

GREAT JOBS

GOLD IN A TWO-YEAR DEGREE

A new American Experiment study reveals that a tech school education can yield startling future earnings.



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If there's one thing most Americans think they know, it's this: To get ahead, you've got to have a four-year college degree. Young people today grow up believing that without a college diploma, they are doomed to a life that's second-best.

This cultural stereotype is based, in part, on the widespread assumption that four-year college graduates can expect to make a lot more money over a lifetime than their peers. To buy a decent house and car and support a family, you've got to have a BA or BS degree, the thinking goes—even if you're not so inclined and you worry about the time investment and student debt this entails.

But a recent study from Center of the American Experiment reveals that the common wisdom here is wrong. The study—entitled *No Four-Year Degree Required: A Look at a Selection of In-Demand Careers in Minnesota*—reaches a surprising and dramatic conclusion:

Young people who choose non-four-year pathways, like a two-year degree, apprenticeship or occupational certificate, can often do better financially than their college-educated peers. For example, median lifetime earnings for CNC machinists, dental hygienists, plumbers, electric line installers and some similar occupations are actually higher—as much as 61 percent higher—than those of four-year degree holders.

The new study is the first of several research papers the Center plans as part of its “Great Jobs Without a Four-Year Degree” project, launched in April 2017. The project focuses on a troubling dilemma: Today, when so many young people are dropping out of college—often without skills and living in their parents’ basement—thousands of high-skill jobs are going begging in our state.

This “skills gap” threatens both the next generation’s future and Minnesota’s economic prosperity. How can we address it most effectively?

A four-year college degree is an excellent option for many young people, of course. But today, there’s a striking mis-

match between the educational requirements of the jobs in demand and students’ educational pursuits. Only 22 percent of jobs in Minnesota require a four-year degree or more, yet about 50 percent of our state’s young people start a four-year degree after high school. Too often, they never learn about other career paths that would allow them to get in-demand, well-paying jobs fast, avoid crippling debt, and build a strong future.

The Center’s new study identifies a range of such opportunities, and evaluates



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the financial returns that each one offers an 18-year-old Minnesotan looking to plan his or her future.

The study’s author is Dr. Amanda Griffith, a labor economist at Wake Forest University in North Carolina. Griffith examined occupations in four broad career clusters: skilled manufacturing; health care; construction-related trades; and jobs that require only a one-year certificate, such as HVAC technician and electric line installer. Some of these occupations require a two-year associate’s degree, some an apprenticeship, and others—as noted—an occupational certificate.

For each occupation in these four

clusters, Griffith determined the costs of education or training, as well as median hourly wages for workers in that field in the Twin Cities and in Minnesota as a whole. (Wage data is from the Minnesota Department of Employment and Economic Development (DEED).) Then she calculated an estimated median lifetime earnings profile for each and compared it to the median lifetime earnings of four-year degree holders in Minnesota.

Skilled manufacturing

In the skilled manufacturing cluster, Griffith examined three occupations: CNC machinist, millwright and welder. CNC machinists program and operate high-tech “computer numerical control” (CNC) machines; millwrights install or repair complex manufacturing machinery; and welders join materials using heat and/or pressure in manufacturing, construction and other industries.

The costs of the education and training required to enter these three occupations are relatively low. To become a CNC machinist or millwright, a person generally needs a two-year associate’s degree from a technical college. On average, such a degree for a student living off-campus apart from his or her family costs about \$20,000 a year at a public educational institution in Minnesota.

This total cost can be substantially lower for students who continue living with family. For instance, the federal government estimates that Anoka Technical College costs \$21,000 for students who don’t live with family versus \$13,500 for students who live with family. These total costs, however, don’t account for grant or scholarship aid. For students who receive this aid—a majority of students—the actual cost after aid is only about \$11,500 per year. Thus, on average, a two-year associate’s degree costs just \$23,000 for students who receive aid. A career in welding generally only requires a one-year occupational certificate, with attendant lower costs.

Students in skilled manufacturing generally pay for their education by taking

out loans and working part-time. Loans average about \$5,800 a year. (Employers sometimes pick up the bill, further lowering students' costs, Griffith notes.) Most students also work part-time—"earning as they learn"—at manufacturing companies that are eager to hire them as they train.

Costs are much higher for students pursuing a four-year college degree. For those who live off-campus apart from family, the total cost comes to about \$23,000 per year at a public institution in Minnesota, or \$92,000 over four years. For students at a public institution who receive grant or scholarship aid, the cost after aid is about \$15,000 per year, or \$60,000 over four years.

Griffith assumed a best-case scenario of graduation in four years, though only about one-third of students at the state's public four-year institutions graduate in four years from the school where they started. After six years, less than two-thirds have completed their degree. Many students drop out.

This high education cost necessitates significant borrowing on the part of most bachelor's degree students—about \$7,500 per year, on average, or \$30,000 over four years.

What can students in skilled manufacturing—compared to those with four-year college degrees—expect to be paid after they complete their education or training? The results are likely to surprise many.

The median wage for four-year college graduates in Minnesota is \$25 per hour, according to the U.S. Census Bureau. Both CNC machinists and millwrights in the Twin Cities actually have a higher median wage: \$27 and \$28 per hour, respectively, according to DEED. In Minnesota, as a whole, these figures are \$26 and \$24, respectively. Welders earn less, at \$21 per hour in the Twin Cities and \$20 in the state as a whole.

Now for the big picture: How do the educational costs and earnings just described add up over a lifetime? To answer this, Griffith calculated an estimated median lifetime earnings profile for the three skilled manufacturing occupations in question, as well as for four-year college degree holders. To do this, she used the median wage for each across the state of Minnesota and then subtracted

educational costs.

These calculations reveal that, over a lifetime, CNC machinists in Minnesota will have estimated median earnings that are 11 percent higher than college graduates', while millwrights' will be 4 percent higher. Only welders can expect to net less—by 15 percent.

Health care

In the health care cluster, Griffith examined four occupations: registered nurse, dental hygienist, radiologic technician and LPN (licensed or limited practical nurse). All require a two-year associate's degree except LPN, which generally requires a two- or three-semester diploma. RNs with a two-year degree are likely to work in private practices, nursing homes, and schools, rather than hospitals.

The educational costs for these health care occupations are comparable to those of the skilled manufacturing occupations just described. (LPNs' costs are roughly comparable to those of welders.) But median wages for workers in these fields are even higher than for CNC machinists and millwrights, again, with the exception of LPNs.

The median wage for an RN with an associate's degree is \$38 an hour in the Twin Cities. For dental hygienists and radiologic technicians, median wages are \$36 and \$31, respectively. LPNs are lower, at \$22 per hour. For the state as a whole, median wages are \$35 for RNs and dental hygienists, \$30 for radiologic technicians and \$21 for LPNs. Again, this compares to a median wage for four-year degree holders in Minnesota of \$25.

In terms of median lifetime earnings, in Minnesota, RNs' expected earnings are 50 percent higher than four-year degree holders'. Dental hygienists and radiologic techs earn 49 percent and 31 percent higher, respectively.

LPNs are the only group whose median lifetime earnings are lower than four-year graduates', but only by 5 percent. This startling similarity between LPNs' and four-year college graduates' median lifetime earnings is due to the fact that LPNs only have one year of schooling and much lower student loans as a result.

Construction-related trades

Next, Griffith examined the construction trades, including carpenters, electricians and plumbers. Preparation for these occupations can take a variety of forms. Generally, it involves an apprenticeship, either formal or informal, and may also involve study at a technical college. Either way, the goal is to achieve certification as a highly skilled journey worker.

Griffith focused on the formal apprenticeship program at the North Central States Regional Council of Carpenters. In this four-year program, apprentices train at the union's facility in St. Paul for one week, four times a year. They complete the rest of their training on the job. They begin at an entry-level wage, and wages increase as the skills required for certification as a journey worker are completed. There is no out-of-pocket cost for the apprenticeship, as all training costs are negotiated with the many employers who participate. Workers do join the union and pay union dues.

The median hourly wages for carpenters, electricians and plumbers with journey-worker certification in the Twin Cities are \$27, \$32 and \$37, respectively. They are \$23, \$29 and \$33, respectively, in the state as a whole.

To estimate median lifetime earnings for these occupations, Griffith assumed that workers completed a formal apprenticeship program without schooling at a technical college. Thus, she assumed no direct costs of schooling and no loans to repay. Under these assumptions, carpenters in Minnesota can expect median lifetime earnings that are 2 percent higher than four-year degree holders' earnings. Median earnings are 31 percent and 49 percent higher for electricians and plumbers, respectively.

The North Central States Regional Council of Carpenters would prefer that apprentices enter its program right out of high school, at age 19. However, the average starting age is 28, according to Kyle Makarios, until recently the union's director of government affairs. The situation is similar in other skilled trades, he adds. This likely reflects many young people's tendency to drift from one low-wage, unskilled job to another for several years after high school before getting serious

about a career.

Unfortunately, this course of action sets them up for a substantial financial loss. Griffith found that carpenters who begin their apprenticeship at age 28 rather than age 19 forego more than \$246,000 in earnings over a lifetime. If young people understood the price of delaying career preparation, they might make well-thought-out plans—and act on them—much earlier.

One-year certificate careers

The final career cluster included occupations that require a certificate that can be earned in only two or three semesters. Griffith chose two examples: heating and air conditioning (HVAC) installation and maintenance and electric power line installation.

The cost of earning these certificates at a two-year public institution is about \$11,000, after grant aid is subtracted. The average student loan is about \$6,000.

Median wages for HVAC technicians and power line installers in the Twin Cities are \$28 and \$36 an hour, respectively. In Minnesota, they are \$25 and \$37, respectively. Median lifetime earnings in both occupations are higher than those of four-year degree holders', with HVAC workers' 11 percent higher and power line installers' a whopping 61 percent higher.

Conclusions

A four-year college degree is an excellent option for many Minnesotans. But too often today, young people enroll at a four-year institution because they feel pressured to do so, and then drop out without useful skills but saddled with burdensome debt.

At the same time, employers are scrambling to fill a host of skilled, well-paying positions. Minnesota manufacturers, for example, say they struggle to find workers for two-thirds of available jobs, according to DEED. (See Juntunen, p.22.) The agency projects demand for CNC machinists to grow by 19 percent and for millwrights by 16 percent over the next 10 years.

The situation is similar in the construction industry. "Today, 79 percent of construction companies can't find enough qualified workers," according

to Dennis Medo, who heads Project Build Minnesota. "Unless that changes soon, building costs may skyrocket and many construction projects simply won't get built."

"More than 40 percent of technical workers in the utility industry are eligible to retire in the next five years," says Bruce Peterson, executive director of the Minnesota State Energy Center of Excellence. "But if you take 40 percent of the people out of the power plants, how do you keep them running?" All of the skilled trades are "in the same position," he adds.

The need for health care workers is booming as well. DEED projects that by 2024, demand for RNs and dental hygienists will grow by 12 percent, and for radiologic techs and LPNs by 11 percent.

This means that young people who enter the occupations profiled in the Center's new study can be confident of strong demand going forward. Already, students preparing for these jobs often have multiple job offers before they complete training—in many cases from employers they have worked for during their education.

The non-four-year career tracks examined here offer many other advantages. Rapid, low-cost entry and good earnings potential give young workers relative freedom from school debt, and thus a substantial head start in saving for a house, family needs, and retirement.

In addition, most of these fields offer clear paths for advancement. Entrepreneurial carpenters, plumbers, electricians and HVAC technicians can start their own businesses. In some cases, well-paid overtime work can boost earnings into six figures.

As high school students and their parents investigate post-secondary options, they need to know about a broad spectrum of career choices like these. An excellent online resource is a paper from DEED entitled, "What To Know Before You Owe," which includes a wealth of information about careers that don't require a bachelor's degree.

Families should also know that after earning a two-year associate's degree, young people can eventually go on to



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get a four-year degree in a "2 plus 2" arrangement. Some employers offer tuition reimbursement to employees, which is tax-free for the employee up to \$5,250.

There are many exciting, fulfilling paths to a successful and productive career—and life—in Minnesota in 2017. Going forward, our society needs to re-emphasize the importance of honoring and respecting those who choose non-four-year routes for the valuable contributions they make to our communities. Our state's future prosperity—and the well-being of many of our young people—depend on it. ★