

INTRODUCTION

Manufacturing is the engine that drives the U.S. economy.

Interestingly enough, it's the manufacturing process, not the products, that make Americans rich. The process starts with an idea ... which leads to research, innovations and inventions. That leads to spending on new jobs and new equipment ... which leads to increased productivity and new products and processes. Prices fall and quality rises. Soon other parts of the economy are benefiting from these innovations and inventions, including suppliers and distributors, competitors, and even businesses and institutions not within the industrial network.

Ultimately, living standards rise. No economic sector contributes more to creating prosperity than American manufacturing.

But this extraordinary growth engine is losing steam. American manufacturers face greater challenges, both domestic and international, than ever before. As a result, slowly but steadily the manufacturing process is dwindling here and growing in other countries instead. (*Why instead?*)

Worst of all, our elected officials don't recognize the threat – not just to manufacturing jobs and national security, but to the prosperity of future generations of Americans. Here's what you need to know and how you can help.

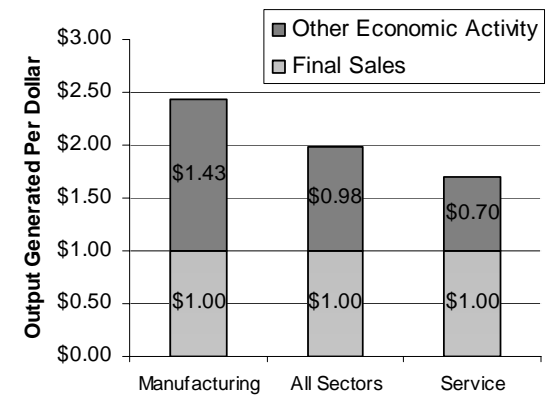
U.S. MANUFACTURING AND PROSPERITY

The manufacturing process plays a pivotal role in increasing our living standards. Without a strong manufacturing base there would be no "American way of life."

Manufacturing Spurs Growth Elsewhere

The manufacturing process is central to economic growth because it touches so many other parts of the economy. A manufacturer's need for raw materials, supplies, distributors and other services spurs the creation of jobs, investments, and innovations in the rest of the economy. This is a "multiplier effect."

Mfg Generates More Activity Per Dollar



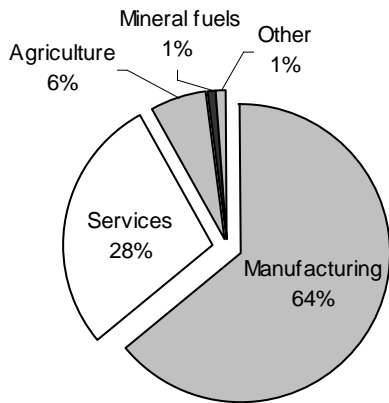
Manufacturing has a higher multiplier effect than any other economic sector. Producing \$1 worth of manufactured goods in this country generates another \$1.43 worth of economic activities elsewhere. This compares favorably to the service sector, where producing \$1 worth of services generates 60¢ to 80¢ in additional economic activity.

And the "multiplier effect" does not even capture the total impact of manufacturing on the economy. The manufacturing process also generates "spillovers," which are unintended benefits that spill over freely into other parts of the economy. Innovations in manufacturing often fuel innovations in other economic sectors.

**Securing America's
Future:
The Case for a Strong
Manufacturing Base**

Another way manufacturing benefits the economy is through exports. The United States sells almost \$600 billion worth of goods overseas annually, which supports jobs and allows Americans to purchase foreign-made imports. Roughly one out of every five manufacturing jobs – and for each of those jobs, 1.3 non-manufacturing jobs – is tied to exports of manufactured products. America's success as an exporter has prompted other countries to build their own manufacturing base for exports – a primary reason why global competition is so fierce today. (Are 2 charts in \$)

Mfg is 2/3 of Exports



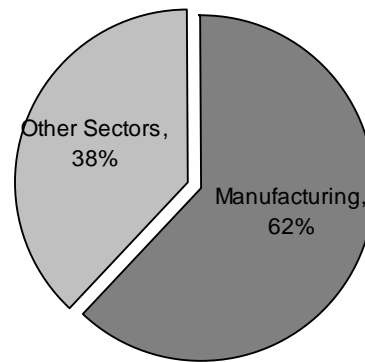
Manufacturing Spending Creates Prosperity

When manufacturers invest money in research and development (R&D), jobs, and equipment, it increases productivity, lowers prices, improves quality – and ultimately leads to improved living standards for Americans.

Manufacturers account for about two-thirds of all private spending on research in this country. This R&D leads to economic

prosperity in several ways. First, the R&D provides direct benefits to the companies investing in the research. Second, the research typically leads to "spillovers," with other companies, industries and economic sectors benefiting. Third, the R&D and its spillovers lead to feedback to improve manufacturing products, processes, and distribution networks. Finally, the research has a multiplier effect, generating economic activity in other sectors.

Mfg Accounts for 2/3 of Private Research



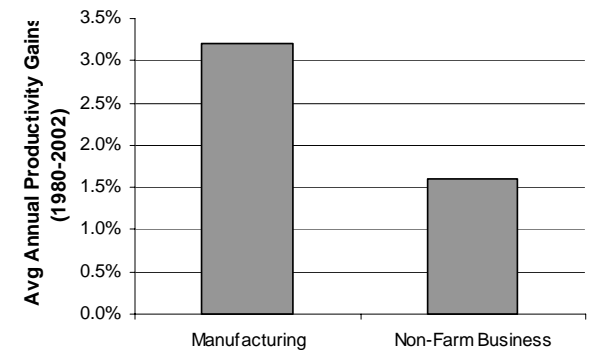
Manufacturing Drives Productivity

Manufacturing is the most productive sector in the U.S. economy. (Source?) Productivity is defined as "output per hour worked." Increases in productivity allow Americans to do more with less, which raises our standard of living. In fact, productivity increases of 1 percent a year will, **over the long term (redundant)**, lead to a doubling of living standards in 70 years.

America's manufacturers were twice as productive as the rest of the economy be-

tween 1985 and 2000. Because U.S. manufacturing productivity increased on average more than 3 percent a year during that period, the U.S. economy as a whole saw productivity gains of about 2 percent a year. This acceleration in productivity lowered manufacturing costs and increased our ability to compete in the global marketplace.

1980-2002, Mfg Productivity Led Overall Economy



Manufacturing Provides Valuable Jobs

Manufacturing provides well-paying jobs with benefits to its workers.

Two factors make the manufacturing sector attractive to workers with all levels of education:

- Pay and benefits.** Salaries and benefits presently average about \$54,000 in the manufacturing sector, compared to \$45,600 for the private sector overall. Workers in durable manufacturing earn 12 percent more than workers with comparable characteristics in the private sector overall, while workers in

non-durable manufacturing earn 5 percent more.

- *Educational and training opportunities.* Manufacturers provide more formal and informal job training and than any other economic sector. (Source?) Such training is of critical importance for future growth and productivity improvements.

As a result of these benefits, manufacturing employees stay with the same firm longer than employees in any other private-sector industry except mining. The typical manufacturing employee has 5.5 years of tenure in contrast to 3.3 years for all employees working in private industry.

Consumers Benefit from Variety & Quality

Manufacturing innovation has provided U.S. consumers with a dizzying array of products from which to choose. As just one example, the average supermarket carries 49,225 different items – **most of which are manufactures rather than agricultural (Awkward)** – compared to 14,145 in 1980.

Consumers have also benefited from increased manufacturing quality. In fact, quality rather than quantity is the driving force in the growth of U.S. consumer purchases. For example, between 1967 and 1998 the value of the quality improvements in automobiles increased at an annual rate of 2.2%. In effect, today's auto is twice the car it was in 1967.

Innovations and productivity improvements have also led to competitive pricing. While the service sector has seen steadily rising prices since the mid-1980s, global com-

petition and increased productivity has meant stable and even falling prices for manufactured goods.

Manufacturing Benefits the States

A vibrant manufacturing base contributes to state economic growth through linkages to other parts of the economy, well-paying jobs, and the benefits associated with investments. A strong manufacturing base also means increased state revenues: During the past decade manufacturers have averaged roughly one-third of all corporate tax payments for state and local taxes, social security and payroll taxes, excise taxes, import and tariff duties, environmental taxes and license taxes.

Manufacturing industries are ubiquitous in the United States. Twenty states have manufacturing employment shares that ranged between 12 and 20 percent of their employment base, while only eight states and the District of Columbia have 5 percent or less of their employment in manufacturing.

State economies benefit most when manufacturing plants concentrate in a region, and when manufacturers, suppliers, and educational institutions situate themselves in close geographic proximity to each other. Such "clusters" – exemplified by Silicon Valley in California, the high-tech corridor in New England, and the automotive cluster around Detroit – attract new related and unrelated supplier and service businesses, and lead to generally increased economic activity and a larger tax base.

U.S. Manufacturing's Critical Challenges

While the manufacturing process plays a crucial part in maintaining our living standards, U.S. manufacturers face more serious challenges today than ever before.

Manufacturing Struggling to Recover

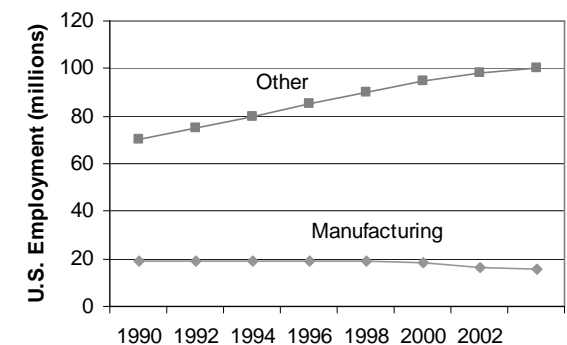
Manufacturing historically leads the way in an economic expansion, providing important momentum to other sectors. Coming out of the last six recessions, manufacturing growth has averaged 23 percent in the first year-and-a-half. Yet since the end of the most recent recession (December 2001), manufacturing growth averaged only 1 percent.

The faster manufacturing grows, the faster the U.S. economy and U.S. standard of living grow. The lackluster growth of manufacturing in recent years bodes poorly for the American economy as a whole.

Manufacturing Has Lost Numerous Jobs

Historically, manufacturing has lost jobs during recessions but regained most of them

Disappearing Manufacturing Base



in the subsequent recovery. But U.S. manufacturers have not stopped shedding jobs since the recent recession officially ended. In fact, manufacturing has lost five times as many jobs since July 2000 – 2.6 million – than in the entire decade(s) of the 1990s. This may be a signal that manufacturing can no longer generate the employment and related benefits the economy has relied on.

Considering that manufacturing generates more non-manufacturing jobs than any other economic sector, employment throughout the nation will ultimately be affected by this trend.

Implications for Productivity

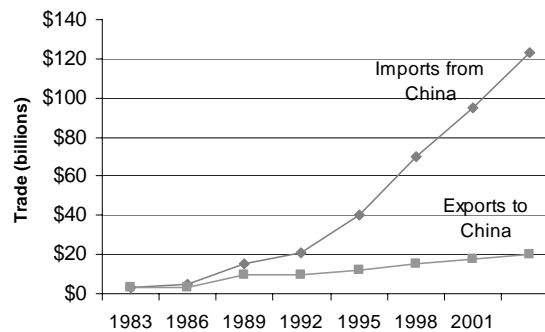
Facing increasing costs and intense global competition, U.S. manufacturers continue to improve their productivity. Historically this has led to increased living standards. However, these recent productivity gains are the result of massive job layoffs – and may mask long-term damage to the manufacturing process. If the U.S. manufacturing base continues shrinking, its productivity gains will be for naught – that is, the base will no longer support the complex process of innovation and investment that creates U.S. prosperity.

U.S. Manufacturing Losing Globally

While the United States continues to be the largest exporter in the world, that leadership is being challenged. Despite a doubling of exports between 1990 and 2002, the U.S. share of world manufactured exports has declined in recent years. This reflects the rise of other significant manufacturing bases around

the world – particularly those built specifically as an export platform, such as China's.

U.S. Trade Deficit with China



While the United States is struggling to hold its leadership position as the premier exporter in the world, Americans continue to import more than they export. In 2002, the United States imported \$1.2 trillion worth of goods while exporting \$782 billion worth of goods. Much of the blame for this lies with the overvaluation of the U.S. dollar overseas in recent years, making American products more expensive compared to foreign products. And while this situation has recently changed in regard to “major” currencies around the world, such countries only account for 56 percent of U.S. trade. The other 44 percent reflects trade with countries with “non-major” currencies, such as China. The dollar continues to increase in value against them.

Inexpensive imports keep consumer prices low and encourage consumer spending. But when trade becomes too one-sided, it slows economic growth. As American businesses purchase more foreign-made merchandise and American consumers buy more

foreign-made goods, it takes a toll on U.S. manufacturing and ultimately our economy.

U.S. Manufacturing Investment at Risk

Costs continue to rise for U.S. manufacturers in non-production areas, such as healthcare, energy, and legal and regulatory expenses. That is money that manufacturers do not have to spend on wages, new equipment, or research.

For example, while manufacturers account for two-thirds of private R&D (*spending?*) in this country, the increase in research spending between 2000 and 2002 (\$11 billion) represented only half the recent pace of such investments. In fact, manufacturing R&D has barely grown over the past decade – and while the United States still spends more on R&D than any other nation, **it ranks only fifth in the world as a percent of national income. (Unclear)** As a result, the United States' ability to innovate and develop product and process improvements is showing signs of deterioration.

The diminishing of our innovative process bodes ill for the continued growth of the U.S. economy. If other countries replace the United States as locales for research investment, a decline in the U.S. long-term economic growth rate is all but assured.

Manufacturing Capacity is Not Growing

U.S. manufacturing capacity has grown fairly steadily since the early 1980s – yet, in that same timeframe our capacity to process crude materials for use by other manufacturers has declined. As a result, the United

States has become more dependent on foreign nations to supply raw materials.

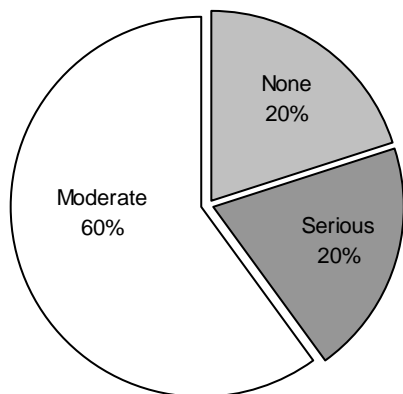
Some of the decline reflects dwindling U.S. petroleum and mineral resources. But it also reflects public policies that discourage the development of resources here. As a result, mineral and crude processing capacity is being located closer to the growing customer base in other countries.

Still, overall manufacturing capacity growth has been sustained by the growth of plants producing intermediate and finished goods. However, the utilization of the (manufacturing?) capacity available in the United States is now quite low – in fact, it is below its lowest point during the 1990-91 recession. A loss of manufacturing capacity and utilization has implications for long-run economic prosperity.

Manufacturing Faces a Skills Shortage

While not all manufacturers make high-tech goods, all manufacturing plants are now high-tech. Because of this, U.S. manufacturers now face a potential shortage of workers

Shortage of Skilled Mfg Workers



with the specific skills needed to produce manufactured products. Today, 80 percent of manufacturers report a moderate to serious shortage of qualified job applicants – even as manufacturers are reducing workforces. In other words, what manufacturing is facing is not a lack of employees, but a shortfall of highly qualified employees with specific educational backgrounds and skill.

CONCLUSION

No other sector can claim the enormously beneficial impact of manufacturing on prosperity. But the success of the U.S. manufacturing sector requires a vibrant base, large enough to encourage research investments in the United States as well as investments in equipment and jobs. If that manufacturing base gets too small, the process by which prosperity is generated may never be recovered.