

Comments on Decline in Manufacturing
May 3, 2011

In the past year the number of manufacturing jobs in the United States has increased by roughly 200,000. Not surprisingly this increase has been welcomed as an encouraging sign of U.S. economic recovery. What is a bit surprising is the lack of commentary about the extent of the manufacturing decline in the United States over the past decade, against which the increase of the past year pales into near insignificance.

Since spring 2000, the number of manufacturing jobs in the United States has fallen by a third - from 17.3 million to 11.7 million. In contrast, manufacturing jobs fell by less than 1 million in the 1990s and by about 1 ½ million in the 1980s.

The loss of manufacturing jobs in the 1980s provoked considerable anxiety. It gave rise to many columns and articles about the hollowing out of the American economy. The simultaneous growth in employment in service-producing activities, and especially fast-food establishments, led to derogatory comments that America was becoming a nation of hamburger flippers. Concern was expressed that the new jobs did not offer the wages and benefits of the lost manufacturing jobs. Additionally, some feared that loss of manufacturing jobs would lead to loss of technological leadership, as manufacturing was seen as one of the most productive and innovative sectors of the economy.

Contributing to the alarm were the timing of the job losses and their proximate source. Manufacturing job losses took place in the very severe recession of the early 1980s and many of these losses appeared attributable to import competition, particularly from the Japanese. Not only were the Japanese producing products that were lower cost than those made in the United States, but also Japanese products were increasingly higher quality and technologically sophisticated.

In the debate over the implications of these developments, I tended to side with those who did not see the situation as so alarming. I noted that while some service sector jobs paid much less than manufacturing jobs, many service sector jobs, particularly those requiring more formal education, offered high wages – and often a pleasanter working environment. I also observed that the loss of manufacturing jobs did not necessarily entail a loss of innovative capacity in manufacturing or more generally. I referred to the experience of New England, which was then undergoing something of an economic renaissance. The region had become a center for computer and other high technology industries, even as textiles, shoes and other older manufacturing industries had moved first south and now abroad. As production processes standardized, it was probably inevitable that those manufacturing activities would move to lower cost locations. Meanwhile, however, the combination of engineering and research skills, entrepreneurial spirit, social and

business networks, and risk-oriented financial institutions that had given rise to earlier manufacturing leadership would continue to foster new ideas, new industries and new jobs.

Now, however, I find myself increasingly concerned about the decline in U.S. manufacturing. Yet despite the dramatic falloff in manufacturing employment in the past decade, the public reaction has been muted – certainly in comparison with the 1980s. Political figures still talk about the importance of creating manufacturing jobs, but the passion of the past is lacking.

Perhaps, as with the boy who cried wolf, people are tired of hearing about the issue. After all, the decline in manufacturing employment in the 1980s was not, in the end, that large. Manufacturing came back from the steep declines in early years of the decade. Not necessarily the same industries. Primary metals and the leather goods industries were devastated, but instruments, rubber and plastics, chemicals and printing and publishing all increased over the decade. The beleaguered motor vehicle industry ended up about where it started, although down from the late 1970s.

Furthermore, the most visible threat to U.S. manufacturing prowess – Japan – experienced its own economic challenges in the following decade. During the 1980s, Japan seemed a competitive juggernaut, setting new standards for quality and for efficient production practices. A host of business school programs and business organizations were formed to promote the adoption of Japanese management techniques in the United States. Throughout the 1990s, however, Japan found itself mired in recession, while losing competitive ground in key industries to its Asian neighbors, especially Korea and increasingly China.

So perhaps Americans have become skeptical of warnings about the loss of manufacturing jobs and the challenges posed by other countries. Why then have I changed my tune?

Essentially, for the same reasons that people were alarmed in the 1980s – the loss of jobs that provide a reasonably good wage to those who lack college degrees and the potential loss of technological leadership, along with productive capacity. What is different from the 1980s is that the process of de-industrialization has gone much further in the United States, educational attainment in the United States appears to be leveling off, and more and more countries have become global competitors in the sophisticated manufacturing industries that were traditionally seen as areas where the United States had a comparative advantage.

Thus, from a jobs perspective, the simple fact that the decline in manufacturing has been so sharp since 2000, has meant a dramatic deterioration in employment opportunities for those lacking college. Further, in recent years, construction employment has also fallen sharply. Although a smaller industry, construction also offers relatively good wages for workers lacking college degrees

and in the early years of the decade, its expansion provided an alternative for some of those displaced from manufacturing. While the decline in construction has a large cyclical component, recovery seems distant. Men have been particularly affected by the declines in these two industries.

While some of the industries that have grown in the past decade offer very attractive earnings, achieving these high earnings requires considerable formal education. In some cases, not just a BA but a professional or master's degree is expected for the more lucrative opportunities. Examples are finance and insurance; professional scientific and technical services; and, of course, health care.

Meanwhile, educational attainment is leveling off among younger adults. After rising rapidly from 1950 to 1980, the educational attainment of those in their late 20s and early 30s has increased more slowly in the past two decades. This leveling off is particularly pronounced among men. The 2010 Census shows that 70 percent of the male population between 25 and 34 did not have a BA degree or better – essentially the same fraction as for males between 45 and 54. In other words, we are not offsetting the loss of relatively high wage jobs that did not require a college degree by increasing educational levels. Despite advances, Black and Latino men lag in educational attainment.

The poor earnings prospects of men who lack college have significant social as well as economic consequences. Women, who have made major educational advances in recent decades, are reluctant to make permanent commitments to partners whose economic future lacks promise. The result is more households lacking the stability and the institutional support that existed for the traditional family.

The bottom line is that the loss of well-paying (manufacturing) jobs, which seemed a serious challenge in the early 1980s, has grown. We have neither found alternative opportunities for those who prefer physical work and do not have college degrees nor dramatically altered either skill levels or attitudes about what constitutes meaningful work

Even more disturbing is the possibility that those who warned about the loss of U.S. technological leadership, along with manufacturing capacity might have been right. As noted, New England's economic history suggested that the standardization of production processes would result in the migration of manufacturing jobs to lower cost locations, but that a region could still retain a competitive edge in research and more technologically advanced manufacturing industries. Further, the feedback between new scientific and technological discoveries, on the one hand, and the production experience, on the other, could lead to important advances. The region's success in information technology in the 1970s and 1980s and in biotechnology and pharmaceuticals in the 1990s and 2000s shows the plausibility of the argument.

However, the loss of manufacturing in the United States has been so deep that it calls into question whether sufficient production remains to provide the synergies with research that lead to new breakthroughs. A critical element of the New England story – and also that of Silicon Valley - was the importance of a diverse mix of activities in close physical proximity, such that insights from one activity could cross-pollinate other activities resulting in new and better ways of doing things. As the nation loses ground in manufacturing industry after manufacturing industry, it loses the opportunity to take advantage of such synergies.

Clearly, there are exceptions. The United States remains a leader in biotech and pharmaceuticals, where research process continues to support a meaningful manufacturing presence. And medical instrumentation continues to draw from strengths in information technology, precision manufacturing and medical research. On the other hand, in green technologies, production has moved overseas, especially to China, just as we are finally seeing some of the technological breakthroughs that advocates have long promised. And these technological breakthroughs are increasingly coming from the overseas producers.

Dependence on foreign sources for rare earths, while not a manufacturing example, illustrates the challenge. Rare earths are used in many high technology products, such as superconductors, lasers, aerospace products, and batteries, including batteries for electric vehicles. According to a recent article in MIT's *Technology Review* (Bourzac, May/June 2011), the technology for extracting rare earths was developed in the United States and the biggest mine in the world was once here. Now, however, almost all rare earth production is in China. Admittedly, China's dominance reflects a disregard for the environmental consequences of rare earth mining. But not only does China control the world's rare earth production, it is also a leader in the production of many highly sophisticated products that are based upon rare earths – products that one might otherwise expect to be made in a more advanced country.

When one looks at trade patterns, it is striking the degree to which the United States imports more of what were once considered high technology products than it exports. In many cases, production processes have become standardized and these are no longer the cutting edge products they once were. Even so, the patterns suggest that other countries have made important advances in areas that were once U.S. specialties. U.S. exports are still more oriented to capital goods than its imports. Capital goods account for over a third of U.S. exports and just under a quarter of U.S. imports. However, total imports are much larger than total exports; so the dollar values of capital goods imports and exports are roughly equal. Within the capital goods category, the United States is a net importer of computers and computer accessories and telecommunications equipment. It is also a net importer of pharmaceuticals, which is in the consumer products category. It is a net exporter of semiconductors, civilian aircraft and aircraft engines, and industrial machines and engines.

Not so long ago, one might have taken comfort from claims that the U.S. comparative advantage has shifted away from high technology manufacturing to financial expertise. The United States is a net exporter of services, and the perceived expertise of U.S. financial institutions and the liquidity and depth of U.S. financial markets have caused global investors to put their funds in U.S. assets. This has created jobs in financial services and industries, like construction, that benefited from these investments. Capital inflows also boosted the value of the dollar, with a side effect being a weaker manufacturing sector. The 2007-2008 financial crisis has now called into question whether such reliance on financial expertise and innovation has served the nation well. I fear that the financial activities of the past decade may have resulted in a misallocation of resources rather than a more efficient allocation, one that has undermined U.S. manufacturing competitiveness and that may have long term consequences in terms of future productivity growth and advances in economic well-being.