The Myth of De-industrialization

William H. Branson

DISCUSSION OF INDUSTRIAL POLICY is heard everywhere in Washington today, as political campaigners gear up for 1984. De-industrialization theorists present an image of an American economy so muscle-bound that it cannot cope with instability and structural change in the world economy and is inevitably losing its presence in basic industries. For some unknown reason, McDonald's ubiquitous hamburgers are a favorite illustration of the problem. A May issue of *Time* magazine, for example, quotes the chairman of Firestone Tire and Rubber as saying, "It is utter nonsense that we are going to become a high-tech and service economy. The high-tech companies have more manufacturing offshore than here. The idea that we can have an economy by selling hamburgers to each other is absurd." Hamburgers aside, the comment reflects the widely felt fear that basic industries will "disappear" due to foreign competition, leaving the United States with no manufacturing capacity or jobs. To survive, it is argued, the economy needs an industrial policy, as well as some sort of protection against outside shocks.

The data on the changes in the composition of U.S. trade since World War II, however, tell just the opposite story. They show a flexible economy that is moving labor and capital resources into sectors where the U.S. performs best in a world of increasing economic integration and competitive pressure.

This flexibility has costs, which are emphasized by the de-industrialization theorists. Plants close or move, labor requires retraining, equipment becomes obsolete, towns and cities shrink or grow. The declining industries lobby Congress for protection and try to convince the public that the United States is losing out in international trade. But the movement of resources away from declining, low-productivity industries is a movement toward high-productivity areas of expansion. The flexibility of our economy permits, even encourages, adjustment to the changing world economy and the changing U.S. position in it. Rather than an industrial policy aimed at supporting declining industries or subsidizing already profitable ones, we need an adjustment policy that minimizes the costs of flexibility.

Since World War II, U.S. trade has gone through two major adjustment periods. First came the erosion in our temporary post-war position of being net exporters of nearly everything. As the economies of Europe, Japan, and the newly industrializing countries gained strength, U.S. trade moved back to its pre-war pattern. The second adjustment followed the oil price increases of 1973–74—which raised our net oil import bill by $65 billion between 1973 and 1981. The changes that enabled us to pay that bill were dramatic. Our trade surplus in capital goods alone, for example, rose by $32 billion.

The economic strength that those adjust-

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ments reflect is based on a productive agricultural sector and on an educated and flexible labor force. Growth in manufacturing exports comes in sectors that use intensively the skills embodied in the labor force, while imports squeeze industries that are older, more capital-intensive, and based on routine operations. As industries such as autos, textiles, and steel became internationalized during the seventies, the U.S. retained its comparative advantage in the high-skill, high-technology ends of those industries, and lost only the lower-skill manufactures to the developing countries.

Since 1981, high real interest rates and an overvalued dollar have temporarily (it is to be hoped) halted this successful process of structural adjustment in the U.S. economy. They have produced a doubly depressing effect on the industries that manufacture durable, tradeable goods: autos, steel, equipment. This, in turn, has added to pressures for industrial policy or for protection—because a *macroeconomic* problem is misdiagnosed as a trade problem. The basic problem in these industries since 1981 has been caused by fiscal and monetary policy, and will not be rectified by trade or adjustment policies.

A Pocket History of U.S. Postwar Trade

During the years just after World War II, the United States was a net exporter of all kinds of manufactures that it would normally import. This artificial situation could not last. The adjustment back to a "normal" competitive position, which was largely completed in the 1960s, is summarized in Table 1.

The broad outlines of the "normal" position can be seen as early as 1930. The United States was a major net exporter of fuel, capital goods, and autos—the latter two being the high-technology industries of the time—and an importer of consumer goods and industrial inputs other than fuel and chemicals. Trade in agricultural goods was roughly balanced, and the chemical and arms industries were just developing. This pattern held even after the full force of the Great Depression hit the U.S. economy in the 1930s, with two exceptions. The midwestern drought and depopulation led to large imports and trade deficits in agriculture from 1935 to 1939, and the growing chemical industry was providing a rapidly increasing surplus. These trends are reflected in the 1937 trade figures. The high-skill, high-technology basis for our comparative advantage in trade was well established before World War II.

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The 1947 data in Table 1 show clearly the effect of World War II. The United States had substantial surpluses in all categories that year, including nearly $1 billion in each of its traditional import fields of consumer goods and other industrial materials. And the overall trade surplus reached a post-war peak of $9.5 billion, compared with $0.3 billion in 1937. In those years, we were, indeed, a supplier of all goods to the world. This sudden expansion in world demand for American manufactures

Table 1
TRENDS IN THE U.S. TRADE BALANCE, 1930–81
(millions of dollars)

Year	Agricultural Goods	Industrial Supplies and Materials			Capital Goods	Consumer Goods	Automotive Products	Military Goods	Total[a]
		Fuels and lubricants	Chemicals	Other					
1930	15	433	3	—271	518	—92	282	7	782
1937	—459	395	22	—184	486	—38	353	22	265
1947	1,604	1,013	553	890	3,144	958	1,147	174	9,530
1960	857	—739	1,128	—1,226	4,949	—505	633	804	5,528
1970	558	—1,384	2,216	—3,163	10,557	—4,834	—2,242	1,230	3,303
1973	8,023	—6,369	3,137	—5,854	13,928	—8,481	—4,543	1,385	1,863
1981	24,308	—71,333	11,995	—13,325	45,680	—22,864	—11,750	3,608	—27,566

[a]Total figures reflect two categories that are not included in the table and that showed a surplus of $6.2 billion in 1981.
Source: Department of Commerce, *Highlights of U.S. Export and Import Trade*, FT-990.

gave birth to plants and industries that could not possibly survive when international competition was reestablished. It was the pressure on these noncompetitive industries during the 1950s that helped create the post-war impression that the United States was losing out in trade. Actually, our trade was just moving back to its pre-war basis of comparative advantage.

Comparison of the data for 1930, 1937, and 1960 is convincing on this point. In all categories except agriculture, the *pattern* of surpluses and deficits was the same in 1960 as in 1930 and 1937—although the surpluses and deficits were generally larger, reflecting the overall expansion of world trade. We had also become a major exporter of farm products.

During the decade of the 1960s, the dollar was increasingly overvalued, and that led to a shrinkage in the United States's shares of world manufacturing exports and in its overall trade surplus, from $5.5 billion in 1960 to $3.3 billion in 1970. This was also partly due to the overheating of the economy during the expansion phase of the Vietnam War, 1965–68. As much of the automobile industry lost its high-technology character and production became routinized, activity moved abroad to low-wage areas—shifting U.S. trade in autos from a surplus to a deficit of $2.2 billion. In addition, as the growth in fuel demand outpaced supply and major sources were developed in the Arab world, our small fuel deficit grew to $1.4 billion. But the biggest change in trade during the decade came in capital equipment, where the surplus increased by $5.5 billion. By 1970, even with an overvalued dollar and deficits in fuel and autos, net exports in capital goods, chemicals, and military equipment were big enough to provide a trade surplus of $3.3 billion.

The pattern of trade in 1973 was much the same as in 1970. The main differences are in agriculture, where major strength was developing, and in fuel, where the deficit increased by $5 billion in response to the first signs of the collapse in the oil companies' power and the rise in OPEC's. The real devaluation of the dollar had stabilized the U.S. share of world manufactures exports.

The year 1973 marked the end of the U.S. post-war adjustment. Trade was roughly balanced. We had large and growing export surpluses in our areas of comparative advantage—agriculture, capital and military equipment, chemicals—along with corresponding deficits in lower-technology areas such as consumer goods, autos, industrial supplies, and in fuel. Growth in these deficits and surpluses signaled a continuing transfer of capital and labor resources from declining low-productivity to expanding high-productivity industries. The United States was set for a resurgence of expansion after the Vietnam debacle and the devaluations of 1971–73.

Then came the oil price shock of 1974, which set off a series of oil price increases that hiked U.S. net imports of fuel from $6.4 billion in 1973 to $71 billion in 1981. Yet, over that period, our total trade deficit increased by only $29 billion. This means that enough resources were transferred from production for domestic use to production for export to produce an additional $36 billion in net exports. The growth in U.S. exports is the real economic news of the 1970s.

Which sectors were expanding net exports to pay for the additional fuel bill, and pulling resources away from domestic consumption? The answers are summarized in Table 2. Agriculture, capital goods, and chemicals led the way. Between 1973 and 1981, these three areas of U.S. comparative advantage *increased* their net export surplus by $57 billion! The deficit sectors also showed significant increases. These increasing import deficits release resources from low-productivity sectors, freeing them to move to a higher-productivity employment.

The adjustment of the 1970s, then, had two aspects. First, there was a massive increase in exports in agriculture and relatively high-technology capital goods and chemicals, helping to pay for the rising oil bill imposed by the oil price increases. Second, there was a con-

Table 2
CHANGES IN U.S. TRADE BALANCES, 1973–81
(billions of dollars)

Surplus categories	
Agricultural goods	16.3
Capital goods	31.8
Chemicals	8.8
Military equipment	2.2
Other	5.6
Deficit categories	
Other industrial supplies	−7.5
Consumer goods	−14.4
Automotive products	−7.2
Fuel	−65.0
Net change	−29.4

tinuation of the 1960s trend toward specialization along lines of comparative advantage, with rising surpluses in areas of relative strength and increasing deficits in areas characterized by lower technology, low-skill requirements, and routinized operations. In short, the record shows that the U.S. economy is not a noncompetitive producer in manufactures, but rather has undergone a structural adjustment toward areas of comparative advantage. This adjustment process must be nurtured and eased by policy, not stifled by protection of low-productivity jobs.

Sources of U.S. Comparative Advantage

Any voluntary trade, whether between nations or persons, is based in some way on *relative*, or *comparative* advantage. This is so obvious at the personal level that we usually do not even notice it. In all but the most backward economies, individuals specialize in their work on what they do best and then exchange their incomes for a whole range of goods that others produce. Our sales of labor services are our exports, and our purchases of consumer goods are our imports. This specialization along lines of comparative advantage depends on kinds and amounts of education and training, personal factors like strength, speed, manual skills, our preferences for kinds of work, and luck. The point is that there is a basis for the specialization and we all gain from trade. We would all be worse off if we could not specialize in production and trade the results.

In *international* trade, countries also specialize in production, and then trade for the broad range of consumer and investment goods their economies require. The basis for comparative advantage is obvious in the case of some countries, especially those with heavy endowments of natural resources. The comparative advantages of Kuwait in oil, South Africa in diamonds, Chile in copper, and Brazil in coffee are pretty easy to understand. Less clear is the source of comparative advantage between the industrialized countries of Europe, Japan, North America, and the newly industrializing countries.

The very stable *pattern* of trade that the United States has had since the late 1960s is based on our relative advantage in land and highly trained and skilled labor. In agriculture, the two combine in an extremely productive and low-cost sector that produces an export surplus of some $25 billion a year, even in the face of highly protected agriculture in Europe and Japan. In manufacturing, the U.S. comparative advantage in a skilled, educated, and mobile labor force permits U.S. industry to concentrate on production that requires high-skill inputs and uses the latest technology. These products tend to be new and to be produced in nonroutine ways that require thought and initiative in the workplace. These are the capital goods and military equipment industries, chemicals, and the innovative and high-technology end of basic industries.

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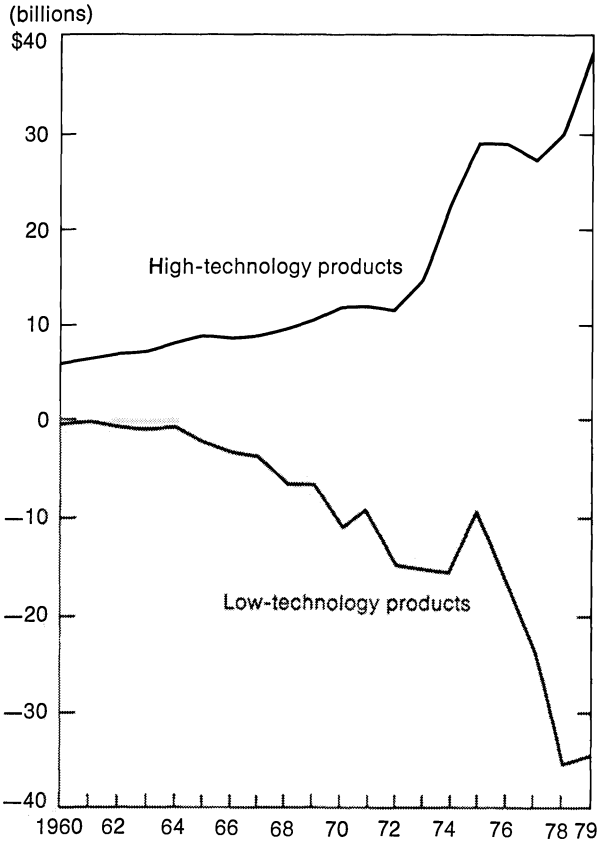
Economists combine all kinds of marketable skills that are embodied in the work force in the concept of "human capital." This is the capital accumulated through years of education, on-the-job training, and experience, and embodied in the individual worker. The difference between the unskilled worker's wage of around $5 an hour and the aircraft mechanic's wage of over $20 is the return on the latter's investment in human capital.

U.S. industry increasingly concentrates on goods that intensively use human capital in production. This pulls resources—labor and "ordinary" capital—from goods that use unskilled labor more intensively in production, and the production of these goods moves to countries with a comparative surplus of literate and disciplined but unskilled labor. The unskilled labor-intensive operations tend to be repetitive, disciplined processes and production lines. They produce the U.S. imports.

The correlation of human-capital intensity in U.S. exports and unskilled labor in imports is conventional wisdom among researchers on U.S. trade. In my study with Nicholas Monoyios, human capital consistently had the highest positive correlation with net exports, and

Figure 1

U.S. TRADE BALANCE IN HIGH-TECHNOLOGY AND LOW-TECHNOLOGY PRODUCTS, 1960-79



Source: National Science Foundation, *Science Indicators—1980.*

unskilled labor the highest negative correlation (*Journal of International Economics,* 1977). Keith Maskus and Robert Stern studied data for each year from 1958 to 1976 and obtained the same results (*Journal of International Economics,* 1981). Clearly the United States should look after its trade advantage in a skilled and mobile labor force.

A trade advantage in skilled labor also shows up in the use of frontier industrial technology in our export industries. The way an industry best uses skilled labor is in producing new and developing goods or using new and evolving processes. This is the basis of the concept of the "product cycle" pioneered by Raymond Vernon. High-technology countries innovate and produce high-technology products, gradually developing export markets. When the products become standardized and production routinized, manufacture shifts to areas with lower-skilled workers and lower wages; and the products become imports for the high-technology countries, whose industries move on to new frontiers. This is the story of trade in basic U.S. industries, as told below.

The very strong correlation of U.S. exports and high technology, as well as of U.S. imports and low or routine technology, is shown in Figure 1. (High-technology industries are defined as those having high R&D expenditures relative to total sales and a high proportion of skilled labor in their work force; the low-technology industries have low R&D expenditures and a low proportion of skilled workers.) The difference in trade patterns is striking. U.S. low-technology products show a deficit that has been growing exponentially since the early

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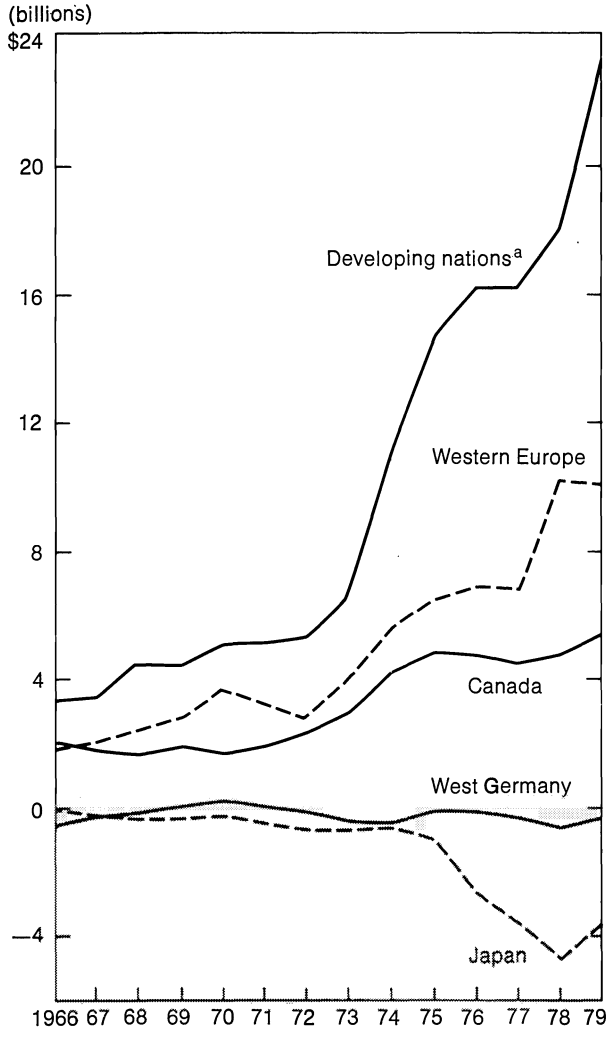
1960s, reaching about $35 billion in 1980. Over the same period, the U.S. high-technology *export* surplus grew first steadily and then explosively, climbing from $12 billion to $40 billion in the last seven years. Again the economy's adjustment to the oil price shock is apparent. U.S. exports of high-technology goods, which tend to be capital goods and chemicals, increased rapidly as the economy moved resources into these sectors.

Most of that increase after 1973, as Figure 2 shows, was in exports to the developing countries. The U.S. high-technology surplus with these countries increased from $6 billion in 1973 to $25 billion by 1980. Our high-tech trade with Western Europe as a whole also showed a surplus that was growing but not nearly so fast. (This slowly increasing U.S. surplus, at least until 1980, reflects the tendency for industry in Western Europe to fall behind in high-technology manufacturing.) In contrast, our high-tech trade with Germany has remained roughly balanced, while that with Japan has shown an increasing deficit since the mid-1970s.

The data of Figure 2 signal two points. First, the developing countries are an increasingly important market for U.S. manufactured exports, probably because our advantage in the goods that are produced with skilled labor is greatest *relative* to these countries. Second,

Figure 2

U.S. TRADE BALANCES IN HIGH-TECHNOLOGY PRODUCTS



[a] Includes the Republic of South Africa in 1966 and 1967.
Source: National Science Foundation, *Science Indicators—1980.*

Japan is our major competitor. The picture is one of our competing with Japan for developing country markets in the years to come.

Will Basic Low-Technology Industry "Disappear"?

The increasing trade deficits in the low-technology sectors mean a loss of jobs in these sectors. But the fear that whole industries will disappear stems from the misconception that these large basic industries—autos, steel, and textiles—are big homogeneous backward sectors. The truth is that they are made up of many subsectors. Some of the sectors are very high-technology and skill-intensive, and in these the United States will become more competitive and will even expand its share. Other subsectors produce standard products using standard methods and a lower level of skills, and here we will become less competitive over time. These are the shrinking subsectors of the basic industries. The U.S. steel and textile industries will not "disappear." Rather they will concentrate on the advanced end of the industry, allowing the routine and lower-skill end to move abroad.

A few details will show how this process works. The iron and steel industry trade data can be broken down into three subsectors—basic materials for iron and steel, iron and steel products *except* advanced manufactures, and finished metal shapes *and* advanced manufactures. Basic materials have high transportation costs and therefore, as would be expected, show a small trade balance. Standard products, whose production is routinized and capital-intensive, show a growing deficit as manufacturing has moved abroad. Finished products, especially advanced manufactures, have remained competitive and have turned in a small surplus since the early 1970s. Far from vanishing, the American steel industry is being transformed through trade into a relatively high-technology industry!

The same is true in textiles. This industry's trade data can be broken into two subsectors. At the low-technology, low-skill end are consumer textiles, the imported clothes and fabrics that are familiar to us all. At the high-technology end are "industrial textiles," synthetic fibers that are used as industrial inputs and that are frequently produced with highly automated, computer-controlled processing equipment. The new technology began to take hold around 1970, stimulating a wave of investment and creating for the United States a comparative advantage in this end of the industry. Since 1974 we have run a surplus in industrial textiles. Here again, trade is transforming an industry's base from low skills and routine operations to high skills and technology.

A final example is provided by the auto industry, whose death has been proclaimed by so many of its own executives and union leaders. In fact, however, the auto industry has become a world industry, with worldwide ra-

(*Continues on page 53*)

the largest item of expenditure, it ordered cuts in staffing levels. Universities have tended to make the cuts not by weeding out "deadwood," Ferns says, but by ceasing to recruit new professors and by promoting early retirement. During the 1981–82 year 1,600 academics retired early at a cost of £35,000,000 in compensation.

In concert with the Association of University Teachers, the grants committee prescribed a schedule of uniform staff salaries following a rigid "wage for age" rule, which Ferns says is making it impossible to afford any but very young professors. The committee also ruled that foreign students should pay "full cost" fees, but the universities are circumventing the rule—wisely so, in Ferns's opinion, since marginal cost is lower than "full cost" and since universities need price flexibility if they are to remain competitive. The government also sets staff-to-student ratios, student fees, and even the size of rooms for lecturers in London. "It is becoming increasingly difficult to distinguish one university from another."

Ferns argues that universities will not win political independence through deregulation until they accept financial independence as well. At present, he says, a few of the universities hardest hit by budget cuts are showing some initiative in recruiting students and finding funds on their own, but so far their efforts have been rather feeble: dramatic improvements cannot be expected overnight. Thus he proposes that the government cut its grants to universities by 5 percent a year in real terms for ten years, while also abolishing the University Grants Committee and giving the money directly to each university in proportion to the grant it received in a base year. Each institution would enjoy full legal freedom to own, use, or dispose of all its assets, to set its own fees, to admit students of its own choice, to fix the pay and working conditions of its staff, and to patent and otherwise profit from the knowledge it develops.

Ferns notes that universities would still be heavily dependent on government funding after ten years of this process. But, he says, they might by then have built up the skills to handle still more financial independence and, perhaps more important, the motivation to want it: "Having learnt to walk upright the academics may wish to run."

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tionalization of production. Assembly is done near the consuming market, with parts coming from many areas. Each country will fit into this world picture, depending on which sector it provides best. To quote from Marina Whitman, a distinguished economist and vice-president of General Motors:

> Under the "world car" concept, automobiles little differentiated in size and design among different geographic areas are assembled from parts and components that are to a large extent standardized and interchangeable. The expanded production takes advantage of economies of scale and the allocative efficiencies generated by differences in factor endowments and therefore in production costs. . . . One of the implications of these developments for the automotive trade is that the strategy of direct exports of finished vehicles will be replaced gradually by more complex trading relationships involving vehicles and parts. [Princeton Essays in International Finance, no. 143, 1981]

In the rationalized world auto industry, the United States will provide parts that require skill, innovation, and technology data. The increasing total deficit in auto trade since the 1960s is due to imports of passenger cars. But since the mid-1950s, the United States has had a *surplus* in trade in auto *parts* running at about $1–2 billion. The U.S. auto industry will probably shrink some more, but it will not disappear. It will be integrated into a world system in which the United States will maintain its competitiveness in the subsectors where it performs best.

Our Competitive Position Threatened, 1981–83

In 1981 a shadow was cast over this bright picture of competitiveness and continuing adjustment toward high-productivity sectors. The shadow was the combination of the massive multi-year tax cut and the phased increase in defense spending prescribed in the 1981 budget, and the monetary tightness needed to restrain inflation in the face of the resulting

budget deficits. This raised U.S. interest rates and the value of the dollar. Indeed, the 25 percent real increase in the dollar from 1980 to 1983 gave back to the world *all* of the competitive gains that had been achieved from 1971 to 1980. By making U.S. manufactures that much less competitive across the board, the dollar's appreciation threatens to weaken the entire U.S. industrial structure. In a March 1983 speech, Chairman Martin Feldstein of the President's Council of Economic Advisers stated the problem clearly:

> The prospect of large future deficits in the second half of the 1980s and beyond would keep long-term interest rates high in the next few years and thereby depress spending on investment in plant and equipment and in housing. The higher real long-term interest rate would also keep the exchange value of the dollar very high, thus encouraging imports and weakening the competitive position of U.S. exports in the world economy. In short, the prospect of large budget deficits would mean a very lopsided and unhealthy recovery in which several key industries fail to share in the economic recovery.

The source of the problem, of course, is the Reagan administration's own budget. There is no way that adjustment and flexibility can offset the effects of high interest rates and a highly overvalued dollar in undermining the U.S. competitive position. A macroeconomic policy that permits realistic levels of U.S. exchange rates and interest rates is essential if our "high-tech" industries are to be competitive and continue to grow.

The Moral of the Story: Adjustment to Competition

When the economy is adjusting smoothly, jobs lost in declining industries are lost to firms, but not to *workers*—who move on to other jobs that are opening in expanding industries. While the movement can be painful and costly, especially if we do not have an effective policy for training and relocation, the new jobs are likely to have higher productivity and perhaps higher pay than the old jobs. Nevertheless, the old jobs are surely "lost" to the shrinking basic low-technology industries, which creates serious problems for the firms, the communities, and the unions entrenched in those industries.

With plants closing or cutting back, workers having to search for new jobs, and the local tax base contracting, it is little consolation to the particular workers, unions, and towns that growth is rapid in another industry on the other side of the country. The gains from trade and adjustment go to *all* the consumer/taxpayers in the country, while the losses are concentrated on the few who are in the shrinking industries. Thus, it is entirely appropriate that the federal government use general tax revenues to minimize the costs of adjustment and speed the process. By and large, the capital markets move resources in the right direction, so there is no need for an industrial policy that directs the allocation of resources. What we do need, however, is a program that provides retraining and relocation assistance for workers who have to adjust and some sort of interim support for the affected communities. Designing an effective program of this kind should be a high priority for policy makers and researchers today. For it is an essential part of a policy package to keep the U.S. economy flexible and competitive.

A policy of encouraging open trade and resource reallocation can stand only as one leg of the stool. An effective assistance policy that smooths the course of adjustment and a macroeconomic policy that ends the misalignment of the dollar are the other two legs. Without any one of the three, the gains from a competitive economy will be lost. ■

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