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Filling in the Hollowed-Out Corporation: The Competitive Status of U.S. Manufacturing

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The current status of the manufacturing sector of American business furnishes a cogent example of the recognition lag in economic life.

The industrial production index for the U.S. economy declined approximately 13 percent from a cyclical peak of 113.4 in July 1981 to a low of 100.5 in October 1982, or just about back to the level of 1977, which is the base year for the index. Individual sectors of manufacturing, especially primary metals, dropped even more precipitously.

During this period, a cottage industry developed (appropriately in the service sector) based on the simplest relationship known to quantitative analysts: Two points determine a straight line. A brigade of doom-and-gloom forecasters began bemoaning the demise of American manufacturing and the stagnation of the economy generally. After all, by connecting the number for 1981 (for almost any series except unemployment) to the corresponding number for 1982, they observed a downward sloping trend line.

The year 1982 produced a bonanza of negative reports. Ira Magaziner and Robert Reich wrote, "The U.S. economy is in crisis. . . . In the absence of new strategic directions, the crisis can only deepen."[1] Lester Thurow reported, "The engines of economic growth have shut down and they are likely to stay that way for years to come . . ."[2] And, of course, 1982 was the year that saw John Naisbitt's *Megatrends* proclaim that the industrial era was over and that we were rapidly becoming a microeconomic information self-help society characterized by a galaxy of networking constellations.[3]

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Given its special recognition lag, it took *Business Week* until March 1986 to conclude that the American industrial enterprise was becoming "hollow," relegated to marketing products made in other nations.[4]

But the linear economic forecasters were caught off guard by the economic upturn that began in 1982. Something else also happened in 1982. Late that year saw the beginning of the longest peacetime expansion in American history. By September 1983, the previous peak in U.S. industrial production was passed. The best was yet to come. By the end of 1988, the rate of industrial production was 40 percent above the previous cyclical low and 24 percent over the previous cyclical high. The manufacturing sector today contributes just about the same proportion of the total output of the American economy as it did three decades ago.

However, the good news often was reported as bad news. That is, rising productivity enabled the industrial economy to produce more with less, less labor that is. But to those who measure the health of a sector by its inputs rather than its output, the results were devastating. Manufacturing employment in the United States has never recovered to its peak of slightly over 21 million achieved in 1979.

Those who bemoan the shift in the U.S. economy from manufacturing to services can be reassured by the knowledge that this is not a recent development. Despite the attention placed on this shift since 1982, an inspection of the Census Bureau's Historical Statistics reveals that the crossover from manufacturing to the service sector as employment leader occurred in the nineteenth century. By 1900, service employment exceeded manufacturing employment, by a ratio of eight to five.[5] That recognition lag again!

Most realistic appraisals of the future conclude that the total number of jobs in manufacturing is not likely to grow much if at all in the coming decade. But their complexity -- and pay -- will continue to rise. Flexible automated systems are restructuring production technology and helping to keep American firms competitive in world markets.

Just listen to the executives in the European Community who fear post-1992 competition from larger and stronger American enterprises.

A decade from now, most viable U.S. manufacturing operations will be more fully automated than they are today. They generally will have converted to flexible systems that can be continually reprogrammed to make a large variety of products, attaining economies of scope, while maintaining necessary economies of scale.

The United States possesses the basic capabilities necessary to maintain leadership in many industrial areas. No other nation devotes as much to basic research year in, year out. R & D performed in the United States each year exceeds the combined totals of Japan, West Germany, France, the United Kingdom, and Sweden.[6] No other country possesses comparable capability in computers and software. No other economy has the depth, breadth, or scope of technical-industrial infrastructure that can translate basic discoveries into useful products and processes in a relatively short time.

Moreover, the United States is still the world's largest market with a common language and a strong entrepreneurial culture. The domestic availability of capital resources to finance new investment -- and not just in LBOs and hostile takeovers -- is awesome.

While the wailing goes on about the supposed erosion of our manufacturing base, three key forces are at work which make for a strong industrial sector of the American economy in the years ahead:[7]

1. Numerous company actions are reducing the cost of producing goods and services in the United States.

2. American workers and managers are showing a new awareness of their personal responsibility for the quality of what they produce.

3. Private investment in R & D, the basic fuel for innovation and technical progress, is continuing to grow.

Let us examine the increased importance of each of these factors.

Reducing the Cost of Production

For a variety of compelling reasons -- most notably, to keep up with foreign competition and to fend off potential takeover threats -- a great many American business firms have been reducing their costs of production. Nearly every sector of manufacturing -- automobiles, steel, chemicals, textiles, and machinery -- has been aggressively cutting costs. The specific responses they have made range from simple changes in production methods to a basic restructuring of the entire business. About half of the firms surveyed by the American Management Association downsized their operations between January 1986 and June 1987.

Because the compensation of employees constitutes about two-thirds of the cost of producing the nation's output, labor costs are a natural for cutting. The measurable changes in the labor market are dramatic. Competitiveness has been enhanced by the substantial slowing of the rise in wage costs. In 1980, the average U.S. worker in the private sector received a 9 percent wage boost. By mid-1989, the average annual increase was half of that. In some industries, workers have "given back" prior wage and benefit increases.

We should not be confused about motivations. Reduced wage demands and givebacks do not arise because workers are suddenly worried about stockholders. Rather, their new attitude reflects rough on-the-job economic education. The new competitive reality has especially impacted workers in companies that, in the past, were unusually generous in granting increases in wages and fringe benefits.

Strike activity -- whether measured by the annual number of strikes or the yearly tally of people out on strike -- is at the lowest point since the Labor Department first started collecting the numbers. For all of 1988, the number of work stoppages involving 1,000 employees or more totaled 43 -- compared to 300 a decade earlier. Despite the growth in the labor force, the total of 121,400 workers idled by strikes in 1988 was a small fraction of the 1.4 million annual average in the 1970s.

Import penetration has sparked what often approaches a war on costs. Companies have often obtained union agreement for more flexible work rules -- a broadening of traditional narrow job classifications -- that generate important savings in the production process. With new agreements to perform several different tasks, fewer workers are required or the same number of workers can produce more. Also, downtime is reduced when it is no longer necessary to wait for a worker with the right classification to make a repair.

Automobile producers have made tremendous strides, in one plant reducing labor costs 30 percent by getting workers to agree to perform tasks outside their crafts. Changes in work rules also save money in many other industries. One oil company merged six classifications into two at one refinery, cutting its workforce by 25 percent.

Many American companies have adopted the Japanese just-in-time (JIT) production and inventory system. Numerous U.S. firms report that the system frees millions of dollars previously tied up in inventory and storage space. JIT can also dramatically reduce reorder lead times. However, using JIT requires better sales forecasting and delivery planning than many American companies have been accustomed to.

An extension of the economizing strategy is leading to important structural changes in a great many of the larger American corporations. The horizontally integrated firm, producing virtually every product in the markets in which it operates, is becoming much less prevalent. Many companies -- notably in the chemical industry -- are finding it preferable to specialize, focusing on specific product niches that are more secure against foreign competition. This is to be expected as U.S. firms find themselves competing more fully in a global economy. Fewer domestic markets now can be thought of as part of a closed economy.

In addition, a rapid rate of product innovation has been emphasized by many U.S. firms, especially in industries that are hard hit by imports. American shoe companies have

responded with stylish footwear to ward off foreign competition. Apparel manufacturing, one of the most import-affected industries, is relying heavily on style to compete with low-cost foreign products. Clothing producers are maintaining profitability through improved timing and greater flexibility of production. Foreign apparel makers typically need six months or more lead time to coordinate manufacturing with retail sales. Some domestic companies can produce products for retail shelves in three to four weeks. That enables them to set a trend, with foreign producers lagging a season behind.

Improving Product Quality

Foreign inroads into U.S. domestic markets have frequently been caused by the superior quality of imports rather than just lower costs. As a result, unprecedented pressure has been generated for improving the quality of products that American businesses manufacture.

The payoff from higher quality is larger than generally realized. It comes from the savings realized by doing the job right the first time and avoiding the costs of reworking and repairing defective products.

At some manufacturing companies, employees receive as much as forty hours of training to enable them to measure the quality of their output, a move that often has resulted in a rise in defect-free products coming off the assembly line.

The enhanced concern with improving quality in American industry has not been primarily a matter of setting up new quality control departments or even expanding existing ones. Companies in the United States traditionally devote more resources to quality-control efforts than their foreign counterparts. But quality assurance means more than just a collection of expensive professional personnel who check, review, and improve production practices. To produce defect-free products, it is necessary to emphasize quality manufacturing throughout the firm. The most effective quality controls involve a shift in the locus of responsibility -- from the inspectors in the quality control department to the

people who actually do the work.

The Growth of Industrial R & D

It has become commonplace to state that American business thinks short-term and that this unfortunate tendency shows up in cutting back on outlays for research and development. Commonplace, yes. True, no. A little historical and statistical perspective can be a real eye opener.

As we know, the 1980s witnessed a substantial growth in the R & D financed by the federal government, mainly for defense purposes. This was a significant departure from the trend of the 1970s, where federal government spending for R & D, in real terms, was stagnant. According to the traditional wisdom, civilian R & D in the 1980s should have declined as scientific and technological resources were being hogged by the military.

Actually, something very different occurred in the private sector in the 1980s, simultaneously with the rapid defense buildup. For the first time since the National Science Foundation began gathering the data, business outlays for R & D exceeded government R & D spending. For the decade 1980-89, private industry outspent the federal government on R & D by $445 billion to $430 billion (in constant 1982 dollars).[8] In eight of the ten years, the private sector was a larger source of financing for R & D than the public sector. The number of scientists and engineers in American industry doing R & D rose from 469,000 in 1980 to 595,000 in 1987.

Consider the implication of these numbers. In the United States, private business traditionally performs the bulk of R & D. However, prior to 1980, most of the projects were sponsored by the federal government and business was responding to the public sector's priorities. But since 1980, most of the R & D work performed by American companies has also been financed and sponsored by them. Thus, the results are far more geared to commercial markets than in the past.

On this basis, I suggest that there is an excellent chance that, contrary to general

expectations, we will see more product and process innovation in the United States in the years ahead. As Alfred Chandler, the distinguished business historian, reminds us, technology has been the prime mover behind the success of the modern corporation.[9]

The Three Factors Together

These three factors -- cost cutting, quality improvements, and expanded research and development -- rarely yield quick and dramatic changes. Yet, their cumulative effects are likely to endure and to reinforce each other. All three factors work in the same direction -- toward developing new or better or cheaper products.

These changes will not prevent imports from continuing to threaten individual companies. Influences external to the industrial economy often can be vital. Exchange rate fluctuations, as we have seen in recent years, can be of especial importance. But, over the longer run, these three basic forces make for a brighter industrial outlook for the United States as a whole.

Solid evidence is already available. The average manufacturing company in the United States has become more productive during the 1980s, in the conventional terms of how much is produced per worker per hour. From 1973 to 1981, domestic manufacturing firms averaged a subnormal increase in productivity of 1.5 percent yearly. From 1981 to 1988, the average rate of productivity growth more than doubled, to 3.8 percent a year (that is also comfortably higher than the average rise of 2.7 percent a year during the period 1948-1973).

Thus, there is a reasonable basis for believing that American firms will be more effective competitors in world markets in the years ahead. Likewise, the relative attractiveness of domestically produced products to American consumers is being enhanced.

A word of warning is in order: these positive developments in American industry do not guarantee success in the future. Overseas competitors will not run in place while

U.S. companies try to catch up.

And new international competitors are vying for global markets. It is intriguing to note that South Korean construction companies, which have increasingly been giving their American counterparts tough competition in bidding on overseas projects, are now complaining about the even-lower-cost rivalry from Turkish and Indian firms.

The Public Policy Outlook

The chances of a strengthened manufacturing sector in the 1990s will be influenced by changes in public policy. Efforts to reduce the budget deficit on the revenue side can result in further increases in the tax burden on saving and investment. In contrast, action on the budget deficits via spending cuts would reduce the pressure on real interest rates. That should help to reduce the relatively high cost of capital in the United States, a key deterrent to competitiveness.

Should domestic protectionist pressures succeed in erecting additional trade barriers, much of the burden would be borne by the industries using the higher-priced protected products. Conversely, new trade barriers on the part of the European Community could inhibit U.S. exports.

A new round of burdensome domestic government regulation would both raise the cost of compliance and deter companies from investment and innovation. Further use of "social mandates" to finance federal social objectives off budget -- such as higher minimum wages, compulsory health insurance, required parental leave -- would increase the cost of doing business in the United States. On balance, the potential changes in public policy, at home and abroad, seem to be in large part negative in terms of their impact on the industrial economy.

Thus, enhancing the competitiveness of American industry is not fundamentally a question of how much government should do *for* manufacturing, but how to get it to do less *to* manufacturing. Regulation should be made more effective and less onerous. The

tendency for Congress to "do good" via social mandates should be curbed. Federal deficits should be reduced, but not by adding to the tax burdens on saving and investment.

There is one key aspect of public policy which is ripe for positive improvement -- education of the nation's work force. It is nothing short of a national disgrace that this country's literacy rate is lower than that of most countries with whom we compete and our drop out rate is higher.

This is not going to be another uncritical appeal for spending more on education, although the marginal return on investment in education continues to be relatively attractive. The fact is that, each year since 1980, the people of the United States -- from federal, state, local, and private sources -- have been spending more on education, per pupil, than the year before, and in real terms. We also spend a larger share of our GNP on education than most other nations.

The real shortage in education is in ways of spending the money wisely. Take the chronic shortage of high school math and science teachers. For decades, the public school systems have refused to pay more for skills in short supply. If colleges and universities were to follow such an archaic approach, every medical school in the country would be forced to close, as would most engineering schools.

Ultimately, however, the future of manufacturing will be determined by the business sector. The future lies with those business executives that make the tough product, market, and financial decisions that are at the heart of increasing productivity and maintaining competitiveness.

Substantial new investments in manufacturing facilities are often required. For example, Timken -- a firm with about $1 billion in annual sales -- recently invested $500 million in new and more advanced production equipment. This risky outlay enables the company to maintain its traditional market position in the face of virulent foreign competition.

On the other hand, the specter of high-powered business executives running to

Washington with hat in hand is not a particularly noble one. In this regard, there is an important role for the citizen/voter to support changes in government policies that make it less attractive to travel to Washington for help. A bailout is a bailout, even if it's for high density television. Say's law -- supply creates its own demand -- works with a vengeance in this area: the supply of aid to "worthy" businesses encourages the demand for that aid.

To those citizens who are offended by large corporate PAC contributions and generous honoraria to members of Congress, I suggest that they focus on the root cause -- the great amount of arbitrary power over business on the part of government officials. Those honoraria and contributions would not be forthcoming so readily if the money could be put to better use in more conventional business undertakings. The nation's welfare -- and its economic efficiency -- would indeed be better served by redirecting those resources into product private investment.

Notes

1. Ira Magaziner and Robert Reich, *Minding America's Business* (New York: Vintage, 1982), p. 375.

2. Lester Thurow, "The Great Stagnation," *New York Times*, October 17, 1982, sec. 6, pp. 32, 36.

3. John Naisbitt, *Megatrends* (New York: Warner Books, 1982).

4. "The Hollow Corporation: The Decline of Manufacturing Threatens the Entire U.S. Economy," *Business Week*, March 3, 1986, pp. 57-85. Since March 1986, industrial production in the U.S. has risen 14 percent, faster than the long-term trend.

5. Bureau of the Census, *Historical Statistics of the United States*, pt. 1 (Washington, D.C.: Government Printing Office, 1975), p. 137.

6. D. Bruce Merrifield, "The Forces of Change Restructuring the U.S. and World Economies" (Presentation to Human Resources Services, Inc., New York City, October 22, 1986), pp. 8-9; Leonard L. Lederman, "Science and Technology Policies and Priorities: A Comparative Analysis," *Science*, September 4, 1987, p. 1127.

7. See Murray Weidenbaum, *Rendezvous With Reality: The American Economy After Reagan* (New York: Basic Books, 1988), Chapter 7.

8. U.S. National Science Foundation, *National Patterns of R & D Resources* (Washington, D.C.: NSF, 1989), Table B-5.

9. Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Mass.: Harvard University Press, 1977).