

MINNESOTA ECONOMIC

# TRENDS

**FORGING  
A CAREER**

**JOBS IN PRECISION  
METAL MANUFACTURING**

SEPTEMBER 2014

*Minnesota*  
Department of Employment and Economic Development





## Making It in Manufacturing

The three people featured in this issue's cover story by DEED intern Lexi Boyer highlight the rewards of jobs in precision metal manufacturing. These aren't your grandfather's factory jobs. They require high-tech knowledge, critical thinking and the ability to solve problems — skill sets that are increasingly valued in today's challenging manufacturing environment.

Still, the industry continues to suffer from a negative stigma, with many parents steering their children away from manufacturing careers in favor of four-year college programs.

Altheha DrePaul, who grew up in Guyana in South America and later moved to Minnesota, experienced that thinking firsthand as a youngster. "Growing up, even our parents were instilling us with 'be a doctor, be a lawyer, or be a teacher,'" she says. "We can be professional manufacturers. It's a career. We just need to share it and let our experiences be known."

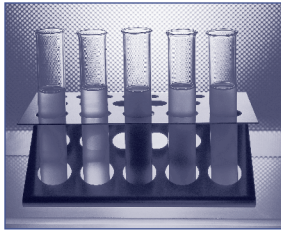
After training in the M-Powered program, DrePaul was hired as a machine operator at Fridley-based E.J. Ajax & Sons in 2007 and is still employed there today as a key account manager. Hopefully, her story and the experiences of two other workers featured in this issue will help dispel the myth that manufacturing offers only dirty, dangerous, dead-end jobs.

In other stories, Ellen Bendewald looks at which groups will benefit the most from the state's new minimum wage law, while Alessia Leibert examines which fields offer the best pay and job opportunities, based on data from DEED's new Graduate Employment Outcomes tool. Mohamed Mourssi Alfash and Kevin Ristau dig deeper into Job Vacancy Survey data, and Tim O'Neill and Brent Pearson look at job growth in the STEM sector.

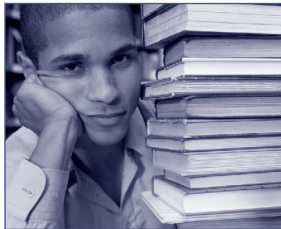
All of these stories reveal something about the Minnesota labor market, whether it's job opportunities, pay or industries with growth potential. It's the kind of information that Trends excels at covering and why we're worth picking up each issue.

**Monte Hanson**  
Editor

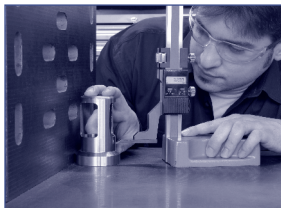
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# Minnesota's STEM Workforce

*STEM jobs are growing faster than jobs overall in Minnesota and offer salaries that are much higher than the average for all industries in the state.*

Minnesota is poised for growth, thanks to a diverse economy that supports a wide variety of industries and occupations. One field that has been emerging in recent years is STEM, which stands for science, technology, engineering and math. Because of their appeal, STEM jobs have drawn the attention of policymakers and educators, who have encouraged students and job seekers to consider those disciplines for their careers.

Unfortunately, many definitions of STEM are muddy — including and excluding different industries and occupations — and the STEM landscape is constantly evolving as new technologies emerge. In addition, the skills typically associated with STEM, including scientific reasoning, engineering knowledge and mathematical competency, are not exclusive to STEM jobs, although STEM occupations and industries make greater use of these skills than others.



UNIVERSITY OF MINNESOTA PHOTO

This article uses the Workforce Information Council report “Exploring the High-Tech Industry”<sup>1</sup> to identify STEM industries and occupations. After reviewing the national average concentrations of STEM jobs across all industry sectors, the Workforce Information Council selected only those industry sectors with a concentration level of 2.5 times the national average, categorizing 33 industry subsectors in the STEM Core Component and 13 in Health Care.

According to data from DEED’s Quarterly Census of Employment and Wages (QCEW), Minnesota had about 545,000 jobs in STEM industries through 2013, accounting for about one in five jobs statewide. This article will focus primarily on the STEM Core Component industries identified by the Workforce Information Council. Those industries accounted for just under 40 percent of STEM employment in Minnesota (210,000 jobs). STEM Health



TABLE 1

**Employment in Minnesota's STEM Core Industries, 2003-2013**

NAICS Industry Title	NAICS Code	Number of Establishments 2013	Number of Jobs 2013	Average Annual Wages 2013	2009-2013 Job Change	2007-2013 Job Change	2003-2013 Job Change
<b>Total, All Industries</b>	<b>0</b>	<b>165,051</b>	<b>2,691,763</b>	<b>\$50,128</b>	<b>+4.6%</b>	<b>+0.1%</b>	<b>+4.4%</b>
<b>Total, STEM Industries</b>		<b>15,370</b>	<b>208,718</b>	<b>\$85,531</b>	<b>+4.9%</b>	<b>+4.6%</b>	<b>+10.1%</b>
Oil and Gas Extraction	2111	12	34	\$362,128	+240.0%	+240.0%	+240.0%
Electric Power Generation, Transmission and Distribution	2211	321	12,101	\$97,552	+4.8%	+10.3%	+11.8%
Petroleum and Coal Products Manufacturing	3241	20	2,158	\$109,304	+0.3%	-8.9%	-8.6%
Basic Chemical Manufacturing	3251	47	1,343	\$69,680	+15.6%	+23.0%	+44.3%
Resin, Synthetic Rubber, Fibers and Filaments Manufacturing	3252	11	385	\$81,640	+8.8%	0.0%	+32.3%
Pharmaceutical and Medicine Manufacturing	3254	57	3,258	\$73,840	-5.3%	+7.6%	+41.8%
Industrial Machinery Manufacturing	3332	100	3,014	\$71,916	+20.8%	-1.2%	+7.7%
Commercial and Service Industry Machinery Manufacturing	3333	71	3,409	\$69,888	-2.4%	-13.0%	-30.3%
Engine, Turbine and Power Transmission Equipment Manufacturing	3336	17	458	\$50,700	+26.5%	-19.8%	-27.0%
Computer and Peripheral Equipment Manufacturing	3341	59	8,795	\$108,264	-16.3%	-33.2%	-42.2%
Communications Equipment Manufacturing	3342	34	1,900	\$72,956	-12.3%	-20.1%	-28.2%
Audio and Video Equipment Manufacturing	3343	20	208	\$48,308	-43.8%	-61.5%	-67.1%
Semiconductor and Other Electronic Component Manufacturing	3344	134	8,989	\$57,252	+2.7%	-17.3%	-15.9%
Navigational, Measuring and Electromedical Instruments Manufacturing	3345	196	24,553	\$97,396	-3.3%	-1.2%	+6.4%
Manufacturing and Reproducing Magnetic and Optical Media	3346	20	355	\$61,360	-29.1%	-54.0%	-69.2%
Electrical Equipment Manufacturing	3353	69	5,195	\$64,480	+11.6%	+12.2%	+39.3%
Professional and Commercial Equipment and Supplies Wholesalers	4234	1,106	13,178	\$86,268	+5.8%	-4.6%	-7.5%
Electrical and Electronic Goods Merchant Wholesalers	4236	572	8,068	\$66,924	-0.8%	-13.4%	+2.9%
Drugs and Druggists' Sundries Merchant Wholesalers	4242	195	2,239	\$113,828	-16.4%	-18.3%	-26.5%
Pipeline Transportation of Crude Oil	4861	15	200	\$102,596	+250.9%	+325.5%	ND
Software Publishers	5112	297	6,336	\$95,836	+14.1%	+7.8%	+10.6%
Wired Telecommunications Carriers	5171	445	9,138	\$69,732	-4.7%	ND	ND
Wireless Telecommunications Carriers (except Satellite)	5172	145	2,811	\$62,816	-12.8%	-22.8%	-7.5%
Satellite Telecommunications (Q2 2011 data)	5174	10	231	\$81,016	ND	ND	ND
Other Telecommunications (Q2 2011 data)	5179	204	1,332	\$69,836	ND	ND	ND
Data Processing, Hosting and Related Services	5182	372	8,107	\$78,832	+9.5%	+5.8%	-4.3%
Other Information Services	5191	702	4,562	\$51,376	+7.8%	+8.7%	+38.5%
Monetary Authorities - Central Bank	5211	24	1,143	\$86,736	ND	ND	ND
Architectural, Engineering and Related Services	5413	1,914	19,656	\$76,336	+4.0%	-4.1%	+4.2%
Computer Systems Design and Related Services	5415	4,707	32,312	\$96,980	+16.9%	+9.1%	+39.5%
Management, Scientific and Technical Consulting Services	5416	3,009	15,043	\$87,412	+15.1%	+20.3%	+47.5%
Scientific Research and Development Services	5417	465	8,207	\$117,780	+18.6%	+18.1%	+16.3%

Source: DEED Quarterly Census of Employment & Wages (QCEW) program



Care, which includes the other 335,000 jobs, will be covered in a future article.

### **STEM Industries with Many Roots**

STEM Core industries are a significant part of the state economy and have grown recently. Of the STEM Core industry sectors, 15 were in manufacturing, seven were in information, four were in professional, scientific and technical services, three were in wholesale trade, three were in energy (either extraction, generation or transportation) and one was in finance.

In the last decade, STEM Core industries added jobs more than twice as fast as all industries in

Minnesota and were affected less by the recession. Between 2003 and 2013, STEM Core industries gained over 19,000 jobs, a 10.1 percent increase compared with a 4.4 percent increase in all industries. While the state suffered a 4.3 percent decline in jobs from 2007 to 2009, STEM Core industries declined just 0.2 percent. Since coming out of the recession, STEM Core industries have grown about 5 percent, slightly outpacing the state in growth from 2009 to 2013 (see Table 1).

The largest employing STEM sector in Minnesota was computer systems design and related services, with more than 32,000 jobs at 4,700 business establishments. The next largest sector was navigational,

measuring, electromedical and control instruments manufacturing, with 24,500 jobs at about 200 firms. Other large sectors include architectural, engineering and related services; management, scientific and technical consulting services; professional and commercial equipment and supplies merchant wholesalers; and electric power generation, transmission and distribution.

More than half of the STEM Core sectors have seen employment growth in Minnesota since 2009, led by huge gains in computer systems design; management, scientific and technical consulting services; and scientific research and development services. The fastest growth occurred in pipeline transportation of crude oil and in oil and gas extraction, which both expanded more than 240 percent from 2009 to 2013, but they still combine for fewer than 240 jobs in the state.

Despite the recession, several STEM manufacturing sectors also saw steady job growth in Minnesota, including basic chemical manufacturing; pharmaceutical and medicine manufacturing; electrical equipment manufacturing; and resin, synthetic rubber, fibers and filaments manufacturing, which all increased more than 30 percent over the last decade.



TABLE 2 **Top 25 Largest STEM Core Occupations in Minnesota**

Occupational Title	SOC Code	Estimated Employment, 2014	Median Hourly Wage, 2014	Median Annual Wage, 2014	Projected Change in Jobs, 2012-2022	Projected Total Job Openings, 2012-2022
<b>Total, All Occupations</b>	<b>0</b>	<b>2,688,580</b>	<b>\$18.15</b>	<b>\$37,766</b>	<b>+7.0%</b>	<b>901,620</b>
Computer Systems Analysts	151121	12,880	\$38.70	\$80,482	+17.0%	4,290
Computer User Support Specialists	151151	11,710	\$23.02	\$47,864	+11.0%	2,910
Software Developers, Applications	151132	11,260	\$44.14	\$91,813	+10.7%	3,030
Computer and Information Systems Managers	113021	9,160	\$56.43	\$117,369	+9.5%	2,240
Computer Occupations, All Other	151199	8,780	\$34.47	\$71,700	+9.5%	1,830
Software Developers, Systems Software	151133	8,690	\$46.47	\$96,659	+6.4%	1,660
Network and Computer Systems Administrators	151142	8,060	\$35.85	\$74,553	+4.3%	1,730
Industrial Engineers	172112	7,380	\$38.77	\$80,644	+4.7%	2,650
Mechanical Engineers	172141	6,660	\$38.88	\$80,877	+3.4%	2,310
Sales Representatives, Wholesale and Mfg., Technical and Scientific Products	414011	6,310	\$40.77	\$84,801	+2.0%	1,700
Computer Programmers	151131	5,700	\$35.21	\$73,238	-2.2%	1,640
Engineering Managers	119041	3,920	\$59.85	\$124,492	+2.3%	1,370
Civil Engineers	172051	3,800	\$37.95	\$78,944	+15.4%	1,430
Computer Network Architects	151143	3,790	\$44.64	\$92,845	+6.1%	820
Electrical Engineers	172071	3,400	\$40.98	\$85,237	+3.1%	1,030
Computer Network Support Specialists	151152	3,290	\$28.83	\$59,964	+1.7%	580
Industrial Engineering Technicians	173026	2,790	\$24.55	\$51,061	+0.5%	620
Database Administrators	151141	2,690	\$40.78	\$84,832	+11.6%	780
Web Developers	151134	2,630	\$32.17	\$66,905	+11.5%	680
Mechanical Drafters	173013	2,570	\$26.49	\$55,088	-4.0%	380
Civil Engineering Technicians	173022	2,450	\$27.36	\$56,909	-5.1%	470
Medical Scientists, Except Epidemiologists	191042	2,420	\$26.74	\$55,624	+11.2%	840
Electrical and Electronic Engineering Technicians	173023	2,410	\$25.80	\$53,672	-7.4%	600

Source: DEED Occupational Employment Statistics (OES), DEED 2012-2022 Employment Outlook

### Where IT’s At

The state also saw steady job growth in information technology (IT), with both short- and long-term gains at software publishers; data processing, hosting and related services; and other information services, which includes Internet publishing, broadcasting and Web search portals. Combined, these three industries increased over 10 percent and now provide over 19,000 jobs in the state.

Not surprisingly, many of the top employing STEM careers in Minnesota are concentrated in the IT field. Based on employment estimates from DEED’s Occupational

Employment Statistics (OES) program, seven of the top 10 as well as 12 of the top 25 largest STEM Core occupations in Minnesota have an IT focus. Combined, they account for 88,640 jobs, or about 40 percent of the state’s total STEM Core occupations (see Table 2).

These IT occupations comprise a large segment of the STEM landscape and should continue to grow in the future. According to DEED’s 2012-2022 employment projections, information technology jobs are expected to increase by just over 9 percent in the next decade, about 2 percent faster than the total for all occupations.

The fastest-growing IT occupations are expected to be information security analysts, operations research analysts, computer systems analysts, and computer and information research scientists.

In addition to new jobs, many of these occupations will also have a large number of replacement openings — jobs that become open due to retirements or other existing workers leaving the labor force.

Billie Chock, an IT manager with General Mills, believes new and future graduates will play a critical role in Minnesota’s workforce in the next decade.

TABLE 3

**Top 10 Highest-Earning STEM Core Occupations in Minnesota**

Occupational Title	SOC Code	Estimated Employment, 2014	Median Hourly Wage, 2014	Median Annual Wage, 2014	Projected Change in Jobs, 2012-2022	Projected Total Job Openings, 2012-2022
<b>Total, All Occupations</b>	<b>0</b>	<b>2,688,580</b>	<b>\$18.15</b>	<b>\$37,766</b>	<b>+7.0%</b>	<b>901,620</b>
Physicists	192012	60	\$66.88	\$139,121	+20.2%	50
Engineering Managers	119041	3,920	\$59.85	\$124,492	+2.3%	1,370
Computer and Information Research Scientists	151111	380	\$58.49	\$121,659	+13.4%	90
Computer and Information Systems Managers	113021	9,160	\$56.43	\$117,369	+9.5%	2,240
Engineering Teachers, Postsecondary	251032	720	\$53.47	\$111,218	+5.4%	150
Materials Scientists	192032	210	\$52.56	\$109,326	+4.5%	10
Natural Sciences Managers	119121	1,120	\$52.51	\$109,218	+5.1%	260
Biomedical Engineers	172031	1,040	\$51.64	\$107,404	+12.2%	420

Source: DEED Occupational Employment Statistics (OES), DEED 2012-2022 Employment Outlook



“They certainly will be major contributors,” she says. “We need bright minds that are passionate about solving complex problems that span disciplines.”

She says some of the challenges include finding new ways to use technology to help businesses succeed by utilizing data, automating processes, helping customers and consumers, and improving processes at work.

### Cashing In

STEM Core industries and occupations are much higher paying than the jobs in all industries. As shown in Table 1, average annual wages in the STEM Core sectors were just

over \$85,500 in 2013, which was more than \$35,000 higher than the total for all industries. Thirteen of the 33 sectors averaged more than \$85,500 per year, including six industries that earned over \$100,000 per year. And despite being much higher to start, wages increased faster in the STEM Core industries over the last decade, especially during the last four years.

Not every job in these industries, however, is in a STEM discipline. Though they have a higher concentration of technical occupations, many jobs in these industries are not STEM-related but still might be higher paying. Looking just at the list of STEM Core occupations, almost half

(42) earned more than \$75,000 per year, and all 90 earned more than the median annual wage for the total of all occupations. The 10 lowest-earning STEM occupations still earned an average of about \$45,000 per year, while the top 10 highest earning STEM jobs all earned over \$100,000 (see Table 3). <sup>14</sup>



<sup>14</sup>Exploring the High-Tech Industry.”STEM-Driven High-Tech Industry Taxonomy. Page 3. [www.labor.idaho.gov/publications/Exploring\\_High-Tech\\_Industry.pdf](http://www.labor.idaho.gov/publications/Exploring_High-Tech_Industry.pdf)

# Helping Students Make Educational Choices

*DEED's new Graduate Employment Outcomes tool is providing valuable guidance to students who want to learn which fields offer the best pay and job opportunities.*



**W**e've all heard stories about recent graduates who can't find work in their fields of study, so they take jobs as retail clerks or food preparation workers. Could those situations have been avoided if the students had access to information on the employment outcomes of past graduates in their fields?

Fortunately, that information is now available through DEED's new Graduate Employment Outcomes tool (<http://mn.gov/deed/geo>). Specifically, the tool shows employment success and wages of past graduates by program of study and indicates which programs offer students the best chances of landing a job in their fields. The information was compiled by linking data on people completing post-secondary awards in Minnesota with employment records following graduation. The data currently available are for those graduating in Minnesota between 2009 and 2011.<sup>1</sup>

This article focuses on the link between program of study and industry of employment. This link is important because earnings depend not only on the discipline of study but also on the industry where graduates find work. There are two reasons for this. First, some industries simply pay better and offer more opportunities to those with post-secondary credentials than others.



Second, if graduates can work in their fields of study, they are more likely to advance in their careers by putting their academic backgrounds to work.

The Graduate Employment Outcomes tool displays the top five industries of employment by major and median wages earned in each industry. The analysis provided here is pulled directly from the Graduate Employment Outcomes tool.

### Industry and Education Match

Figure 1 shows the top five industries of employment two years after graduation.

One out of four graduates (24 percent) was employed in health care and social assistance, followed by education at 13 percent. These industries continued to grow during the Great Recession and provided more entry-level job opportunities than other sectors, drawing students from a wide variety of majors.

Industry of employment varies over time as people switch jobs. We see a better fit 24 months after graduation than 12 months after. That's because the first job choice after college is often dictated by the need to get back into the workforce and pay bills. Over time, people tend to move into industries that are better

aligned with their academic backgrounds.

Figure 2 shows the top industries of employment 24 months after graduation for 35 majors.

Overall, this table shows that there is a good match between educational choices and the top industry of employment. For example, it makes perfect sense for law enforcement graduates to be found in public administration and for physical science graduates to be found in professional and technical services. However, some low wages, especially in retail or in health care and social assistance, reflect an inability to find full-time work or work appropriate to the education level.

### Supply and Demand Match

Did Minnesota schools produce graduates faster than the recovering economy created skilled jobs after the Great Recession? The answer varies dramatically by program. Some majors are probably supplying more graduates than the economy needs, while others are supplying too few.

The generous salaries offered to new graduates in engineering (\$30.44 for those employed in manufacturing) and mathematics and statistics (\$26.55 for those employed in finance and insurance) indicate high demand for these predominantly bachelor's and graduate degree programs.

FIGURE 1

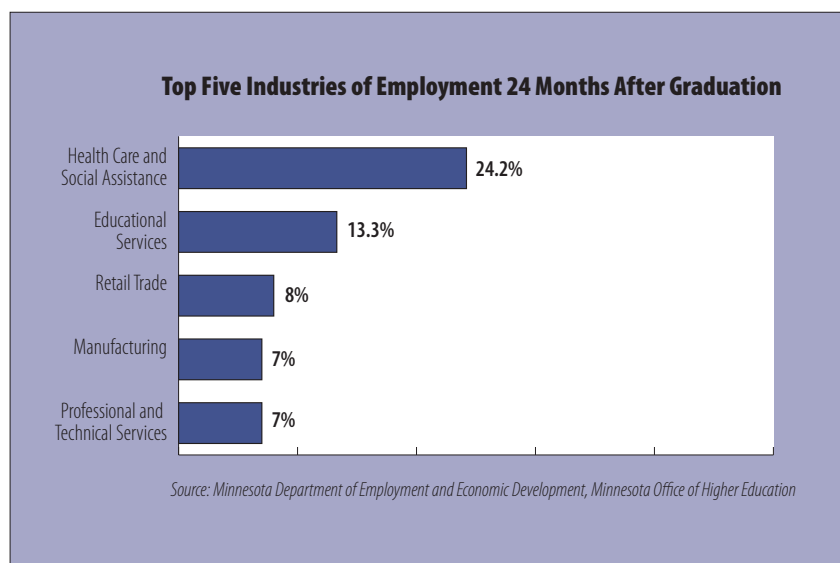


FIGURE 2

Major	Top Industry of Employment Two Years After Graduation	Hourly Wages Earned by Graduates in the Industry	Types of Businesses Found in the Industry
Agriculture, Agriculture Operations and Related Sciences	Wholesale Trade (18%)	\$17.16	Farm Product Wholesalers
Architecture and Related Services	Professional and Technical Services (29%)	\$20.19	Architectural Services
Area, Ethnic, Cultural, Gender and Group Studies	Educational Services (23%)	\$18.24	Colleges and Universities
Biological and Biomedical Sciences	Health Care and Social Assistance (33%)	\$16.22	Hospitals, Residential Mental Health Facilities
Business, Management, Marketing and Related Services	Finance and Insurance (15%)	\$22.21	Banks, Insurance companies
Communication, Journalism and Related Programs	Professional and Technical Services (15%)	\$18.47	Advertising firms
Communications Technologies/ Technicians	Retail Trade (18%)	\$10.07	Electronics and Appliance Stores
Computer and Information Sciences	Professional and Technical Services (21%)	\$24.67	Computer Systems Design Services
Construction Trades	Construction (43%)	\$19.09	Building Equipment and Finishing Contractors
Education	Educational Services (80%)	\$30.10	Elementary and Secondary Schools
Engineering	Manufacturing (39%)	\$30.44	Electronic Instrument Manufacturing, Machinery Manufacturing
Engineering Technologies and Engineering-Related Fields	Manufacturing (35%)	\$21.10	Machinery Manufacturing
English Language and Literature/ Letters	Educational Services (23%)	\$18.87	Elementary and Secondary Schools
Family and Consumer Sciences/ Human Sciences	Health Care and Social Assistance (42%)	\$13.06	Child Day Care Services
Foreign Languages, Literatures and Linguistics	Educational Services (23%)	\$21.28	Elementary and Secondary Schools
Health Professions and Related Programs	Health Care and Social Assistance (73%)	\$21.31	Hospitals, Residential Care Facilities
History	Educational Services (18%)	\$18.00	Colleges and Universities
Homeland Security, Law Enforcement, Firefighting and Related Protective Services	Public Administration (35%)	\$20.95	Government, Corrections and Fire Protection



Major	Top Industry of Employment Two Years After Graduation	Hourly Wages Earned by Graduates in the Industry	Types of Businesses Found in the Industry
Legal Professions and Studies	Professional and Technical Services (39%)	\$24.41	Legal Services
Liberal Arts and Sciences, General Studies and Humanities	Health Care and Social Assistance (25%)	\$13.83	Residential Mental Health Facilities, Nursing Care Facilities, Hospitals
Mathematics and Statistics	Finance and Insurance (22%)	\$26.55	Insurance Agencies, Financial Investment Firms
Mechanic and Repair Technologies/Technicians	Retail Trade (22%)	\$13.64	Automobile Dealers, Auto Parts and Tire Stores
Multi/Interdisciplinary Studies	Health Care and Social Assistance (25%)	\$17.38	Residential Mental Health Facilities, Hospitals; Family Services
Natural Resources and Conservation	Public Administration (15%)	\$15.96	Administration of Environmental Programs
Parks, Recreation, Leisure and Fitness Studies	Health Care and Social Assistance (22%)	\$15.60	Hospitals, Offices of Physicians
Personal and Culinary Services	Other Services, Except Public Administration (41%)	\$11.87	Hair, Nail and Skin Care Services
Philosophy and Religious Studies	Educational Services (20%)	\$16.96	Elementary and Secondary Schools
Physical Sciences	Professional and Technical Services (18%)	\$18.68	Architectural and Engineering Services
Precision Production	Manufacturing (53%)	\$18.17	Machine Shops, Metal Manufacturing
Psychology	Health Care and Social Assistance (42%)	\$15.64	Mental Retardation Facilities, Family Counseling and Social Service Agencies
Public Administration and Social Service Professions	Health Care and Social Assistance (50%)	\$18.05	Family Counseling and Social Service Agencies, Mental and Substance Abuse Care
Social Sciences	Health Care and Social Assistance (11%) Educational Services (11%)	\$14.34 and \$16.94	Family Counseling and Social Service Agencies, Elementary and Secondary Schools
Theology and Religious Vocations	Educational Services (23%)	\$18.33	Elementary and Secondary Schools
Transportation and Materials Moving	Transportation and Warehousing (29%)	\$16.73	Freight Trucking
Visual and Performing Arts	Retail Trade (19%)	\$11.10	Grocery and Clothing Stores

*Data on each person completing a degree from July 2009 through June 2011 were linked with wage records from all employers subject to unemployment insurance taxes in Minnesota. Sources: Minnesota Department of Employment and Economic Development, Minnesota Office of Higher Education*



## Better Data for Students and Trainees

Although industry of employment is not equivalent to occupation of employment, it gives an idea of the types of firms that are more likely to employ people with credentials from each program of study. School and job counselors can provide this information to help high school and college students and workforce development program participants pick training options with strong employment opportunities.

In particular, the data can help with the following decisions:

- *What program of study should I pursue to prepare for the career I want?*

The data allow counselors and program explorers to figure out the odds of getting a job in the industry of choice based on program of study. For example, students who want to pursue bachelor's degrees in criminology to work in police departments should be aware that recent graduates found more jobs in health care and social assistance (20 percent) than in public administration (15 percent). Instead, a degree in criminal justice gave better guarantees of employment



At the other side of the spectrum, visual arts, liberal arts, and cultural and interdisciplinary studies tended to lead to low wages and employment in industries unrelated to the field of study. Although many associate degree liberal arts graduates re-enrolled in a bachelor's degree program and might have been available only for part-time work, it is hard to imagine that one in four graduates intended to work in health care and social assistance 24 months after graduation.

In an era when businesses no longer want to spend money or time to train a recent graduate, programs without an occupational or technical focus are at a distinct disadvantage, as the data show.



in public administration (40 percent).

- *Where should I look for a job that will use my education and allow me to keep learning and advancing in my career?*

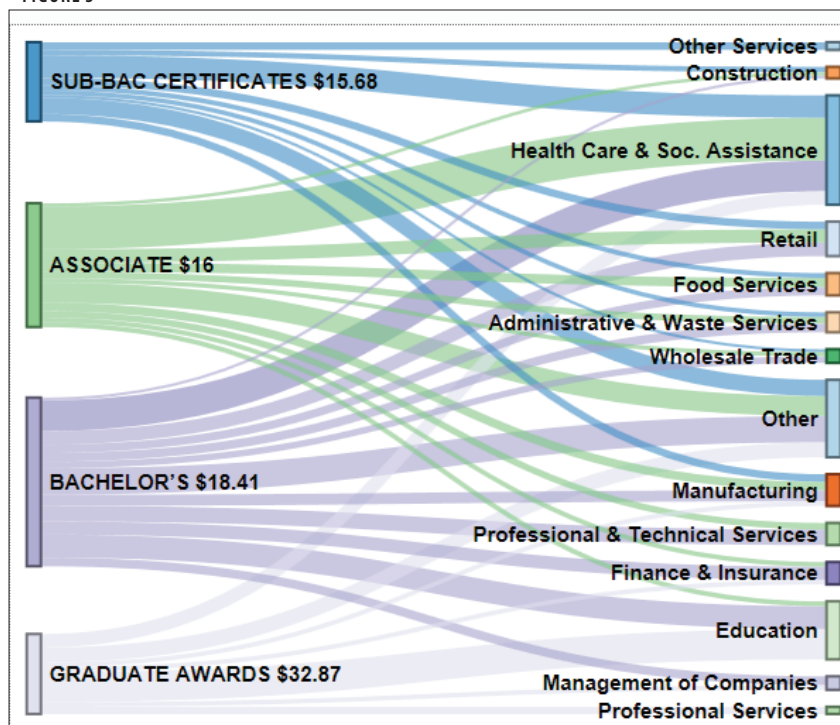
The tool allows counselors and recent graduates to find the industries that hire candidates with the graduate's background and use that information to better target a job search. In general it is better to gain work experience in an industry where education and skills can be leveraged or upgraded, even in a low-paying job, than to work at Starbucks and wait for the ideal job to materialize.

The Graduate Employment Outcomes tool can help students be more practical and knowledgeable about what fields offer the most opportunity overall and lead to jobs that match their interests.

### Higher Degrees Lead to Better Jobs

Findings demonstrate that more years of post-secondary education generally lead to higher wages. Figure 3 shows median hourly wages ranged from \$15.68 for sub-baccalaureate certificates

FIGURE 3



Source: Minnesota Department of Employment and Economic Development, Minnesota Office of Higher Education

completers to \$32.87 for graduate school completers. The wage premium for higher education is ultimately driven by the types of firms and, consequently, industries that employed graduates at each education level.

Figure 3 tracks the industries of employment of sub-baccalaureate, associate, bachelor's and graduate award recipients two years after graduation. The distribution of graduates across 13 major industries highlights some interesting patterns. A relatively large portion (one-fourth) of sub-baccalaureate graduates

entered low-wage, low-skill industries such as other services (primarily personal care service firms like hair salons), food services, administrative and waste services (primarily temp help agencies) and retail.<sup>2</sup> In contrast, only a small portion (one-tenth) of bachelor's and graduate degree completers worked in these industries, while a much larger share (43 percent) managed to break into higher-paid, higher-skill industries such as finance and insurance, professional services, education and management of companies.

Health care and social assistance represents an interesting case of

a polarized industry. It has many minimum-wage jobs, such as home health aides, but also some of the highest-skilled, highest-paid jobs such as physicians and surgeons. For this reason, the industry drew graduates from all education levels. Some industries, in contrast, like finance and insurance, professional services and education, predominantly recruited people with bachelor's degrees or higher.

This kind of information can help education planners and policymakers assess which program offerings and curricula are better aligned to current labor market demand. It can also be valuable to identify the major sources of supply of skilled labor in strategic sectors of the economy. For example, the data displayed in Figure 3 identify certificates and associate degrees as critical talent pools for the manufacturing sector, which is experiencing difficulties recruiting workers. Policies aimed at increasing enrollment in these degrees and encouraging

manufacturers to reach out to local trade schools could help build the future workforce pipeline.

### Benefits of a College Education

Graduates in a recession might feel they are in the wrong place at the wrong time. Regardless of skills and personal motivation, a bad economy undoubtedly damages short-term job prospects. Yet the analysis of employment records two years after graduation paints an optimistic picture overall. The trend shows higher earnings for people with higher levels of education and increased opportunities to work in an industry related to the choice of major. As more years of data become available, it will be possible to track the experience of graduates over longer periods and thus evaluate the benefits of a college education in the longer term. <sup>1</sup>



<sup>1</sup>More years will be added as data become available.

<sup>2</sup>Although someone could be working as a software developer with a retail firm at a very high wage, the retail sector more commonly employs people in office support and sales. This drives down wages compared with other large industries.

# Working With Your Hands and Mind

*Precision metal working is a growing field in Minnesota, with plenty of job openings expected in the coming years. Three professionals in the industry talk about their work.*

Precision metal working offers excellent opportunities for employment, with 46 percent of program graduates in Minnesota in 2011 working full time two years after finishing school, according to DEED's Graduate Employment Outcomes tool. That makes precision metal working one of the top programs in the state for job placement. The median salary in the field is \$40,352.

This story looks at the rewards and challenges of careers in precision metal manufacturing, focusing on three people who have worked in the industry — a punch press operator, a welder and a sheet metal worker.

## Punch Press Operator

Altheha DrePaul was laid off from her job as a home health aide after coming to the United States from Guyana, South America. She had no transferable skills and her certificates were not applicable in the United States. "I had to make the decision to start from the ground

up—to start all over again," DrePaul said.

DrePaul's niece introduced her to M-Powered — a FastTRAC training program offered through Hennepin Technical College — and to HIRED, a workforce development organization. M-Powered prepared her for the manufacturing industry by teaching her basic skills such as blueprint reading, English and math. The program takes two to three months to complete.

One assignment from this program stood out to DrePaul. She had to pick three companies to research and decide which one she really loved and thought would fit her best. E.J. Ajax & Sons Inc., a metal-stamping manufacturer in Fridley, caught her attention.

"E.J. Ajax stood out to me because of their safety culture. I really wanted to work there," DrePaul said. "So, when I had the opportunity to interview Erick Ajax at a reverse job fair, that was my moment to prove



PHOTO: JUDY PARKER

Altheha DrePaul

myself and shine and to show that I'm an individual who really wants this. I started off on the floor as a machine operator. I had to start from scratch — how to operate the machines and even how to read the travelers."

DrePaul said the team at E.J. Ajax was helpful, and her



**How Much Do Cutting, Punching and Press Machine Setters, Operators and Tenders Earn?**

Geographic Area	25th Percentile	50th percentile	75th Percentile
	25% of Wages Fall Below	Median Wage	75% of Wages Fall Below
U.S.	\$11.68	\$14.64	\$18.25
Minnesota	\$11.65	\$16.12	\$20.26
Seven-County Twin Cities	\$11.12	\$16.20	\$20.79
Central Minnesota	\$11.77	\$14.84	\$18.46
Northwest Minnesota	\$11.80	\$14.66	\$17.50
Southeast Minnesota	\$15.69	\$18.51	\$21.22
Southwest Minnesota	\$15.70	\$18.39	\$20.87
Northeast Minnesota	\$11.18	\$13.92	\$18.81

Source: DEED, Occupational Employment Statistics Program (first quarter 2014 wages)

colleagues were never afraid to share their knowledge, which helped her during the transition process. During this time, she went back to school for the second and third level of the M-Powered program and even got some NIMS credentials (certifications from the National Institute for Metalworking Skills). Following this, DrePaul enrolled in the four-year machine operator apprenticeship program.

When asked what makes her job rewarding, DrePaul replied, “I have a voice. My colleagues listen. You can come to work and work with your hands and your mind. If you come up with an idea and share that idea, your colleagues are willing to listen and try it out. It plays an important role to know that you are welcomed and of value to the company you work for.”

Still, DrePaul said, society doesn’t always value manufacturing as a career. “Growing up, even our parents were instilling us with ‘be a doctor, be a lawyer, or be a teacher.’ We can be professional manufacturers. It’s a career. We just need to share it and let our experiences be known.”

In order to succeed as a machine operator, DrePaul said it is important to have a good attitude about safety and to show up on time. People should also be willing to adapt to change by

**Machine Operators**

Responsibilities of cutting, punching and press machine operators and tenders include:

- Starts machine, adjusts blade and controls using wrenches, rule, gauge or template, and monitors operation.
- Reads work order for specifications, such as materials to be used, location of cutting lines, and dimensions and tolerances.
- Turns controls to set cutting speed, feed rate and table angle for specified operation.
- Installs, aligns and locks specified punches, dies and cutting blades in ram or bed of machine using gauges and hand tools.
- Measures work piece with rule or tape, or traces from template and marks location with scribe, soapstone or centerpunch.

Source: Occupational Employment Statistics Program, DEED

furthering their education and training. “Things are constantly changing and we need to keep up with that change.”

DrePaul, who now works in the office as a key account manager, has been with E.J. Ajax for eight years.

### Welder

Jordan Hall is a welder at Jones Metal Products Inc., a custom metal fabricator in Mankato. In 2009, Hall enrolled in a welding program at St. Cloud Technical College. A year later, he left school and went on to work for about a year for CDI Custom Curb Adapters in Elk River, where he discovered his dislike for welding galvanized steel.

“I had also applied at Jones Metal Products when I got out of school, but they weren’t hiring at the time. A year into working for CDI Custom Curb Adapters, Jones Metal Products was finally hiring, so I moved back home to Mankato. I’ve been working here for three years.”

When asked what a typical day is like, Hall replied, “I come in at 4:30 p.m. and talk to the lead manager in order to figure out what jobs he has for me to do. After I get this list, I complete them, and then I go home. Every day, each job is different. Sometimes if you leave a project

at night, you’ll come in the next day and continue that project.”

“I come to work every day to be better and grow,” he added. “I don’t want to weld for the rest of my life, but I do always want to be involved with it in some way. I would like to get into quality control and possibly nondestructive testing. I would be x-raying all the welds, testing them for tensile strength.”

Hall believes welding is a good industry to go into because it offers a lot of job opportunities and good pay. Welders also are in high demand. “Welding is a good skill to have if America is trying to get back into manufacturing,” he said.

He said people interested in becoming a welder should



PHOTO: JUDY PARKER

Jordan Hall

obtain an associate degree in welding, which will increase their chances of being hired. Hall also feels people should know that

How Much Do Welders, Cutters, Solderers and Brazers Earn?			
Geographic Area	25th Percentile	50th percentile	75th Percentile
	25% of Wages Fall Below	Median Wage	75% of Wages Fall Below
U.S.	\$14.75	\$17.95	\$22.30
Minnesota	\$15.84	\$18.95	\$22.63
Seven-County Twin Cities	\$17.80	\$21.21	\$24.74
Central Minnesota	\$15.83	\$18.41	\$22.12
Northwest Minnesota	\$14.49	\$16.70	\$18.63
Southeast Minnesota	\$15.60	\$18.51	\$21.09
Southwest Minnesota	\$15.06	\$17.54	\$20.80
Northeast Minnesota	\$14.71	\$18.51	\$24.32

Source: DEED, Occupational Employment Statistics Program (first quarter 2014 wages)

## Welders, Cutters, Solderers and Brazers

Responsibilities typically include the following:

- Welds or tack welds metal parts together using spot welding gun or hand, electric or gas welding equipment.
- Ignites torch and regulates flow of gas and air to obtain desired temperature, size and color of flame.
- Preheats work pieces preparatory to welding or bending, using torch.
- Fills cavities or corrects malformation in lead parts and hammers out bulges and bends in metal work pieces.
- Positions and secures work piece, using hoist, crane, wire and banding machine, or hand tools.
- Climbs ladders or works on scaffolds to disassemble structures.
- Examines work piece for defects and measures work piece with straightedge or template to ensure conformance with specifications.

Source: Occupational Employment Statistics Program, DEED



PHOTO: JUDY PARKER

Jose Chavarria

“welding can be challenging at first, but stick to it. It’s just like anything else — a lot of repetition and muscle memory. Over time, it becomes easier.”

## Sheet Metal Worker

Jose Chavarria is a sheet metal worker at E.J. Ajax. He spent 24 years in the U.S. Marine Corps. During that time, Chavarria was trained as a helicopter mechanic and later became a quality assurance representative. In October 2010, Chavarria retired from the Marine Corps and moved back to the Twin Cities, where his wife was originally from.

A few years ago he took a basic sheet metal class at Anoka Technical College, where he was introduced to the turret, brake press and laser. After completing the sheet metal class at Anoka Tech, Chavarria met Erick Ajax, co-owner of E.J. Ajax, at a reverse job fair. Not long after, Chavarria had another interview with E.J. Ajax and was given a tour of the facility. Chavarria liked what he saw and was given the opportunity to try out the job to see if he liked it. He has been working at E.J. Ajax ever since.

“I begin at 7 a.m. and start up the machines. Next, I grab our job traveler — basically a job notice of what is due and



when it is due — and read the instructions. This tells me what we have to do as far as brake press, turret or laser, after which I cut, punch or form the material” Chavarria said.

Math is one of the most challenging obstacles that Chavarria has faced in his sheet metal career.

“With 24 years in the military, the last time I had a math class was in high school, which was a really long time ago,” he said. “All that stuff high school and grade school teachers tell you about ‘you needing to learn this, you’ll use it later in life’ is true. We use it. So, the difficult part for me was to get my math knowledge back, wake it up, dust out the cobwebs in my head and relearn it.”

When asked about the three most important skills or qualities that are necessary to succeed in this career, Chavarria replied, “Skill will come to you later, but as far as quality, I think dependability — getting to work on time and doing what you have to do on time. Integrity would be another one. If you see something wrong or if you feel something is wrong, let someone know. Don’t hide it hoping someone else will get it or that it’ll go away. If you see something wrong, bring it up to someone’s attention. A third important quality to have is a safe attitude.”

### **Demand for Cutting, Punching and Press Machine Setters, Operators and Tenders, Metal and Plastic**

In 2012, Minnesota had an estimated 6,262 cutting, punching and press machine setters, operators and tenders. An additional 530 openings are expected between 2012 and 2022 in order to replace workers who have retired or left the field.

Source: Long-Term Projections Unit 2012-2022, DEED

### **Demand for Welders, Cutters, Solderers and Brazers**

An estimated 7,814 workers were employed as welders, cutters, solderers and brazers in Minnesota in 2012. Demand is expected to grow by 18 percent, with the need for an additional 1,410 jobs between 2012 and 2022. Another 2,080 openings are expected between 2012 and 2022 in order to replace workers who have retired or left the field.

Source: Long-Term Projections Unit 2012-2022, DEED

### **Demand for Sheet Metal Workers**

Minnesota had an estimated 2,580 sheet metal workers in 2012. The demand for sheet metal workers is expected to grow by 32.3 percent, with the addition of about 831 sheet metal worker jobs in Minnesota between 2012 and 2022. An additional 400 openings are expected between 2012 and 2022 to replace sheet metal workers who have either retired or left the field.

Source: Long-Term Projections Unit 2012-2022, DEED

Chavarria feels having a safe attitude “has become second nature to him.” He and his colleagues are encouraged at E.J. Ajax to share their ideas on how to make the workplace an even safer environment. “All the machines have safety features on them. However, if you’re not paying attention, these machines will hurt you, which is something I think a lot of people forget after a while.”

When asked if it is hard for women to enter this profession, Chavarria replied, “I’ve told quite a few women who had interviews here that I’m one of the biggest guys here at E.J. Ajax, and I don’t think I’m that big. We have some women who work here that are half my size who have done real well. We have a weight limit restriction here. If it’s more than 50 pounds, get a forklift or someone else to help you. I personally would rather see more females here.”

Chavarria feels women sometimes turn away from opportunities in manufacturing

How Much Do Sheet Metal Workers Earn?			
Geographic Area	25th Percentile	50th percentile	75th Percentile
	25% of Wages Fall Below	Median Wage	75% of Wages Fall Below
U.S.	\$15.72	\$21.35	\$28.63
Minnesota	\$23.30	\$33.20	\$40.06
Seven-County Twin Cities	\$34.76	\$39.59	\$42.91
Central Minnesota	\$17.39	\$22.56	\$28.18
Northwest Minnesota	\$14.69	\$26.10	\$32.12
Southeast Minnesota	\$16.88	\$24.08	\$30.37
Southwest Minnesota	\$12.35	\$16.42	\$21.06
Northeast Minnesota	\$30.38	\$32.54	\$34.72

Source: DEED, Occupational Employment Statistics Program (first quarter 2014 wages)

because they have been taught by society that manufacturing is just for men.

“We’ve been to a couple of job fairs, and women will ask what we do and I’ll tell them, ‘We work with sheet metal — sheet metal fabrication,’ and they’ll grab their stuff and walk away. It’s like hold on — at least let us explain what we actually do. Once you learn what we do and

how we do it, it’s not hard as long as you do it correctly.”

Chavarria is a little over halfway through his apprenticeship to become a sheet metal journeyman.

“I see myself staying in this profession. I see this easily being my second career. I enjoy where I work, who I work with, and who I work for. I find it fun,” he said. ■

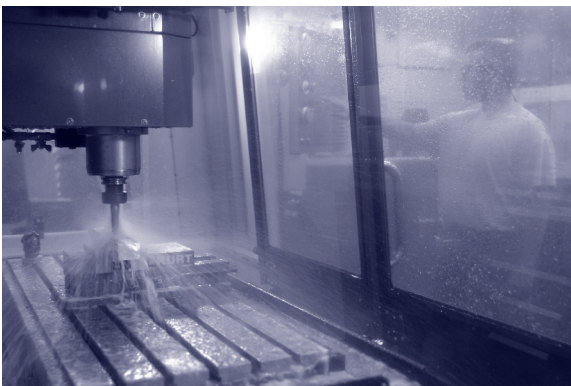


PHOTO: KATIE GIERATZ

# Adding Up the Effects of the New Minimum Wage

*Women, most minority racial groups, people with disabilities and residents in Greater Minnesota stand to benefit the most from a new law that will raise the state's minimum wage to \$9.50 an hour by August 2016.*

**D**EED's workforce development programs target economically vulnerable Minnesotans, ranging from those with persistent employment barriers to those who were recently laid off from a steady job.

Many of these Minnesotans earn a wage at or near the current legal minimum and will be affected by the stepped increase of the state's minimum wage to \$9.50 per hour<sup>1</sup> in August 2016 at large establishments. The effects, though, could go beyond just how much people earn.

Individual workers, for instance, might decide to work a little more or a little less after receiving a raise, although hours worked generally remain fairly constant regardless of the wage rate. Employers might expect more productivity out of workers earning a higher wage, or they might raise prices of their goods and services. Although employers might also hire fewer workers in response to a higher



minimum wage, previous studies are not at all clear on this. Just as many studies find increased hiring or no impact as find decreased employment because of higher minimum wages.

This article looks at how workforce development program participants in Minnesota will be affected by the minimum wage increase, breaking down the impact by worker demographics and region. While we have previously estimated

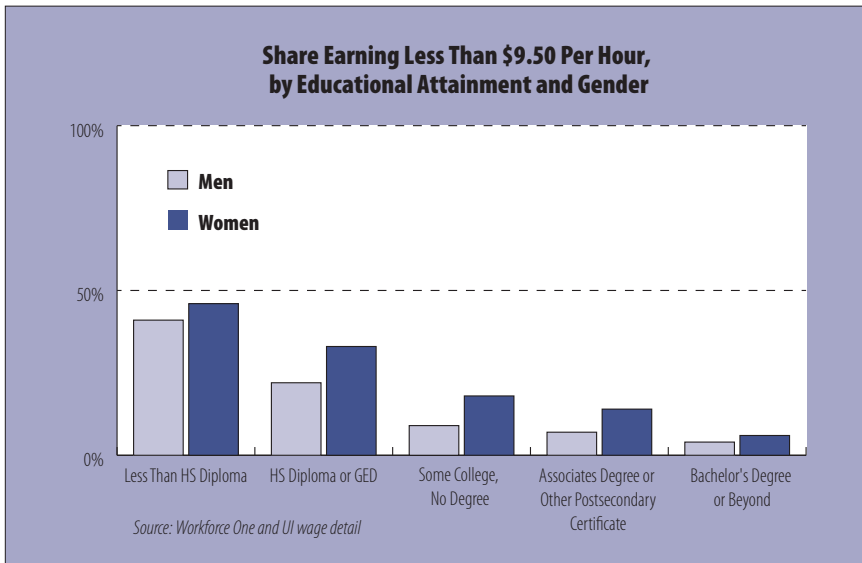
that 16 percent of all jobs in Minnesota pay less than \$9.50 per hour, a full 28 percent of workforce development program participants earn an hourly wage rate below that threshold.

## Impact on Workforce Development Program Participants

Workforce development program policies requiring extensive demographic data collection allow for a uniquely detailed



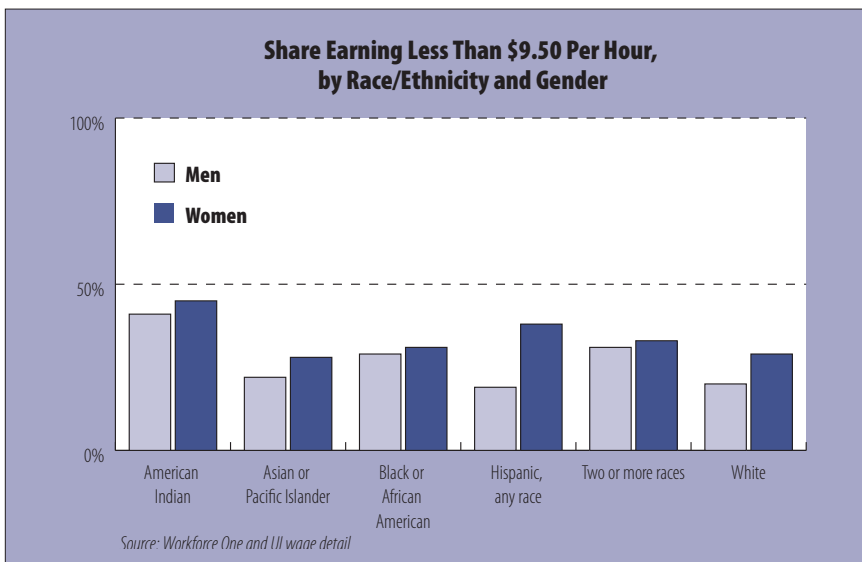
FIGURE 1



look at wage trends across worker demographics when combined with unemployment insurance (UI) wage records. This article looks at recent workforce development program participants who showed earnings within six months of receiving services, examining the most recent four quarters for which wage data are available (second quarter of 2013 through first quarter of 2014).

Overall, 28 percent of workforce development program participants earned less than \$9.50 per hour within six months of receiving services. This overall average masks a wide range of potential effects by demographic characteristics. Most striking is education level: Nearly half (44 percent) of those without a high school diploma or GED earn less than \$9.50 per hour, compared with just 5 percent of those with at least a bachelor's degree. At every step along the education spectrum, women are more likely to earn less than \$9.50 than men (see Figure 1).

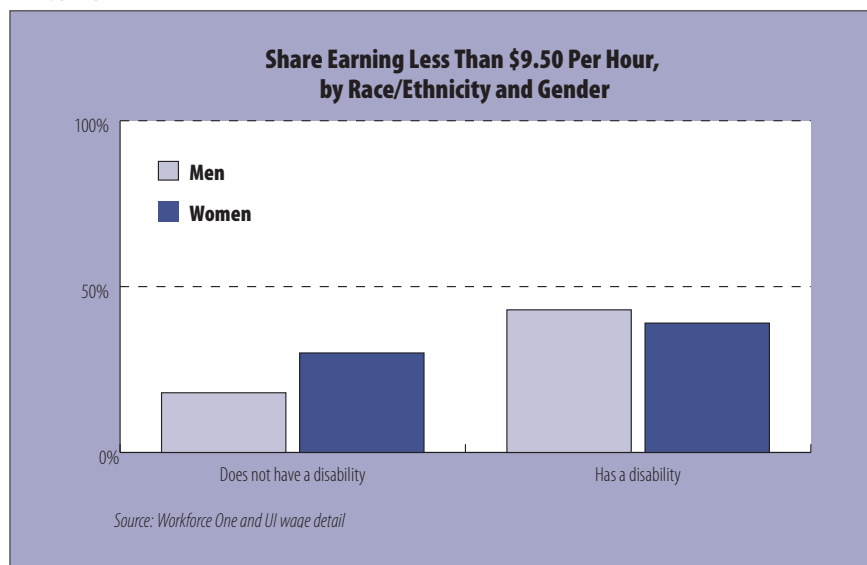
FIGURE 2



Although not as dramatic as education, race is another important lens in analyzing the potential effect of the minimum wage increase on program participants. Forty-one percent of American Indian or Alaska Native men earn less than \$9.50, compared with 19 percent of Hispanic men and 20 percent of white men (see Figure 2).

Within each self-identified racial and ethnic group, women are more likely to earn less than \$9.50. The size of the gender gap, however, differs by racial groups: Hispanic participants show the largest gender gap (38 percent of Hispanic women earn less than \$9.50, compared with 19 percent of Hispanic men). African American participants show the smallest gender gap (31 percent of African American women earn less than \$9.50, compared with 29 percent of African American men).

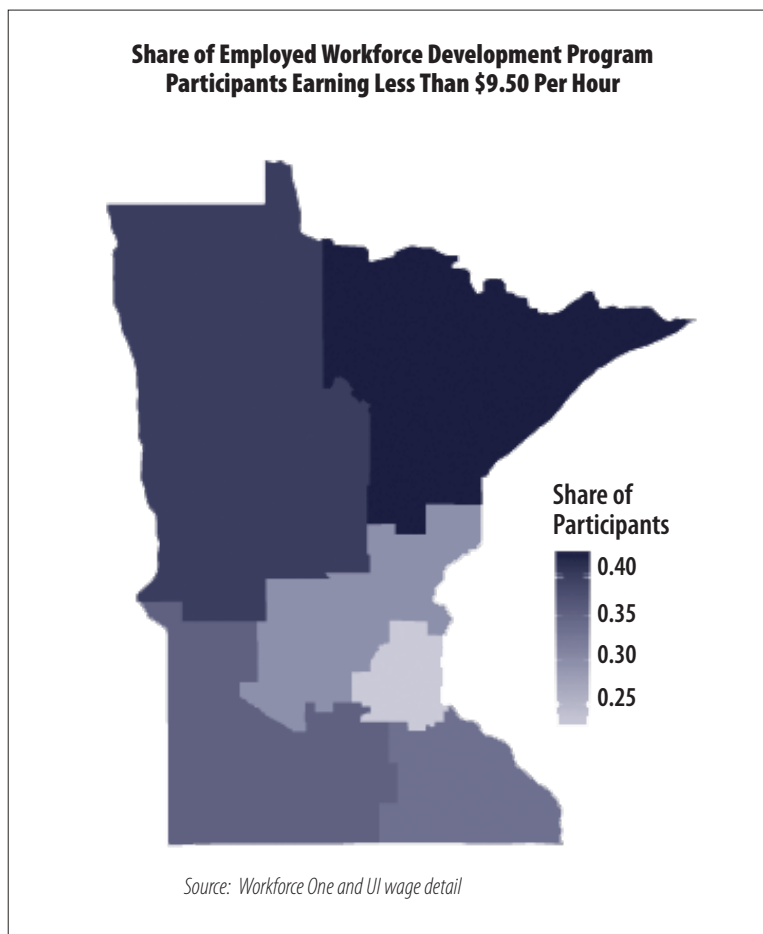
FIGURE 3



Many workforce development program participants live with a disability that affects their ability to find and retain work. (Some participants have a disability that they report does not affect their ability to work. These participants are included in the “Does not have a disability” bars.) The gender wage gap among participants with a disability is reversed: Men are slightly more likely to earn less than \$9.50 per hour than women (43 percent versus 39 percent), as shown in Figure 3.

Finally, Minnesota exhibits wide regional variation in wages, with the seven-county metro region showing the lowest share (22 percent) of participants earning less than \$9.50 and the Northeast Planning Region showing the highest share (42 percent), as shown in Figure 4. Additionally, at least some of the

FIGURE 4



## Data and Methodology

Individuals included in this analysis received case-managed employment services through one of the following programs: Vocational Rehabilitation Services, State Services for the Blind, employment services with the Minnesota Family Investment Program or Diversionary Work Program, employment and training services with the Supplemental Nutrition Assistance Program, the Workforce Investment Act Title 1B adult programs (including the Dislocated Worker Program) or Trade Adjustment Assistance (TAA). This analysis includes only those people found in UI wage records. People not found in UI wage records are not working, are working out of state, are self-employed or are in other non-covered employment (including railroad, work-study, family-farm and commission-only workers).

Participants were asked which racial group(s) they identify with as well as whether they identify as Hispanic. In this analysis, Hispanic refers to anyone who identifies as Hispanic, regardless of race. To avoid double-counting, each racial group excludes Hispanics.

Throughout, this article focuses on people earning the minimum wage rather than jobs paying the minimum wage. For people working two or more jobs, the average wage across all jobs weighted by the number of hours worked in each job was calculated. Of 40,540 workforce development program participants who ended services within the timeframe of this analysis, 24,275 appeared in UI wage detail within six months.

Employers enter both earnings and hours worked information for each employee; employment is assumed for people who have both earnings and hours. Employer-entered wage and hour data have an unknown amount of error. Hourly wage outliers, defined here as wages below \$4.90 per hour (the lowest legal minimum wage) and above \$90 per hour, were removed. These outliers represent 1.6 percent of the wage-earning population.

overall racial disparity is likely due to regional wage variations: More than half (55 percent) of American Indian participants in this analysis live in the Northwest Planning Region, which has among the highest rates of workers earning less than \$9.50 in the state.

## Conclusion

Based on UI wage records, a broad swath of workforce development program participants will likely see a wage boost due to the Minnesota new minimum wage statute. Starting on Aug. 1, 2014, this statute raises the minimum wage in steps over three years, with inflation adjustments thereafter. In the past year, more than one-fourth of participants have earned less than \$9.50 per hour, working one or more jobs. Workforce development program participants tend to be among the most economically vulnerable, leading to a heightened importance of minimum wage laws among this population. Judging by current wages, women, most minority racial groups and those with disabilities stand to benefit the most from this wage increase. **T**

<sup>1</sup>See [www.doli.state.mn.us/LS/MinWage.asp](http://www.doli.state.mn.us/LS/MinWage.asp) for a table with the old and new minimum wage provisions in Minnesota.



# What the Job Vacancy Survey Tells Us About the Labor Market

*A closer look at the 2013 fourth-quarter Job Vacancy Survey indicates the labor market recovery has been inconsistent across the state.*

Five years after the end of the Great Recession, Minnesota has recovered thousands of jobs that were lost in the downturn. This analysis shows, however, that the number and characteristics of job vacancies vary across the state and that not all regions are back to their pre-recession levels. The economic recovery and improvement in the job market have been uneven across the state.

Using data from the fourth quarter 2013 Minnesota Job Vacancy Survey, this story looks at the following four labor market metrics across the 13 economic development regions (EDR) in Minnesota:

1. Job vacancy rate compared with the unemployment rate;
2. Percentage of vacancies that are part-time jobs and the median wages of those jobs;
3. Educational requirements; and
4. Ratio of job seekers to job openings.

## Job Vacancy Rates

Only two of the 13 EDRs—Upper Minnesota Valley and Southwest Minnesota—had lower job vacancy rates in fourth quarter 2013 than before the

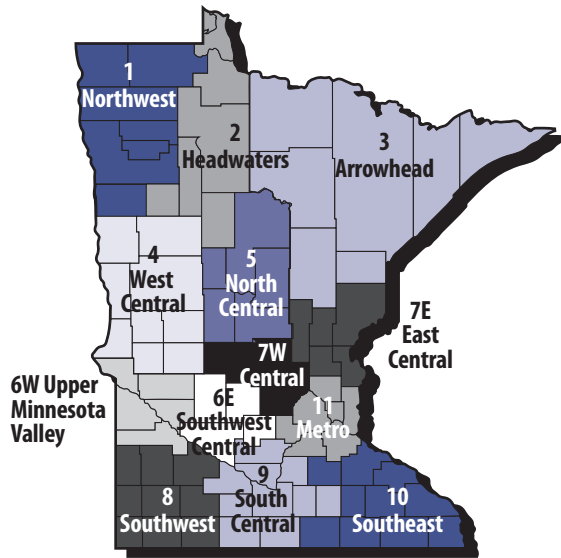
start of the Great Recession in fourth quarter 2007.<sup>1</sup> In the Twin Cities Metro, the latest job vacancy rate was 21 percent higher than six years earlier; in Greater Minnesota it was 35 percent higher (see Table 1).

TABLE 1

Job Vacancy Rate (JVR) Compared with Unemployment Rate (UR) Fourth Quarter 2013		
EDR	JVR	UR
Region 1 – Northwest	2.5%	4.2%
Region 2 – Headwaters	2.7%	6.4%
Region 3 – Arrowhead	2.6%	5.9%
Region 4 – West Central	4.1%	3.8%
Region 5 – North Central	2.3%	6.3%
Region 6E – Southwest Central	3.3%	4.4%
Region 6W – Upper MN Valley	2.2%	4.1%
Region 7E – East Central	2.2%	5.9%
Region 7W – Central	2.8%	4.5%
Region 8 – Southwest	2.6%	3.6%
Region 9 – South Central	2.9%	4.0%
Region 10 – Southeast	2.2%	4.0%
Region 11 – Twin Cities Metro	2.1%	4.2%
Greater Minnesota	2.7%	4.6%
<b>Statewide</b>	<b>2.3%</b>	<b>4.4%</b>

Source: DEED, Job Vacancy Survey, fourth quarter 2013, Local Area Unemployment Statistics

**Minnesota Economic Development Regions**



By the end of 2013, the statewide unemployment rate had fallen to 4.4 percent, the same level as in fourth quarter 2007. Nevertheless, there were still four EDRs where the fourth quarter 2013 unemployment rate remained higher than before the downturn: Headwaters, 6.4 percent; North Central, 6.3 percent; Arrowhead, 5.9 percent; and East Central, 5.9 percent.

**Part-Time Job Vacancies**

Table 2 shows that the share of part-time openings ranged from a low of 33 percent in the Central region to a high of 53 percent in the South Central region. In both the Arrowhead and Southeast regions, almost half of all openings were part time. Statewide, nearly 40 percent of all openings were part time.

The statewide median wage for part-time openings was \$10.01 per hour, which was almost 40 percent below the \$16.31 median for full-time openings. In four of the regions—Arrowhead, West Central, Southwest and South Central—the part-time median wage was less than \$10 per hour. By far the lowest part-time median wage was in the Arrowhead region. At \$8.26 per hour, the Arrowhead part-time median wage was just a bit higher than the current state minimum wage of \$8 per hour.

TABLE 2

Part-Time Openings by Economic Development Region Fourth Quarter 2013		
EDR	Part-Time	Part-Time Median Wage
Region 1 – Northwest	34%	\$11.70
Region 2 – Headwaters	37%	\$10.54
Region 3 – Arrowhead	49%	\$8.26
Region 4 – West Central	35%	\$9.35
Region 5 – North Central	44%	\$10.20
Region 6E – Southwest Central	43%	\$13.34
Region 6W – Upper MN Valley	40%	\$10.72
Region 7E – East Central	42%	\$10.36
Region 7W – Central	33%	\$10.27
Region 8 – Southwest	39%	\$9.15
Region 9 – South Central	53%	\$9.58
Region 10 – Southeast	47%	\$10.41
Region 11 – Twin Cities Metro	37%	\$10.15
Greater Minnesota	42%	\$10.00
<b>Statewide</b>	<b>39%</b>	<b>\$10.01</b>

Source: DEED, Job Vacancy Survey, fourth quarter 2013

### Educational Requirements of Job Vacancies

Despite persistent claims from employers of a growing skills gap among workers, the statewide share of openings that require post-secondary education or training fell to its lowest level in almost a decade. Table 3 shows that only 38 percent of openings statewide required more than a high school degree. In Greater Minnesota, less than one-third of all openings required post-secondary education, but this figure varied widely across the 12 Greater Minnesota regions. It ranged from a high of 53 percent in the Upper Minnesota Valley region to a low of 22 percent in the West Central region.

Not surprisingly, the Twin Cities Metro had by far the biggest share of openings (29 percent) that require at least a four-year degree. In Greater Minnesota, only 15 percent of all openings required this much education.

### Job Seekers to Job Openings

Table 4 shows that the fourth-quarter statewide ratio between job seekers and job openings was 2.1-to-1—the lowest statewide ratio for any fourth quarter since 2006. The 2.1-to-1 statewide ratio was identical to the ratio in the two most heavily populated

Minnesota regions—the Twin Cities Metro and Southeast.

From the perspective of workers who needed a job, the best and worst ratios were in Greater Minnesota. The best ratios were found in the Southwest, Southwest Central and South Central regions (1.8-to-1) and West Central region (1.4-to-1). The three regions with the worst ratios were Headwaters (3.2-to-1), North Central (3.9-to-1) and East Central (4.9-to-1).

If finding any job was a challenge, finding a full-time job was even more challenging. Statewide, the fourth-quarter ratio of job seekers to full-time openings was 3.5-to-1. In the Twin Cities Metro region, the full-time ratio was slightly lower at 3.3-to-1, while the ratio in Greater Minnesota was almost 4-to-1.

The best odds of getting a full-time job were in three western Minnesota regions: Southwest

TABLE 3

Educational Requirements of Openings by Economic Development Region, Fourth Quarter 2013		
EDR	Post-Secondary Education	Bachelor or Graduate Degree
Region 1 – Northwest	45%	14%
Region 2 – Headwaters	48%	17%
Region 3 – Arrowhead	36%	19%
Region 4 - West Central	22%	14%
Region 5 – North Central	40%	15%
Region 6E - Southwest Central	34%	12%
Region 6W - Upper MN Valley	53%	9%
Region 7E - East Central	29%	15%
Region 7W – Central	24%	9%
Region 8 – Southwest	37%	12%
Region 9 - South Central	24%	12%
Region 10 – Southeast	40%	20%
Region 11 - Twin Cities Metro	43%	29%
Greater Minnesota	32%	15%
<b>Statewide</b>	<b>38%</b>	<b>22%</b>

Source: DEED, Job Vacancy Survey, fourth quarter 2013



(3-to-1), Southwest Central (3.1-to-1) and West Central (2.1-to-1).

The odds of getting a full-time job were much worse in the four Greater Minnesota regions with full-time ratios of at least 5-to-1. The ratio was 5-to-1 in the Headwaters region, 5.3-to-1 in the Arrowhead region and nearly 7-to-1 in the North Central region. Worst of all was the East Central region at 8.4-to-1.

### Conclusion

The Job Vacancy Survey indicates that Minnesota’s labor market has not recovered from the Great Recession to the extent suggested by other measures, such as the monthly unemployment rate and job growth numbers. Specifically, several Greater Minnesota regions lag the overall state in vacancy numbers, job seeker-to-vacancy ratio, share of part-time vacancies and wage offers. Moreover, educational requirements for open positions were down statewide, to a level not seen in almost a decade. [T](#)

TABLE 4

Ratio of Job Seekers to Job Openings by Economic Development Region, Fourth Quarter 2013		
EDR	Job Seekers/ Job Openings	Job Seekers/ Full-Time Openings
Region 1 – Northwest	2.3-to-1	3.5-to-1
Region 2 – Headwaters	3.2-to-1	5.0-to-1
Region 3 – Arrowhead	2.7-to-1	5.3-to-1
Region 4 – West Central	1.4-to-1	2.1-to-1
Region 5 – North Central	3.9-to-1	6.9-to-1
Region 6E – Southwest Central	1.8-to-1	3.1-to-1
Region 6W – Upper MN Valley	2.5-to-1	4.3-to-1
Region 7E – East Central	4.9-to-1	8.4-to-1
Region 7W – Central	2.3-to-1	3.4-to-1
Region 8 – Southwest	1.8-to-1	3.0-to-1
Region 9 – South Central	1.8-to-1	3.8-to-1
Region 10 – Southeast	2.1-to-1	4.0-to-1
Region 11 – Twin Cities Metro	2.1-to-1	3.3-to-1
Greater Minnesota	2.2-to-1	3.9-to-1
<b>Statewide</b>	<b>2.1-to-1</b>	<b>3.5-to-1</b>

Source: DEED, Job Vacancy Survey, fourth quarter 2013



<sup>1</sup>The job vacancy rate is defined as the number of vacancies per 100 jobs.

Meet

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