

Research Brief

Preparing the Next Middle Skills Workforce for Maine's Economic Future

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Maine Community College Foundations

By

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Overview

Jobs requiring less than a college education make up most of the job opportunities in Maine. Occupational projections from the Maine Department of Labor, Center for Workforce Research and Information out to year 2026 indicate that this will hold into the near future (CWRI, 2020). The skill requirements for these jobs however will change significantly in the years ahead as new technologies, leaner methods of work organization and changing consumer preferences will impact occupations across the full spectrum. Furthermore, massive layoffs triggered by the COVID-19 driven economic impacts will leave thousands of workers in Maine permanently unemployed and isolated unless we provide them with new skills aligned with emergent demand of the transforming economy. Austin and Hershbein (2020) in a recent blog/analysis of the post-pandemic labor market write that for many of these workers, their old jobs won't be coming back, even as the economy continues to reopen. Instead, they see employment expansion in such industries as health care, medical device and supply manufacturing, and telecommunications equipment and software to support remote work and learning. These jobs will require particular skill sets and greater education and training than many laid-off, lower-skilled workers currently possess. Additionally, their analysis suggests that recessions cause many employers to permanently raise skill requirements as they retool their operations, making remaining jobs further out of reach for job seekers.

“Our nation is geared toward encouraging individuals to earn 4-year Bachelor’s degrees. Yet almost a third of new job openings between 2010 and 2020 are going to require middle skills”, according to Anthony Carnevale, executive director of Georgetown University’s Center on Education and the Workforce. The Bureau of Labor Statistics reports that average wages were generally higher for occupations requiring more education. Annual mean wages were \$29,190 for occupations typically requiring no formal educational credential for entry, \$44,190 for occupations typically requiring a high school diploma or the equivalent, \$58,430 for occupations typically requiring an Associate’s degree, and \$88,260 for occupations typically requiring a Bachelor’s degree.

An aging workforce and slow population growth remain for Maine’s foreseeable future. Some Maine employers report hiring difficulty in some occupations even as high unemployment and the continuation of structural job losses persist. Once consumer demand and economic activity return to pre-COVID-19 levels however, the tightness of the labor market and hiring constraints previously reported by employers will return. If skills mismatches are left untreated, both Maine workers and employers will suffer needless losses creating adverse impacts for the Maine economy.

There is broad consensus among labor market analysts that jobs where a high school education or less is an adequate ticket for entry are disappearing. In today’s economy, everyone needs some form of post-secondary education and training to qualify for entry level jobs and to have in hand the means to advance careers and incomes. The waves of retiring workers in Maine will create openings in key sectors and occupations including public safety, the trades, healthcare, advanced manufacturing and business and finance. Maine’s renewed commitment to encouraging alternative energy generation,

aquaculture and food production will potentially create thousands of new jobs but only if the skilled labor force to perform them is available.

With Maine's persistent demographic challenges come constraints on the availability of labor if we are to accommodate economic growth in the years ahead. It will require large scale investments for developing and retooling the skills of the workforce. These investments must include public, private and philanthropic efforts invested over the long term in a coordinated manner. Our labor market intermediary and exchange institutions must also operate at high levels of efficiency and responsiveness for labor supply to match demand in a dynamic economic environment requiring movement from one job to the next with greater frequency.

Middle Skill Jobs and the American Worker

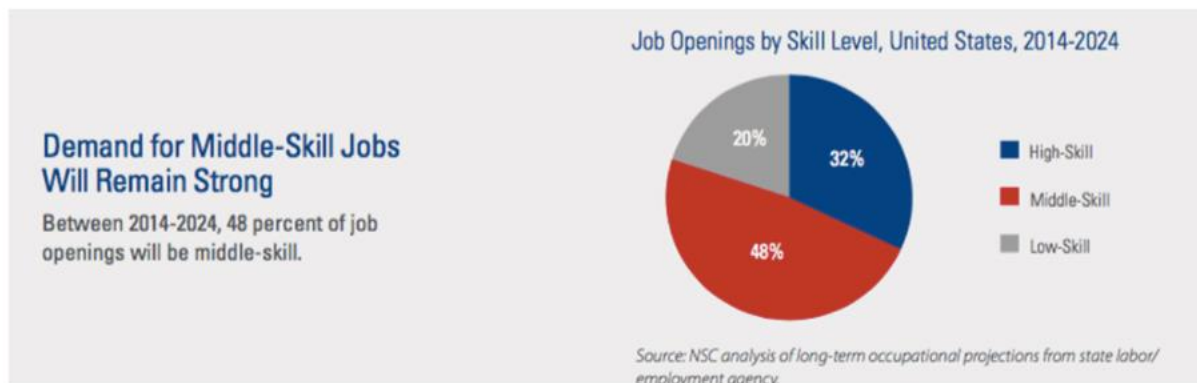
The U.S labor market is often cited for its flexibility and dynamism in contrast to more rigid European labor markets. American workers however are more challenged when job loss occurs. A study from researchers associated with the National Bureau of Economic Research (NBER) found that job loss during a period of high unemployment led to 20 percent lower earnings more than a decade later, and a cumulative loss of nearly three years of full-time earnings (Davis and Wachter, 2017). These losses are generated by the extended length of securing the next job. Job search assistance and training provide an important safety net for permanently displaced workers resulting from the impacts of COVID-19. A failure to effectively respond not only hurts the long- term earnings of workers but stunts economic growth. A recent review of over 200 studies finds that job training has large, long-term effects on employment, especially during recessions. Results of a survey conducted by McKinsey Global Institute of 800 executives suggest a "disruptive period of workplace changes lies ahead due to the acceleration of automation, digitization, and other trends" as we come out of the COVID-19 pandemic (Davis, et al, 2020). These changes will have impacts across the labor market: Some occupations will be eliminated; new ones will emerge; and others will require new and different skills. These dynamics pose formidable challenges for those charged with preparing the workforce for the post-COVID 19 economy.

There is growing attention to a lack of middle-skill workers. There is however substantial variation in estimating their numbers in the economy based on how we define "Middle Skill" worker. One definition offers that the number of middle-skill workers in the labor force is based on the education level of the workforce as a proxy for skill. This is largely due to data limitations as nationally representative demographic surveys that cover work and education experiences do not ask about other types of training or particular skills acquired (Modestino, 2020).

With this method, researchers typically define middle-skill workers as individuals with some post-secondary education, but less than a four-year college degree. (Similarly, low-skill workers are defined as those with a high school degree or less and high-skill workers are defined as those with a Bachelor's or advanced degree.) Post-secondary education or training requirements can include Associate's degrees, vocational certificates, significant on-the-job training, previous work experience, or generally "some college" without having earned a degree. Workers in this category typically hold jobs in the clerical, sales, construction, installation/repair, production, and transportation/material moving occupational groupings.

Researchers at Harvard Business School focused on studying the role of skills in advancing productivity gains and economic growth concluded that the demand for “middle-skills” jobs remains high, yet the lack of a properly skilled workforce is hindering the ability of American businesses to compete globally (Burroughs, et al, 2014). Furthermore, they concluded that a lack of relevant skills is hurting the average American’s ability to be more productive and therefore to earn more and improve living standards. The researchers pointed to a contradiction whereby millions of job postings go unfilled even as millions of people remain unemployed or underemployed.

The National Skills Coalition(NSC) reported that even before college enrollment began to dip, educational and career pathways that culminated in certificates and Associate’s degrees grew more quickly than four-year degrees between 2004-05 and 2014-15 (National Skills Coalition, 2020). Analysis of occupational employment projections data indicates that job openings for middle skills jobs represent 48 percent of all job openings between 2014 and 2024.



Source: [National Skills Coalition](#)

Some of the most in- depth analysis of U.S labor markets and the changing nature of work has come from Georgetown University’s Center on Education and the Workforce. Carnevale, et. al., in recent report identified three pathways to good jobs as defined by education and skills. Good jobs are defined as one paying a minimum of \$35,000 for workers between the ages of 25 and 44 and at least \$45,000 for workers between the ages of 45 and 64.

1. High Schools Pathway (20%)
2. Middle-Skills Pathway (24%)
3. Bachelor’s Degree Pathway (56%)

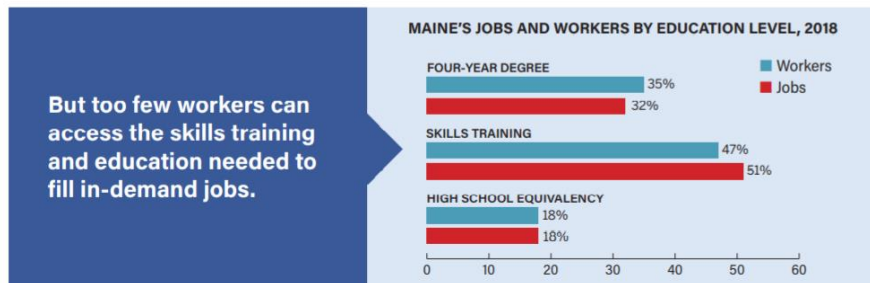
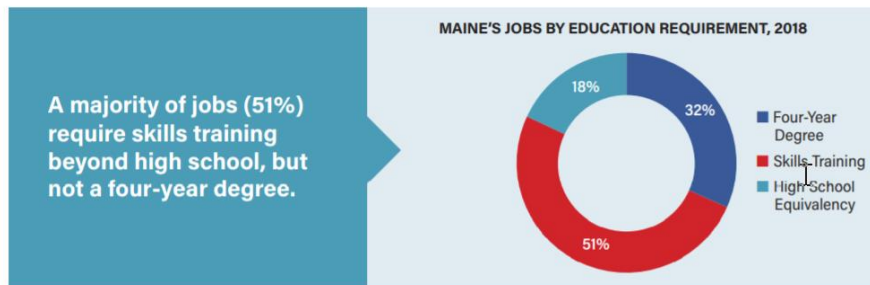
The High School Pathway has become increasingly more limited as well- paying industrial jobs gave way to foreign competition and technological advances. Thus, only 20% of good jobs may be accessed with only a high school diploma. Middle-Skills Pathway includes workers with more than a high school diploma but less than a Bachelor’s degree. This includes people with Associate’s degrees, post-secondary certificates, licenses, certifications, and some college but no degree. The Bachelor’s Pathway includes workers with bachelor’s degrees, master’s degrees, professional degrees, and doctoral degrees.

In a report from the Brookings Institution, Harry Holzer writes that many middle skills-middle wage jobs have disappeared in construction and production sectors of the economy, newer middle skill jobs are rising in areas such as health technology, advanced manufacturing, information technology (IT) and a range of service jobs; these require more post-secondary education or training than in the past. Holzer's analysis further reveals that skill demands are also rising in formerly low-skill job as new technology application are driving the changing nature of employment in the low skills labor market.

Middle Skills and the Maine Labor Market.

Most analysts agree that Maine faces a prolonged period of low job growth accompanied by an aging workforce and small gains in population and labor force growth. This means across the spectrum of occupations the emphasis will be on meeting the replacement needs generated by retiring workers. How will these dynamics impact middle skills jobs and what are the challenges for Maine's education and training providers? These are fundamental questions needing prompt attention and investments now to ensure we maintain an effective supply chain for workers with the right skills into the near future.

The National Skills Coalition, an advocacy organization promoting skill development, recently conducted an analysis of the education and skill status of American workers and contrasted these with the education and skill requirements of jobs. State- by -state profiles were also prepared as part of this effort and Maine results are reported in the charts below.



Source: National Skills Coalition

Based on the NSC analysis, 83 percent of Maine jobs require education and skills training beyond high school, including 51% of jobs requiring less than a Bachelors degree. Yet, when this analysis examines the current preparation of Maine workers, only 47 % of workers offer more than high school but less than a Bachelors degree. If this gap continues to widen, Maine employers will confront skill and labor shortages in the years ahead. Such shortages will impede employer productivity and profitability and further limit economic growth prospects. Many critical occupations essential to the future of Maine, including key trades such as electricians, plumbers and carpenters, will need to be replaced. Public safety personnel including police, fire and emergency medical technicians are essential to the basic functioning of Maine communities.

Next, we take a deeper look at more occupational groups in Maine and examine how both skills training requirements overall as well as more specific requirements for two- year degrees and certificates are specified. Table 1 provides employment, wages, training requirements and worker characteristics. Data for this analysis was extracted from the JobsEQ system licensed to the Maine Community College System by Chmura Economics and Analytics. Note: There are differences between the Maine numbers presented in the analysis conducted by the National Skills Coalition and those drawn from the JobsEQ data system. JobsEQ counted workers with Associate Degrees or some college while NSC counted workers with Associate degrees, certificates and apprenticeships.

Of the 671,000 Maine jobs in 2019, 450,000 or two thirds of all jobs require training below the Bachelors degree level including on- the- job trainingⁱ. Top occupational groups with the highest concentrations of such training requirements include Health Care Support occupations (100%), Transportation and Material occupations (95%), Building and Grounds Cleaning and Maintenance occupations (92%), Office and Administrative Support occupations (91%), Personal Care and Service occupations (91%), Farming Fishing and Forestry occupations (90%) and Construction and Extraction occupations (89%). Together, these top occupational groups represent over 290, 000 jobs and typically have a workforce where between 25-30 percent of workers are over the age of 55.

The top occupational groups requiring associates degrees or certificates are primarily concentrated among Health Care Support occupations (45%), Installation, Maintenance and Repair occupations (30%), Legal occupations (30%) Architecture and Engineering occupations (26%) and Healthcare Practitioners and Technical occupations (25%). Together, these five occupational categories alone represent nearly 40,000 jobs where on average, 30% of the workforce is over the age of 55.

Table 1.
Occupational Training Requirements, Characteristics and Qualifications of Maine Workers by Occupational Groups
(2 Digit Standard Occupational Classifications)

SOC	Occupation	Employment	Avg Ann Wages ²	PCT Jobs Requiring Skills Training Below BA	Pct of Jobs Requiring Associates or Certificate	Pct of Current Job Holders With Some College or Associates Degree	Pct of Workforce 55+ Years of Age
43-0000	Office and Administrative Support Occupations	82,157	\$38,700	91	1	40	31.0%
41-0000	Sales and Related Occupations	63,937	\$40,100	81	0	31	28.0%
35-0000	Food Preparation and Serving Related Occupations	59,313	\$29,000	82	0	31	17.0%
53-0000	Transportation and Material Moving Occupations	47,695	\$35,400	95	19	29	30.0%
11-0000	Management Occupations	46,117	\$95,000	0	0	24	34.0%
29-0000	Healthcare Practitioners and Technical Occupations	42,987	\$84,700	30	25	31	26.0%
25-0000	Educational Instruction and Library Occupations	42,257	\$49,200	25	7	17	38.0%
51-0000	Production Occupations	40,645	\$41,600	93	1	28	30.0%
47-0000	Construction and Extraction Occupations	35,851	\$44,600	89	0	11	24.0%
31-0000	Healthcare Support Occupations	35,492	\$31,400	100	45	44	29.0%
13-0000	Business and Financial Operations Occupations	28,346	\$69,600	7	0	20	29.0%
37-0000	Building and Grounds Cleaning and Maintenance Occupations	26,979	\$32,300	92	0	24	33.0%
49-0000	Installation, Maintenance, and Repair Occupations	26,971	\$46,000	61	30	39	29.0%
39-0000	Personal Care and Service Occupations	17,582	\$32,600	91	18	34	27.0%
15-0000	Computer and Mathematical Occupations	13,882	\$79,300	24	9	21	20.0%
21-0000	Community and Social Service Occupations	12,310	\$49,200	29	0	19	29.0%
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	11,537	\$50,300	29	4	20	26.0%
17-0000	Architecture and Engineering Occupations	11,102	\$78,500	33	26	31	30.0%
33-0000	Protective Service Occupations	10,850	\$43,800	87	18	42	21.0%
19-0000	Life, Physical, and Social Science Occupations	5,513	\$70,000	15	14	10	28.0%
45-0000	Farming, Fishing, and Forestry Occupations	5,435	\$36,800	90	0	17	27.0%
23-0000	Legal Occupations	4,368	\$86,200	34	30	14	36.0%
00-0000	Total - All Occupations	671,327	\$49,000	67	9	30	28.0%

Source: JobsEQ®

Data as of 2020Q1 unless noted otherwise

Note: Figures may not sum due to rounding.

1. Data based on a four-quarter moving average unless noted otherwise.

2. Wage data are as of 2019 and represent the average for all Covered Employment

As for the qualification of Maine workers, thirty percent of current job holders report some college or an Associates degree. It is important to note high dropout rates for those who initially enroll in college contribute to a growing share of workers without degrees or specific career preparation. Workers with some college or Associates degree are most heavily concentrated in Health Support Occupations (44%), Protective Service Occupations (42%), Office and Administrative Support Occupations (40%), Installation Maintenance and Repair Occupations (39%) and Personal Care and Service Occupations (34%).

An important qualification must be added: Data on skills training and job requirements are based on a small sample of observations and lack frequent updates for a fast moving economy. We can be confident however that job requirements across most job classifications are being impacted by technological change and the quest for productivity improvement. Employers agree that skills training is essential to effective job performance and that occupational content will continue change rapidly.

Summary and Recommendations

Two thirds of Maine jobs require some form of training or credential below the Bachelor's degree level. Maine faces extraordinary challenges in the years ahead to replace an aging and skilled workforce across all industries. There is an urgency for employers to get ahead of the impending retirements of middle skill and high skill workers. Effective knowledge and skills transfer to maintain high levels of productivity are essential for continuity and steady economic progress. While COVID-19 has created major upsets across the economy, mass layoffs and permanent job losses have been highly concentrated in leisure and hospitality, retail, healthcare and transportation. Many of these jobs offered low wages and had low skill requirements. Most analysts agree that we will see a sizeable number of Maine workers left behind and not return to their former jobs. An efficient and effective process is needed for reallocating these workers to sectors where demand exists. This will mean close cooperation between education and training providers and employers to ensure the identification of jobs, skills and standards for qualification are integrated with program and curriculum development conducted by education and training providers.

Large employers in Maine have already adopted proactive positions and are making investments in workforce development to ensure their future. Thousands of small to medium size employers are the backbone of the Maine economy and where middle skills jobs are mostly concentrated. They face formidable challenges. State and local governments too will need skilled workers to perform essential administrative, public safety and maintenance function. These employers will need considerable assistance in managing the critical workforce transitions and skills replacement efforts in the months and years ahead.

Maine's Community Colleges are predominantly responsible for preparing the middle skills workforce. There will be many moving parts including changing demographics impacting the availability and values of workers; rapidly changing technologies altering industries, occupations and economic structures; and persistent competitive pressures from a global economy. In preparing the future workforce, community colleges must also anticipate the future labor market. To ensure Maine's community college are responsive in these challenging times, the following recommendations must be seriously considered:

- Deepen commitment to the analysis on how demographic trends will continue to impact key industry sectors and occupations in terms of worker retirements and replacements for middle skills jobs. Such analysis needs to be conducted in conjunction with business and industry and shared across the state particularly to small and medium size employers with limited capacity for strategic planning.
- Strengthen existing industry advisory groups and efforts to intensify analysis of employment needs and job content. Data driven analysis and solid market research are core functions in supporting education and training investments. The use of social media offers a cost- effective means to stay connected with employers for gathering inputs on job performance requirements and to conduct follow up with employers who hire graduates to assess their level of satisfaction with graduate performance.

- Implement regular program and curriculum audits using employer teams to ensure labor market relevance. Program graduates should also be consulted regularly to determine the adequacy of their preparation as they are tested on the job. These audits should serve to inform new program development and curriculum upgrades and improvements

Middle skills jobs will continue as a mainstay in the labor market. These jobs offer career paths and solid living standards for those with the right skills.

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