, March 1 to April 30, 2016

How do manufacturers find applicants for available jobs? Many businesses post job openings online. Yet production occupations are far less likely than other occupations to be advertised in an online job posting. In the 60-day period from March 1 to April 30, 2016, there were 1,906 job ads from manufacturers, compared to 3,763 ads from businesses in health care and social assistance, and 2,497 ads from professional, scientific, and technical services businesses.¹⁰

Similar to other assessments of labor market information, online job ads based on the manufacturing industry sector versus those based on production occupations are quite different.

Production occupations accounted for 22.0 percent of the 1,906 online job ads from manufacturing companies in New Hampshire from March 1 to April 30, 2016, the largest share among occupational groups. Yet they only numbered 419 job postings, less than half the total number of online postings for production occupations. Upon review, it was notable that postings from the manufacturing industry included:

- architecture and engineering occupations, 14.4 percent of postings;
- management occupations, 9.7 percent of postings;
- transportation and material moving occupations, 7.9 percent of postings;
- computer and mathematical occupations, 7.8 percent of postings; and
- sales and related occupations, 7.5 percent of postings.

⁹ The share of production workers employed in manufacturing excludes production workers directly employed by *Employment services* businesses (staffing agencies), who may be temporarily assigned to a manufacturing firm.

¹⁰ Labor/Insight, Burning Glass Technologies

Occupations most frequently listed in online job ads

Only four of the twelve occupations most frequently specified in online job ads posted by manufacturing companies were production occupations. Those same four occupations were also the jobs with the most online ads among production occupations — *Production workers, all other; Inspectors, testers, sorters, samplers, and weighers; Aircraft structure, surfaces, rigging, and systems assemblers; and First-line supervisors of production and operating workers.*

Occupations Most Frequently Included in Online Job Ads

Production Occupations		
O*NET Code	Occupation	Job Ads
51-9199.00	Production Workers, All Other	219
51-9061.00	Inspectors, Testers, Sorters, Samplers, and Weighers	113
51-2011.00	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	73
51-1011.00	First-Line Supervisors of Production and Operating Workers	65
51-4041.00	Machinists	60
51-2092.00	Team Assemblers	48
51-4011.00	Computer-Controlled Machine Tool Operators, Metal and Plastic	45
51-3011.00	Bakers	42
51-2022.00	Electrical and Electronic Equipment Assemblers	39
51-9198.00	Helpers--Production Workers	34

Manufacturing		
O*NET Code	Occupation	Job Ads
51-9199.00	Production Workers, All Other	100
53-7062.00	Laborers and Freight, Stock, and Material Movers, Hand	64
15-1132.00	Software Developers, Applications	51
41-4012.00	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	51
51-9061.00	Inspectors, Testers, Sorters, Samplers, and Weighers	50
17-2141.00	Mechanical Engineers	48
11-9199.00	Managers, All Other	47
17-2199.04	Manufacturing Engineers	36
51-1011.00	First-Line Supervisors of Production and Operating Workers	36
51-2011.00	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	35
17-3029.09	Manufacturing Production Technicians	32
41-9011.00	Demonstrators and Product Promoters	31

 Production occupations with more than 30 online ads from Manufacturing companies
 Source: Labor Insight Burning Glass Technologies, New Hampshire results, March 1-April 30, 2016

Online ads for occupations with 30 or more job postings from manufacturing companies included:

- one transportation and material moving occupation - Laborers and freight, stock, and material movers;
- one computer and mathematical occupation - Software developers;
- two sales and related occupations - Sales representatives and Demonstrators and product promoters; and
- three architecture and engineering occupations - Mechanical engineers, Manufacturing engineers, and manufacturing production technicians.

Job Ads from Manufacturing Employers

There was a distinct difference between companies that posted online ads for production jobs and the occupations that were posted by manufacturing companies. Among job ads posted by manufacturers, the firm name was not included in 36 percent of postings for March 1 to April 30, 2016.

Online Job Postings by Occupational Group for Manufacturers Posting the Largest Number of Ads

		BAE Systems	Oldcastle Precast Inc.	Osram Sylvania	NESC*	Novo Nordisk	Danone	Xerox	Lonza Group	Velcro USA	UniFirst Corporation	PepsiCo Inc.	Hyperterm Inc.	Total Postings
11-0000	Management	22	1	2	4	2	8	6	7	5	1			58
13-0000	Business and Financial Operations	22	2		2	5	4	1	1	1				38
15-0000	Computer and Mathematical	37	2		2	3	2	7	1	2			3	59
17-0000	Architecture and Engineering	45		2	6	5			5	6			4	73
19-0000	Life, Physical, and Social Science	3			1	3			6					13
21-0000	Community and Social Services													
23-0000	Legal													
25-0000	Education, Training, and Library			1										1
27-0000	Arts, Design, Entertainment, Sports, and Media	2		1	1				1	1		3		9
29-0000	Healthcare Practitioners and Technical		1				2	1						4
31-0000	Healthcare Support			1		1								2
33-0000	Protective Service	2												2
35-0000	Food Preparation and Serving Related													
37-0000	Building and Grounds Cleaning and Maintenance													
39-0000	Personal Care and Service													
41-0000	Sales and Related	5	2	2				3			6		2	20
43-0000	Office and Administrative Support	4	3	1	3			9			1		4	25
45-0000	Farming, Fishing, and Forestry						1							1
47-0000	Construction and Extraction	2	10											12
49-0000	Installation, Maintenance, and Repair	2	1	1	4	3	1			1	3	1		17
51-0000	Production	7	2	18	6	6	4		1		4		1	49
53-0000	Transportation and Material Moving	2	29		6		4			1		12		54
	Unidentified Occupations	33	4	7		2	2			2	3		2	55
	Total Postings	188	57	36	35	30	28	27	22	19	18	16	16	

*NESC is a contract staffing agency and Manufacturing was added to the search parameters for comparative results.

Source: Labor Insight Burning Glass Technologies, New Hampshire results, March 1-April 30, 2016

Job postings from the 12 manufacturing companies posting the largest number of online ads were for occupations requiring advanced education or skills, such as management, engineering, or computer occupations, rather than production occupations. The production occupation most frequently found in ads from manufacturing companies was Inspectors and testers – not line or production floor workers. The volume of occupations posted in online job ads is strongly correlated to the specific industry of each company placing ads; high tech companies advertise more for engineers and computer occupations, while other manufacturers advertise for production and transportation occupations.

Job Ads for Production Occupations

There were 1,068 online job ads for production occupations between March 1 and April 30, 2016. Reviewing online job postings for production occupations uncovered many online ads that did not identify the employer and a significant portion that were posted by staffing agencies.¹¹ Out of all job ads for production occupations, 642 did not include an employer identity; and 480 were posted by staffing agencies.

Employers seeking workers for production occupations were not restricted to manufacturing companies. Among non-manufacturers, retail establishments posted the largest number of ads for production occupations. Most were seeking *Meat cutters* or *Bakers*, both of which are classified as production occupations.

Production Occupation Job Ads by Employer

Employer	Industry	Job Postings
Panera Bread	Retail	23
Osram Sylvania	Manufacturing	18
NESC	Staffing Agency	13
Sheridan Group	Staffing Agency	11
BJ's Wholesale Club, Inc.	Retail	9
Whole Foods Market, Inc.	Retail	8
Anaren Inc.	Manufacturing	7
BAE Systems	Manufacturing	7
ATR International	Staffing Agency	6
Fall Machine Company Inc.	Manufacturing	6
High Liner Foods USA Inc.	Manufacturing	6
L3 Communications Holding Inc.	Manufacturing	6
Novo Nordisk	Manufacturing	6
Ultimate	Staffing Agency	6

Source: Labor/Insight, Burning Glass Technologies

¹¹ For more information on job postings from staffing agencies, see *Staffing Agency Online Job Postings in New Hampshire, September and October 2015*. www.nhes.nh.gov/elmi/products/documents/staffing-agencies.pdf

The Future Outlook for Jobs in Manufacturing

According to New Hampshire employment projections for 2014-2024,¹² employment in all industries, including government, the self-employed and unpaid family workers, is expected to increase by 7.0 percent, a net gain of 47,300 jobs. Employment in the *Manufacturing* industry is expected to decline by 1.4 percent over the ten-year projection period, a net decrease of 923 jobs. These figures may be viewed negatively on the surface, yet these data do not shed light on the underlying dynamics of employment change. The expectations of change in employment by occupation are needed to understand these dynamics.

Occupational projections data estimate both jobs openings created to fill the needs of industry growth, and job opportunities created by the need to replace workers leaving the occupation, usually to retire. Roughly 75 percent of all average annual job openings in the state from 2014-2024 are expected to come from replacement needs. In total, production occupations are projected to have 1,177 job openings annually, ranking seventh among the 22 occupational groups. Production occupations account for almost half of all jobs within manufacturing, and over 80 percent of job openings are expected to come from replacements.

Another aspect of projections is the difference between the expected percent change in employment and the resulting average annual openings. Among the occupations with the largest percent change from 2014-2024, there are significant differences in average annual openings. *Computer numerically-controlled machine tool programmers, metal and plastic*, are expected to increase by 25.2 percent, slightly higher than *Computer-controlled machine tool operators, metal and plastic*. Yet the former occupation is projected to have just nine job openings annually, while the latter is projected to have 100 job openings annually. This is due in part to a larger employment base.

A large number of job openings may not equal a large percent change in employment. *Machinists* and *Computer-controlled machine tool operators, metal and plastic*, each have a very high percent change and over 100 projected annual openings. Yet *Team assemblers* are projected to have 98 average annual openings, and a percent change of just 2.6 percent, and *First-line supervisors of production and operating workers* are projected to have 46 average annual openings, with an increase in employment of less than one percent.

Occupations with a very favorable outlook have the best prospects for future employment. Very favorable occupations have a very high percent change (12.1 percent or above) and a very high number of annual openings (50 or more). *Machinists* and *Computer-controlled machine tool operators, metal and plastic* are expected to have the most favorable employment opportunities through 2024.

Some occupations expected to decline in employment from 2014-2024 may still have opportunities for workers. For example, employment for *Electrical and electronic equipment assemblers* is projected to decline by 0.3 percent, but 25 workers will be needed annually to replace departing workers.

¹² Economic and Labor Market Information Bureau, New Hampshire Employment Security. Employment Projections by Industry and Occupation, base year 2014 to projected year 2024. www.nhes.nh.gov/elmi/products/proj.htm

New Hampshire Occupational Employment Projections, 2014-2024

SOC Code	Occupation Title	2014 Estimated	2024 Projected	Numeric Change	Percent Change	Average Annual Growth	Replacement	Openings Total
51-0000	Production Occupations	44,938	45,516	578	1.3%	201	976	1,177
Largest Percent Change								
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	159	199	40	25.2%	4	5	9
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	1,806	2,258	452	25.0%	45	55	100
51-3099	Food Processing Workers, All Other	194	237	43	22.2%	4	4	8
51-4041	Machinists	2,357	2,700	343	14.6%	34	68	102
51-9081	Dental Laboratory Technicians	154	175	21	13.6%	2	4	6
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	40	44	4	10.0%	0	1	1
51-3021	Butchers and Meat Cutters	677	742	65	9.6%	6	13	19
51-3011	Bakers	512	561	49	9.6%	5	11	16
51-3092	Food Batchmakers	349	382	33	9.5%	3	8	11
51-6093	Upholsterers	113	123	10	8.8%	1	3	4
Most Total Openings								
51-4041	Machinists	2,357	2,700	343	14.6%	34	68	102
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	1,806	2,258	452	25.0%	45	55	100
51-2092	Team Assemblers	4,084	4,189	105	2.6%	10	88	98
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3,297	3,422	125	3.8%	12	83	95
51-9198	Helpers--Production Workers	1,756	1,891	135	7.7%	14	57	71
51-9199	Production Workers, All Other	2,222	2,371	149	6.7%	15	46	61
51-1011	First-Line Supervisors of Production and Operating Workers	2,792	2,816	24	0.9%	2	44	46
51-2099	Assemblers and Fabricators, All Other	1,499	1,621	122	8.1%	12	32	44
51-9111	Packaging and Filling Machine Operators and Tenders	1,011	1,069	58	5.7%	6	36	42
51-4121	Welders, Cutters, Solderers, and Brazers	1,114	1,157	43	3.9%	4	32	36
Production Occupations with a Very Favorable Outlook								
51-4041	Machinists	2,357	2,700	343	14.6%	34	68	102
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	1,806	2,258	452	25.0%	45	55	100
51-9198	Helpers--Production Workers	1,756	1,891	135	7.7%	14	57	71
51-2099	Assemblers and Fabricators, All Other	1,499	1,621	122	8.1%	12	32	44
51-3021	Butchers and Meat Cutters	677	742	65	9.6%	6	13	19
51-3011	Bakers	512	561	49	9.6%	5	11	16
51-3092	Food Batchmakers	349	382	33	9.5%	3	8	11
Occupations Expected to Decline, But Have Replacement Needs								
51-2022	Electrical and Electronic Equipment Assemblers	2,051	2,045	-6	-0.3%	0	25	25
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	512	425	-87	-17.0%	0	21	21
51-4199	Metal Workers and Plastic Workers, All Other	1,071	864	-207	-19.3%	0	19	19
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	1,178	942	-236	-20.0%	0	18	18
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1,054	1,021	-33	-3.1%	0	18	18

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