The 1987-88 surge in exports and the rise in factory jobs

Export-related industries accounted for almost half of the rebound in manufacturing employment after the decline of 1984-86

Christopher J. Singleton

During the preceding two decades, the world became increasingly interdependent with the expansion of international trade. Exports contributed to respective nations' economic growth by raising output and augmenting employment levels. The United States, while not as reliant on the export stimulus as some developing countries, nevertheless depends on foreign sales to spur job growth in numerous industries. Factory jobs became tied to exports even more in the late 1980's.

Prior to the weakness of 1989, manufacturing employment had risen vigorously in 1987 and 1988.[1] This growth stemmed disproportionately from four industries that are particularly oriented towards exports. These industries benefited from sharply increasing exports which, given the industries' relatively heavy dependence on foreign sales, spurred demand for labor. The remaining manufacturing industries, although less export-intensive, also generally enjoyed accelerating foreign shipments. Demand from abroad more than offset sluggish domestic demand and allowed U.S. manufacturers to recover from their downturn of the mid-1980's.

This article describes the spurt in factory job growth that occurred 5 years into the longest peacetime expansion in U.S. economic history. It details the rapid growth of exports and concentrates on their contribution to the improved manufacturing employment picture. Manufacturing's recent sluggishness is addressed in the last section.

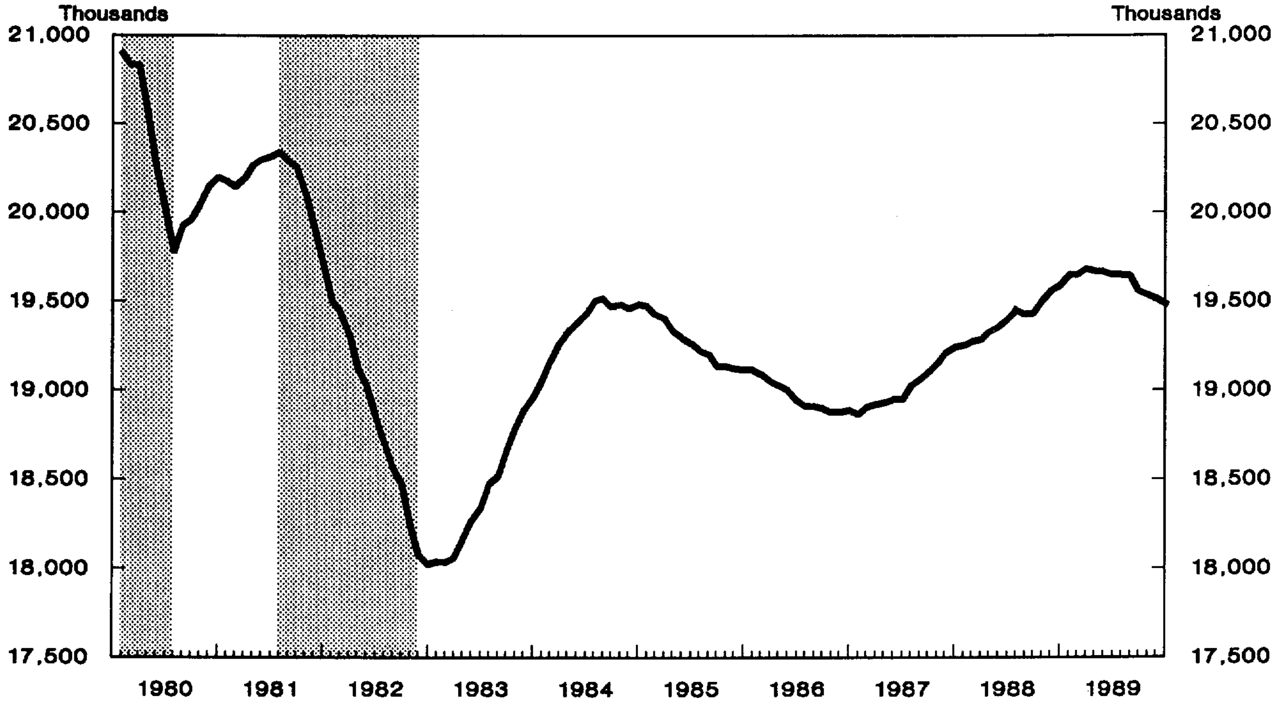
Christopher J. Singleton is an economist in the Division of Monthly Industry Employment Statistics, Bureau of Labor Statistics.

Recession takes toll

Because of its cyclical nature, manufacturing suffered disproportionately from the recession of 1981-82.[2] Unlike the total of nonagricultural jobs, which exceeded its prerecession peak a year into the recovery, manufacturing was unable to return to its June 1979 employment peak of 21.2 million. While the former rose essentially on a linear basis, manufacturing employment reached its post-recession high in August 1984 and then lost 650,000 jobs in the next 2.5 years. From its low point of January 1987 through the end of 1988, however, manufacturing rebounded, adding 715,000 jobs. (See chart 1.)

Virtually all of manufacturing's 1987 employment growth occurred in the third and fourth quarters. Indeed, 295,000 jobs, or 84 percent of all new factory jobs that year, were added after June. The 155,000 jobs created between July and September marked the strongest quarterly performance since the second quarter of 1984. The rate of growth slowed during the first and third quarters of 1988 but displayed strength in the other two. The December 1988 employment level—19.6 million—was last exceeded in December

Chart 1. **Manufacturing employment, seasonally adjusted monthly data, 1980–89**



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

1981 and was 93 percent of manufacturing's all-time peak.

The durable goods industries added 450,000 jobs in 1987 and 1988 to the manufacturing total. Because they are typically more sensitive to the business cycle, these industries suffered more acutely from manufacturing's post-1984 deceleration than the nondurable goods group. The durables jobs created in 1987 and 1988 followed losses of 490,000 during the 1984–86 period. Nondurable goods industries, meanwhile, expanded employment by 265,000 after losing 75,000 jobs between 1985 and 1986. If printing and publishing is excluded, the disparity is much less because this industry has enjoyed sustained growth since 1982, unlike most of the others. The remaining nine nondurable goods industries added 155,000 jobs in 1987 and 1988, after losing 145,000 in 1985 and 1986.

The 715,000 manufacturing jobs created during the 1987–88 period amounted to a 2-year gain of 3.8 percent. (See table 1.) While this is substantially less than the 7.1-percent increase achieved by nonmanufacturing industries, it represented an important turnaround for manufacturing. Only 4 of the 20 manufacturing industries experienced net employment losses during this time.[3] Three of the four are nondurable goods industries—apparel and other textile products, petroleum and coal products, and leather products—that have been largely noncyclical in nature, characterized by long-term structural decline. The fourth industry, electrical and electronic equipment, reduced payrolls severely during the first half of 1987, although employment did rise slightly in the second half.

A majority of the 10 industries surpassing the 2-year all-manufacturing job growth rate of 3.8 percent belong to the durable goods category. Instruments and related products led all manufacturing industries with an increase of 10.3 percent. Primary metals rose by 8.1 percent, while lumber, printing and publishing, and miscellaneous manufacturing were within the 7–8 percent range.

In absolute terms, machinery except electrical achieved the most impressive recovery. Over the 2-year period, this industry created 130,000 jobs, or 18.4 percent of manufacturing's total employment gain. The increase was particularly strong in 1988 as the industry added 90,000 jobs; 1 in 4 manufacturing jobs created that year was directly attributable to machinery. In contrast, the industry's December 1986 employment level had accounted for about 10 percent of the manufacturing total.

Other industries rebounding 5 years into the economic expansion included printing and publishing (110,000) and instruments and related products (70,000). Thirteen industries added a minimum of 25,000 jobs during the 1987–88 period; seven had gains in excess of 50,000. Six manufacturing industries had a 2-year increase of 5 percent, adding 50,000 jobs or more. These six—machinery, printing and publishing, instruments, chemicals, primary metals, and lumber —accounted for nearly 70 percent of manufacturing's employment recovery between December 1986 and December 1988, while representing only 35 percent of the overall employment level.

Trends in exports

A major catalyst for manufacturing's resurgence was the rapid expansion of U.S. exports. With the sharp depreciation of the dollar after the first quarter of 1985, the price competitiveness of American products in overseas markets improved markedly.[4] Furthermore, an increasing emphasis on product quality and productivity growth also aided many U.S. firms.[5] In real terms (billions of 1982 dollars), merchandise exports rose 39 percent between the fourth quarters of 1986 and 1988.[6]

Manufacturing exports increased a total of 45 percent during the years 1987 and 1988. (See table 2.) In 1987, exports of manufactured goods rose 12 percent; foreign demand continued to accelerate in 1988, as exports jumped 29 percent, reaching $251.4 billion.[7] The durable and nondurable goods segments increased at similar overall rates, with the latter displaying more relative strength in 1987 and the former in 1988. More specifically, exports of durable goods industries rose 10 percent in 1987 and 32 percent in 1988. Foreign sales of nondurable goods industries increased by 16.5 percent in 1987 and by 23 percent in 1988.

Export gains were widespread. Indeed, only one manufacturing industry—petroleum and coal products— experienced a decline in either year; all industries achieved net export growth over the course of both years. Moreover, an overwhelming majority exported their products at an accelerating rate during the second year. The rate of increase for the 2-year period ranged from 4 percent by petroleum and coal products to 132.5 percent by primary metals. Nineteen of the 20 manufacturing industries expanded overseas sales by more than 20 percent.

In dollar terms, machinery recorded the strongest performance, increasing exports by $15.3 billion during 1987 and 1988. In 1988, this industry surpassed transportation equipment (2-year increase of $12.8 billion) to be-

Table 1. **Employees on manufacturing payrolls, December 1986, 1988, and 1989 levels, not seasonally adjusted**

[Numbers in thousands]

Industry	1986	1988	Absolute change, 1986–88	Percent change, 1986–88	1989	Absolute change, 1988–89	Percent change, 1988–89
Manufacturing	18,909	19,625	716	3.8	19,532	–93	–.5
Durable goods	11,152	11,601	449	4.0	11,452	–149	–1.3
Lumber and wood products	715.5	769.7	54.2	7.6	757.0	–12.7	–1.6
Furniture and fixtures	506.2	537.3	31.1	6.1	528.5	–8.8	–1.6
Stone, clay and glass products	575.2	600.6	25.4	4.4	594.3	–6.3	–1.0
Primary metal industries	727.4	786.6	59.2	8.1	773.0	–13.6	–1.7
Fabricated metal products	1,407.5	1,457.7	50.2	3.6	1,434.5	–23.2	–1.6
Machinery, except electrical	1,998.2	2,130.0	131.8	6.6	2,151.4	21.4	1.0
Electrical and electronic equipment	2,105.6	2,079.0	–26.6	–1.3	2,004.4	–74.6	–3.6
Transportation equipment	2,058.0	2,083.8	25.8	1.3	2,042.4	–41.4	–2.0
Instruments and related products	697.6	769.4	71.8	10.3	776.9	7.5	1.0
Miscellaneous manufacturing	361.2	387.3	26.1	7.2	389.5	2.2	.6
Nondurable goods	7,757	8,024	267	3.4	8,080	56	.7
Food and kindred products	1,609.6	1,635.7	26.1	1.6	1,666.3	30.6	1.9
Tobacco manufactures	58.4	59.4	1.0	1.7	53.8	–5.6	–9.4
Textile mill products	711.5	725.3	13.8	1.9	720.1	–5.2	–.7
Apparel and other textile products	1,096.9	1,090.4	–6.5	–.6	1,080.1	–10.3	–.9
Paper and allied products	678.1	697.1	19.0	2.8	698.8	1.7	.2
Printing and publishing	1,485.1	1,595.6	110.5	7.4	1,629.0	33.4	2.1
Chemicals and allied products	1,012.3	1,076.5	64.2	6.3	1,099.9	23.4	2.2
Petroleum and coal products	160.8	159.8	–1.0	–.6	161.2	1.4	.9
Rubber and miscellaneous plastics products	800.1	841.7	41.6	5.2	834.1	–7.6	–.9
Leather and leather products	143.7	142.9	–.8	–.6	136.9	–6.0	–4.2

Table 2. **Growth in manufacturing exports and exports-to-shipments shares, 1986–88, not seasonally adjusted**

[Numbers in million dollars]

Industry	Direct exports			Direct exports-to-shipments ratio		Indirect ratio
	1988 level	Change, 1986–88		1988 level	Percent change, 1986 – 88	1986 level
		Absolute	Percent			
Manufacturing	$251,377	$78,076	45.1	9.6	24.7	6.0
Durable goods	177,407	55,707	45.6	12.8	26.7	7.3
Lumber and wood products	5,340	2,322	76.9	–	–	4.2
Furniture and fixtures	728	262	56.2	–	–	1.3
Stone, clay and glass products	2,519	781	44.9	3.9	29.6	4.6
Primary metal industries	11,322	6,453	132.5	8.0	72.8	20.1
Fabricated metal products	7,298	1,756	31.7	5.1	27.5	9.2
Machinery, except electrical	51,654	15,296	42.1	20.9	19.9	7.2
Electrical and electronic equipment	31,862	11,447	56.1	14.0	34.8	12.1
Transportation equipment	50,759	12,782	33.7	14.4	19.0	2.1
Instruments and related products	12,263	3,206	32.8	16.9	13.4	2.7
Miscellaneous manufacturing	3,662	1,582	76.1	–	–	2.2
Nondurable goods	73,973	22,371	43.4	6.0	24.2	4.5
Food and kindred products	15,854	4,604	40.9	4.4	21.9	1.4
Tobacco manufactures	2,901	1,379	90.6	13.0	63.5	1.5
Textile mill products	2,339	686	41.5	3.9	31.0	5.0
Apparel and other textile products	1,992	779	64.2	–	–	1.2
Paper and allied products	7,051	2,572	57.4	5.7	23.8	7.9
Printing and publishing	1,882	584	45.0	–	–	3.3
Chemicals and allied products	31,867	9,303	41.2	13.3	15.7	6.8
Petroleum and coal products	4,325	164	3.9	3.5	4.5	6.6
Rubber and miscellaneous plastics products	4,870	1,929	65.6	5.3	33.4	9.0
Leather and leather products	892	371	71.2	–	–	1.6

NOTE: A dash indicates data are not available.

SOURCE: U.S. Department of Commerce, Bureau of the Census.

come manufacturing's leading exporter in nominal terms, accounting for one-fifth of the value of manufactured exports. Similarly, electrical equipment faced healthy foreign demand, achieving export growth of $11.4 billion. Chemicals ranked fourth in terms of dollar gains, with a 2-year increase of $9.3 billion. This technology-intensive industry is one of the few that consistently maintains a trade surplus; in 1988, exports exceeded imports by $13.3 billion. Another noteworthy exporting industry was primary metals ($6.5 billion). Gains by the remaining manufacturing industries ranged from $0.2 billion to $4.6 billion.

The effect on employment

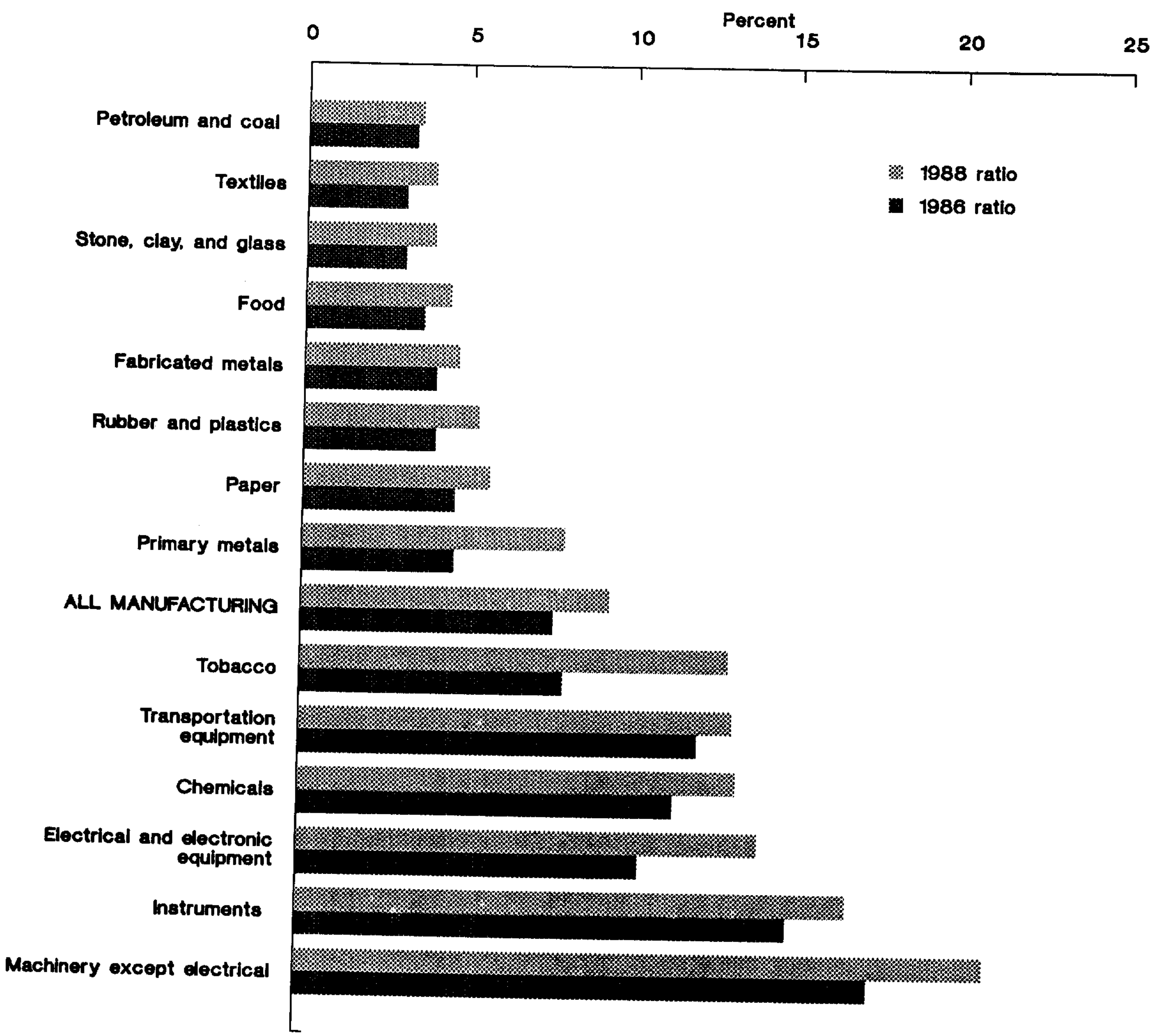
This surge in overseas demand provided a substantial impetus for employment gains throughout the Nation's factories. Indeed, manufacturing's recovery from its 1985-86 decline was largely a function of new orders from abroad, rather than heightened demand from domestic markets. Improved exchange rate conditions coupled with growth by other industrial economies stimulated foreign sales of American products. Accelerating exports led to increased production, which in turn entailed additional employment. Capacity utilization increased 4 percentage points between December 1986 and December 1988, from 80 percent to 84 percent.[8] Business' investment in plant and equipment subsequently rose as well, further augmenting the demand for labor.

The share of factory shipments destined for direct export represents a major determinant of the effects of rising exports on employment. This exports-to-shipments ratio for all of manufacturing increased from 7.7 percent in 1986 to 8.1 percent in 1987 and 9.6 percent in 1988. The 2-year increase in the ratio of 25 percent indicates the importance of exports to manufacturing's products and thus employment.

An examination of specific manufacturing industries demonstrates that the employment gains were concentrated in the export sector. Machinery, the leading industry in terms of job creation, also benefited from the largest nominal increase in exports. At 20.9 percent in 1988, this industry's exports-to-shipments ratio exceeded that of all others and grew from 17.4 percent in 1986. (See chart 2.) Instruments ranked second with its exports-to-shipments ratio in 1988 and third in job creation during the December 1986-88 period. Chemicals posted the fourth highest export share, as well as the fourth best employment gain. Primary metals achieved the seventh highest ratio but, more importantly, a substantial year-to-year change in the ratio itself. From 1987 to 1988, the industry's exports-to-shipments ratio rose three percentage points, from 5 to 8 percent. The primary metals industry had the fifth largest employment gain.

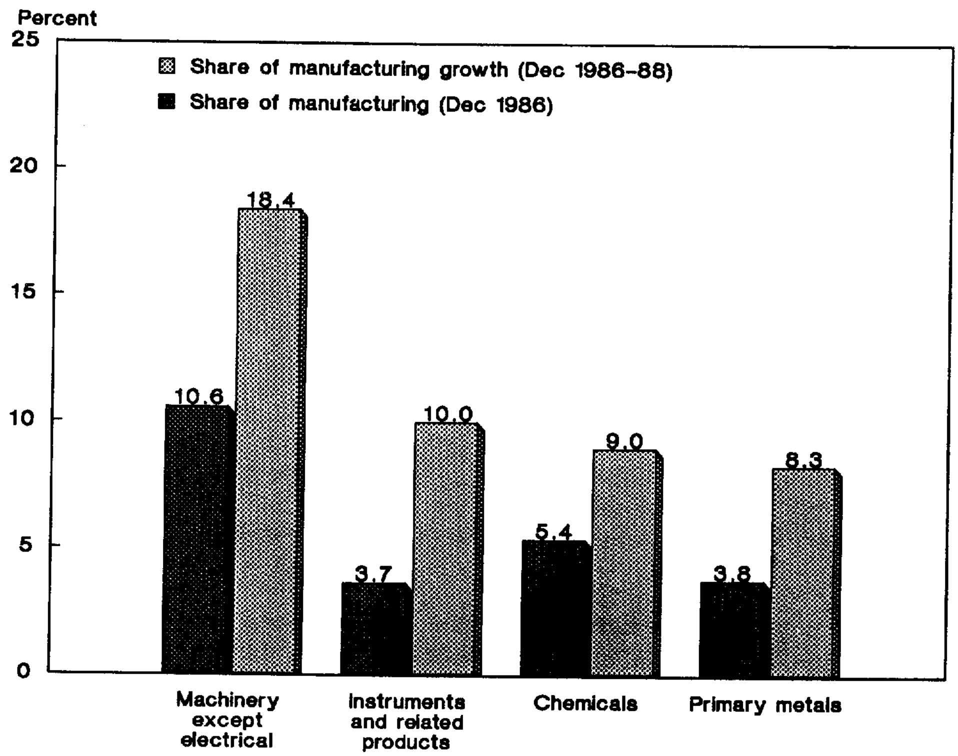
Considered together, these four export-related industries proved responsible for almost half of manufacturing's 2-year employment increase. In contrast, the industries had accounted for less than a quarter of manufacturing employment in December 1986. (See chart 3.) The exports of the four industries together rose $34.1 billion, representing 44 percent of all manufacturing export growth. Machinery, instruments, and chemicals all depended on exports for an increasingly large

Chart 2. Direct exports as a share of shipments, selected industries, 1986 and 1988



SOURCE: Bureau of the Census, U.S. Department of Commerce.

Chart 3. **Employment growth in four export-related industries, 1986–88**



portion of their sales. Primary metals was characterized by a relatively lower exports-to-shipments ratio but one that rose significantly in 1987 and 1988.

The analysis thus far has been limited to the impact of direct exports on employment. The importance of foreign trade is magnified when indirect exports—that is, manufactured goods that are incorporated into products that are themselves for export—are considered as well. The Bureau of the Census' Analytical Report Series provides estimates of both direct and indirect exports for manufacturing industries.[9] This export series is not strictly comparable to that used above, because it values products at their point of manufacture rather than their actual point of export. Nevertheless, the series is pertinent because it indicates the relative magnitude of indirect exports.

In 1986, the most recent year for which data are available, there were 85 cents of indirect exports for every dollar of direct exports. Together, the sales accounted for 13 percent of all manufacturing shipments that year. Primary metals, machinery, and chemicals benefited from three of the four highest levels of indirect exports. The case of primary metals is particularly noteworthy: its indirect exports were 6 times greater than were its direct exports. With the inclusion of indirect exports, this industry's exports-to-shipments ratio actually exceeded those of all other manufacturing industries. Machinery, chemicals, and instruments achieved three of the next four highest export shares. And these figures preceded the surge in exports in 1987 and 1988. Data on indirect exports thus underscore the evidence provided by the direct, namely, that employment growth was disproportionately concentrated among export-related industries.

Exports during 1989

The net strengthening of the dollar's foreign exchange value after 1987 caused U.S. exports to become relatively more expensive. In addition, many industrial economies experienced slower expansion in 1989. Consequently, export growth decelerated last year. In the absence of continued vigorous growth in foreign demand, combined with sluggish domestic demand, manufacturing began losing jobs in the second quarter of 1989.

Total manufacturing exports for the first two quarters of 1989 exceeded those of the corresponding 1988 period by only 15 percent. This is in contrast to an annual growth rate of 29 percent during 1988. Manufacturing employment, meanwhile, peaked in March 1989, with first-quarter growth of 90,000. Factory employment fell by 30,000 during the second quarter, 90,000 in the third, and 70,000 in the fourth.

Primary metals experienced a sharp drop in exports during the first half of 1989. Sluggish employment growth of 3,000 in the first quarter was followed by losses totaling 17,000 in the last three quarters. (See table 1.) Machinery continued to expand its overseas sales but at less than half its 1988 rate. Employment growth slowed as well, and the industry began losing jobs in the third quarter. Instruments' export growth moderated slightly through the second quarter, while employment continued to increase but at a much slower rate; however, in the fourth quarter, job losses ensued. Chemicals maintained a respectable export pace and added 17,000 jobs during the first two quarters of 1989, but job gains slowed during the last half of the year. As illustrated by the 1987–88 period, employment in these four industries in 1989 was closely linked to trends in exports.

Thus, although exports increased during the first half of 1989, the slowing pace was not sufficient to offset declines in domestic demand, particularly those in the automobile- and defense-related industries. This is in contrast to 1987, when rapid export growth combined with domestic demand to help reverse 2 years of declines in manufacturing employment. □

Footnotes

[1] Employment data are from the Current Employment Statistics survey and appear in the *Supplement to Employment and Earnings*, Bulletin 1312-12 (Bureau of Labor Statistics, August 1989).

[2] The recession is so designated by the National Bureau of Economic Research, Inc., Cambridge, MA.

[3] The term "industry" denotes the two-digit level in the Standard Industrial Classification system.

[4] Unpublished Bureau of Labor Statistics data on foreign currency price indexes of U.S. commodities offer evidence of this improved competitiveness. See also Charles P. Thomas, "U.S. International Transactions in 1986," *Federal Reserve Bulletin*, May 1987, p. 321.

[5] See Kathleen Deveny and others, "Going for the Lion's Share: The Time is Right for U.S. Companies to Reclaim Lost Markets," *Business Week*, July 18, 1988, pp. 70–72; and Myron Magnet, "The Resurrection of the Rust Belt," *Fortune*, Aug. 15, 1988, pp. 40–46.

[6] U.S. Department of Commerce, Bureau of Economic Analysis. Constant-dollar export data are not available by industry.

[7] Export data are collected by the Bureau of the Census and were obtained from various issues of *Trade and Employment* (Bureau of the Census). Data cited are not seasonally adjusted.

[8] *Federal Reserve Bulletin*, various issues. Data cited are seasonally adjusted.

[9] *Exports from Manufacturing Establishments, 1985 and 1986*, AR86-1 (Bureau of the Census), January 1989, p. 24.