International manufacturing compensation costs

Compared with average hourly compensation costs in the United States in 1993, costs increased in Japan and decreased in Canada and 14 European countries measured

Sarah Van Damme

Japanese hourly compensation costs for manufacturing production workers rose to 114 percent of the U.S. average in 1993. Such costs fell relative to the United States in Canada and in each of the 14 European countries for which 1993 data are available.[1]

Relative costs rose to 16 percent of the U.S. level in Mexico and increased to 31 percent of the U.S. level in the newly industrializing economies (NIE's) of Asia—Hong Kong, Korea, Singapore, and Taiwan. Using new 1992 trade weights, weighted average costs for the 23 foreign economies for which 1993 data are available fell to the 1991 relative-cost level of 86 percent of U.S. costs. This is down from a historic high of 89 percent in 1992.

The compensation cost trend in Japan, which may now be considered a high-cost country (see chart 1), contrasts with Canada, where hourly compensation costs also declined from 106 percent of the U.S. level in 1992 to 97 percent in 1993. (See table 1.) Trade-weighted average costs in Europe also declined to 111 percent of U.S. compensation costs, from 123 percent in 1992; the largest decline occurred in Sweden, where costs fell by 45 percentage points to 107 percent of the U.S. level.

What compensation costs measure

The Bureau of Labor Statistics has developed comparative measures of hourly compensation costs to provide a basis for assessing international differences in labor costs. Comparisons based on the more readily available average earnings statistics published by many countries may be misleading. National definitions of average earnings differ considerably; average earnings do not include all items of labor compensation; and the omitted items of compensation frequently represent a large proportion of total compensation.[2]

The hourly compensation measures discussed here are based on statistics available to BLS as of early April 1994. The measures are computed in national currency units and are converted to U.S. dollars at prevailing commercial market currency exchange rates. These exchange rates are appropriate measures for comparing levels of employers' labor costs, but they do not indicate relative living standards of workers or the purchasing power of their incomes. Prices of goods and services vary greatly among countries, and commercial market exchange rates do not reliably indicate relative differences in prices.

Total compensation costs include pay for time worked, other direct pay, and employer expenditures for legally required insurance programs and contractual and private benefit plans. In addition, total compensation costs for some countries include other labor taxes. Changes in relative compensation-cost levels over time are affected by differences in underlying wage and benefit trends. They also are affected by frequent, and sometimes sharp, changes in relative currency exchange values.

Sarah Van Damme is an economist in the Division of Foreign Labor Statistics, Bureau of Labor Statistics.

Exchange rate changes and 1993 levels

Japan, Canada, and six European countries had smaller percent changes in compensation costs in national currency terms between 1992 and 1993 than the 3.8-percent rise in U.S. costs. Compensation costs rose more than in the United States in the remaining European countries, for a European trade-weighted average cost change of 4.4 percent in national currencies. Compensation costs rose much more in Mexico and the Asian NIE's. (See table 2.)

Much of the change in relative cost levels was due to changes in exchange rates. (See table 2.) Between 1992 and 1993, the yen appreciated by 14 percent against the U.S. dollar. The currencies of each of the European countries analyzed fell in value relative to the U.S. dollar; the trade-weighted average decline was 11 percent. The largest exchange-rate decline was 25 percent for Sweden, where hourly compensation costs also declined in national currency terms due to a cut in social insurance contributions. The exchange-rate value of the Canadian dollar declined by 6 percent.

Exchange-rate changes were relatively small in Mexico and the Asian NIE's. The peso depreciated by 1 percent and the trade-weighted aver-

Table 1. **Indexes of hourly compensation costs for production workers in manufacturing, 29 countries or areas and selected economic groups, selected years, 1975–93**

[Index, United States = 100]

Country or area	1975	1980	1985	1988	1989	1990	1991	1992	1993
United States	100	100	100	100	100	100	100	100	100
Canada	94	88	84	97	104	107	110	106	97
Mexico	23	22	12	9	10	11	12	14	16
Australia	88	86	63	82	87	88	87	81	73
Hong Kong	12	15	13	17	19	21	23	24	26
Israel	35	38	31	55	54	57	56	56	—
Japan	47	56	49	91	88	86	94	101	114
Korea	5	10	9	16	22	25	29	30	32
New Zealand	50	54	34	59	54	56	54	49	48
Singapore	13	15	19	19	22	25	28	31	32
Sri Lanka	4	2	2	2	2	2	3	—	—
Taiwan	6	10	12	20	25	26	28	32	31
Austria	71	90	58	104	99	119	116	126	120
Belgium	101	133	69	114	108	129	127	137	127
Denmark	99	110	62	109	101	120	117	124	114
Finland	72	83	63	113	118	141	136	123	99
France	71	91	58	93	88	102	98	104	97
Germany[1]	100	125	74	131	124	149	147	157	152
Greece	27	38	28	38	38	45	44	46	—
Ireland	48	60	46	72	67	79	78	83	—
Italy	73	83	59	101	101	119	119	121	95
Luxembourg	100	121	59	99	95	110	107	—	—
Netherlands	103	122	67	114	105	123	118	127	120
Norway	106	117	80	133	128	144	139	142	120
Portugal	25	21	12	20	21	25	27	32	27
Spain	40	60	36	61	62	76	78	83	69
Sweden	113	127	74	121	122	140	142	152	107
Switzerland	96	112	74	129	117	140	139	144	135
United Kingdom	53	77	48	76	74	85	88	89	76
Trade-weighted measures[2]									
23 foreign economies[3]	61	67	52	77	77	83	86	89	86
OECD[4]	76	84	66	98	97	105	108	110	106
Europe	81	102	62	105	100	118	117	123	111
European Union	79	100	61	102	98	115	114	121	110
Asian NIE's	8	12	13	18	23	25	27	30	31

[1] Former West Germany.

[2] For description of trade-weighted measures and economic groups, see text.

[3] 29 countries or areas less the United States and 5 countries for which 1993 data are not available.

[4] Organization for Economic Cooperation and Development less Mexico, which became a member in 1994.

Dash indicates data are not available.

Table 2. **Annual percent change in hourly compensation costs in U.S. dollars, hourly compensation costs in national currency, and annual percent change in exchange rates (U.S. dollars per national currency unit), selected countries and economic groups, selected periods, 1975–93**

Country or area	1975–93	1975–80	1980–85	1985–90	1990–93	1991	1992	1993
Hourly compensation costs in U.S. dollars								
United States	5.5	9.2	5.7	2.8	4.0	4.5	3.8	3.8
Canada	5.8	7.7	4.8	7.7	.9	7.7	–.4	–4.3
Mexico	3.3	8.5	–6.4	.6	17.3	17.7	18.7	15.7
Japan	10.9	13.0	2.8	15.1	14.5	14.5	11.1	17.9
France	7.4	14.6	–3.4	15.2	2.3	.2	10.7	–3.4
Germany[1]	8.0	14.2	–4.9	18.2	4.9	3.4	10.8	.7
Italy	7.1	11.8	–1.3	18.4	–3.4	4.8	5.4	–18.5
Spain	8.8	18.4	-4.6	19.4	.6	7.7	9.6	–13.8
Sweden	5.2	11.7	–5.0	16.7	–5.1	5.8	11.0	–27.2
United Kingdom	7.7	17.5	–3.7	15.2	.3	8.3	4.9	–11.2
Trade-weighted measures[2]								
23 foreign economies[3]	8.3	12.5	1.0	12.8	7.0	10.0	8.4	3.0
less Mexico	8.8	12.9	1.8	14.1	5.9	9.1	7.3	1.6
OECD[4]	7.7	11.7	.7	13.2	4.7	8.0	6.1	.6
Europe	7.4	14.5	–4.2	16.8	1.7	4.1	8.9	–6.8
Asian NIE's	14.1	18.9	7.0	18.5	11.4	14.6	13.3	6.5
Hourly compensation costs in national currency								
United States	5.5	9.2	5.7	2.8	4.0	4.5	3.8	3.8
Canada	7.2	10.7	8.2	4.4	4.3	5.8	5.0	2.1
Mexico	40.6	23.2	51.6	62.4	21.3	26.0	21.5	16.7
Japan	5.0	7.0	4.0	4.2	4.8	6.4	4.6	3.3
France	9.1	14.3	12.3	4.2	3.7	3.9	3.8	3.4
Germany[1]	5.7	7.5	4.7	4.9	5.7	6.2	4.2	6.7
Italy	12.4	18.0	15.9	7.9	5.7	8.6	4.6	4.0
Spain	13.7	23.8	13.4	7.9	8.3	9.8	7.9	7.4
Sweden	9.0	12.2	9.5	8.3	4.0	8.1	6.9	–2.5
United Kingdom	10.1	16.4	8.3	8.1	6.2	9.3	4.9	4.5
Trade-weighted measures[2]								
23 foreign economies[3]	11.3	13.0	12.2	11.7	7.4	9.4	7.4	5.5
less Mexico	8.2	11.9	8.0	6.3	5.9	7.7	5.8	4.3
OECD[4]	7.0	10.4	7.2	5.0	4.7	6.3	4.7	3.3
Europe	8.2	12.3	8.5	5.8	5.3	6.7	4.7	4.4
Asian NIE's	14.1	19.6	11.6	13.0	11.6	14.5	11.4	9.1
Exchange rate								
United States	—	—	—	—	—	—	—	—
Canada	–1.3	–2.7	–3.1	3.2	–3.3	1.8	–5.2	–6.3
Mexico	–26.4	–11.5	–38.3	–38.0	–3.4	–6.8	–2.5	–.7
Japan	5.6	5.6	–1.1	10.5	9.3	7.7	6.2	14.1
France	–1.5	.3	–14.0	10.5	–1.3	–3.5	6.7	–6.6
Germany[1]	2.2	6.2	–9.2	12.7	–.8	–2.6	6.3	–5.6
Italy	–4.8	–5.3	–14.8	9.8	–8.7	–3.5	.7	–21.7
Spain	–4.3	–4.3	–15.9	10.8	–7.2	–1.9	1.6	–19.7
Sweden	–3.5	–.4	–13.2	7.8	–8.8	–2.1	3.9	–25.3
United Kingdom	–2.2	.9	–11.0	6.6	–5.6	–.9	–.1	–15.0
Trade-weighted measures[2]								
23 foreign economies[3]	–2.0	–.2	–8.8	3.0	–.3	.6	1.0	–2.3
less Mexico	.6	1.0	–5.7	7.4	.0	1.4	1.4	–2.5
OECD[4]	.7	1.3	–6.0	7.9	.0	1.7	1.3	–2.6
Europe	–.7	2.1	–11.6	10.4	–3.4	–2.5	4.0	–10.8
Asian NIE's	.0	.5	–4.2	4.9	–.1	.3	1.9	–2.3

1 Former West Germany.

2 Trade-weighted percent changes computed as the trade-weighted average of the rates of change for the individual countries or areas. For a description of trade-weighted measures and economic groups, see text.

3 29 countries or areas less the United States and 5 countries for which 1993 data are not available.

4 Organization for Economic Cooperation and Development less Mexico, which became a member in 1994.

NOTE: Dash indicates data are not available. Rates of change based on compound rate method.

age rate in the NIE's declined by 2 percent. The compensation-cost increases in national currency terms in these economies outweighted the depreciation of their currencies.

Consequently, hourly compensation costs in U.S. dollars rose more than 15 percent in Japan and Mexico and an average of 6.5 percent in the Asian NIE's, while they declined by about 4 percent in Canada and an average 7 percent in Europe.

Long-term trends

In the United States, hourly compensation costs for manufacturing production workers increased an average 5.5 percent annually between 1975 and 1993. Between 1975 and 1980, these costs grew by 9.2 percent; between 1980 and 1985, 5.7 percent; between 1985 and 1990, 2.8 percent; and between 1990 and 1993, an average of 4.0 percent per year. In most of the foreign economies analyzed, compensation cost increases also have abated recently when measured in national currency terms. (See table 2.)

Between 1975 and 1993, trade-weighted hourly compensation costs in U.S. dollars increased by an average 8 percent per year in the 23 foreign economies analyzed. In 1975, their trade-weighted average level was 61 percent of U.S. compensation costs; it rose to 67 percent in 1979–80, but began falling in 1981, reaching its lowest point—52 percent—in 1985. It increased consistently until 1992, reaching a peak of 89 percent, and it declined to 86 percent in 1993.

The larger fluctuations in comparative levels in most periods were influenced by exchange-rate changes. However, between 1975 and 1980, trade-weighted exchange rates were relatively stable with respect to the U.S. dollar, and average compensation costs grew by 13 percent in national-currency and in U.S.-dollar terms in the foreign economies examined.

Between 1980 and 1985, compensation costs in the 23 foreign countries grew by an average 12 percent per year in national-currency terms, double the 6-percent U.S. rate. However, because the U.S. dollar appreciated strongly, by 9 percent per year, these costs grew by only 1 percent per year in U.S. dollars. The average exchange-rate changes have moderated in recent years, and in general, compensation costs in the 23 foreign economies have grown faster than those in the United States in national-currency and U.S. dollar terms.

On average, compensation in these countries grew by 12 percent annually between 1985 and 1990 and 7 percent per year between 1990 and 1993 in national-currency terms. In U.S. dollars, compensation grew by 13 percent per year between 1985 and 1990 and 7 percent between 1990 and 1993.

The trends for specific countries or country groups differed from the average trend. Japan's relative hourly compensation costs in U.S. dollars increased from 47 percent of U.S. costs in 1975 to 66 percent in 1978. These costs dropped to about 50 percent in 1982–85, rose to 91 percent in 1988, fell to 86 percent in 1990, and rose again in 1993, reaching 114 percent of the U.S. cost level. Canada's costs have been closer to the U.S. average, ranging between 87 percent and 102 percent of U.S. costs from 1975 to 1984, dipping to 84 percent in 1985–86, increasing to 110 percent in 1991, and falling again, to 97 percent in 1993.

In Europe, hourly compensation costs in U.S. dollars rose from 81 percent of U.S. costs in 1975 to 102 percent in 1980, dropped to 62 percent in 1984–85, increased to 123 percent in 1992, and fell again in 1993, to 111 percent. In 1993, costs in the European countries ranged from 27 percent of the U.S. level in Portugal to 135 percent in Switzerland and 152 percent in the former West Germany.

Compensation costs in the Asian NIE's grew at a fairly consistent rate throughout the period, from 8 percent of U.S. costs in 1975, to 13 percent in the mid–1980's, 25 percent in 1990, and 31 percent in 1993. On the other hand, the Mexican compensation cost level, which was 23 percent of the U.S. level in 1975, ranged from 18 percent to 24 percent between 1976 and 1980, and peaked at 26 percent in 1981. Costs fell to 8 percent in 1986–87 and began rising again, reaching 16 percent of U.S. costs in 1993.

Recent exchange rate developments

As of July 1994, the value of the Japanese yen was 13 percent higher than its 1993 average relative to the U.S. dollar. The Canadian dollar was 7 percent lower and the Mexican peso was 8 percent lower. European currency exchange rates, except for Greece and Spain, also were higher than their 1993 averages relative to the U.S. dollar. The rates were slightly above the 1993 average in Italy, Portugal, and Sweden; between 3 percent and 6 percent higher in Austria, Denmark, France, Germany, Ireland, the Netherlands, Norway, and the United Kingdom; 7 percent higher in Belgium; and more than 10 percent higher in Finland and Switzerland.

At the July 1994 exchange rates, assuming similar underlying compensation trends, Japanese compensation costs in U.S. dollars would rise to another new high, at 129 percent of U.S. costs. Canadian compensation costs would decline to 91 percent of the U.S. level and Mexican costs would decline to 14 percent. Relative costs in most European countries would increase; average compensation costs for the fourteen Eu-

Table 3. **Share of total U.S. imports and exports of manufactured products in 1986 and 1992**

[In percent]

Country or area and economic group	Trade share		Country or area and economic group	Trade share	
	1986	1992		1986	1992
Canada	19.9	19.2	Greece	.1	.1
Mexico	3.1	7.6	Ireland	.5	.6
Australia	1.4	14.	Italy	2.9	2.3
Hong Kong	2.3	2.0	Luxembourg	—	.1
Israel	.8	.8	Netherlands	2.0	1.9
Japan	20.4	15.8	Norway	.3	.3
Korea	3.5	3.4	Portugal	.2	.2
New Zealand	.3	.3	Spain	.9	.8
Singapore	1.5	2.4	Sweden	1.2	.8
Sri Lanka	.1	.1	Switzerland	1.4	1.0
Taiwan	4.8	4.4	United Kingdom	4.4	4.4
Austria	.3	.3	**Economic groups**		
Belgium	1.7	1.5	28 foreign economies	84.6	80.8
Denmark	.4	.3	OECD[2]	68.5	60.1
Finland	.2	.2	Europe	26.5	23.4
France	3.1	3.2	European Union	23.1	20.8
Germany[1]	6.8	5.4	Asian NIE's	12.1	12.2

[1] Former West Germany.

[2] Organization for Economic Cooperation and Development less Mexico, which joined in 1994.

NOTE: The 1986 trade shares are adjusted to exclude the U.S. value content of imported articles assembled in foreign countries with U.S. made components identified under Items 806.30 and 807.00 of the former U.S. Tariff Schedule. The 1992 trade shares are not adjusted.

ropean nations for which 1993 data are available would rise to 117 percent of U.S. costs.

Trade-weighted measures

The hourly compensation cost series measures costs on a country-by-country basis. Because the countries covered by the series differ greatly in their relative importance to U.S. trade in manufactured goods, BLS also has developed trade-weighted average levels and trends of hourly compensation costs for selected groups of countries. The trade weights used to compute the average compensation costs for such groups are the sum of U.S. imports of manufactured products for domestic consumption (customs value) and U.S. exports of domestic manufactured products (f.a.s.—free alongside ship—value) for each group.

New trade weights, with 1992 as the reference year, were introduced this year. Previously, trade weights with 1986 as the reference year had been used. (See table 3.) The 1986 weights were adjusted to exclude the value of U.S. content in imported articles assembled in foreign countries with U.S.-made components. The effect of this adjustment on the overall volume of trade was small; however, the adjustment reduced the Mexican share of U.S. manufacturing trade from 4.4 percent to 3.1 percent. The 1992 trade weights have not been adjusted to exclude the value of U.S. content in imported articles because changes in regulations and other factors have substantially decreased imports declared under the relevant tariff provisions.

The 28 foreign economies covered in the hourly compensation series accounted for 81 percent of total U.S. manufactured-goods trade in 1992. The only countries not covered that accounted for at least 1 percent of such trade are China (3.7 percent), Malaysia (1.4 percent), Thailand (1.2 percent), and Brazil (1.4 percent).

Mexico's trade weight increased by 4.5 percentage points, to 7.6 percent. About 2 percentage points of this increase is due to the change in the treatment of the value of U.S. content in imported articles. Japan's weight declined by 4.6 percentage points, to 15.8 percent. The total trade weight for Europe declined by 3.1 percentage points; much of this drop can be attributed to the 1.4-point decline in the share of trade by the former West Germany. With a 19-percent manufacturing trade share, Canada is the largest manufacturing trading partner of the United States, followed by Japan, Mexico, and Germany.

Chart 2 provides a comparison of U.S. hourly compensation costs with trade-weighted hourly compensation costs in the 23 foreign economies for which 1993 data are available, using both the 1986 and the 1992 trade weights. Although the new trade weights have little effect on relative trends between 1975 and 1993, they lower the relative average compensation costs in the 23 economies, reflecting the increased importance of the lower cost economies in U.S. trade.

Chart 1. **Hourly compensation costs in U.S. dollars for production workers in manufacturing, 1975–93**

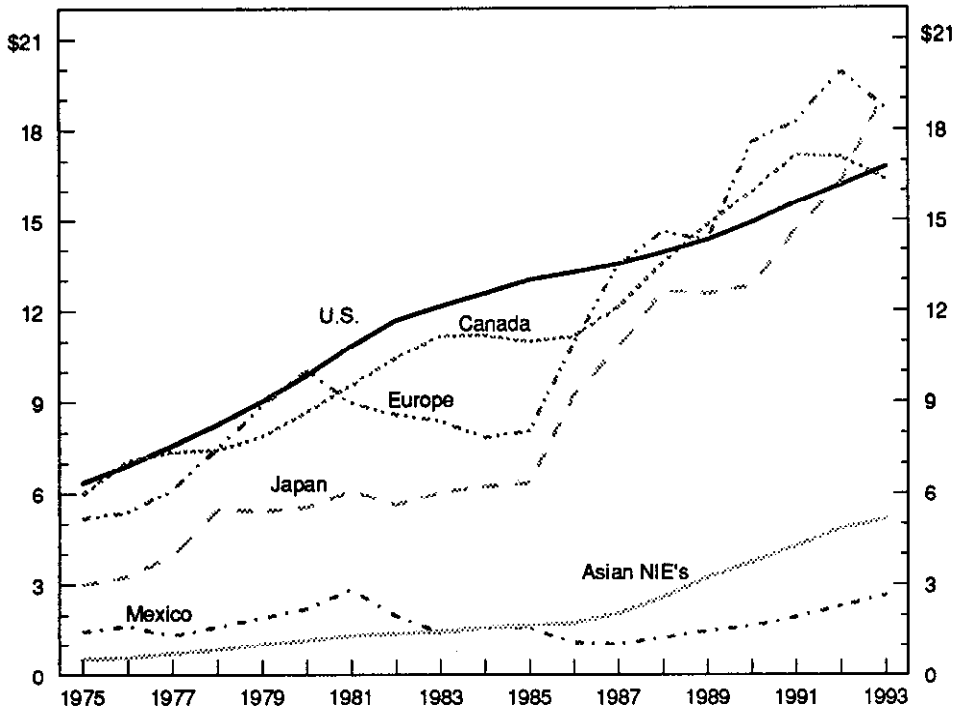
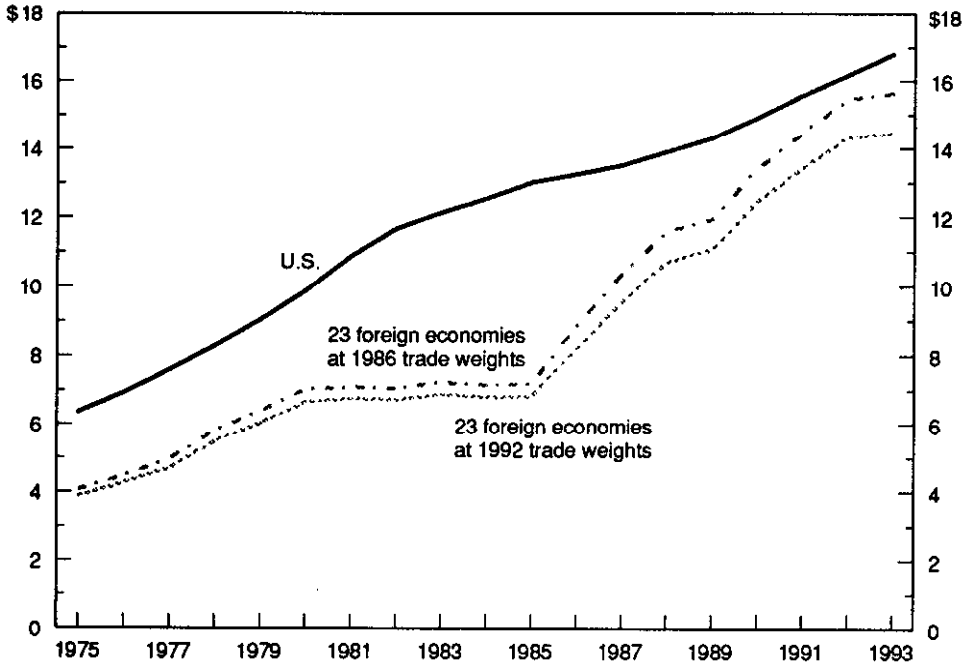


Chart 2. **Hourly compensation costs in the U.S. and in 23 foreign economies computed with 1986 and 1992 trade weights**



Data limitations

Because hourly compensation is partly estimated, these statistics should not be considered precise measures of comparative compensation costs. In addition, the figures are subject to revision as the results of new labor cost surveys or other data used to estimate compensation costs become available.

The figures presented here are averages for all manufacturing industries and do not necessarily represent all component industries. In the United States and some other countries, such as Japan, differentials in hourly compensation costs vary widely by industry. In contrast, other countries, such as Germany and Sweden, have narrow differentials.

The U.S. measures are prepared specifically by BLS for international comparisons of employer labor costs in manufacturing. The methods used, as well as the results, differ somewhat from other BLS series on U.S. compensation costs. □

Footnote

[1] *International Comparisons of Hourly Compensation Costs for Production Workers in Manufacturing, 1993*, Report 873, published in June 1994. This and other reports in this series present comparative levels and trends in hourly compensation costs in 29 countries and areas. Definitions of terms, methods, and data limitations are summarized in these reports. The report is available from the Bureau of Labor Statistics Washington, DC 20212.

[2] Hourly labor costs are an important element in determining the underlying price competitiveness of manufactured products. In 1991, they accounted for 69 percent of gross product originating (value added) in U.S. manufacturing. Unit labor costs—hourly labor costs divided by output per hour (labor productivity)—are a better measure of competitiveness. BLS publishes comparative trends in manufacturing unit labor costs for the United States and 13 of the foreign economies covered by the comparative hourly compensation cost measures described in this article. See Arthur Neef, Christopher Kask, and Christopher Sparks, "International comparisons of manufacturing unit labor costs," *Monthly Labor Review*, December 1993, pp. 47–58.

However, BLS has not constructed unit labor cost measures for the other economies covered by this article. In addition, BLS does not prepare level comparisons of unit labor costs because of limits in the data and technical problems comparing levels of manufacturing output. See the appendix of "International comparisons of manufacturing unit labor costs."

For a discussion of hourly and unit labor costs as competitiveness indicators, see Edwin R. Dean and Mark K. Sherwood, "Manufacturing costs, productivity and competitiveness, 1979–93," *Monthly Labor Review*, October 1994, p. 3–16 .