CHAPTER 3

Industrial Policy

SHOULD THE UNITED STATES adopt an industrial policy? Proponents argue that such a strategy is necessary to revitalize our manufacturing sector. They claim that U.S. manufacturing has done poorly compared with the manufacturing sectors of other countries, and that we are losing our international competitiveness. These claims have led to the perception that manufacturing's share of our economy is eroding and that we are "deindustrializing."

To reverse this alleged decline, some industrial policy advocates propose that the government encourage new high-technology industries and help older industries regain their former strength. They also recommend that the government assist declining industries to adjust more smoothly to lower levels of output and employment. Others propose government aid to prevent a decline in selected basic industries.

Industrial policy solutions seem attractive to observers who think that such policies have contributed to Japan's emergence as a major economic power. Since World War II Japan has had rapid growth in manufacturing output, productivity, and exports. The main sources of this growth have been high rates of saving and investment, the migration of workers from farms to factories, and the adoption of modern technology. In addition, the Japanese government has used an array of tools to encourage certain industries to develop and others to adjust to decline. Some observers argue that unless the United States adopts an industrial policy of its own, Japanese growth will contribute to U.S. decline.

In this country, industrial policy advocates have advanced several proposals that would increase the government's role in directing resources into or out of specific industries. First, there would be a central agency to shape the Federal Government's industrial policy. Second, councils including representatives of business, labor, and government would gather information on specific industries and forge a consensus strategy. Third, a Federal development bank would invest money in industries deemed to receive inadequate capital from private financial markets. Fourth, declining industries would receive

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

government aid and import protection to adjust to new economic conditions.

Some industrial policy advocates claim that the United States already has an industrial policy. They argue that such policies as trade protection and subsidies for exports and research and development are components of an industrial policy simply because they affect the composition of industrial output. The difference between our present policies and what they advocate, they say, is that the former is ad hoc industrial policy while the latter is coherent.

It is true that many Federal policies affect industrial output. But the argument about whether they constitute industrial policy, like all arguments about definitions, is pointless. What is relevant is whether the proposals of industrial policy advocates are a good idea. Should the U.S. Government have a larger role than it now has in deciding the composition of U.S. industry?

The answer is "no." An industrial policy would not solve the problems faced by U.S. industry and would instead create new problems. Industrial policy has a mixed record in Japan and has been unsuccessful in Europe. Most of the problems of U.S. industries can be solved with prudent monetary and fiscal policies. The best way to deal with the many changes in demand that occur in a dynamic economy is to allow investors and workers to respond to such changes. Because they reap the rewards of their successes and bear the costs of their failures, investors will seek out industries that pay the highest rates of return. Similarly, workers have incentives to work where they can earn the highest wages. The free movement of capital and labor in response to new profit opportunities and wage differentials increases growth. Government allocation of investment that ignores market signals usually stunts growth by diverting labor and capital from more productive uses.

IS THE UNITED STATES DEINDUSTRIALIZING?

Although selected manufacturing industries face serious problems, the United States is definitely not "deindustrializing." Table 3–1 shows that the output, employment, and capital stock of U.S. manufacturing grew from 1950 through 1980. Moreover, manufacturing's share of total output and capital stock was roughly constant between 1960 and 1980. The manufacturing share of total employment progressively declined, but the decline is a sign of relative productivity growth, not a sign of industrial demise. There is no evidence of either an absolute or relative long-run decline of U.S. manufacturing output.

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

TABLE 3–1.—*Size and share of the manufacturing sector, selected years 1950–80*

Year	Manufacturing			Share of total		
	Output (billions of 1972 dollars)	Employment (millions)	Capital stock (billions of 1972 dollars)	Output	Employment	Capital stock
				Percent		
1950	131.1	15.2	106.4	24.5	33.7	28.4
1960	171.8	16.8	140.4	23.3	31.0	25.8
1970	261.2	19.4	202.2	24.1	27.3	23.5
1980	351.0	20.3	287.0	23.8	22.4	23.4

Sources: Department of Commerce (Bureau of Economic Analysis) and Department of Labor (Bureau of Labor Statistics).

It is true that the composition of U.S. manufacturing has changed substantially over the past two decades. As Table 3–2 shows, between 1960 and 1980 U.S. manufacturing shifted away from capital-intensive, labor-intensive, and resource-intensive industries toward high-technology-intensive industries. High-technology industries are defined as those with a high ratio of research and development spending to value added. (Value added equals industry revenue minus the cost of inputs purchased from other industries.) In high-technology industries, value added increased by more than 40 percent, and employment increased by more than 20 percent.

This shift in the composition of manufacturing output and the movement of capital and workers toward other sectors is not a threat to our economy or to our international competitiveness. Although we commonly call some industries "basic," the products of these industries are no more important than the products of the agricultural or service sectors. Nor is our position in world markets endangered if our exports shift from steel and machinery to engineering services. Using industrial policy to halt the decline of our basic industries would not increase growth. It would merely shift investment and employment from one sector to another. Increasing the total level of saving and investment is the best way to increase economic growth.

TABLE 3–2.—*Shares of value added and employment by industry group, 1960, 1970, and 1980*

[Percent of manufacturing total]

Group	Value added			Employment		
	1960	1970	1980	1960	1970	1980
High-technology	27	31	38	27	30	33
Capital-intensive	32	30	27	29	30	28
Labor-intensive	13	13	12	21	20	19
Resource-intensive	28	25	23	23	21	20

Source: Robert Z. Lawrence, *Brookings Papers on Economic Activity, 1:1983.*

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

U.S. manufacturing output and employment have generally performed well compared with other major industrial nations. Table 3–3 presents manufacturing data for France, West Germany, Japan, the United Kingdom, and the United States from 1960 to the first oil shock in 1973, and from 1973 to 1980. The data show that the slowdown in the growth of output and employment in manufacturing since 1973 was not limited to the United States, but also occurred in Europe and Japan. Whatever the causes of this slowdown, it is shared by our international trading partners, many of whom have industrial policies.

TABLE 3–3.—*Changes in manufacturing output and employment in selected industrial countries, 1960–80*

[Average annual percent change]

Country	Output		Employment	
	1960–1973	1973–1980	1960–1973	1973–1980
France	5.0	1.3	0.5	−1.3
Germany	5.2	1.0	.9	−1.7
Japan	12.5	2.4	3.4	−1.5
United Kingdom	3.0	−1.8	−.6	−1.9
United States	5.4	1.8	1.4	.1

Source: Organization for Economic Cooperation and Development.

The U.S. manufacturing sector grew more rapidly than most European manufacturing sectors between 1960 and 1980. Japanese manufacturing output increased most rapidly during this period, but the difference between the Japanese and the U.S. growth rates declined substantially after 1973. Between 1973 and 1980, U.S. manufacturing employment grew slightly, while manufacturing employment fell in France, West Germany, Japan, and the United Kingdom.

Some industrial policy advocates also claim that the United States is losing its competitive edge in high-technology. Since World War II, other countries have followed the United States in developing this sector. As the number of producers has increased, the U.S. share of this rapidly expanding market has gradually declined. Between 1962 and 1980 the U.S. share of industrial countries' high-technology exports fell from 30.3 percent to 23.9 percent. During the same period, the Japanese share rose from 4.1 percent to 12.3 percent and the German share stayed constant at about 18 percent.

However, the United States is still the leading exporter of high-technology products. In 1980 the United States exported $7.6 billion of high-technology goods, compared to $7.5 billion for West Germany, $4.8 billion for Japan, $3.7 billion for the United Kingdom

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

and $3.2 billion for France. In that year we were the leading exporters of office machines and automatic data processing equipment, and professional and scientific instruments. As Table 3–4 shows, from 1970 to 1980 the real value of net exports in many high-technology industries increased more in the United States than in Japan, West Germany, France, and the United Kingdom.

TABLE 3–4.—*Net exports in selected high-technology industries, 1970 and 1980*

[Millions of 1980 dollars]

Country	Medicinal and pharmaceutical products		Artificial resins and plastic materials		Electrical machinery		Professional, scientific, and controlling instruments	
	1970	1980	1970	1980	1970	1980	1970	1980
France	148.5	796.3	−62.2	33.2	272.5	664.0	−72.9	−56.0
Germany	546.1	981.4	1,573.5	2,590.0	2,914.2	4,480.1	1,094.9	1,573.0
Japan	−259.8	−779.5	1,092.0	1,315.1	3,638.1	7,230.1	907.6	562.5
United Kingdom	439.6	1,217.1	243.3	261.3	1,076.3	655.0	304.9	476.5
United States	575.0	1,216.9	1,635.5	3,171.1	1,378.8	169.8	966.0	3,712.7

Sources: Organization for Economic Cooperation and Development and Council of Economic Advisers.

PROBLEMS OF U.S. MANUFACTURING

Although U.S. manufacturing in general is not in a long-term decline, it has experienced serious short-term difficulties. In addition, certain industries have serious long-term problems.

Macroeconomic Problems

In the short run, U.S. manufacturing, like other cyclically sensitive industries such as housing, declined during the recent recession. Manufacturing employment fell from its peak of 20.4 million in July 1981 to 18.2 million in November 1982. Manufacturing output declined by 12.5 percent over the same period. However, employment has risen sharply since then, and stood at 19.3 million by the end of 1983, while output rose 17.8 percent between November 1982 and December 1983. As the recovery continues, manufacturing employment and output will also continue to grow. In any event, monetary and fiscal policies are the appropriate tools for avoiding cyclical problems. Industrial policy cannot hope to eliminate the effects of the business cycle on manufacturing.

A second short-run problem is the high value of the dollar relative to other currencies. The dollar appreciated 45 percent between 1980 and December 1983, after taking inflation into account. This increase in the dollar's exchange value has put U.S. producers at a serious competitive disadvantage in world markets. However, the problem is not limited to manufacturing, but extends to agriculture and such

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

services as construction, engineering, and tourism. As Chapter 2 explains, the solution once again lies with fiscal and monetary policies.

Problems of Basic Industries

Unfortunately, industries such as autos and steel, which have been hurt by the recession and the rise in the dollar, also face longer run problems. Foreign competition increased in both of these industries during the 1970s. The two oil shocks increased the U.S. demand for small cars, much of which was met by imports. Competition from imported steel increased as shipping costs fell and as foreign steel producers cut their prices in response to excess worldwide capacity.

During this period, management decisions may have worsened the competitive positions of these industries. U.S. auto firms let quality control slip, and they did not respond quickly to the shift in demand toward smaller cars. Some observers claim that steel firms were slow to adopt new technologies. In addition, labor costs increased more rapidly in autos and steel than in other manufacturing industries. In 1970 hourly compensation for auto and steel workers was about 30 percent higher than the average compensation in manufacturing. By 1981 the difference had grown to 70 percent for steel workers and 50 percent for auto workers. Since then, workers in both industries have made significant wage and benefit concessions, which may or may not be temporary.

These industries are now going through significant adjustments. If foreign firms continue to produce goods at lower costs than U.S. firms, then domestic output and employment in the affected industries will fall. The only ways to reduce the cost differentials are to increase productivity or to reduce or even reverse the growth in real wages. Otherwise, preserving output and employment would require a continuing subsidy from consumers or taxpayers to workers and stockholders in these industries.

Regional Problems

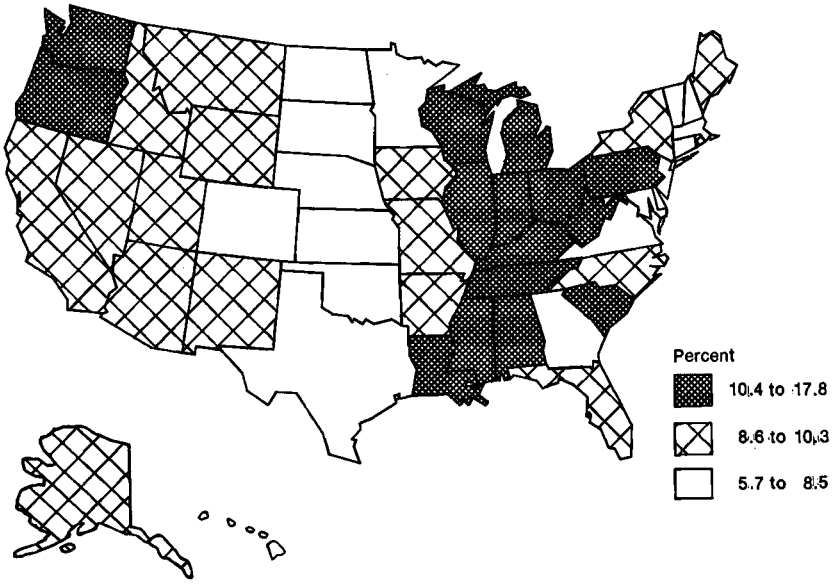
Employment declines in manufacturing have created serious problems because of the regional concentration of job losses. In the late 1970s manufacturing employment grew by about 1 percent a year for the country as a whole but fell in the Middle Atlantic and Great Lakes States. The recent recession exacerbated these regional disparities. Chart 3–1 shows the uneven distribution of unemployment in fiscal 1983. Many of the States with high unemployment depend heavily on basic manufacturing industries for jobs.

These State unemployment rates hide a wide diversity of economic health within a State; real trouble spots are much smaller areas. In Ohio, for example, the unemployment rate in Columbus was half of Youngstown's in fiscal 1983. In Indiana, the unemployment rate in Lafayette was half the rate of Gary's.

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

Chart 3-1

Unemployment Rates by State in Fiscal Year 1983



Source: Department of Labor.

These small pockets of real distress persist in spite of job opportunities elsewhere because of the reluctance among some workers to move. Many unemployed workers do move, and broad regional population changes reflect these movements. One detailed study of two depressed areas found that among people who changed jobs, one-third found new jobs outside the region. However, many unemployed workers in depressed areas do not move. Some are tied to their communities by financial and family commitments—working spouses, homes that are hard to sell, and children in school. Unemployment benefits and the hope of returning to a high-wage job near home reduce the incentives for unemployed workers to move in order to find new jobs.

But unwillingness to move is not sufficient to cause lengthy unemployment—workers who are unwilling to move can still find work if their local economies are healthy. As one study shows, in regions with healthy local economies unemployed workers from declining industries are not out of work any longer than unemployed workers from other sectors. Geographic immobility together with depressed

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

local economies is the source of the special distress associated with the decline in specific manufacturing industries.

For people in these depressed local areas, the shift in manufacturing employment has been difficult. But the total amount of long-term unemployment caused by shifts in the manufacturing sector is relatively small. Workers from declining industries who suffer long-term unemployment are only about 2 percent of the unemployed. Other, larger groups appear to have bigger labor market problems.

Since hardships caused by economic adjustment are often regional problems, programs to ease adjustment should be targeted regionally. Otherwise, those in need do not get enough aid or budget costs of the program become too large. But the prospects for regionally specific programs are dim. Federal programs to extend unemployment benefits illustrate this problem. The original intent of the Federal program was to channel benefits to States with the highest unemployment rates. Under the current Federal Supplemental Compensation program, all States get benefits regardless of their unemployment rate. Complicated clauses in the law reduce the decline in benefits when State unemployment rates fall.

The general history of regionally targeted programs is a steady expansion of eligibility rules until all States get some portion of the program. The prospects for a good Federal adjustment program may be limited by the same problems that would plague industrial policy initiatives in general—possibly deserving groups would be crowded out by their less deserving but politically powerful competitors.

IMPLICATIONS FOR U.S. POLICY

There is no evidence of a general deindustrialization of the U.S. economy. Over the long term, U.S. manufacturing has accounted for approximately 24 percent of real output. Although manufacturing's share of total employment has declined, the number of workers employed in manufacturing rose by nearly 5 million between 1950 and 1980, and productivity growth was higher than in the rest of the economy. Nevertheless, the combination of a recession at home and a strong dollar abroad caused manufacturing output and employment to suffer. However, manufacturing output is currently rising almost three times as fast as the rest of the economy.

This suggests that the most important contribution of Federal policy to the strength of American manufacturing would be monetary and fiscal policies that are consistent with long-term economic growth and a sustainable trade balance. Such policies would not resolve all the problems of the few industries in long-term trouble. But

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

they would probably resolve most of the concerns that have led to the calls for industrial policy.

JAPANESE INDUSTRIAL POLICY

Proponents of an industrial policy often use Japan as a model for the United States. First, Japan has enjoyed rapid economic growth since World War II. Second, many Japanese products compete successfully in export markets. Although Japan has had great economic success, it is not clear that industrial policy contributed on net to this success. Other features of the Japanese economy, such as the high saving rate and the transfer of labor from agriculture to industry, were undoubtedly more important. Net saving in Japan over the past three decades has been over one-fifth of Japan's net domestic product. By contrast, net saving in the United States has averaged less than one-tenth of net domestic product.

THE INSTRUMENTS OF JAPANESE INDUSTRIAL POLICY

The first step in formulating an industrial policy for an emerging or declining sector of the Japanese economy is gathering information and creating a consensus. To gather the information about potential growth industries and the best way of developing them, the Japanese government meets with outside experts and convenes councils of informed individuals from banks, trading firms, producing and consuming firms, universities, and trade unions as well as relevant government agencies.

The final product of the council process is either a general "vision" urging private firms to develop a sector, or a specific plan to produce certain goods by some future date. The detailed plans, however, are simply targets that the government officials and private experts believe are both possible and desirable to meet. Japan's economy is not centrally planned, nor is there much government ownership of manufacturing firms. Although the government may provide incentives to encourage the development of certain industries, it does not force individual firms to comply with its targets.

The incentives provided by the Japanese government have included tariffs or import quotas, special tax treatment, research subsidies, subsidized loans, antitrust immunity, and administrative guidance. During the early postwar period of reconstruction Japan had steep barriers against all imports. Japan began to relax these barriers over 20 years ago. Since the mid-1970s, Japan's tariffs on manufactured goods have been similar to those of the other major industrial nations, and today they are among the lowest of all major industrial nations, including the United States. However, Japanese tariffs are

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

markedly higher than average on some manufactured goods in which Japanese producers are relatively uncompetitive.

Significant nontariff barriers continue to protect parts of Japan's manufacturing sector. Standards and certification requirements impede imports of automobiles and many other consumer durables. Government procurement restrictions protect Japanese electronics and computer industries. These restrictions have recently been relaxed somewhat but they remain significant obstacles to trade.

Special tax treatment, subsidized loans, and loan guarantees have been used to stimulate emerging industries, and to ease the adjustment of declining sectors. Until recently, firms purchasing numerically controlled machine tools were eligible for depreciation schedules more generous than those available for other equipment. Today, computer software producers and investments in robotics receive special tax benefits. Subsidized loans and loan guarantees also have helped to develop the steel, computer, shipbuilding, and semiconductor industries, and have assisted firms in the aluminum and petrochemical industries in reducing capacity and employment.

The Japanese government has also encouraged the development of certain industries by providing subsidies for applied research. The work subsidized with tax dollars is usually only part of larger joint research projects financed mainly by private firms. Japanese firms have used joint research successfully in developing several important products, including the 64K RAM chip.

Finally, firms in industries with temporary or permanent declines in demand are sometimes allowed to form cartels to restrict output in order to raise or maintain prices. Cartels have been formed during cyclical downturns in some segments of the aluminum, paper, and steel industries, and have also been used to maintain prices and reduce capacity in declining industries, including synthetic fiber, ammonia, and urea. In these cases, the government has allowed firms to cooperate in restricting output in exchange for promises by firms to scrap excess capacity. Higher prices have often meant lower domestic consumption, reduced exports, and either increases in imports or increased trade barriers.

This list of industrial policy tools may understate the role of the Japanese government in the development of specific industries. Various government agencies review conditions in industries within their jurisdiction in consultations with outside experts. If they see problems or opportunities, these agencies look for solutions and then try to persuade the private sector to follow their advice. The advice may be accompanied by promises of loans, research subsidies, or other government aid. The total effect of the advice and the aid on private

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

investment decisions may be greater than the actual amounts of aid would suggest.

PRIVATE INVESTMENT AND GOVERNMENT SUBSIDIES

These industrial policy tools—import barriers, special tax treatment, research subsidies, subsidized loans, and antitrust immunity—may have been important in stimulating the growth of Japanese industries such as steel, shipbuilding, machine tools, and computers. However, government financial aid to many of these industries—including steel and computers—is only a small fraction of the investments made by the private sector.

Subsidized lending by the Japan Development Bank, for instance, averaged only 1.4 percent of total bank lending to the steel industry between 1961 and 1970, and only 3.8 percent between 1971 and 1980. Japan Development Bank loans to the electrical machinery sector, which includes computers and semiconducters, were only 0.6 and 0.8 percent of total bank lending to those industries during the same periods. Although they may have been instrumental in encouraging private banks to invest in favored sectors, government loans were not a large factor in the growth of these industries.

Furthermore, Japanese subsidies to encourage the development of certain manufacturing industries have been only a small fraction of total government subsidies to specific sectors. As seems to be the case for all developed countries, by far the largest subsidies and the highest trade barriers go to agriculture. Energy projects designed to decrease Japanese reliance on imported oil, subsidies to small businesses, and Japan's government rail system also claim a large share of subsidies. Subsidies to emerging manufacturing industries are small by comparison with subsidies to these other sectors.

The sectoral distribution of the Japan Development Bank lending program reflects these priorities. In 1981 about 37 percent of the total loans of $4.9 billion was earmarked for energy projects. The next largest shares went to urban and regional development, ocean shipping, and "quality of life" projects such as pollution control. About 9 percent or $441 million was allocated to the development of technology, which encompasses the computer, electronics, and semiconductor industries. For comparison, plant and equipment investment in Japan in 1981 was about $180 billion, and electronic computer production was $6.7 billion.

Total spending for research and development in Japan as a percent of GNP exceeds that of France, but is less than that of Germany and the United States. Furthermore, in contrast to these countries, the Japanese government accounts for a small share of Japan's total research and development expenditures, and provides less than 2 per-

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

cent of the funding for all research and development undertaken by the business sector.

Government research and development funds in the late 1970s have been estimated to account for 6.7 percent of total research and development in the computer and semiconductor industries, versus 18 percent in agriculture and 28 percent of transportation research and development. The Ministry of International Trade and Industry (MITI), Japan's most important industrial policy agency, controlled about 12 percent of public research and development funds in 1983, or about $708 million, and allocated about one-half of these funds to energy-related research and development. About $350 million went to manufacturing industries.

Finally, Japanese government spending goes primarily to social welfare, aid for local governments, and public works rather than to develop emerging industries. In spite of its unique industrial policy process, Japan allocates government support to many of the same sectors that are favored in other advanced market economies, including the United States.

HAS JAPANESE INDUSTRIAL POLICY BEEN A SUCCESS?

Japanese industrial policy has had both successes and failures. Some targeted industries, including semiconductor and machine tools, are almost certainly stronger than they would have been without government support and can be claimed as successes for Japanese industrial policy. Other industries, such as shipbuilding and steel, probably grew more quickly because of government aid, but undoubtedly would have developed without any government intervention. However, the Japanese government has also picked losers. Aluminum smelting and petrochemicals were favored industries 15 years ago, but the public and private investments have paid off very poorly and now their capacity is being reduced. There are also several examples of successful industries that did not receive government assistance, including motorcycles and consumer electronics. Nevertheless, these industries have dominated world trade in the products they produce.

The Japanese automobile industry also received protection from imports. But the auto industry followed a course very different from that suggested by MITI. In 1961 MITI tried to force the industry's many firms to merge into a few. In 1965 MITI exhorted the industry to develop a prototype "people's" model of its product so MITI could designate the winning firm as the single producer. In both cases, the industry rebuffed MITI. Moreover, although import protection helped the Japanese auto industry develop, protection given to other industries hurt the auto industry by raising the price of

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

inputs such as steel. Furthermore, the auto industry has not received special tax treatment or subsidized loans for over 20 years. Therefore the success of Japan's auto industry cannot be attributed to industrial policy.

Furthermore, Japanese industrial policy did not create additional investment. It simply directed the existing pool of savings from one industry to another. It is possible that the industries that lost funds as a result of government industrial policy would have been at least as successful as the industries that received the government's blessing.

In conclusion, Japanese industrial policies have undoubtedly influenced Japan's industrial structure. However, the government and its councils of experts have a mixed record of success. They have indeed picked some industries that turned out to be winners in part because of their efforts, but they also picked industries that ended up losers. They failed to pick some big winners and they also picked industries that would have become winners without any help. The net effect of these policies on economic growth is not clear.

EUROPEAN INDUSTRIAL POLICIES

European economies have grown rapidly since World War II, primarily because of high rates of saving and investment, increases in education, and migration from agriculture to other sectors. However, many European policies that aid specific industries have been costly failures. Large scale efforts by European governments to promote high-technology industries have rarely produced commercially successful products. And attempts to ease the adjustment of declining industries have generally produced little reduction in excess capacity despite enormous government subsidies.

EUROPEAN INDUSTRIAL POLICY TOOLS

The tools used to implement industrial policies differ considerably among European countries. In France, the country with the most elaborate industrial policy, state efforts to develop the economy can be traced at least as far back as the time of Louis XIV. Since World War II, a series of 5-year "indicative" plans has set comprehensive targets for the French economy, often with specific sectors selected for special support. Although these targets have been voluntary, they have been designed as a framework for French economic growth.

The government owns a large portion of France's manufacturing and financial sectors, and thus is able to allocate resources directly into targeted industries, projects, or companies. Most of the capital for several emerging industries, including civil aircraft and comput-

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

ers, has come from the government. France has also used research and development subsidies and government procurement to encourage high-technology industries. In addition, the French government owns, subsidizes, and protects certain declining industries, including steel. Other declining industries, such as textiles and shipbuilding, receive subsidies and trade protection but are privately owned.

Britain does not have comprehensive economic plans or government ownership of banks and insurance companies, but government equity involvement in heavy and high-technology industries is common. Steel, autos, and semiconductors have received state equity support. In addition, many declining industries have received trade protection, manpower training grants, and financial subsidies.

As members of the European Community (EC), all the major industrial countries of Europe have common external trade barriers, most notably in steel and textiles. But West Germany, with its relatively efficient steel industry, has been less energetic than France or Britain in lobbying for barriers to protect declining industries. The West German government has provided substantial subsidies for research and development, but its subsidies for declining industries are low by European standards. There is little public ownership of manufacturing firms, but an important share of West Germany's banking system is state owned.

LESSONS FROM EUROPE

In spite of massive aid to favored European industries such as aircraft, computers, and semiconductors, most of the firms in these industries are not commercially successful. The explanation for this record may stem from the competing goals that governments generally pursue.

The Concorde is probably the most famous product of European industrial policy. Built by a British-French joint venture and flown only by their national airlines, the Concorde had cost French taxpayers $4.4 billion by 1979. At no time have revenues covered the costs of operating the Concorde, much less the capital costs of the firms that built it. Work on the Concorde helped develop France's aerospace industry and may have achieved certain political and social objectives. But, these benefits aside, the Concorde project is a clear reminder of the costs of government encouragement of emerging industries.

The Airbus is another large scale project that has so far been a commercial failure. Produced by a firm owned mostly by a consortium of European governments, the Airbus has been a profitable investment for the airlines that bought it, but a costly burden for the sponsoring governments. The Airbus still requires production subsi-

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

dies despite the sale of about 350 planes. Bolstered by government guarantees, Airbus did not follow the usual commercial practice of collecting purchase agreements before beginning production. As a result, early production levels were too low to benefit from scale economies.

The French government also decided to develop an internationally competitive computer industry in the mid-1960s. Today, neither of France's two recently nationalized computer companies is profitable, in spite of over $1 billion in direct subsidies, support through government procurement programs, and research and development subsidies. Many analysts conclude that the French government pursued an unrealistic goal of self sufficiency and ignored its competitors' comparative advantage and market share. Business decisions were made by the government and did not always reflect commercial realities.

Britain's computer and semiconductor industries seem similarly unable to overcome the competitive advantage of foreign producers in the British market, despite aid programs that include equity financing, loan guarantees, and government procurement policies. Neither the government-owned semiconductor firm nor the computer firm most heavily supported by the government is profitable. Once again, the appeal of technological independence outweighed economic considerations.

Aid to declining industries also reflects the sometimes competing goals of government intervention. Efforts to ease the adjustment of declining industries apparently slow that adjustment process, at enormous cost to European taxpayers. It appears to be difficult for governments to encourage an industry to decline sufficiently after giving it subsidies. Government assistance to the steel, shipbuilding, and textile industries has been designed to protect employment while encouraging restructuring. Despite massive infusions of aid and trade protection over a long period, there is still much excess capacity in the steel and shipbuilding industries.

Since the establishment of the European Coal and Steel Community in 1951, steel has been the most closely regulated and protected industrial sector in Europe. After years of import protection, subsidies, and output controls designed to raise prices, many European steel producers continue to sustain large losses. Although steel employment in the United Kingdom fell by almost 60 percent between 1974 and 1982, and has also declined in other EC countries, substantial restructuring remains to be done.

Restructuring of the European textile industry has also not been generally successful according to most analysts. Even when progress has been made in reducing excess capacity and modernizing equip-

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

ment, trade barriers have remained in place. Indeed, from bilateral quotas on cotton in the early 1960s to the current form of the Multifiber Arrangement, protection from imports has increased in scope and intensity.

European governments may be learning from their failures. The current French policy in electronics seems to be more competitively oriented than earlier policies, and since 1981 the British government has cut subsidies to declining industries. However, the French commitment to early development of a new commercial airplane suggests a continued belief that government can outguess the market.

SHOULD THE UNITED STATES HAVE AN INDUSTRIAL POLICY?

The perception that the United States is deindustrializing has spurred interest in industrial policy in this country. But we are not deindustrializing. Moreover, Japan's record with industrial policy is mixed, and industrial policy in Europe has generally failed. Industry-specific measures are not well suited to deal with the special problems of some U.S. industries and workers. Unemployment problems in declining industries are best solved with programs that focus aid on individuals rather than on entire industries. Allocating resources to different industries is best done by the market. Profit opportunities and wage differentials give investors and workers powerful incentives to seek out industries where their capital and labor are most valued and most productive.

Nevertheless, some people argue that industrial policy could promote growth and smooth adjustment. Many claim that government now fails to take account of the effects on industries of its various policies, and that better coordination within the government would improve the situation. Others claim that investors are reluctant to finance emerging industries because the time horizons of private investors are too short. These advocates therefore propose government aid to help emerging industries. Still others argue that government aid is needed for industries with learning curves, high value-added industries, linkage industries, and industries that compete with products subsidized by foreign governments. Finally, some industrial policy advocates argue that special aid should be given to declining industries to help them adjust.

COORDINATING AGENCIES AND TRIPARTITE COUNCILS

Industrial policy advocates argue that current Federal Government programs often conflict with each other. Creating a new agency and establishing tripartite councils of business, labor, and government,

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

they say, would bring these conflicts to the attention of government officials who would then make more judicious tradeoffs among competing goals.

Different government programs sometimes do have conflicting effects on an industry. Unintended consequences are inevitable in a complex economy where each policy affects a large number of sectors. More important, many policies have conflicting effects because governments have competing goals. Reducing air pollution, for example, raises the cost of producing steel and conflicts with the goal of a more competitive steel industry.

There is little reason to believe that introducing another agency would improve coordination. Government agencies and forums already exist to coordinate policies, and many government departments already have advisory committees to provide information on private sector views. Additional tripartite councils and a new agency would not necessarily be able to obtain better information than what is already available.

Tripartite councils are proposed to promote a consensus on policy decisions. This would strengthen the current tendency of government policy to take inadequate account of the interests of consumers and taxpayers, who have very weak incentives to organize on any particular issue. Business and labor groups are already heavily represented in Washington. An additional agency with stronger representation of business and labor interests would make the policy debate even more one-sided.

GOVERNMENT DEVELOPMENT BANK

Many industrial policy proponents propose a government development bank to augment private investment in certain industries. Some proposals include other types of aid, such as research and development subsidies to specific industries. These proponents claim that government support is necessary because the market does not invest enough in several types of industries—emerging industries, industries with learning curves, high value-added industries, basic or "linkage" industries, and industries that have been targeted by foreign governments. To supplement private capital, the proposed bank would lend additional money to industries in these categories.

Emerging Industries

Government investment in emerging industries is said to be desirable because private investors are too risk averse or have time horizons that are too short. Therefore they invest too little in risky ventures with long-delayed payoffs.

Investors may appear shortsighted or risk averse when they cannot capture all the returns from their investments. For example, patent

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

and copyright protection for computer software and integrated circuits is probably inadequate and may have deterred investors from taking risks and investing their time and money in these areas. More generally, research and development gains are often spread among many firms, not just the firm that incurs the costs.

The solution to these problems is not government investment in specific firms, but policy changes that improve incentives for all firms to invest in research and development. The Administration supports the provision of copyright-like protection for integrated circuit designs, and in 1981 supported enactment of a temporary tax credit for research and development expenditures.

The proposal to target emerging industries suggests that government can obtain better information than the private sector. It is difficult to understand how government officials, together with private business and labor leaders, will be able to gather more accurate information and use the information more wisely than the private sector. The United States has numerous investors willing to finance new ventures through equity or bank loans. Private investment analysts spend a great deal of time and effort evaluating new technologies and advising private investors on the most promising firms. Information on emerging industries is also exchanged by job shifting among scientists and engineers who are close to the development of new technologies. Ties between industry and the academic community also contribute to the spread of new ideas. In the United States the private sector already has information at least as good as the proposed government councils and banks could expect to gather.

In any event, a government agency is more likely to be shortsighted and risk averse than private investors. Since politicians face frequent elections, they often have very short time horizons. A government agency is also more likely to make decisions based on the shared expectations that are the conventional wisdom of the time; these processes tend to neglect or reject the idiosyncratic information that is the basis for decisions by the most successful private entrepreneurs.

Finally, government officials will often make investments based on politics rather than economics. One country tries to develop a computer industry before it has sufficient technical workers. Other countries invest in highly visible but wasteful energy projects that private firms think are likely to fail.

Learning Curves

In some high-technology industries, production costs drop significantly as firms gain experience. Some proponents of industrial policy say that the government should subsidize these industries or protect them from foreign competition to allow them to move down a

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

"learning curve." This would presumably speed up the drop in costs and increase their ability to compete in international markets.

Learning curves may exist for individual firms, for entire industries within a country, or for an industry in the world as a whole. If the learning curve is at the level of the firm, the U.S. market is likely to be far larger than the cumulative production required to advance an individual firm along its learning curve. Moreover, choosing a single firm to subsidize and protect in the beginning stages of a new technological development would be very risky. In every new industry there are false starts. Having government and private experts determine the best approach to a technical problem early in the process will generally produce a worse result than letting different firms compete to see whose idea is best.

If the learning curve is for the entire world, then the optimal strategy may be to let other countries go first and enter the industry only after initial research and development costs have been borne by foreigners. The Japanese have profited enormously by adopting U.S. technology.

While there may be special cases in which learning curves justify import protection, identifying them in practice would be very difficult. Because of this difficulty, many firms and industries would incorrectly claim that their learning curves justify import protection or subsidies. A similar problem arises in the Federal procurement process. Firms sometimes claim to have steep learning curves in order to justify becoming the only supplier to the government. Often, actual learning curves are flatter than predicted.

In short, knowing that a theoretical case exists may be of little practical importance. The end result of protecting or subsidizing a high-technology industry could be a domestic industry unable to compete in international markets. The trade protection granted to such industries could force U.S. buyers to pay higher prices and erode their competitive position in other markets.

Industries With High Value Added

Some proponents of industrial policy advocate redirecting investment to industries with high value added per worker. Value added is the revenue earned above that needed to purchase inputs from other industries. Value added is therefore the return to labor, capital, and know-how.

Total value added or, equivalently, real income in the economy is raised when a dollar of investment is moved from a use where its productivity is low to a use where productivity is higher. There is no reason, however, to believe that a dollar of investment in an industry with high value added per worker will be more productive than a dollar of investment in a low value added industry. What matters is

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

not the average productivity of labor or capital in that industry but the return on one more unit of capital. When markets work properly, investment is distributed among industries until the rate of return on additional investment is the same in all industries. In this situation, shifting investment from one industry to another will not raise total real income or value added.

The same is true of reallocating labor among industries. Although the average productivity and value added per worker differ among industries, a well-functioning labor market assures that employees will end up in industries where their contribution to output is highest. If this were not so, the employee would have an incentive to shift jobs in pursuit of a position with a higher wage.

The best way to promote high value-added industries is to expand the total capital stock of the economy. Investors will naturally seek to put that capital to its most productive use. If our tax laws distort the relative payoffs from investing in different uses, then it is the tax laws that need to be changed. Incentives to save and invest, such as Individual Retirement Accounts and accelerated cost recovery, are more likely to expand and modernize the Nation's capital stock, and thereby promote economic growth, than a government bank that merely reallocates a fixed amount of savings from one industry to another.

Linkage Industries

Some industrial policy proponents advocate government aid to "linkage" industries, that is, manufacturing industries whose output is a vital input into other industries' products. Steel and semiconductors are often cited as examples of "linkage" industries. However, if such an industry is vital, then the industries that rely on it will demand its output. The profit motive will ensure that this demand will be filled. If the demand can be met more cheaply by producers abroad, then it makes good economic sense for the firms that use the input to buy it abroad. The more uses the input has, the more important it is for the U.S. economy that the companies obtain this vital input at the lowest possible cost. Otherwise, the competitive position of the U.S. companies that use the input would be threatened.

Proponents of aid to linkage industries may have another idea in mind. They might be saying that producers of a particular good need to have producers of inputs nearby so that they can coordinate their plans. There do appear to be examples of industries that grew because they were near producers of vital inputs and therefore able to coordinate plans. Some observers have attributed part of the success of the U.S. personal computer industry to its location in the Silicon Valley, near the semiconductor industry. But if the advantages of locating nearby outweigh the disadvantages, companies will do so. Just as steel plants located close to coal mines earlier in this century, so

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

computer producers have located near semiconductor firms in the Silicon Valley. No government direction is needed.

Industries Targeted by Foreign Governments

Some industrial policy proponents also argue that the United States should subsidize industries targeted by foreign governments. If we do not, they claim, our industrial structure will be determined by other countries. A foreign subsidy that reduces the price of U.S. products clearly distorts the market, but a policy of countersubsidy by the United States would further depress prices and the return on capital. A general policy of countersubsidy would lead to increasing misallocation of capital and labor and lower economic growth.

Our present trade laws authorize countervailing duties on subsidized foreign products sold in the United States. In addition, selective subsidy of export financing may deter foreign export subsidies. The Export-Import Bank of the United States provides loans, loan guarantees, and export credit insurance for U.S. exports to counter foreign export subsidies. The Administration has been successful in the past 2 years in sharply reducing the export credit subsidies of other countries.

Some observers think that certain foreign industrial policies are responses to what they perceive as a U.S. industrial policy. They point to the stimulus provided by defense spending to our computer, aircraft, and nuclear reactor industries, and observe that our space program has made the United States the world leader in commercial telecommunications satellites. It is certainly true that the billions of dollars spent by the United States since World War II to develop new weapons and explore space have given a fortunate boost to some high-technology industries. However, the primary purpose of this spending has been to protect the United States and its allies and to pursue space science. If the main reason for this spending had been to develop commercial computer, civil aircraft, or satellite industries, our defense and space programs would certainly not have been the least expensive way of doing so.

AID FOR DECLINING INDUSTRIES

Most industrial policy proponents recommend government action to slow or reverse declines in "basic" industries. In addition to loans and special tax treatment, many proposals include government-sponsored restructuring plans that would spread adjustment burdens among labor, management, shareholders, suppliers, and creditors. In declining industries that face competition from imports, industry commitments to restructure would be extracted in exchange for trade protection, while expanded compensation and retraining programs would be used to help workers whose jobs are lost.

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

A basic problem with such proposals is that they would divert resources from emerging industries and from healthy established firms. Workers, stockholders, and suppliers in declining industries would exert political pressure to gain government aid. Experience here and abroad strongly suggests that resisting the pressure from declining industries would be difficult.

Aid to Firms

Proponents of aid to declining industries often cite Chrysler as an example of a company that has survived because of a government loan guarantee tied to a restructuring plan. But the Chrysler case should not be used as a model for several reasons. First, Chrysler might have survived even if it had gone bankrupt. The concessions extracted from workers, suppliers, and creditors in return for the loan guarantee might well have been made as part of an ordinary bankruptcy proceeding. Second, even if government aid were required to keep Chrysler in business, the auto industry and the economy as a whole may have derived little benefit from the guarantee. Many of the autos produced and jobs saved at Chrysler were at the expense of other U.S. automakers and their employees. Similarly, the loans that went to Chrysler would have gone to other sectors, possibly including emerging industries.

Third, loan guarantees to Chrysler may have been successful because such guarantees to failing companies are now the exception, not the rule. If loan guarantees became standard practice in such situations, workers, management, creditors, and suppliers might be less willing to make sacrifices. They might come to expect government aid whatever they did. Establishing a loan guarantee program would certainly encourage many other firms to apply for aid, and could lead to even more costly Federal commitments to firms that did not pull through after the first round of aid. This has been the common European experience, and it could well happen here.

Import Protection and Restructuring

Some observers suggest that trade protection be granted to industries hurt by imports in exchange for commitments to restructure and adjust. Without such commitments, trade protection reduces the pressure on firms and workers to make painful changes. Under existing trade law, import protection is granted with no guarantees that the workers and firms who benefit from the import protection will make the necessary investments or take other measures to become more competitive. The result is higher prices for consumers, often with little long-term improvement in the industry. The protected industry seldom becomes competitive and usually continues to pressure government for more protection.

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

Strictly enforced agreements, it is argued, could encourage workers and firms to use the financial benefits of temporary protection either to become more competitive or to scale down production. The current practice of granting import protection often has the opposite effect. It forces consumers to pay higher prices without requiring the industry to undergo difficult adjustments.

The main objection to this proposal is that once the presumption of aid is established, it is difficult to extract concessions from an industry. How often will government officials in this country be able to tell workers that they must accept lower pay, suppliers that they must cut their prices, and banks that they must write off loans in order to obtain import protection? Political pressure as well as economic considerations would undoubtedly influence the process.

In addition, an agreement to grant trade restraint in exchange for restructuring by an entire industry would be more difficult to enforce than a loan agreement with one firm. Should the government expect efficient firms as well as inefficient firms to make the same sacrifice? How would conflict between different segments of an industry be resolved? How would the agreement be enforced if some firms complied and others did not?

Aid to Workers

Industrial policy proponents who want to aid declining industries are motivated in part by concern for the workers in these industries. They often argue that manufacturing provides "good" jobs that cannot be replaced by jobs in other sectors of the economy. In fact, basic manufacturing jobs are no more important for the economy as a whole than jobs in, say, the service sector. The real difference between manufacturing jobs and service sector jobs is that the former often pay more than the latter because of differences in worker skills, or in some cases, because of the monopoly power of the manufacturing firm or of its union.

CONCLUSION

Many people advocate industrial policy as a way of stemming the alleged long-term decline in the U.S. manufacturing sector. But there has been no such long-term decline. Manufacturing's share of national output in 1980 was virtually the same as its share in 1950. Moreover, since 1973 the U.S. manufacturing sector has grown more rapidly than the manufacturing sectors of many of the major European industrial nations. And while our growth of manufacturing since 1973 has been less than Japan's, the difference in the U.S. and Japanese growth rates is less than half of what it was between 1960 and 1973.

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

While there was a short-run decline in U.S. manufacturing due to the recent recession, this was to be expected. Manufacturing is cyclically very sensitive, and our experience in the most recent recession was similar to our experience in earlier postwar recessions. Since the recovery began in the last quarter of 1982, manufacturing output has increased at almost three times the rate of total output. The answer to the short-run problems of most of our manufacturing industries is economic recovery.

A few industries, however, may be in long-term decline, in part because they face foreign competition. The problems of these industries stem partly from past mistakes by management, partly from wage increases that exceeded productivity gains, and partly from factors outside the industries' control. If these industries do not continue to make significant adjustments, either they will suffer additional declines in output and employment, or they will require permanent trade protection or subsidies at substantial cost to American consumers and taxpayers.

Using industrial policy to solve the problems of these few industries would be mistaken for two main reasons. First, industrial policy, in the form of either subsidies or trade protection in return for industry restructuring, would slow adjustment. Once the government helped these industries, it would find it very difficult to cut off or even phase out the aid, as various European governments' experiences with declining industries have shown.

Second, if the goal of industrial policy is to help the long-term unemployed, then helping declining industries is not an effective way of doing so. In healthy local economies, unemployed workers from declining industries find jobs as quickly as unemployed workers from other industries. Depressed local economies, not declining industries, are the real problem. The solution to the problem of the unemployed from declining industries is to enable them to find new jobs and to focus aid on those workers who are hurt by industrial change, as the Job Training and Partnership Act of 1982 is intended to do.

While some people advocate industrial policy to stem the alleged decline in U.S. manufacturing, others see it as a way of nurturing emerging industries, or industrial "winners." Some of these advocates argue that entrepreneurs in the United States have too much difficulty getting "patient" capital, that is, capital whose owners or lenders are willing to invest in a risky idea and to wait a few years for their returns. These advocates therefore want the government to give subsidies or subsidized loans to entrepreneurs with new ideas.

But to the extent the United States underinvests in new ideas, it is because the investors cannot capture the returns from such investments. The straightforward solution to this problem, if it is general,

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis

is to increase tax incentives to research and development, as this Administration did with the 1981 Economic Recovery Tax Act. If the problem is specific to a few industries, the solution is to strengthen patent and copyright protection.

Moreover, even if there were too little "patient" capital, there is no reason to think that government finance would improve the allocation of capital. Government officials simply do not have the right incentives to make wise choices about which industries or companies to invest in. Governments often invest in projects with high political value but little economic value, or in safe projects favored by the conventional wisdom of the time. Neither way of choosing is likely to pick the potentially winning industries that lack capital and both kinds of investments siphon off capital that could have gone to the real winners.

To foster more rapid economic growth, the primary focus of government policy should be to strengthen the natural forces of the private economy by reducing the burdens and disincentives imposed by existing government laws. The most important goal of these changes should be to increase the rate of capital formation. A higher rate of capital formation fosters growth directly and permits a more rapid introduction of new technologies. The lower cost of capital and the faster technological advance also enhance the competitiveness of American industrial products in world markets.

To increase the rate of capital formation, the tax laws were reformed in 1981 in ways that reduced the burden of taxation on personal saving and on business investment in plant and equipment. The sharp decline in the rate of inflation since 1980 has also raised real after-tax rates of return and thereby increased the incentives to save and invest. As we look to the future, it is important to raise the Nation's rate of saving by reducing the government budget deficits. We must also seek new ways to revise the tax laws in order to reduce the disincentives that still restrict the rate of capital formation.

Our market economy and its system of rewards for superior performance have made the American economy the most productive and innovative in the world. An industrial policy that increases government planning, government subsidies and international protectionism would only be a burden on our economic life and a threat to our long-term economic prosperity.

Digitized for FRASER
http://fraser.stlouisfed.org/
Federal Reserve Bank of St. Louis