Recommendations for revitalizing manufacturing

I intended to develop recommendations for revitalizing the U.S. manufacturing sector, adding more over time. These recommendations are not in order of importance. They are simply ideas that emerged in the course of thinking about the causes and consequences of the decline in manufacturing.

October 31, 2011

1. Make it easy and fast for foreign students and workers with advanced degrees, particularly in science and engineering, to become permanent residents and citizens. *(Federal government responsible)*

As discussed in the Observation on this website about what can be learned from *Science and Engineering Indicators 2010*, the United States has become dependent upon foreign-born science and engineering workers. Making it easier for these individuals to become permanent residents and, later, citizens would increase their employment opportunities, helping them to advance professionally and to contribute more to the United States through higher productivity. Enabling foreign-born science and engineering workers to make a faster transition to permanent resident status and citizenship may also foster entrepreneurship, as the number of S&E workers with their own businesses is relatively large. The uncertainties associated with being on a temporary visa are undoubtedly a deterrent to entrepreneurship and to securing financing for new ventures.

2. Maintain existing manufacturing customer-supplier networkers by identifying key focal points and links and by working to support these relationships. *(State governments are best equipped to lead, but should work with local governments, business organizations and neighboring states as needed.)*

Analysis of advanced manufacturing in New England highlights the importance of networks. Networks increase productivity and enable firms located in otherwise high-cost areas to compete effectively. However, networks are also a source of vulnerability, as the loss of key customers or suppliers can have ramifications throughout the network.

State governments should try to map out the networks that are important to their states and identify the critical customer and supplier relationships. They should make sure that they have good contacts with key actors operating in their state and are apprised of challenges and changes in circumstances where they may be able to assist. State governments already do this to some degree with their larger employers, but there may be companies that are more significant in their network roles than size might indicate. Also, out-of-state companies may be important to a network with many in-state manufacturers. In such a situation, state governments should share information and work cooperatively to maintain an attractive business climate for the network.

Family-owned manufacturers warrant special attention. State governments should try to maintain an inventory of family-owned businesses and key supplier-customer links. Succession problems can be an issue for such businesses, even when otherwise successful. State governments should consider the possibility of some sort of matching service whereby potential buyers with a commitment to the area can be brought in if there is no natural successor. Some outreach and intelligence-gathering could be delegated to local governments and business organizations, but state organization seems necessary.

January 9, 2012

3. Promote the development of shale gas. Avoid creating obstacles to unlocking these resources in the absence of clear evidence of environmental or other problems. ***(Federal, state and local governments, especially the first.)***

New extraction technologies have boosted the current supply of domestically produced natural gas and dramatically expanded estimates of future supplies. As a consequence, natural gas prices have fallen, even as oil prices have remained at historically elevated levels. While lower gas prices have benefited users generally, the benefits have been particularly pronounced for the chemical industry, which uses natural gas and natural gas liquids as feedstock.

Yet some observers regard these developments with skepticism verging on hostility. Environmental concerns tend to focus on potential effects on drinking water. Given the oil and gas industry's environmental track record, there is reason to be cautious – but not obstructionist. The goal should be to find a way to take advantage of this unexpected opportunity in an environmentally responsible manner.

April 11, 2012

4. Promote nationally recognized manufacturing skills certifications. ***(Federal and state governments and industry associations.)***

Despite the decline in manufacturing jobs over the past 20 years, many manufacturers say they have difficulty finding appropriate workers. One possible explanation for this seeming inconsistency is that the decline in employment has disrupted manufacturing clusters and the referral networks that were formerly an important source of new hires. Skills certifications offer a way of addressing the loss of referral networkers. At a basic level, certifications like the National Career Readiness Certificate can provide employers with some assurance that job candidates have the motivation and aptitude needed. More advanced certificates provide information about whether the candidate has the specific competencies required for more skilled positions.

Interest in developing certifications seems to be growing, but some states and industries favor certificates tailored to their particular needs. Given a large pool of perspective job candidates, a more tailored certification is likely to provide a closer match to employer requirements. But if the goal is to expand the pool of candidates and identify candidates

from other industries or locations who might have the necessary skills, then a nationally recognized certification system seems highly desirable.