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Make America Make Again

Training Workers for the New Economy

Katherine S. Newman and Hella Winston

Despite their many differences, the major candidates in the 2016 U.S. presidential election managed to agree on at least one thing: manufacturing jobs must return to the United States. Last April, the Democratic contender Hillary Clinton told a crowd in Michigan, “We are builders, and we need to get back to building!” Her opponent in the Democratic primaries, Senator Bernie Sanders, said the manufacturing sector “must be rebuilt to expand the middle class.” And the Republican candidate Donald Trump bemoaned bad trade deals that he said had robbed the country of good jobs. “‘Made in America,’ remember?” he asked a rally in New Hampshire in September. “You’re seeing it less and less; we’re gonna bring it back.”

It’s true that many manufacturing jobs have left the United States, with the total number falling by about a third since 1980. But the news isn’t all bad. After decades of offshoring, U.S. manufacturing is undergoing something of a renaissance. Rising wages in developing countries, especially China, and increasing U.S. productivity have begun to make the United States much more attractive to manufacturers, who have added nearly half a million jobs since 2010.

But these jobs are not the same as the millions that have disappeared from the United States over the past four decades. Workers in contemporary manufacturing jobs are more likely to spend hours in front of a computer screen than in front of a hot furnace. To do so, they need to know simple programming, electrical engineering, and robotics. These

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are well-paying, middle-skill jobs that require technical qualifications—but not necessarily a four-year college degree. Between 2012 and 2022, these will account for half of all the new jobs created in the United States.

Yet the U.S. work force is woefully unprepared to take advantage of this opportunity. In New York State, for example, almost 25 percent of these jobs will likely go unfilled. According to a 2015 survey by the consulting firm Deloitte, 82 percent of manufacturing executives expect that they will be unable to hire enough people. The situation is all the more troubling when so many young people in the United States desperately need work.

There is a better way. In Germany, a “dual system” of vocational training that mixes classroom learning with work experience has helped drive the youth unemployment rate down to historic lows. The United States used to take a similar approach, but its commitment waned after decades of federal neglect and cultural antipathy to manual labor. It’s long past time to resurrect it.

NOT WHAT IT USED TO BE

In the years following World War II, the United States embraced vocational education. High schools prepared students for highly sought-after blue-collar work by training them to become aircraft mechanics or automotive repair technicians. The United States had hundreds of vocational schools where students studied welding, construction, and electrical engineering alongside a standard high school curriculum. These schools helped create a thriving blue-collar middle class.

But by the 1960s, white-collar positions had started to outstrip blue-collar jobs in number and prestige as the service sector came to dominate the economy. In 1963, Congress passed the Vocational Education Act, which provided federal funds to train students who were at an academic or socioeconomic disadvantage. The legislation was well intentioned but had the unintended consequence of encouraging the public to associate vocational education with troubled youth. A decade later, in 1972, the sociologist Richard Sennett found that many young people were embarrassed by their parents’ working-class origins and that older people felt at an increasing distance from their children as those children entered more prestigious jobs than their own. The stigma has stuck: parents in even very poor neighborhoods today believe that attending college is essential for a well-paying career and that middle-skill jobs are an inferior choice for their children.

As a result, over the past four decades, the quality of technical education declined as investment in equipment and teacher training fell off, and private-sector interest has waned.

The move away from vocational education accelerated in the 1980s, when a 14-month-long recession triggered a crisis of confidence in U.S. education more generally. President Ronald Reagan's National Commission on Excellence in Education warned that the United States was falling behind countries such as Germany and Japan on international academic tests. Although the government enacted few concrete reforms at the time, the commission's emphasis on standardized assessment has endured. In 2001, it was formalized when, as

Vocational schools once helped create a thriving blue-collar middle class.

part of the No Child Left Behind Act, Congress made school participation in nationally recognized tests a condition of some federal education funding. The effects of this focus on academic results have been mixed. Although high school graduation rates have risen over the past

three decades, along with the proportion of students taking more rigorous math and science courses, the United States continues to lag on international tests. In the most recent rankings, published by the Organization for Economic Cooperation and Development in 2012, U.S. students came in 24th in reading, 28th in science, and 36th in mathematics.

At the same time as worries about academic results were coming to national prominence, scholars were also raising concerns about the nearly three-quarters of the nation's youth who entered the work force straight after high school. As their employment options shrank and their wages fell, they threatened to morph into an "urban underclass," in the words of the sociologist William Julius Wilson, of jobless, idle men plagued by social problems: single parenthood, unstable households, and children doomed to follow their parents into poverty.

Although the decreasing investment in vocational education was a natural reaction to an increasingly white-collar economy, policymakers went too far. In 1988, the William T. Grant Foundation, a nonprofit focused on youth development, pointed out that other advanced industrialized countries, such as Austria, Germany, and Switzerland, had maintained their vocational educational systems; U.S. high schools, on the other hand, were simply ignoring the subject.



Vocation nation: an apprentice at a training center in Berlin, August 2012

In 1994, concerned about the effects this neglect was having on poor children, U.S. President Bill Clinton and his labor secretary, Robert Reich, decided to take action. The administration proposed legislation, which Congress passed as the School-to-Work Opportunities Act, that provided federal funds to encourage states and counties to design joint programs between businesses and high schools and businesses and community colleges to allow students to add on-the-job experience to their classroom learning.

As with most large interventions, some elements of the program worked and some didn't. Among students less interested in academic study, school-to-work (as the programs fostered by the act came to be known) increased positive attitudes toward school, improved attendance, and decreased dropout rates. But the program failed to achieve its main goal: raising employment rates and wages for young people who didn't attend college. This failure was largely due to the fact that managers did not think of internships as serious tryouts for permanent employment. A 1997 survey of participating employers in Wisconsin found that the most common reason for taking part was a sense of civic duty to contribute to the community; only a small percentage said they thought the program would help them fill vacancies. When the act expired in 2001, neither President George W. Bush nor anyone in

Congress suggested extending it. Indeed, between 2006 and 2008, the Bush administration proposed reducing federal spending on vocational education by \$1.2 billion, claiming there was “little to no evidence of improved outcomes for students.” Although in the end Congress blocked the cut, that it was even proposed reveals how little faith the administration had in the potential of vocational education.

Today, thanks in part to these shortsighted decisions, millions of young Americans face a bleak future. Seven years after the end of the Great Recession, the national unemployment rate among Americans between the ages of 16 and 24 still stands above ten percent. And the problem is far worse in some areas than others. The Southeast has been particularly hard hit: in 2015, youth unemployment was a staggering 17.4 percent in West Virginia, 16.2 percent in South Carolina, and 14.6 percent in Georgia.

LEARN FROM THE MEISTER

Unlike the United States, Germany never abandoned vocational education. About 55 percent of German students still choose to attend technical schools, where they pursue three years of paid apprenticeship and classroom learning simultaneously. Students then take national examinations in one of 350 occupations, from manufacturing to services, to certify their mastery of a specific set of technical skills. Once fully qualified, these students are able to walk into steady, well-paying jobs, often at the firms that trained them. As a consequence, Germany’s youth unemployment rate currently stands at just 6.9 percent, the lowest in the industrialized world. The system creates a labor force that is the envy of the world, enabling German firms to dominate the advanced manufacturing market in Asia and Europe.

German companies own more than 3,000 manufacturing subsidiaries based in the United States, but when they open production facilities there, they are often surprised by the dearth of talent they encounter. In a 2015 survey of these firms conducted by the German American Chambers of Commerce, 69 percent said that they faced worse skill shortages in the United States than in Germany.

Some of these companies have already taken matters into their own hands. For example, MTU, a subsidiary of Rolls-Royce Power Systems, opened a diesel engine factory in Aiken, South Carolina, in 2010. After an initial wave of hiring, the company found that it had exhausted the supply of nearby labor that was skilled enough to meet its requirements.

In Germany, MTU's managers would have had a large pool of apprentices to choose from. In Aiken, they had none. So they decided to start an apprenticeship program modeled on the German system. The firm intended not only to teach young people to build diesel engines but also to prepare them to pass the same rigorous tests as their German counterparts.

MTU had originally hoped to replicate the German examinations in the United States, but it found that South Carolina state law did not allow students to spend enough time in the factory to bring them up to the necessary standards. As a result, the company adopted a curriculum that was less in-depth than the German one. Nonetheless, MTU is happy with the workers it has hired and has continued the program, working closely with local high schools to recruit new apprentices each year. Other employers in the state have copied the MTU program, and South Carolina's legislature has created a system of tax breaks for companies that set up similar schemes.

Unlike the United States, Germany never abandoned vocational education.

Although Germany may have led the way on vocational education, it is not the only country to emphasize such training. Nearly 50 percent of high school graduates in the EU are currently enrolled in programs that are at least 25 percent vocational. Even in South Korea, which has a strong tradition of academically oriented schools, about a fifth of high school students take their largest share of courses in vocational education that meets international standards set by the Organization for Economic Cooperation and Development. In contrast, the proportion of U.S. students who take a large number of such high-standard courses has fallen from 18 percent in the early 1980s to just six percent today.

Despite the success of vocational education in Germany and elsewhere, it faces strong opposition from progressives in the United States who insist that every student should earn a college degree. Some critics, such as the National Education Policy Center, a research group, argue that it locks students into a lower-status track. Vocational education, they charge, reinforces class divisions, since poor children are disproportionately likely to attend technical schools. "Dead-end vocational classes," according to the National Education Policy Center, "prepare [students] for neither college nor a career."

But children from poor households are already trapped by educational and social disadvantages from an early age. And the legacy of

racial discrimination, highly unequal funding for schools, low teacher pay, and large class sizes in deprived areas are to blame for these disadvantages—not vocational education. As for the college-for-all movement, it pushes all students toward higher education despite the fact that many are unlikely to ever get there, or to prosper if they do. If instead they could take advantage of the kind of demanding technical education and state-of-the-art training that young people receive in other countries, it might set many of them up for reliable, stable incomes in the future.

It's also important to remember that the United States, unlike Germany, has a highly flexible educational system, which allows young people and adults multiple chances to enter college. So improving vocational options need not come at the expense of academic ones.

WORK TO BE DONE

Over the past few decades, the U.S. government's approach to vocational education has been haphazard and confused. The government has pursued many initiatives halfheartedly and then abandoned them; policymakers often prefer to walk away from the entire problem.

But it would be foolish to give up on something that the country has not made a sustained attempt to do well. There have been some small efforts to replicate the success of companies such as MTU, but nothing on a scale that would create a chance of meaningful success. In 2015, for example, the U.S. Department of Labor awarded \$175 million to employers to train more than 34,000 new apprentices. This was a step in the right direction, but the investment was woefully small relative to the size of the U.S. labor market. In total, less than five percent of young Americans are currently training as apprentices, mostly in the construction industry. Yet hundreds of thousands more could benefit from such programs.

To have a real impact, the federal government needs to significantly boost its investment in vocational training. At the same time, states should increase tax credits to encourage firms to create apprenticeship programs like the one at MTU. South Carolina has taken the lead. There, employers primarily fund apprenticeships, but to encourage sustained investment in training, eligible businesses receive a \$1,000 annual state tax credit for up to four years for each apprentice they hire.

Doing these things nationwide would help, but it will not be enough. For technical education to work, the government must provide more

than funding. Well-defined standards, assistance—and respect—for teachers, and genuine cooperation between government and industry are necessary. Since teachers cannot prepare a work force at arm's length from the firms that will employ their students, state governments should pay teachers to get updated industry experience during summer holidays and reward them with promotions when their students succeed.

Community colleges also need to be part of the solution, since they can provide expensive equipment to more students than any individual high school can. Springfield Technical Community College, in Massachusetts, shows what can be done. In 2016, the state provided grants so that the college could train students and workers to craft computer-aided designs and to use high-speed lathes and computer-controlled machine tools. To teach these courses, the college hired staffers from major manufacturing firms, such as Pratt & Whitney, so that students could learn from experienced professionals and develop personal connections that would help during their job searches.

Manufacturing may be the most obvious candidate for training schemes, but there is no reason why it should be the only one. As in Germany, students should apprentice with nurses, plumbers, pipe fitters, steam-fitters, and medical and clinical laboratory technicians—professionals whose median annual salaries range from \$55,000 to \$80,000.

The benefits of such education extend beyond the chance to earn higher salaries. Serious, well-designed, and well-implemented training has been shown to improve not just students' career prospects but also their ability to diagnose, analyze, and solve complex problems. According to the sociologist Nicole Deterding, those who attend institutions such as Aviation High School, in New York City, score higher on standardized tests, on average, and perform better on measures of persistence than their counterparts in ordinary schools.

For too long, the profile of vocational education has picked up during downturns, only to fall when the economy recovers. The result has been schools with inadequate equipment, teachers without high-level experience, and few shared standards to measure students' skills. Fixing these problems will require investing public money over a sustained period, breaking down the barriers between businesses and schools, and setting rigorous national and state-level standards. Building a real system of technical education will restore Americans' belief in the dignity of blue-collar labor and give young people in the United States the same opportunities their counterparts abroad enjoy. 🌐