The Plight of American Manufacturing

Since 2001, the U.S. has lost 42,400 factories -- and its technical edge.

RICHARD MCCORMACK | December 21, 2009

Something has gone radically wrong with the American economy. A once-robust system of "traditional engineering" -- the invention, design, and manufacture of products -- has been replaced by financial engineering. Without a vibrant manufacturing sector, Wall Street created money it did not have and Americans spent money they did not have.

Americans stopped making the products they continued to buy: clothing, computers, consumer electronics, flat-screen TVs, household items, and millions of automobiles.

America's economic elite has long argued that the country does not need an industrial base. The economies in states such as California and Michigan that have lost their industrial base, however, belie that claim. Without an industrial base, an increase in consumer spending, which pulled the country out of past recessions, will not put Americans back to work. Without an industrial base, the nation's trade deficit will continue to grow. Without an industrial base, there will be no economic ladder for a generation of immigrants, stranded in low-paying service-sector jobs. Without an industrial base, the United States will be increasingly dependent on foreign manufacturers even for its key military technology.

For American manufacturers, the bad years didn't begin with the banking crisis of 2008. Indeed, the U.S. manufacturing sector never emerged from the 2001 recession, which coincided with China's entry into the World Trade Organization. Since 2001, the country has lost 42,400 factories, including 36 percent of factories that employ more than 1,000 workers (which declined from 1,479 to 947), and 38 percent of factories that employ between 500 and 999 employees (from 3,198 to 1,972). An additional 90,000 manufacturing companies are now at risk of going out of business.

Long before the banking collapse of 2008, such important U.S. industries as machine tools, consumer electronics, auto parts, appliances, furniture, telecommunications equipment, and many others that had once dominated the global marketplace suffered their own economic collapse. Manufacturing employment dropped to 11.7 million in October 2009, a loss of 5.5 million or 32 percent of all manufacturing jobs since October 2000. The last time fewer than 12 million people worked in the manufacturing sector was in 1941. In October 2009, more people were officially unemployed (15.7 million) than were working in manufacturing.

When a factory closes, it creates a vortex that has far-reaching consequences. The Milken Institute estimates that every computer-manufacturing job in California creates 15 jobs outside the factory. Close a manufacturing plant, and a supply chain of producers disappears with it. Dozens of companies get hurt: those supplying computer-aided design and business software; automation and robotics equipment, packaging, office equipment and supplies; telecommunications services; energy and water utilities; research and development, marketing and sales support; and building and equipment maintenance and janitorial services. The burden spreads to local restaurants, cultural establishments, shopping outlets, and then to the tax base that supports police, firemen, schoolteachers, and libraries.

Has U.S. manufacturing declined because its companies are not competitive? Hardly. American companies are among the most efficient in the world. The nation's steel industry, for instance, produces 1 ton of steel using two man-hours. A comparable ton of steel in China is produced with 12 man-hours, and Chinese companies produce three times the amount of carbon emissions per ton of steel. The same kinds of comparisons are true for other industries.

But American companies have difficulty competing against foreign countries that undervalue their currencies, pay health care for their workers; provide subsidies for energy, land, buildings, and equipment; grant tax holidays and rebates and provide zero-interest financing; pay their workers poverty wages that would be illegal in the United States, and don't enforce safety or environmental regulations.

Proponents of free trade and outsourcing argue that the United States remains the largest manufacturing economy in the world. Yet, total manufacturing gross domestic product in 2008 (at $1.64 trillion) represented 11.5 percent of U.S. economic output, down from 17 percent in 1999, and 28 percent in 1959. As for our balance of trade, U.S. imports of goods totaled $2.52 trillion in 2008, while exports came to $1.29 trillion -- creating a goods deficit of $821 billion. Those imported goods represented 17.6 percent of U.S. GDP. The U.S. trade deficit in goods and services in 2008 stood at $700 billion -- or more than $2,000 for every American.

Our trade deficit will not diminish absent a significant increase in domestic manufacturing. Those unconcerned about the decline of American
manufacturing might want to read Winwood Reade's 1872 volume *The Martyrdom of Man*, in which he chronicled the economy of ancient Rome: "By day the Ostia road was crowded with carts and muleteers, carrying to the great city the silks and spices of the East, the marble of Asia Minor, the timber of the Atlas, the grain of Africa and Egypt; and the carts brought nothing out but loads of dung. That was their return cargo."

Today, America's biggest export via ocean container is waste paper -- our version of dung. The largest U.S. exporter via ocean container in 2007 was not even an American company, but Chinese: American Chung Nam, which exported 211,300 containers of waste paper to its Chinese sister company, Nine Dragons Paper. By comparison, Wal-Mart imported 720,000 containers of sophisticated manufactured products from overseas factories into the United States, followed by Target (435,000 containers), Home Depot (365,300 containers), and Sears, which owns K-Mart (248,600 containers). Our own Ostia Road.

The United States is not losing old, inefficient industries that produce "buggy whip" products for which there is no more demand. There is ample demand for televisions, sporting goods, bicycles, blenders, hearing aides, golf clubs, laptops, and desktops. The industries that have left the United States are still producing products that are in demand.

Indeed, the U.S. is losing the industries of the future. In 2004, it lost world dominance in high-tech exports, when China exported $180 billion worth of information- and communications--technology products and the U.S. exported just $149 billion.

Without a printed circuit board (PCB) industry, for instance, a country cannot expect to have an industrial foundation for high-tech innovation. But the domestic PCB industry shrunk from $11 billion in 2000 to $4 billion in 2008, a period during which the industry was growing globally. U.S. PCB manufacturers accounted for only 8 percent of global production in 2008, down from 26 percent in 2000. China's share of the global PCB market in 2008 was 31.4 percent or $16 billion, four times larger than the U.S. industry. Asia now controls 84 percent of the global production of printed circuit boards, which are used in tens of thousands of different products.

Today, the U.S. PCB industry is in free fall. For the first nine months of the year, U.S. shipments were down by 25.5 percent over the same period in 2008. "The industry has been crippled beyond repair," says Doug Bartlett, chairman of Bartlett Manufacturing, the oldest PCB company in the United States until it went out of business in June 2009.

What about the promise of the solar industry? There was only one American company (First Solar) among the top 10 worldwide in photovoltaic-cell production in 2008. But the European Commission does not even classify First Solar as being an "American" company, instead labeling it "international" because it does most of its production in Asia. The U.S. federal government has invested hundreds of millions of dollars in photovoltaics research and development, yet the United States accounted for only 5.6 percent of global production of photovoltaics in 2008, down from 30 percent in 1999. Chinese production, by contrast, represented only 1 percent of global output of photovoltaics in 1999. By 2008, its output had risen to 32 percent of global production.

The wind-energy industry? Only one U.S. company (General Electric) ranked among the 10 largest in the world. GE's worldwide market share in 2008 was 18.6 percent.

In 2008, 1.2 billion cell phones were sold throughout the world, none of which were manufactured in the United States. Motorola held 8.4 percent of the global market in 2008, but that figure sunk to only 4.5 percent in the first quarter of 2009 (a 46 percent decline from the same quarter in 2008). Apple held 1.1 percent of the global market for cell phones in 2008.

In 2007, only 8 percent of all new semiconductor fabrication plants (fabs) under construction in the world were located in the United States. Twelve percent of new fabs were being built in China, 40 percent in Taiwan, and 6 percent in South Korea, according to Semiconductor Equipment Materials International. In 2007, the United States produced 17 percent of the world output of semiconductors, a number that has been declining since 1995, when the U.S. accounted for 23 percent of global output.

The decline of America's longtime leaders in manufacturing is better known. In 2008, 12 percent (8.7 million) of all the cars produced in the world were made in America. China has now surpassed the United States in motor-vehicle production (9.3 million in 2008), as has Japan (11.56 million). The U.S. steel industry produced 91.5 million tons of steel in 2008, down from the 97.4 million tons in 1999. By comparison, China's steel industry produced 500 million tons in 2008, more than five times the amount of U.S. producers and up from the 124 million tons it produced in 1999, despite the far greater efficiency of U.S. steel production.

The U.S. machine-tool industry -- the industry that's the backbone of an industrial economy and the means by which all products are manufactured -- produced $4.2 billion in equipment in 2008, a paltry 5.1 percent of global output. American machine-tool consumption has collapsed in tandem with American manufacturing. Since 1998, U.S. machine-tool consumption has fallen by 23 percent. Chinese consumption has increased by 714 percent, from $2.7 billion in 1998 to $19.3 billion in 2008. U.S. consumption stood at $6.7 billion in 2008. For the eight months ending in August 2009, U.S. machine-tool consumption declined to only $1.04 billion. The evaporation of orders, says Mike Austin, vice president of Atlas Technologies in Fenton, Michigan, "is the last straw for many people in this industry."

Machine tools have long been considered essential to maintaining the country's national security. In 1948, Congress passed the National Industrial Reserve Act based on the idea that the "defense of the U.S. requires a national reserve of machine tools for the production of critical items of defense material." In 1986, President Ronald Reagan, a staunch free-trade advocate, supported a five-year Voluntary Restraint Agreement with Japan and Taiwan on imports of machine tools based on national-security grounds. In making his determination, Reagan said the industry was a "vital component of the U.S. defense base."
Dozens of other industries are nearly gone from U.S. shores. U.S. producers of luggage account for 1 percent of the American market, but virtually every American owns luggage. U.S.-based production of high-performance outerwear used by skiers, hikers, mountain climbers, bikers, police officers, and military personnel accounts for less than 1.7 percent of all of the outerwear sold to Americans.

Do you need ceramic tile for a new kitchen floor? One major American manufacturer remains: Summitville Tiles of Summitville, Ohio. The company's president and CEO, David Johnson, says the industry has been "virtually wiped out" by international competitors and adds, "The industry is just about finished."

The furniture industry lost at least 60 percent of its production capacity in the United States from 2000 to 2008 with the closure of 270 major factories during that period. Imports of wood furniture accounted for 68 percent of the U.S. market in 2008, up from 38 percent in 2000.

The rapid relocation of the world's manufacturing belt from the U.S. to China has also meant a shift in these nations' technological capacities. As foreign manufacturers flock to China to take advantage of its cheap labor, devalued currency, and manufacturing subsidies, they have also shifted their research and development endeavors to China. Georgia Tech's biennial "High-Tech Indicators" study found that China improved its technological standing by 9 points (on a scale of 100) between 2005 and 2007, moving that nation ahead of the United States in technological capability for the first time since Georgia Tech started keeping score two decades ago.

America's technological standing peaked at 95.4 in 1999; by 2007, it had declined to 76.1. China's standing rose from 22.5 in 1996 to 82.8 in 2007. In that year, the U.S. had also fallen behind the European Union. South Korea, Singapore, Taiwan, Brazil, India, and China are all increasing their technological capacities, while the U.S. position degrades.

That American technological supremacy has declined alongside its manufacturing supremacy should come as no surprise. "The proximity of research, development, and manufacturing is very important to leading-edge manufacturers," a report from President George W. Bush's Council of Advisers on Science and Technology warned in 2004. The continuing shift of manufacturing to lower-cost regions and especially to China is beginning to pull high-end design and R&D capabilities out of the United States. (Not surprisingly, the Bush White House did not publicize this report.) The report recommended that the U.S. make its research and development tax credit permanent. It has not. Once the world's most generous, the U.S. research and development tax credit is now lower than those of 17 other nations.

Decoupled from domestic manufacturing, the tax credit no longer pays for itself as it once did. If our innovation system discourages an invention from being manufactured in the U.S., says Susan Butts, senior director of external science and technology programs at Dow Chemical, then American industry will not generate the taxes "that fund the federal investment in research."

Executives of U.S. manufacturing companies understand that they are up against not just foreign companies but mercantilist nations. As Wayne Johnson, director of worldwide strategic university customer relations at Hewlett-Packard told a 2008 conference sponsored by Bush's Office of Science and Technology Policy, "We in the U.S. find ourselves in competition not only with individuals, companies, and private institutions, but also with governments and mixed government-private collaborations."

What domestic manufacturers want is for the United States government to shift its economic policies away from consumption to incentives that favor investment in new factories, equipment, and jobs in the United States. They want the United States to abandon policies that favor geopolitical global interests that have no regard for the economic health of the United States and its millions of taxpayers and retirees.

To the disappointment of the domestic manufacturing community, the Obama administration has yet to devise a strategy aimed at creating the industrial jobs needed in America to generate trillions of dollars of tax revenue. Without a surge in U.S. production and exports, how will the United States pay off its mounting debts and cover the retirement and medical costs of the largest generation of Americans in history? Creating more jobs for dental hygienists, health-care workers, retail clerks, and bartenders will not do it.

There are nascent signs that the administration is awaking to the need for new economic policies aimed at private-sector industrial investment and the creation of good jobs. President Barack Obama has appointed Ron Bloom, a financial whiz, to be his "senior counselor for manufacturing policy."

Bloom, a graduate of Harvard Business School, worked for years in the investment-banking industry before taking a job with the United Steelworkers, using his experience to help restructure companies to assure their survival and their ability to employ American workers. He also worked on the Obama administration’s Task Force on the Automotive Industry, which (at least for now) saved General Motors and Chrysler from extinction. Bloom is piecing together a strategy that will build upon investments being made in the $787 billion economic stimulus package aimed at helping the U.S. clean-energy sector.

There is little time to waste. "We need a modern-day Paul Revere," says Brian O'Shaughnessy, chair of Revere Copper Products, the oldest industrial company in the United States. "We all need to wake up and understand the forces of foreign economic mercantilism that are waging an economic war against us."
