Forefront
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How to Help Manufacturing Succeed

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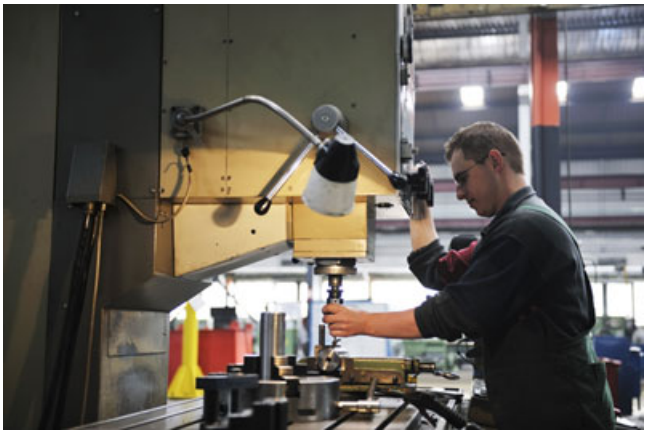

Does manufacturing have a future? In the wake of the Great Recession, that's an urgent question. The nation has gained back only 300,000 of the more than 2 million manufacturing jobs that vanished during the recession. Those losses have been keenly felt in many regions across the United States, especially where a significant portion of the workforce is employed in manufacturing.

Yet I am cautiously optimistic about the nation's long-term prospects for manufacturing It's clear that manufacturing in the United States will never look the same as it did a generation ago, but that doesn't mean it doesn't have a vital future in the twenty-first century economy. In fact, I expect manufacturing to endure as one of the country's most important and innovative sectors, providing employment opportunities for millions of workers, from skilled tradesmen to PhD scientists.

The key to bolstering our nation's manufacturing sector is to recognize the forces that have been reshaping it over the last several decades, and to then respond appropriately. Technological innovation is foremost among those forces. U.S. manufacturers are important innovators. In fact, the National Science Foundation recently reported that manufacturers account for roughly 70 percent of research and development spending by U.S. businesses. These R&D investments translate into new products, equipment, and production methods that can raise productivity both inside and outside the manufacturing sector.

The manufacturing sector is also a major adopter of new technologies. New technological innovations have driven down the relative price of capital goods, which has encouraged manufacturers to modernize, investing more in new plant and equipment. This has made the sector not only more capital intensive, but much more *skill* intensive.

Manufacturing workers have a firsthand familiarity with this trend. Technological innovation is transforming the manufacturing workforce, increasingly favoring higher-skilled individuals, many with post-secondary education. The traditional blue-collar and middle-skill manufacturing jobs will account for a smaller share of employment over time. And already, the number of college-educated manufacturing workers is up.

Productivity is another major force reshaping manufacturing. As factories have grown more high-tech, they have also grown more productive. In the two decades leading up to the Great Recession, labor productivity in manufacturing roughly doubled. But of course, higher-tech factories require fewer workers. Even as output rose 65 percent, labor hours fell 20 percent, and a total of 3.7 million jobs disappeared in the decades leading up to the Great Recession. But thanks to our increases in productivity, we remain a very competitive manufacturing nation.

These trends are not unique to the United States. To be certain, a number of forces have been responsible for the rise of manufacturing activity abroad. Developing markets create new sources of competition for producing low-skill and labor-intensive goods. At the same time, U.S. firms see profit in getting closer to their customer base abroad where growth opportunities exist. And as we all know, outsourcing allows U.S. manufacturers to tap low-cost suppliers. Still, even with the expansion of global production, the World Bank estimates the United States' share of worldwide manufacturing at 20 percent for 2009—the largest share of any country, although China was close behind and poised to pass us.

Going forward, however, this shifting of production overseas is not a foregone conclusion. Manufacturers will open factories in the places they expect to be the most profitable and productive. That decision will certainly take into account factors like infrastructure, trade and tax policies, and the regulatory environment. But one of the most important forces that will determine where firms locate is the quality of human capital.

We develop human capital through investments in education and training. Workers need higher levels of human capital to handle today's high-tech machinery. And firms are more likely to open and maintain high-tech factories—the kind that are likely to survive and thrive in the United States amid global competition—in regions with large populations of highly skilled workers. Investments in human capital will not only help build the needed workforce of the future, but will also form the foundation of our ability to innovate both in and outside manufacturing. Over time, these investments are what will help determine our productivity and our standard of living.

Unfortunately, other countries around the globe are passing us by in the development of human capital. I see particular gaps in our education system around points of transition: transitions from home to school, from grade school to high school, from high school to college, and from school to the workforce. I think this is especially true for individuals who are not on a typical college degree track. We must respond to this challenge by improving pre-K and K–12 education, by providing greater support for math, science, and engineering in higher education, and by increasing funding for basic research. Making such investments is imperative if manufacturing is to have a robust future in the United States. Let's resolve to meet this challenge.

Note: A version of this article appeared in several news outlets.

The views expressed in this article are mine alone and do not necessarily reflect those of my colleagues in the Federal Reserve System. The Federal Reserve Bank of Cleveland serves the Fourth Federal Reserve District, which includes Ohio, western Pennsylvania, eastern Kentucky, and the northern panhandle of West Virginia.