

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.



We'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 2011.¹

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

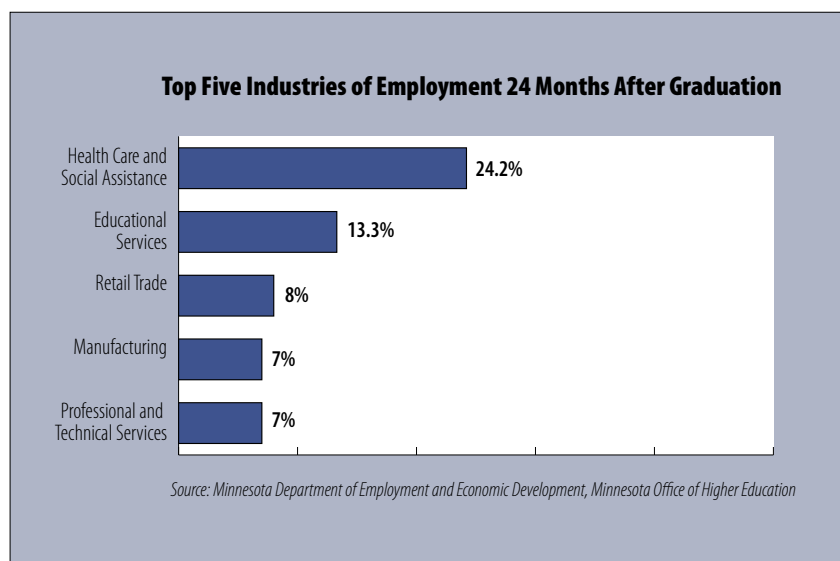


FIGURE 2

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?*

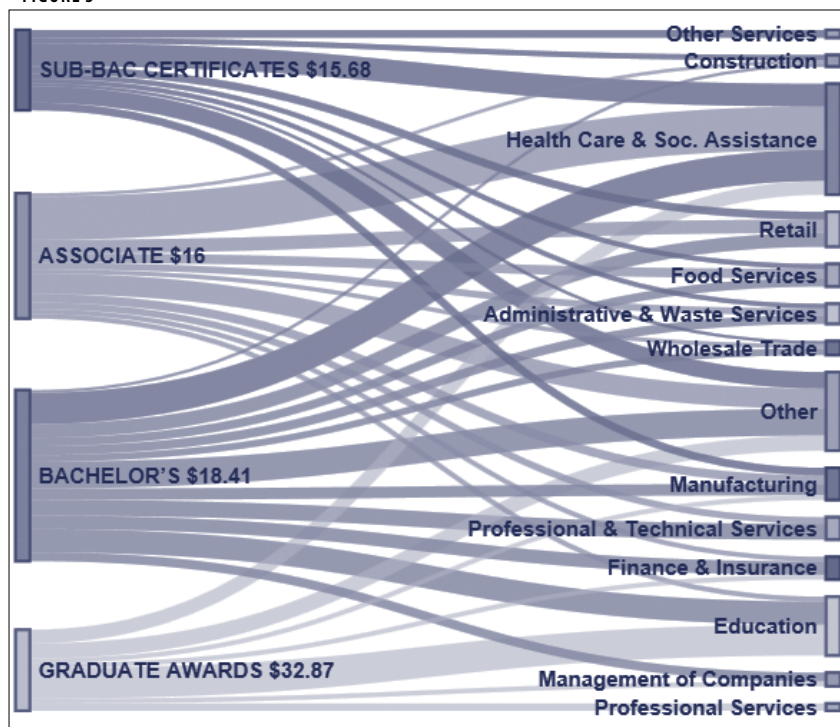
The tool allows counselors and recent graduates to find the industries that hire candidates with the graduate's background and use that information to better target a job search. In general it is better to gain work experience in an industry where education and skills can be leveraged or upgraded, even 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.² 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. ¹



¹More years will be added as data become available.

²Although 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.