From College Major to Industry of Employment

By Alessia Leibert
March 2024

New interactive web tool offers insights into economic success of postsecondary graduates in Minnesota

When choosing a major it's hard to know what to expect. Will future earnings justify today's investments in a college education? Upon completion of a major, where will I work? Do I envision myself working in the industries where most other graduates in my major have found employment?

The Minnesota Department of Employment and Economic Development (DEED) just released the *College Major to Industry of Employment* tool, showing which industries hired graduates from 405 different postsecondary majors. Thanks to this unprecedented level of detail, users can explore the following questions:

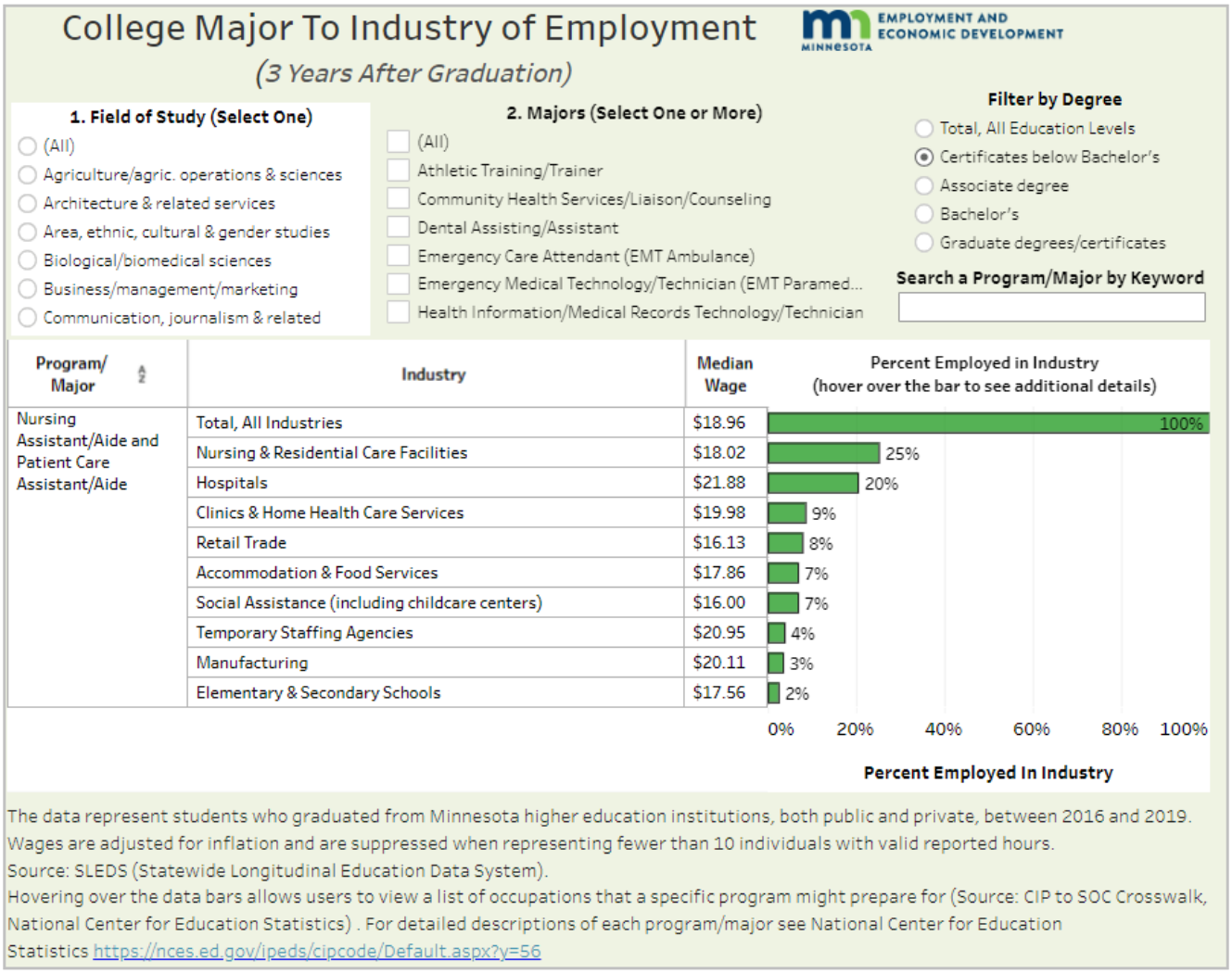
- **What hourly pay can graduates from a specific major expect three years after graduation?** Knowing the inflation-adjusted wage of actual students who completed the program helps prospective students gauge how long it will take to earn a family-sustaining wage and recoup their educational investments.

- **What industries employed students who completed these majors?** Knowing the sectors with highest employability helps students determine if the program matches their career expectations. Furthermore, academic program planners can use this information to evaluate the match between training curricula and industry[1] needs.

The tool is an ideal companion to the Graduate Employment Outcomes (GEO) tool, which represents the collaborative efforts of DEED and the Minnesota Office of Higher Education to collect and securely link workforce with education data through the Statewide Longitudinal Educational Data System (SLEDS).

To show how the tool works, Figure 1 explores the outcomes of certificates in Nursing Assistant/Aide and Patient Care Assistant/Aide. To navigate to this result, users can either select "Health Professions & Related" from the Field of Study filter or type "nursing assistant" in the keyword search field.

Figure 1



Questions asked by students

What careers can this program potentially lead to? How much can I expect to earn upon completion of the instructional program? Does the program improve my chances of finding a job in the industries and work settings of my choice/for which I prepared?

Answers offered by the tool, using Nursing Assistant/Aide as an example:

- This program prepares for a career as Nursing Assistant. This information is visible by hovering over the green bar.
- Three years after graduation, program participants earned a median inflation-adjusted hourly wage of $18.96. The median is the point at which half of graduates earned more and half earned less.
- A slim majority (54%) of students found jobs in the Healthcare sector, a natural fit for this program.
- The large variation in wages within Health Care, from $18.02 in Nursing & Residential Care Facilities to $21.88 in Hospitals, suggests that Hospitals offer opportunities that students may want to explore. In fact, wages in Hospitals are being pulled upwards by graduates who went back to school to pursue additional credentials, and probably licensure, in Licensed Practical Nursing (LPN) or Registered Nursing (RN).

- Wages earned in each industry are a good gauge for whether graduates entered related careers. Wages earned in Retail Trade and Social Assistance are much lower than others, suggesting that graduates working in these industries held jobs unrelated to their major.

This information is relevant both before and after graduation. Before deciding on a major, this evidence helps lay out the professional paths and work settings available for different instructional program options, so students can compare prior to committing to a particular course of study. After graduation, it can help graduates target their job search efforts to industries with an actual history of recruiting from the program at good wages.

Questions asked by program planners and policymakers

How large is this workforce pipeline? Is this program well aligned with industry needs? What are the overall strengths and weaknesses of the pipeline?

Answers offered by the tool, using Nursing Assistant/Aide as an example:

- The size of the pipeline is 3,982 employed graduates, visible by hovering over the top green bar. This figure falls short of the projected future demand for the occupation of Nursing Assistants shown in the Occupations In Demand list. Moreover, the overall median wage falls below the family-sustaining wage of $19.46[2].

- The top industries of employment are well aligned with the program's main disciplinary area, in this case Health Care. However, nearly half of program participants were employed outside of Health Care three years after graduation. Given the severe labor shortages in Nursing Assistants and Home Health & Personal Care Aides positions, this result is concerning.

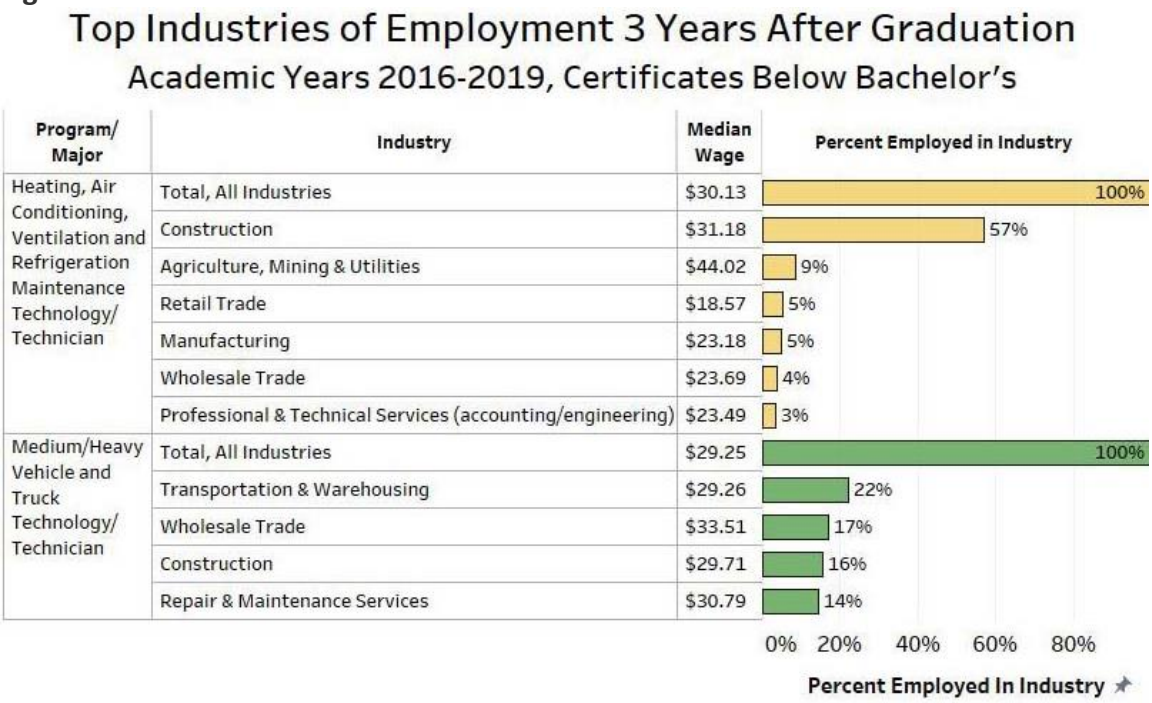
- Graduates employed in Accommodation & Food Services and Manufacturing, which are unrelated to this major, had wages comparable or even higher than those in Nursing & Residential Care Facilities. This suggests that a significant number of workers in this important educational pipeline leaked into unrelated industries that compete with Nursing & Residential Care Facilities and other Health Care sectors on wages.

This evidence can help program planners understand the broader impact of their program within the labor market and demonstrate to stakeholders that they are meeting industry needs. And if the program is not meeting industry needs, the tool can offer clues as to why.

Outcomes for Short-term Credentials: Are There Opportunities in the Trades?

With rising college tuition costs, vocational and trade schools are seeing a revival in popularity. But not all vocational programs are created equal. Graduates' earnings outcomes vary dramatically by occupational focus. Gender of participants is also a factor driving program performance. In contrast to most female-dominated sub-baccalaureate programs like the one displayed in Figure 1, most male-dominated ones yield median wages that are well above the family-sustaining wage threshold. Figure 2 displays two certificates within the Mechanic & Repair Technician field of study as examples.

Figure 2

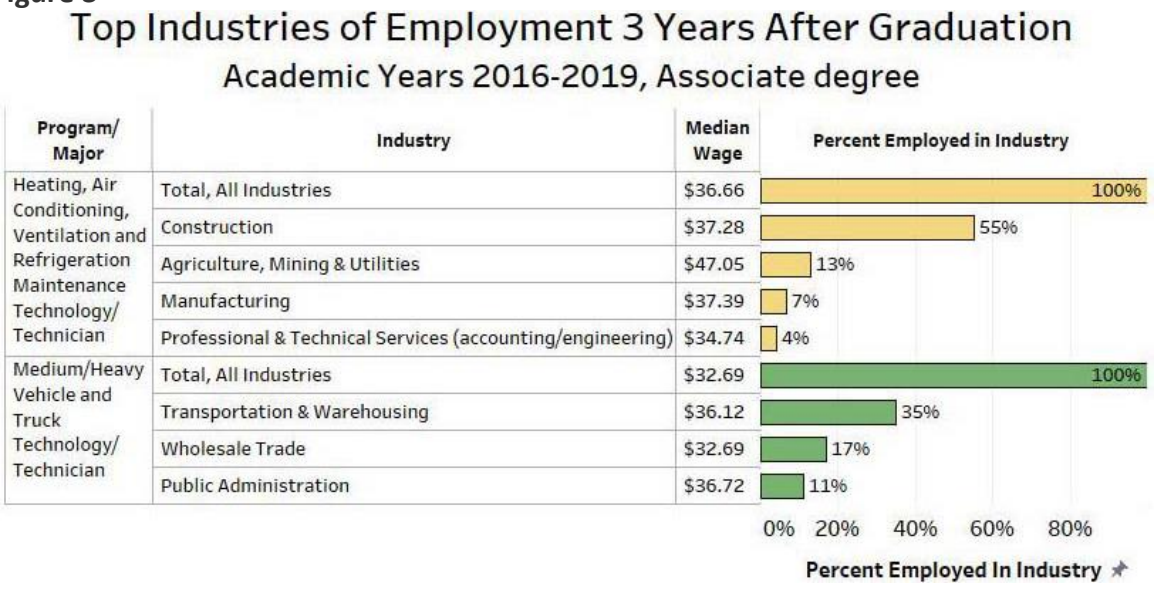


In the case of HVAC Technicians, 57% of students landed jobs in Construction with wages of $31.18, and 9% in Utilities, also a related industry, at even higher wages. In the case of Medium/Heavy Vehicle & Truck Technicians, the top four industries—making up 69% of employed graduates—fit well with the program's occupational focus and offer excellent wages.

Outcomes for Associate Degree Programs

The tool allows us to look up the same majors at the associate award level (Figure 3). When comparing Figure 2 with Figure 3 we notice a nearly identical industry distribution with higher wages, suggesting that additional training in these majors further boosts industry-readiness and earnings potential. This information can help students weigh the costs and benefits of enrolling in a certificate versus an associate's degree program in these fields. Wages in these majors are even above those earned three years post-graduation by bachelor's degree holders overall in academic year 2018-2019[3].

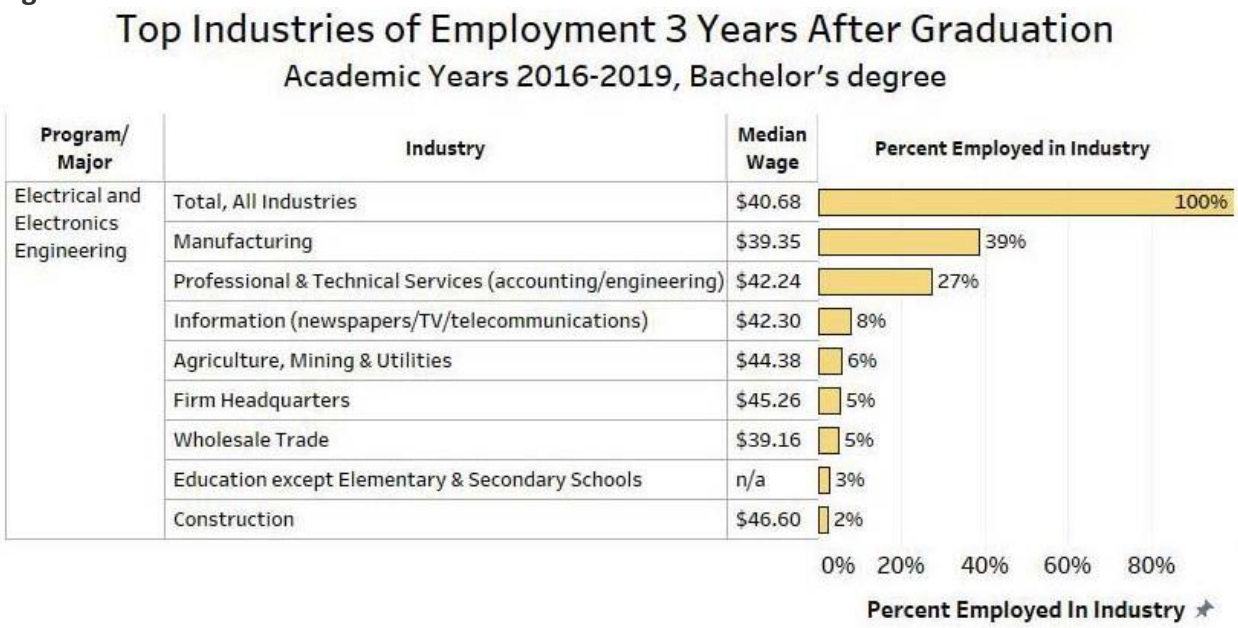
Figure 3



Outcomes for Bachelor's Programs

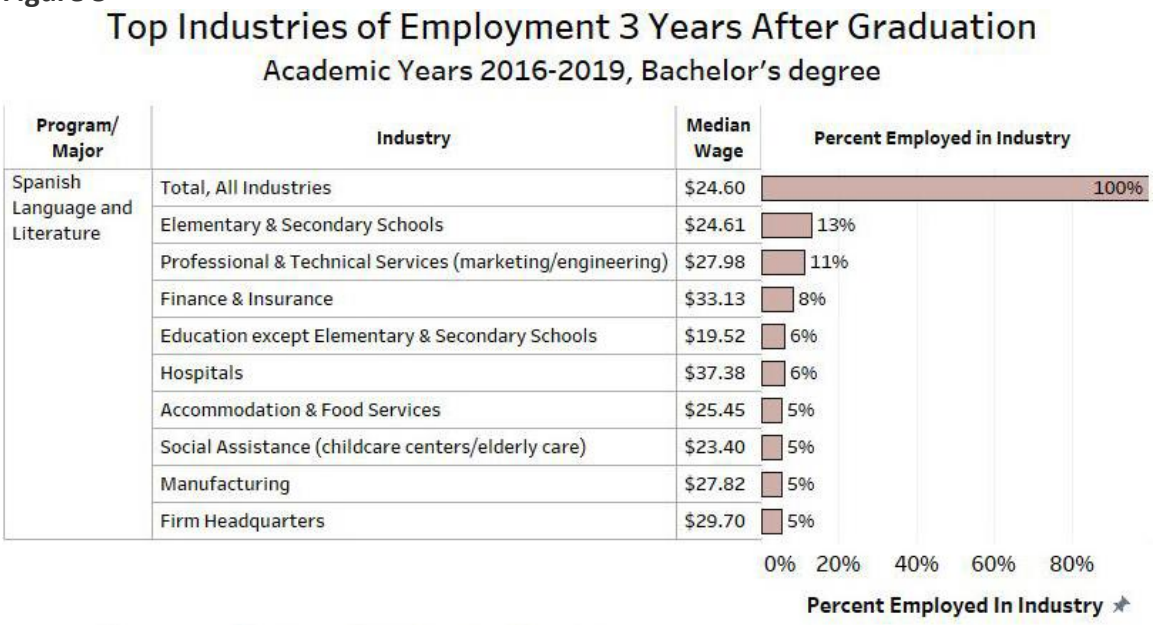
Engineering is one of the best-paying majors in Minnesota. Figure 4 displays the outcomes of Electrical and Electronics Engineering graduates, 39% of which had jobs in Manufacturing at median wages of $39.35. The second most popular industry of employment, Professional & Technical Services, yields even higher wages ($42.24). The top six industries are well aligned with the occupational focus of the program.

Figure 4



To wrap up this overview we examine a program in the humanities. Figure 5 displays the outcomes of recipients of a bachelor's degree in Spanish Language & Literature. The program leads to median wages of $24.60, below the overall median of $27.85 for bachelor's degree holders but significantly above Minnesota's family-sustaining wage.

Figure 5



Hovering over the data bars, we discover that this major might prepare graduates for work as Interpreters & Translators, Foreign Language Teachers, and Secondary School Teachers in general. However, like most programs, this list of occupations is not exhaustive of all career options available to graduates, because certain skills sets are transferable to a variety of careers. The top industry of employment is Elementary & Secondary Schools, where there is high demand for Spanish-speaking Teachers, Teaching Assistants, and Community Liaisons.

The second top industry of employment, Professional & Technical Services, is seemingly unrelated to this major but pays even higher wages than Elementary & Secondary Schools. Why? Because this industry needs Spanish speakers in roles as varied as Marketing Specialists, Sales Representatives, and Survey and Communications Specialists. The same is true for the Finance & Insurance industry, which absorbed 8% of employed graduates at very good wages. The payoffs to this major are high also in Hospitals, where graduates may have found jobs as Interpreters. A variety of businesses with Spanish-speaking customers can benefit from employees who are fluent in the language and possess the writing, communication and research skills learned through a humanities degree.

Conclusions

Choice of major is truly the key to economic success after graduation. While it is good to explore careers early and let career interests drive choice of major, sometimes it is nearly impossible to chart a detailed career path in advance. Knowing the industries of destination of recent graduates can reduce uncertainty by offering a reality check about earnings potential and work settings available down the road. The empirical evidence from the *College Major to Industry of Employment* tool, briefly summarized in this article, can help students and families navigate training options.

---

[1]In the absence of information on students' specific job roles, we use industry as a measure of alignment with employer needs. For example, we can't tell whether a Registered Nursing graduate was employed as a Registered Nurse, but we know whether he/she was employed in the Health Care industry.

[2]According to the Cost of Living tool, $19.46 is the minimum wage needed to sustain a typical family in Minnesota. This benchmark is based on the fact that the most typical family structure in Minnesota is three people with two adults, with one full-time worker, one part-time worker, and one child.

[3]The overall median for Bachelor's degree holders three years after graduation for the 2018-2019 cohort was $27.85. Source: Graduate Employment Outcomes Tool, 2018-2019 cohort.