



Insight

Want Jobs? Try Advanced Manufacturing

THOMAS HEMPHILL | MAY 8, 2013

By itself, the U.S. manufacturing sector would be the tenth-largest economy in the world, and there is growing concern among U.S. manufacturers about finding enough skilled workers to fuel its continued expansion.

During the Great Recession, American manufacturing got hit hard, even more so than the rest of the U.S. economy, which is always the case during economic downturns. For example, as recession-related job losses in the overall economy brought the national unemployment rate to 10 percent in 2009, job losses at American factories were greater, and the manufacturing jobless rate reached 13 percent, three full percentage points higher than the national average. But at the beginning of 2010, the manufacturing sector started making a comeback, and more than 500,000 new jobs have been added to factory payrolls in the last three years, the largest increase in manufacturing jobs over a three-year period since 1996. Employment gains in the manufacturing sector have been so strong that by the fall of 2011, the manufacturing jobless rate fell below the national rate, and it has stayed lower in almost every month since then. In April, the jobless rate for factory workers was only 6.4 percent, more than a full percent below the 7.5 percent national average.

The low manufacturing jobless rate is just one sign that America's factories are humming again. Factory output of durable manufactured goods such as motor vehicles has returned to pre-recession 2007 levels, with last year's 9.1 percent growth in durable goods greatly outpacing the 2.2 percent pace for the overall economy. And manufacturing is expanding the most in the traditional industrial sectors of machinery, motor vehicles, steel, and industrial equipment in the Midwest's traditional "Rust Belt" states, where manufacturing output is growing at twice the national rate.

With America's factories booming again, the demand for highly skilled workers is also on the rise, which is reflected in both the decline in the manufacturing jobless rate to a four-year low in April and the recent increase in manufacturing overtime hours to a six-and-a-half-year high. As the economic expansion starts to pick up steam this year, there is growing concern among U.S. manufacturers about whether they'll be able to find the skilled workers needed as factories ramp up output to meet the pent-up demand for durable goods like cars, appliances, and household goods.

The concern about a shortage of skilled workers has been well documented. In the report "Boiling Point? The Skills Gap in U.S. Manufacturing," released by The Manufacturing Institute and Deloitte in October 2011, 82 percent of American manufacturers surveyed reported a moderate or severe shortage of high-skilled workers – translating into approximately 600,000 high-skilled manufacturing positions that are currently going unfilled. The National Association of Manufacturers estimates that filling those 600,000 positions would create 406,441 additional jobs in other industries, lower the jobless rate by 0.64 percent, and increase GDP by 1.03 percent. In October 2012, the Boston Consulting Group (BCG) released a study, "Made in America, Again: Understanding the U.S. Manufacturing Skills Gap and How to Close It," which estimated that the present high-skills gap in the United States, while much smaller than 600,000, is currently between 80,000 and 100,000 workers nationwide. In February of this year, the MIT Taskforce on Innovation and Production reported that just under 20 percent of

manufacturers surveyed reported experiencing long-term job vacancies (of three months or more), equivalent to approximately 5 percent of core production jobs.

In the long term, the manufacturing skills gap is forecast to worsen. The Society of Manufacturing Engineers (SME) predicts that the shortfall of skilled factory workers could increase to 3 million jobs by 2015 due to pending retirements of older workers and the manufacturing rebound. The BCG study forecasts a high-skills gap in manufacturing that could approach 875,000 machinists, welders, industrial engineers, and industrial machinery mechanics by 2020. According to the Department of Labor, the percentages of manufacturing workers aged 55 to 64 years old and the share of workers older than 65 have both significantly increased since 2000 – the median age of the manufacturing workforce has risen from 40.5 years in 2000 to 44.1 in 2011. Moreover, the average age of a high-skilled worker (that is, one having technical training and industry certification, or an associate’s or bachelor’s degree in a manufacturing-related field) is now 56 years. With a pending wave of retirements in the manufacturing sector, the looming demand for high-skilled factory workers adds urgency to the already existing employment shortage in a 21st-century U.S. economy built on technology-driven advanced manufacturing.

Fortunately, the manufacturing sector is actively addressing the skilled worker shortage. In April 2010, the National Association of Manufacturers (NAM), in collaboration with the Department of Labor, the National Council for Advanced Manufacturing, and the SME, updated their Advanced Manufacturing Competency Model (AMCM), which reflects the knowledge and skills required for the 21st-century workforce. Separately, to meet its mission, the Manufacturing Institute has developed a NAM-endorsed Manufacturing Skills Certification System (MSCS) of “stackable” credentials applicable to all aspects of the manufacturing sector. With 113 community colleges across the United States using the MSCS, the Manufacturing Institute reported that 84,738 skill certifications were issued in 2011.

To address the immediate staffing needs of U.S. manufacturers, limited on-the-job training and apprenticeship programs are again being incorporated strategically into employee-employer joint efforts of skill acquisition. While many U.S. manufacturing firms have reduced or eliminated the traditional apprenticeship model, there is evidence that this approach is returning and that many companies are revitalizing their in-house training programs and using job placement services to fill high-skill positions. Additionally, the manufacturing sector has started to consider other initiatives, such as implementing continuing education and re-certification programs for skilled workers who may need to refresh or update their skills so they can also be part of the new “adaptable” candidate pool for manufacturers.

The importance of American manufacturing to the health of the national economy cannot be overstated: by itself, the U.S. manufacturing sector would be the tenth-largest economy in the world. Every dollar of manufacturing sales supports \$1.34 in additional output from other business sectors. Given this economic reality, filling the human capital skills gap in the manufacturing sector over the next decade will be a critical challenge for fueling the continued expansion of the U.S. economy. As Americans struggle to find employment in one of the worst job markets in decades, they need to revise their thinking that manufacturing is an industry in decline. To the contrary, U.S. manufacturing is experiencing a robust turnaround, and career opportunities in manufacturing are better than in a generation. With the proper training, some of the best job opportunities over the next decade will be in America’s advanced manufacturing sector. Part of the solution to filling the skilled worker shortage is to get the word out that if Americans want to get back to work, there are currently thousands of unfilled openings in the nation’s increasingly high-tech factories. And there’ll be even more in the future.

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