

Employment in durable goods anything but durable in 1979–82

*Durable goods manufacturers, particularly makers
and industrial users of metal products,
were hard hit by the recent back-to-back recessions;
for some industries, cyclical jolts were aggravated by
long-term declines in competitive position*

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The 1979–82 period was one of economic volatility, as the Nation underwent two recessions separated by a mild and brief expansionary period lasting but 1 year—the shortest on record. The brevity of the recovery reflected the uncertainty of prevailing economic conditions—particularly high interest rates and unrelenting inflation—which made consumers and businesses alike hesitant to make major purchases. As a result, job growth was quite limited during this period. The effect of the 1981–82 recession on the already weakened economy was especially disruptive in the cyclically sensitive manufacturing sector.

Durable goods manufacturing industries (along with construction) have historically borne the brunt of economic reversals, because of consumers' willingness to forgo purchases of large manufactured items during recessionary periods. In an attempt to offset eroding sales and profits, employers typically cut back first on hours of work and then on jobs, with the sharpest reductions taking place among those firms whose products are relatively high priced, are of a type which customers can postpone buying, and involve significant financial outlays for production as well as for research and development (for example, autos, large appliances, and furniture). During the 1980–82 period, pros-

pects were bleakest in the severely depressed auto and steel industries which, for most of the 20th century, have been among the pacesetters for the U.S. economy.

This article examines changes in employment, unemployment, and hours of work in manufacturing between 1979 and 1982, with particular focus on the five major metal using and producing industries within the durable goods division.¹ Although the economy officially underwent two downturns within this 4-year period—from January 1980 to July 1980, and from July 1981 to November 1982²—the 1979–82 period will be dealt with in its entirety for purposes of most of this analysis, in part because the important manufacturing industries had started to weaken prior to the January 1980 prerecession peak and also because the 1980–81 recovery was so short and limited in effect. Whereas a number of industries were affected by the downturn, the response of the five metals industries—primary metals, fabricated metals, machinery, electric and electronic equipment, and transportation equipment—to the recessions was particularly sharp and prolonged and yet, on the whole, as varied as the products they produce. Because of the difference in performance among these industries, the peak-to-trough changes in employment and hours discussed below will, in most cases, refer to the turning points for individual industries, and not the official turning points designated by the National Bureau of Economic Research for the total economy.

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Table 1. Changes in manufacturing employment during selected recessions, seasonally adjusted

(Employment in thousands)

Recession ¹	All manufacturing	Durable goods	Nondurable goods
1957-58:			
Level at peak (Aug. 1957)	17,411	10,032	7,379
Level at trough (Apr. 1958)	15,655	8,600	7,055
Change	-1,765	-1,432	-324
Percent change	-10.1	-14.3	-4.4
1960-61:			
Level at peak (Feb. 1960)	17,154	9,777	7,377
Level at trough (Feb. 1961)	16,073	8,870	7,203
Change	-1,081	-907	-174
Percent change	-6.3	-9.3	-2.4
1969-70:			
Level at peak (Aug. 1969)	20,287	11,979	8,308
Level at trough (Nov. 1970)	18,492	10,462	8,030
Change	-1,795	-1,517	-278
Percent change	-8.8	-12.7	-3.3
1974-75:			
Level at peak (Sept. 1974)	20,432	12,128	8,304
Level at trough (Apr. 1975)	18,060	10,484	7,576
Change	-2,372	-1,644	-728
Percent change	-11.6	-13.6	-8.8
1980:			
Level at peak (Jan. 1980)	21,165	12,857	8,308
Level at trough (July 1980)	19,784	11,793	7,991
Change	-1,381	-1,064	-317
Percent change	-6.5	-8.3	-3.8
1981-82:			
Level at peak (July 1981)	20,358	12,231	8,127
Level at trough (Nov. 1982)	18,222	10,577	7,645
Change	-2,136	-1,654	-482
Percent change	-10.5	-13.5	-5.9

¹Recessions are as designated by the National Bureau of Economic Research.

Job cutbacks in manufacturing

Manufacturing industries employed about one-fifth of the total nonagricultural work force in 1982. Although their employment share has been steadily declining—from one-third of the total in 1951 and one-fourth in 1971—these industries still play a major role in the economy, generating about a quarter of both the gross national product and total national income in the early 1980's. The cost of technological advancement, increased foreign competition, increasing productivity, and weakened product demand portend a continued reduction in manufacturing's overall share of total employment, although the outlook for some manufacturing industries is much more positive.

The 1970's were particularly troublesome years for manufacturing. During the 1973-75 recession, the most severe of the post-World War II downturns, manufacturing employment fell by 2.4 million to 18.1 million, a 12-percent drop.³ It was not until mid-1978, a full 3 years later, that employment levels returned to those that prevailed before the start of the recession. By 1979, however, employment growth in manufacturing again was sluggish and the economy was threatened with another downturn. In particular, the Nation was plagued by continuing high rates of interest and inflation, which dampened demand for such major consumer items as housing and automobiles and reduced capital spending by business firms.

The 1980's got off to a slow economic start as the Nation entered its seventh postwar recession. The 1980 downturn in payroll employment was the mildest recorded in the postwar era; it was shorter in length, shallower in depth, and not nearly as pervasive as its predecessors. In contrast, the 1981-82 recession, which hit the economy before the key manufacturing industries had had a chance to fully recover from the 1980 episode, was particularly severe—one of the deepest and longest in the postwar era. (See table 1.)

The labor market effects of the last two recessions were particularly pronounced in manufacturing. By July 1980, manufacturing employment had dropped by 1.4 million over the prior 13 months, and by the end of 1982, reductions totaled 3 million, or 14.0 percent. Job cutbacks were greatest in the durable goods division, with the primary metals and auto industries experiencing large declines over the course of the two recessions—36 and 39 percent, respectively. Employment problems in these hard-hit industries produced ripple effects throughout manufacturing, generating widespread cutbacks in jobs—especially among the auto and housing supplier industries such as steel, lumber, stone, textiles, and rubber and plastics.

A noteworthy aspect of the recessionary period was the sex composition of the work force that was laid off or terminated in the durable goods division. Men, as usual, made up the bulk of the employment declines in the durable goods industries. But in contrast to prior recessions, men also made up a *disproportionately* large share of the decline. Because women in durable goods industries have been hired more recently and, hence, have worked for shorter periods than men, they are usually the first to be let go during a recession⁴; this did not occur during the 1980-82 period. At the beginning of 1979, women held slightly less than one-fourth of all jobs in the durable industries, but they accounted for only one-fifth of the decline over the ensuing 4 years.

One explanation may be that, while women have made significant inroads into some areas of manufacturing, particularly the cyclically sensitive durable goods industries such as machinery, they are still not that prevalent in primary metals and transportation equipment, the two key industries in which 1980-82 employment declines were concentrated. (See table 2.) Thus, women were not as likely to feel the full impact of the recession in these industries. If primary metals and transportation equipment are excluded from the durable goods manufacturing total, women would then account for *two-fifths* of the employment declines, considerably above their proportion of the work force in the durables industries.

Decline in durables

Employment in the durable goods industries has tended to be more susceptible to cyclical influences than jobs in the nondurable goods division. The durable goods component accounted for 77 percent of the total decline in man-

Table 2. Women as a percent of total employment, manufacturing industries, 1982

Industry	Percent women
Durable goods industries	25.6
Lumber and wood products	15.0
Furniture and fixtures	30.1
Stone, clay, and glass products	19.9
Primary metal industries	11.3
Fabricated metal products	21.1
Machinery, except electrical	21.1
Electric and electronic equipment	42.2
Transportation equipment	16.5
Nondurable goods industries	40.9

ufacturing employment between June 1979 and December 1982. In particular, the five metal using and producing industries were quite sensitive to the recent downturns, although some fared worse than others. (See chart 1.) The most severely affected were the transportation equipment and primary metals industries.

Transportation equipment. Job cutbacks in the transportation equipment industry were evident early in 1979, before the official onset of the 1980 recession. In fact, this is the only one of the five metals industries that registered a larger decline in employment during the brief 1980 slump than during the longer and much more severe 1981-82 downturn. Almost 90 percent of the 460,000 jobs lost in the transportation equipment industry since the 1979 peak were in automobile manufacturing. (See table 3.)

The rest of the decline in transportation equipment reflected mostly small losses in aircraft and parts, railroad equipment, and ship and boat building and repairing. Employment in guided missiles, space vehicles, and parts, however, continued to grow throughout the recessions. Continued defense spending undoubtedly bolstered the aircraft and guided missiles industries, resulting in fewer employment cuts and even growth in some firms. Interestingly, the nonautomobile-related industries within transportation equipment manufacturing, which usually account for about 50 percent of its total employment, accounted for 60 percent of all workers in 1982 as a result of the heavy decline among auto workers.

The seriousness of conditions in automobile manufacturing resulted from a slump in domestic car sales, which plummeted from a selling rate of 9.2 million units in 1977 to a 20-year low of 5.8 million units during 1981 and 1982. In 1980, the U.S. auto industry posted a loss of \$4.2 billion, the worst 1-year performance in the history of any U.S. industry.⁵

Inflation and high interest rates, which eroded consumer buying power during 1980-82, were largely accountable for the resulting drop in car sales. However, longer-term factors were also at work, as U.S. consumers continued to react to the energy crisis of 1973-74, and the corresponding rise in gasoline prices, by purchasing smaller, more energy efficient cars. Domestic auto manufacturers have had trouble maintaining their share of this market niche over the last

several years in the face of aggressive foreign competition. As recently as 1976, imports accounted for only 15 percent of new-car sales in the United States, but by 1982, they claimed one-fourth of the market. Another long-term damper on U.S. auto sales is the phenomenon referred to as "sticker shock." Because of inflation and the cost of product improvements, the price of a new automobile has risen significantly over the last decade, and consumers have responded by keeping their old cars for longer periods or by purchasing used cars. Thus, both cyclical and secular influences contributed to the loss of more than 400,000 automobile jobs between March 1979 and November 1982.

The sharp decline in employment in auto manufacturing during the last two recessions undoubtedly represents some permanent reduction in jobs, as automakers struggle to make the technological improvements necessary to ensure a viable share of U.S. and world markets. Some analysts also believe that the new-car market will not expand as fast in the mid-to-late 1980's as during past recoveries because most households already have one or more vehicles (87 percent as of the 1980 census) and because owners have begun to keep their cars for longer periods.⁶

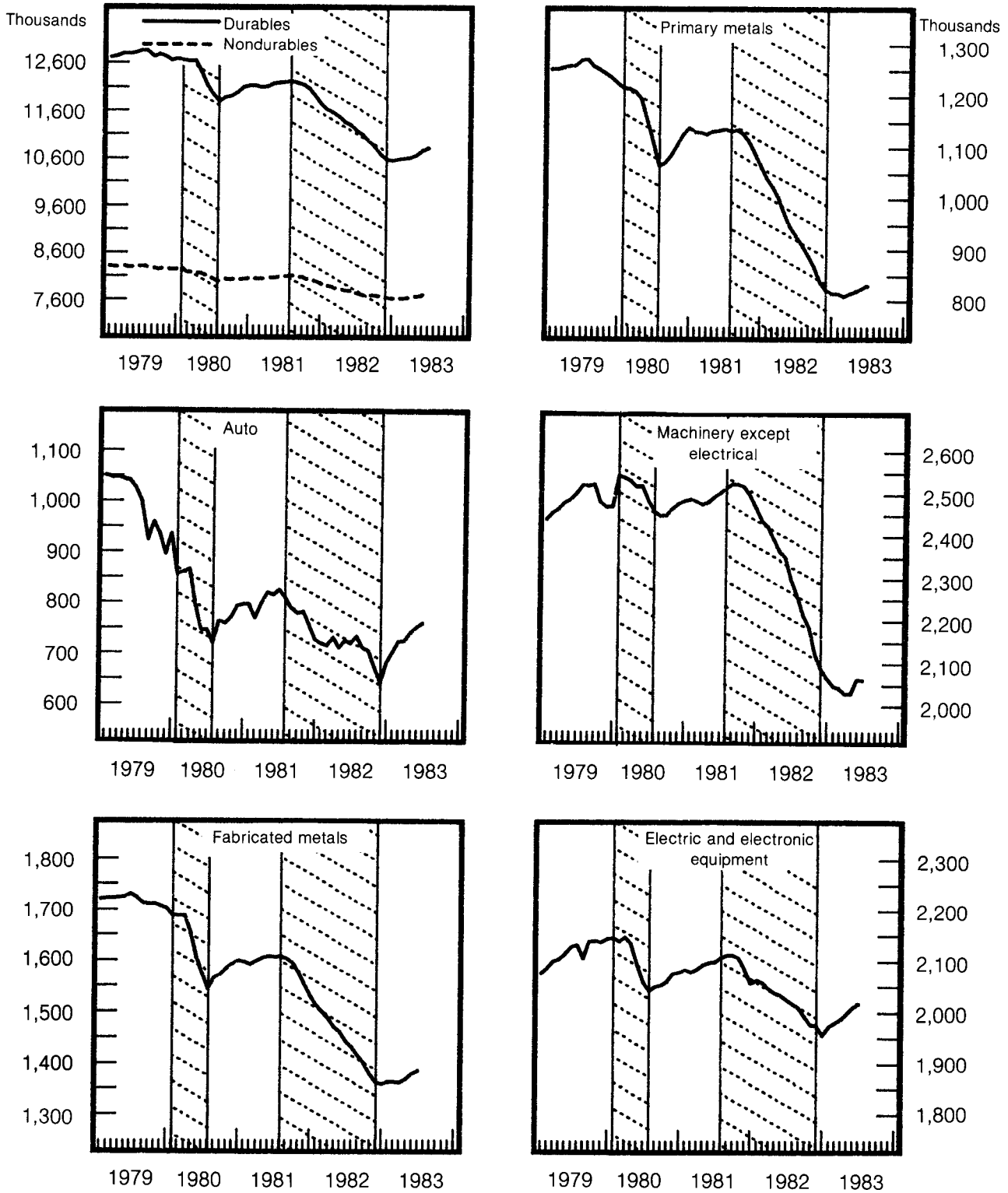
Still, the small upturn in new-car sales since the last quarter of 1982 has had some positive effect on employment in the auto industry; the number of jobs rose by about 75,000

Table 3. Peak-to-trough employment changes in selected durable goods manufacturing industries, 1980 and 1981-82, seasonally adjusted

[Numbers in thousands]

Industry	Peak	Trough	Change from peak (high) month to trough (low) month	
			Number	Percent
Total durable goods:				
1980	June 1979	July 1980	-1,064	-8.3
1981-82	July 1981	Dec. 1982	-1,672	-13.7
1980-82	June 1979	Dec. 1982	-2,298	-17.9
Primary metal industries:				
1980	July 1979	July 1980	-205	-16.1
1981-82	June 1981	Dec. 1982	-328	-28.8
1980-82	July 1979	Feb. 1983	-462	-36.3
Fabricated metal products:				
1980	June 1979	July 1980	-189	-10.9
1981-82	May 1981	Dec. 1982	-250	-15.5
1980-82	June 1979	Dec. 1982	-373	-21.5
Machinery, except electrical:				
1980	Sept. 1979	Aug. 1980	-74	-2.9
1981-82	Aug. 1981	Mar. 1983	-496	-19.6
1980-82	Sept. 1979	Jan. 1983	-493	-19.5
Electric and electronic equipment:				
1980	Mar. 1980	July 1980	-105	-4.9
1981-82	Aug. 1981	Dec. 1982	-155	-7.3
1980-82	Mar. 1980	Dec. 1982	-190	-8.8
Transportation equipment:				
1980	Mar. 1979	July 1980	-294	-13.9
1981-82	June 1981	Nov. 1982	-275	-14.2
1980-82	Mar. 1979	Nov. 1982	-459	-21.7
Automobile manufacturing:				
1980	Mar. 1979	July 1980	-327	-31.2
1981-82	June 1981	Nov. 1982	-184	-22.3
1980-82	Mar. 1979	Nov. 1982	-406	-38.8

Chart 1. Monthly nonfarm payroll employment in durable and nondurable goods manufacturing and in five major metals industries, seasonally adjusted, January 1979—June 1983



NOTE: Shaded areas are recessionary periods, as designated by the National Bureau of Economic Research.

during the first half of 1983. The increase in sales realized over this same period could eventually translate into better job prospects among auto parts suppliers—those producing tires, bearings, brakes, transmissions, and so forth. But gains realized by auto parts makers are not expected to be as great as in the past, because auto manufacturers have begun to produce certain technologically advanced components themselves and to purchase cheaper parts from foreign manufacturers, thereby reducing their dependence on domestic suppliers.⁷ To avoid buildups of unused inventories, auto manufacturers are also adopting the Japanese method of not ordering parts until they are needed. In the past, auto suppliers could be reasonably certain of the coming year's level of parts and equipment orders from car manufacturers, but with the concept of "just-in-time" inventory control, suppliers can never be sure just how much of their product will be needed, or when it will be wanted.⁸

Primary metals. The primary metals industries registered a stunning 36-percent drop in payroll jobs over the course of the last two recessions. These losses were attributable primarily to the weak performance of steel operations, which suffered from one of the lowest levels of demand for their product since World War II. Employment declines were evident in aluminum and other nonferrous metals as well, but these losses were considerably smaller than those that occurred in the steel producing and processing plants.

Between July 1979 and February 1983, employment levels in primary metals were reduced by 460,000, as capacity utilization rates within steel manufacturing fell to an unprecedented low of 30 percent; by comparison, the lowest utilization rate during the 1973–75 recession was considerably higher, 69 percent. (During nonrecessionary times, steel mills have generally operated at about 80 to 85 percent of capacity.) The bulk of the job reductions occurred during the 1981–82 downturn, which was the steepest recorded for steel since statistics of this type have been collected.

But the problems currently faced by steel manufacturers are not solely the result of the recession. Because steel is the most widely used metal, its fortunes are tied to developments in a wide variety of user industries—automotive, machinery, construction, and fabricated metals. The health of our economy is often reflected by the demand for steel. Over time, however, technological advances have yielded lighter, stronger, and less costly products that may be substituted for steel, and demand has fallen. For example, the automakers—faced with meeting Federal requirements for safety and a more fuel efficient car—have expanded their use of substitute materials—plastics, ceramics, and aluminum—for parts that were primarily steel, in an effort to make a lighter and more durable vehicle. Even when steel continues to be used, it is open rolled thinner, which means that less steel is required. These phenomena are actually part of a secular downtrend which also reflects several other factors, such as competition from foreign producers with

modern plants and lower unit labor costs. Foreign competition has proved a significant threat to the existence of a number of domestic steel mills, especially given the comparatively higher wages and benefits of American steel workers.⁹

All told, the steel industry must deal with a variety of problems if production levels and employment are to increase significantly. Its success is tied to more than just the auto industry's ability to rebound quickly from the effects of the recession. Auto manufacturers' orders account for only about 15 percent of total domestic steel production, and would not be strong enough by themselves to offset the long-term weakening of demand for steel. Some analysts feel that one possible road to recovery lies in industry diversification. For example, some steel producers have acquired one or more healthy businesses outside the industry, such as chemicals or utilities, to help offset declining revenues. Another development is the move toward smaller steel plants—mini-mills—that sell specialty steel. Mini-mills have an advantage over older mills in that they are not handicapped by obsolete plants and equipment; they use energy efficient electric furnaces rather than blast furnaces for production and are considerably less expensive to construct. However, they cannot process raw metal and instead must rely on the purchase of scrap metals for their operations. Mini-mills weathered the 1981–82 recession considerably better than other establishments but they presently account for only 15 to 20 percent of domestic steel production.¹⁰

In steel, as in autos, employment will eventually pick up, but it is unlikely that previous peak levels will be attained, due to slack demand for their products, foreign competition, and advanced technologies that boost productivity but may also reduce labor requirements.

Fabricated metals and machinery. Fabricated metals and machinery are two key durable goods industries supplying the auto and housing sectors with parts and products. The number of jobs in fabricated metals, which produces such items as plumbing and heating fixtures, hand tools and hardware, screw machine products (nuts, bolts, rivets), and automotive stampings, dropped by 375,000, or 21.5 percent, between its 1979 high and 1982 low. Likewise, machinery, which includes construction machinery, machine tools, engines, and office computing machines, showed a decline of 495,000, or 19.5 percent. (See table 3.) Throughout most of the 1980–82 period, however, makers of computing machines held their own, because of healthy demand for their products. Although the employment declines in machinery and fabricated metals were not as severe as those experienced in autos and primary metals, jobs have been rather slow to rebound as the industries that they serve have yet to recover to earlier levels of production and sales.

Electric and electronic equipment. Of the five major metal

producing and using industries, electric and electronic equipment was least affected by the prolonged downturn. Employment cutbacks totaled 190,000, or 8.8 percent, between March 1980 and December 1982. Overall, the declines in this industry were minimized by a boom in small computers which shored up the electronic components industry. Demand for small computers is expected to remain strong, as professionals and nonprofessionals alike purchase what is becoming a fundamental, if not essential, tool. While employment in the electric and electronic equipment industry is not impervious to the economic climate, secular trends caused by advances in technology currently are more influential than are business cycles.¹¹

Industries on the move

Defense. A number of firms spread throughout several industries produce components or products for the military. These defense-related establishments have had a substantial impact on employment in key durable goods industries. Employment in guided missiles and space vehicles and ordnance and accessories, for example, has shown steady, though slow, growth over the last several years, while the military's demand for communications equipment, electronic components, and aircraft parts helped to moderate the overall employment losses in these industries. But because firms producing military goods are often capital intensive, fewer jobs may be generated by an increase in orders than in other sectors of the economy. With total defense spending for goods and services being a relatively small part of the economy, the infusion of money budgeted for defense over the next few years is expected to stimulate only a few industries, in particular, the manufacture of electronic equipment, semiconductors, ships, aircraft, missiles, communications equipment, and machine tools.¹²

For many firms, the increased military spending promises to bolster employment and profits and offset their sagging commercial businesses. But these benefits may not be felt for some time, as defense spending does not have its greatest effect on manufacturing until prime contractors begin placing orders with subcontractors.¹³ In any event, the current level of defense spending is not expected to have the same broad economic impact that military expenditures did during the Korean or Vietnam wars. Today, the military does not need huge quantities of small items such as rifles, tents, and trucks, but instead has focused on military preparedness and better communications. Overall, the benefits that do derive from the increased defense spending will be realized almost totally within the durable goods division.

High tech. As noted earlier, economic activity in the postwar years has shifted away from the manufacturing sector—particularly primary metals and other producer goods industries—while expanding in the services industries and public sector. The manufacturing industries that have best resisted decline have been those producing “high technol-

ogy” equipment and those making synthetic materials.¹⁴ High-tech industries are generally considered to be those in which technical workers account for a high proportion of total employment (at least 1.5 times the average) and whose expenditures on research and development are at least twice the average for all industries.¹⁵ Industries commonly associated with high-tech development are makers of computers and other electronic equipment, drugs and medicines, aircraft and parts, laboratory equipment, and plastics and other synthetic materials.

In summary, some manufacturing industries have been better able to weather the recessions because they have a relatively modern plant and equipment, face less foreign competition, and because demand for their products was higher. Other durable goods industries will find it extremely difficult to recover their former positions of strength in the economy, as poor performance during the recession was exacerbated by longer term effects that have little to do with current business climate. The auto and steel industries are cases in point. Their weak performance, high production and labor costs, diminished productivity growth, and outlays for research and development have made them all the more vulnerable to foreign competition. Still, as evidenced during the first half of 1983, industrial production is up from recessionary levels and employment has begun to rise even among the hard-hit primary metals and auto industries.

Unemployment

When the economy worsens, firms inevitably respond to decreasing demand by reducing their work forces through layoffs and permanent separations. Although the impact of the 1980-82 economic contractions was initially concentrated in a few key industries, job cutbacks eventually became fairly widespread, but with different degrees of intensity. Reflective of these cutbacks, the unemployment rate for workers in manufacturing industries rose steadily from a low of 5.3 percent in June 1979 to 14.5 percent in November 1982—a postwar high, and considerably above the previous record of 12.3 percent reached during the 1973-75 downturn.

Within manufacturing, the incidence of unemployment was much greater in durable goods industries than in non-durables. (See table 4.) Durable goods such as autos, furniture, and appliances are often the expendable items on a shopper's list; the consumer will simply postpone the purchase of these large items until absolutely necessary to avoid paying the high interest rates associated with time purchase of such goods or because his or her future income is in doubt. On the other hand, food, apparel and other soft goods industries fare better because it takes less cash to replace worn-out clothing, sheets, and the like, and because these items are likely to be necessities that must be replaced periodically regardless of economic circumstances.

The overall unemployment rate was 9.7 percent in 1982;

within the durable goods sector, the rate averaged 13.3 percent, with rates varying substantially among the component industries. For example, the rate for autoworkers went from a low of 3.9 percent in early 1979 to a high of 29.1 percent just over a year later. And even though their jobless rate had fallen considerably by mid-1981—to a low of 11.8 percent—it was back up over 20 percent by the last quarter of 1982. Partly because of steel's dependence on the hard-hit auto industry, the rate for workers in primary metals soared to a record high of 28.7 percent in December 1982, more than 5 times the rate that prevailed in pre-recession 1979. The jobless rate for primary metals had risen astronomically in late 1982, when the industry could no longer rely on previously placed orders to provide work, and when it became clear that future orders from the auto industry were to be smaller for quite some time. Other traditional auto suppliers, such as rubber and glass manufacturers, were also hurt by their reliance on orders from the automakers. The jobless rate for workers in the stone, clay, and glass industry (also very closely linked to the hard-hit construction industry) was 5.9 percent at the beginning of the recession in January 1980 and 17.1 percent in November 1982, while the rate in rubber and plastics went from 7.2 to 12.3 percent over the same period.

Even with their high unemployment rates, workers in the manufacturing industries represented only about one-fourth of the total jobless during the 1981–82 recession. Similarly, when the jobless rate for autoworkers approached 30 percent in mid-1980, the number of unemployed workers, at 365,000, was only about 5 percent of the total unemployed. The important point is that the health of relatively small portions of the economy, such as primary metals and auto manufacturing, can have a substantial effect on the economic well-being of the entire country.

One way to measure the effects generated by the cutbacks in the auto and primary metal industries is to examine the responsiveness of other industries to changes in demand for their products. This can be accomplished by calculating a sensitivity ratio,¹⁶ which measures the impact of changes in demand on employment within a particular industry (direct) and in its supplier industries (indirect). Following are estimates of 1981 jobs generated per \$1 million sales (in 1972

dollars) by auto and steel manufacturing, and the corresponding ratios of total to direct employment:

	<i>Autos</i>	<i>Steel</i>
Direct	15.8	22.5
Indirect	31.7	35.7
Total	47.5	58.2
Ratio of total to direct	3.0	2.6

The estimated sensitivity ratio for autos was very high at 3 to 1, meaning that for every job lost in auto manufacturing in 1981, another two were adversely affected in industries supplying inputs to auto production. The reduction in demand for automobiles was not felt solely in other manufacturing industries such as primary metals, fabricated metals, and rubber and plastics, but also spilled over into the service-producing sector, affecting, for example, the transportation of steel and other materials to auto manufacturers and the wholesaling of these materials. Likewise, the sensitivity ratio for steel was a high 2.6 to 1. Suppliers to steel mills include mining, trucking and railroad transportation, business services used by steel mills, and the wholesaling of inputs used in production.

Sensitivity ratios do not reflect the number of jobs affected once a product leaves the plant, but it is safe to say that a number of other industries that rely on the finished product for their business were also adversely affected by the weakened demand for both autos and steel, including automobile dealerships, the retailing of parts and building supplies, gasoline stations, repair and maintenance shops, heating and plumbing services, and machinery. The ratios also cannot capture the multiplier effects on total economic demand of the forgone or reduced wages of auto and steel workers. With employment so adversely affected by the slackening demand for autos and steel, it is easier to understand why the total number of unemployed were widely distributed among both the goods- and service-producing sectors.

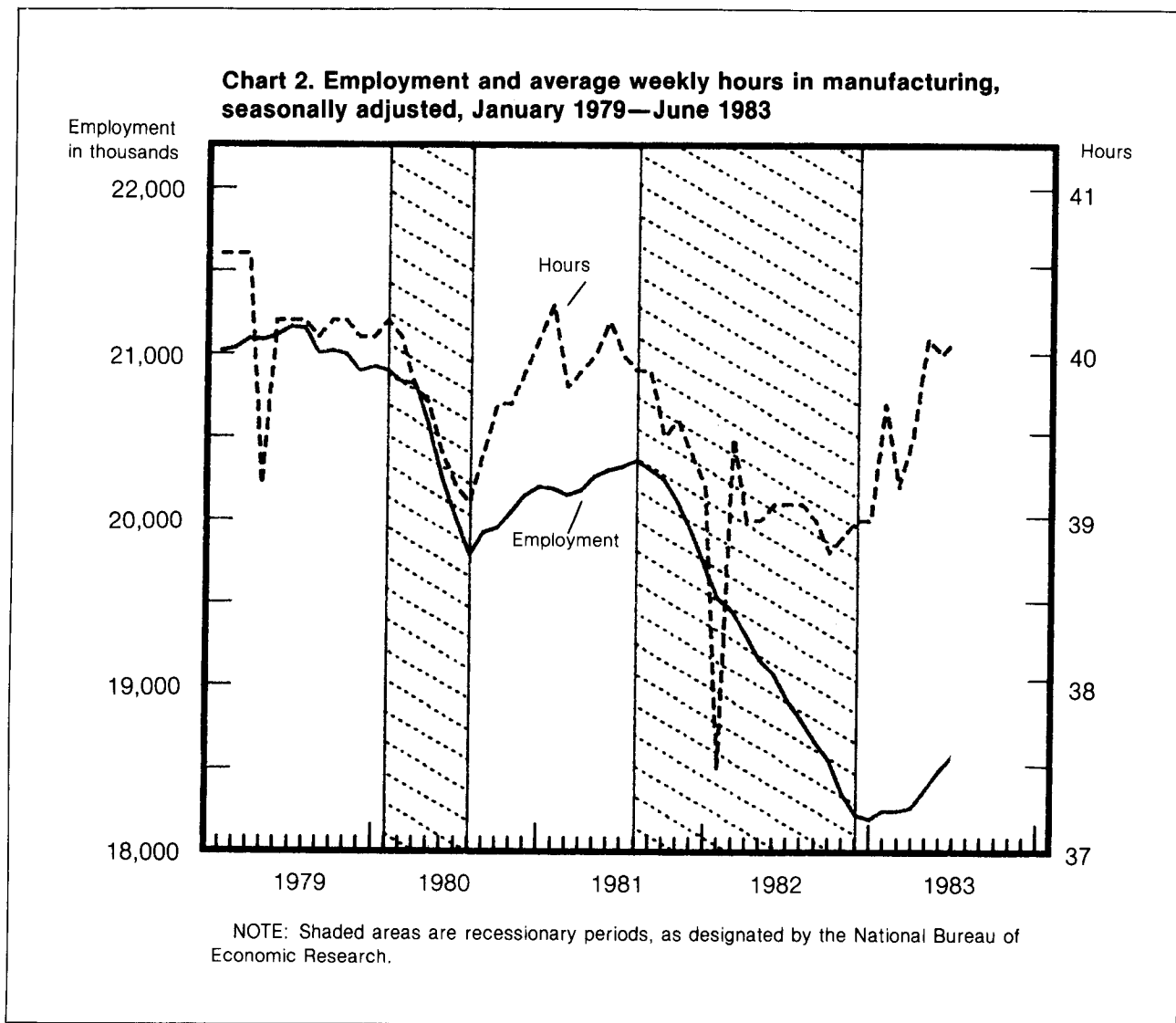
Weekly and aggregate hours

At the outset of an economic downturn, manufacturers generally shorten the hours employees work before resorting to job cuts. And in periods of expansion, employers tend to restore the hours of workers on shortened workweeks before recalling those on layoff. (See chart 2.) This phenomenon is so predictable that the manufacturing workweek is viewed as a leading cyclical indicator, in that changes in hours worked consistently precede those in employment. Within manufacturing, hours (as well as employment) in durable goods industries are generally more volatile, reflecting their dependence on consumer demand for hard goods and the outlook for capital investment. In fact, during the eight postwar business downturns, declines in average weekly hours among the major durable goods industries preceded employment reductions more than 80 percent of the time.¹⁷

Table 4. Unemployment rates in selected manufacturing industries, selected months, 1979–82, seasonally adjusted

Industry	January 1979 ¹	January 1980	November 1982
Total (all civilian workers)	5.9	6.3	10.7
Manufacturing	5.2	6.8	14.5
Durable goods	4.5	6.8	16.7
Primary metal industries	2.9	6.4	25.5
Fabricated metal products	5.6	6.8	18.2
Machinery, except electrical	2.2	3.7	16.3
Electric and electronic equipment	4.8	4.8	12.4
Transportation equipment	3.8	11.3	17.7
Automobile manufacturing	4.1	17.0	24.2
Nondurable goods	6.2	6.9	11.3

¹Although the downturn did not officially begin until January 1980, most durable goods manufacturing industries began experiencing recessionary problems early in 1979.



Employers in the durable goods manufacturing industries followed the established pattern during the 1980 and 1981-82 recessions. The workweek fell 1.9 hours from the January 1979 high to a July 1980 low of 39.5 hours. During the brief recovery phase, hours rose somewhat, but failed to return to their prerecession high. Average weekly hours reached another low of 39.1 hours in September 1982, having fallen by 1.6 hours since May of 1981. In total, between 1979 and 1982, the workweek declined by 5.6 percent or 2.3 hours. It should be noted that the contraction in hours at the start of the 1981-82 recession preceded the downturn in employment by only 2 months, a rather short lead. This is largely attributable to the fact that the economy had experienced the briefest of recovery periods and had never fully rebounded from the 1980 episode. As in previous recessions, the drop in average weekly hours in the durable goods division exceeded that for overall manufacturing, while nondurable goods industries registered considerably smaller workweek declines.

Overtime hours are generally reduced first when cutbacks in hours are necessary, and indeed, they accounted for most of the workweek decline during the 1980-82 recessionary period. Overtime hours in the durable goods industries stood at a prerecession high of 4.0 hours in early 1979 and fell to 2.1 hours by late 1982. The drop in overtime hours accounted for 83 percent of the decline in total hours worked in durables, surpassing the 75-percent mark reached during 1973-75 downturn.

Workweek trends varied among the five metal using and producing industries. Primary metals, transportation equipment, and machinery all showed substantial reductions in hours beginning early in 1979. Average hours in primary metals showed the sharpest decline—4.4 hours overall between the 1979 high and 1982 low—as the capacity utilization rate in steel mills fell to its lowest average level in 44 years. The next steepest drop—3.9 hours—occurred in transportation equipment. Machinery recorded a relatively large decline of 3.4 hours, while fabricated metals and elec-

Table 5. Causes of the decline in aggregate weekly hours of production workers in the durable goods industries during the 1980 and 1981-82 recessions, seasonally adjusted

[Hours in millions]

Period	Effect			
	Total	Employment ¹	Hours ²	Residual ³
1980 recession:				
Hours decline	62.077	46.741	17.482	2.146
Percent of total effect	100.0	75.3	28.2	-3.5
1981-82 recession:				
Hours decline	73.566	61.701	13.446	1.579
Percent of total effect	100.0	83.9	18.3	2.1

¹Employment effect (EE) is equal to the change in employment (ΔE) from peak to trough times the number of hours at peak: $EE = \Delta E \times \text{hours}$.

²Hours effect (HE) is equal to the change in the number of hours (ΔH) from peak to trough times employment at the peak: $HE = \Delta H \times \text{employment}$.

³The residual is that portion of employment and hours effects that cannot be isolated: $(EE - HE) - (\text{peak employment} \times \text{peak hours} - \text{trough employment} \times \text{trough hours})$.

NOTE: The declines in aggregate weekly hours are calculated from the high to low points of the employment and hours series for each individual industry during the combined 1980 and 1981-82 recessions.

tric and electronic equipment experienced much smaller reductions during the 1980-82 downturns. The cutback in electronics (2.3 hours) was the least severe, in keeping with the steady demand for and production of new and more advanced computer and telecommunications equipment.

A combined measure—aggregate weekly hours—may be used to examine the impact of the last two recessions on both employment and hours. Specifically, this measure indicates whether employers in a particular industry were more likely to terminate jobs or reduce hours worked in response to changing economic conditions.

During the course of the 1980 recession, aggregate weekly hours fell by 62.1 million in durable goods manufacturing, with 75 percent of this decline attributable to job cutbacks. (See table 5.) During the 1981-82 downturn, employment reductions accounted for almost 85 percent of the total drop of 73.6 million aggregate hours.

Although both hours and employment are reduced during economic downturns, as a recessionary period lengthens, it becomes more likely that jobs, rather than hours, will be cut. Hence, over the course of a downturn, changes in employment become an increasingly large proportion of the total change in aggregate weekly hours. Altering hours of work is primarily a short-term adjustment mechanism to reconcile manpower needs to production schedules, while changes in employment are the prime method of cutting costs in response to long-run changes in demand.

Aftermath

Recovery from one of the Nation's most severe recessions

since the 1930's was underway in the first half of 1983; inflation had abated and interest rates had fallen enough to induce some consumers to purchase large ticket items. The degree to which consumers continue to increase spending on a new car, house, or other major items will strongly influence the strength of the recovery. However, despite the step-up in production, capital spending has remained weak during the first half of 1983, perhaps because manufacturers recognize that consumer spending has not been consistently strong in recent years. For example, the auto industry had increased production levels substantially from a year earlier; but, while machine tool orders, often an early indicator of trends in capital spending, were on the rise during the first half of 1983, some manufacturers of autos and other goods were delaying taking delivery of (and thereby actually purchasing) new machine tools until demand for their own products strengthened or until interest rates improved.

Employment losses in steel and auto manufacturing, and in several of their supplier industries, are not solely the result of the last cyclical downturn but also reflect a restructuring of these basic industries to deal with increased foreign competition, high wages, plant inefficiencies, and reduced demand. Although recovery trends in autos and steel were evident by late 1983, neither is expected to reattain previous peak employment levels.¹⁸

Other durable goods industries, such as fabricated metals and machinery, are not experiencing long-run secular declines and are thus expected to resume their prerecession growth patterns. The electric and electronic equipment industry, in particular, is expected to grow quite rapidly during the 1980's, consistent with the strong demand for computers and telecommunications products. Despite projections of rapid growth, this industry is expected to account for only a small proportion of total future employment growth, because it has a relatively small workforce with high productivity. However, while there may not be a large number of jobs created in firms producing electronic components, there could be sizable job growth in industries using their products—computer and data processing services, defense-related industries, communications services, petroleum and natural gas extraction, and many more. Defense spending should also boost the effects of the recovery in a number of industries, but is more likely to benefit the community in which a defense contractor is based rather than an industry as a whole. In light of all these factors, the recovery of durable goods industries from the 1980-82 recessionary period could be slower and more calculated than during past expansions. □

FOOTNOTES

¹The Current Employment Statistics program, a monthly survey of non-agricultural business establishments, was the source of the employment and hours data used in this article. Unemployment statistics were derived from the Current Population Survey, a monthly survey of some 60,000 households across the Nation. For an explanation of the concepts and differences between the two surveys, see the *BLS Handbook of Methods*,

Vol. 1, Bulletin 2134-1 (Bureau of Labor Statistics, 1982); and John F. Stinson, Jr., "Comparison of Nonagricultural Employment Estimates from Two Surveys," *Employment and Earnings*, March 1983, pp. 6-9.

²These are the turning points designated by the National Bureau of Economic Research (NBER) for the 1980 and 1981-82 recessions.

³For an analysis of the effects of the 1974-75 recession on manufacturing, see Robert W. Bednarzik, "The plunge of employment during the recent recession," *Monthly Labor Review*, December 1975, pp. 3-10.

⁴For an indepth discussion of employment response to cyclical fluctuations, see Norman Bowers, "Have employment patterns in recessions changed?" *Monthly Labor Review*, February 1981, pp. 15-28.

⁵For a comprehensive source of various statistics relating to automobile production, see any issue of *Wards' Automotive Reports*; and the *U.S. Industrial Outlook*, 1980-82 editions (U.S. Department of Commerce, Bureau of Industrial Economics).

⁶See Vivian Brounstein, "How Far Will Car Sales Rebound?" *Fortune*, Nov. 5, 1982, pp. 70-87; and "Why Detroit Still Can't Get Going," *Business Week*, Nov. 9, 1981, pp. 106-10.

⁷See Steven Flax, "A Hard Road For Auto Parts Makers," *Fortune*, Mar. 7, 1983, pp. 108-13; and Mark Potts and Warren Brown, "Auto Revolution Hits Suppliers," *The Washington Post*, Jan. 9, 1983, p. G7.

⁸See Warren Brown, "Hard Times Force Cost-Cutting Effort With Suppliers," *The Washington Post*, Jan. 23, 1983, p. F4.

⁹"Time Runs Out For Steel," *Business Week*, June 13, 1983, pp. 84-94.

¹⁰For a thorough account of the long-term and current recessionary problems encountered by the steel industry, see Robert W. Crandall, *The U.S. Steel Industry in Recurrent Crisis* (Washington, The Brookings Institution, 1981).

¹¹See Thomas W. Lippman, "Personal Computers: An Explosion in the American Marketplace," *The Washington Post*, Jan. 9, 1983, p. G2; and

James L. Rowe, Jr., "Industry Bucks Recession With Big Gains," *The Washington Post*, Jan. 23, 1983, p. F2.

¹²For an analysis of the defense-related industries in the recession, see "Defense and the Economy," *Review of the U.S. Economy* (Data Resources, Inc.), May 1982, pp. 119-24.

¹³"Is Industry Ready for Work Defense Buildup?" *Business Week*, Feb. 8, 1982, pp. 94-96.

¹⁴Richard E. Caves, "The Structure of Industry," in Martin Feldstein, ed., *The American Economy in Transition* (Chicago, National Bureau of Economic Research, The University of Chicago Press, 1980), pp. 501-45.

¹⁵There is no universally accepted definition of a "high technology industry." For an indepth discussion of characteristics associated with high-tech industries, see Richard W. Riche, Daniel E. Hecker, and John U. Burgan, "High technology today and tomorrow: a small slice of the employment pie," *Monthly Labor Review*, November 1983, pp. 50-58.

¹⁶A sensitivity ratio is an industry's total—direct and indirect—employment generated per million dollars of demand divided by its direct employment per million dollars. These data were derived from the U.S. Department of Commerce's 1972 input-output table and a table on 1981 employment-output relationships.

¹⁷Philip L. Rones, "Response to recession: reduce hours or jobs?" *Monthly Labor Review*, October 1981, pp. 25-31.

¹⁸For projections of industry growth over the next decade, see Valerie Personick, "The job outlook through 1995: industry output and employment projections," *Monthly Labor Review*, November 1983, pp. 24-36.