

International comparisons

A perspective on U.S. and foreign compensation costs in manufacturing

Despite the appreciation of the dollar, U.S. hourly compensation costs have grown more slowly than costs in foreign countries over the 1975–2000 period

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In 2000, for the first time since 1989, average hourly compensation costs for manufacturing production workers in the United States rose above hourly compensation costs in Europe in U.S. dollar terms. U.S. hourly compensation costs remained well above cost levels in Canada, Mexico, and a group of four newly industrializing economies (NIEs) in Asia—Hong Kong, Korea (the Republic of Korea), Singapore, and Taiwan. Costs in Japan, however, were 11 percent higher than costs in the United States in 2000. (See chart 1.)

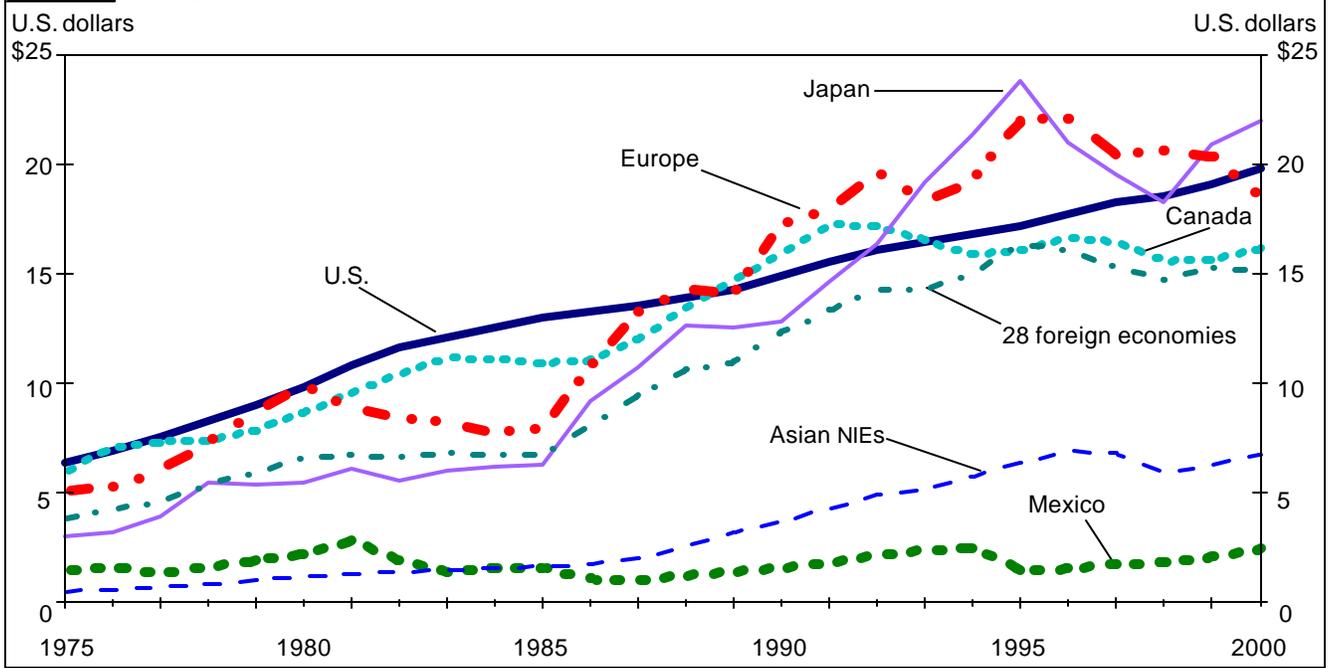
With declining barriers to world trade and the increasing importance of trade in many countries, business and labor leaders, and other analysts are concerned with the competitiveness of their countries' exports. Labor costs are a major factor influencing the costs of goods produced by a country relative to those of its trading partners, and consequently its international competitiveness.¹ Reflecting the importance of these labor costs, the European Commission and European Council, for example, have called on member states for moderation in both wage and nonwage labor costs.² Eurostat, the statistical office of the European Union, notes that "labour costs considerably influence the choices of political, economic and social decisionmakers, as they account for some two-thirds of the production costs of goods and services. Moreover, knowledge of labour cost levels is an essential tool in the strategic planning of investment, production,

employment policy or wage levels in collective bargaining."³

Over the past quarter-century, hourly compensation costs in the United States have tripled, and costs in competitor economies have risen nearly four-fold in U.S. dollar terms. These costs reflect both comparative changes in costs in terms of national currencies and exchange rate changes. Major changes in the relative position of countries' hourly compensation costs over this 25-year span are evident in the examination of three periods, illustrated in chart 1. From 1975 to 1985, hourly compensation costs for a trade-weighted average of 28 foreign economies grew at a slower rate than in the United States. This was particularly true in the first half of the 1980s, a period that saw strengthening of the U.S. dollar and a widening gap between foreign and U.S. costs. Between 1985 and 1995, however, foreign costs grew at a much faster rate than U.S. costs, with competitor costs nearly reaching U.S. levels in 1995, and costs in Europe and Japan surpassing those in the United States. From 1995 to 2000, costs in the foreign economies fell on a U.S. dollar basis, while U.S. costs continued to rise, with the result that competitor costs are now only three-quarters of the U.S. level, and European costs have fallen below the United States once again. The latter two periods coincide with the weakening of the dollar beginning in 1985 as a result of the "Plaza Accord," and the strengthening of the dollar beginning in 1995.⁴ These

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Chart 1. Hourly compensation costs in U.S. dollars for production workers in manufacturing, 1975–2000



exchange rate changes have an important effect on the BLS hourly compensation costs series because they are used to convert foreign costs into U.S. dollars.

This article examines hourly compensation costs and the component parts of compensation in 2000, as well as historical trends over the past 25 years for the United States and several foreign economies, with particular focus on the widening gap between the U.S. and foreign costs in 1975–85, the faster growth of foreign costs in 1985–95, and the slowdown in foreign growth in 1995–2000.⁵ The article also analyzes some of the underlying factors that drive changes in relative hourly compensation costs, including compensation costs on a national currency basis, the component parts of compensation, and exchange rates. Exchange rates are used to convert national currency levels of compensation into compensation on a U.S. dollar basis, and changes in these underlying factors are reflected in changes in hourly compensation on a U.S. dollar basis. Exchange rate movements are often volatile, and compensation costs on a U.S. dollar basis can be dramatically affected by them over short periods of time. Over the 25-year period studied, however, it was differences in the rates of compensation growth on a national currency basis that had the larger effect on the U.S. competitive position in many countries.

Hourly compensation costs are discussed for six countries or groups: the United States, Canada, Mexico, Japan, Europe, and the Asian NIEs. Canada, Mexico, and Japan are the countries with the largest shares in U.S. trade. For ease of presen-

tation, Europe is discussed as a region.⁶ The Asian NIEs are comprised of Hong Kong, Korea, Singapore, and Taiwan.

The BLS publishes comparative hourly compensation costs for production workers in manufacturing for the United States and 28 foreign economies.⁷ Hourly compensation costs differ significantly from the more readily available average hourly earnings statistics published in many countries. Hourly compensation costs consist of pay for time worked; pay for time not worked (such as vacation and holiday pay); seasonal and irregular bonuses; pay in kind; employer expenditures for legally required social insurance programs and contractual and private benefit plans; and other taxes on payrolls or employment.⁸ Average earnings do not include all items of labor compensation; they are typically limited to pay for time worked and the omitted items frequently represent a large proportion of total compensation. Moreover, the portion of compensation not included in hourly earnings statistics varies widely among countries. In some countries, the proportion of the omitted items of compensation may make up as little as 20 percent of total compensation costs, while in others nearly 50 percent of compensation may consist of the omitted items. The broader measure of compensation analyzed here therefore permits more meaningful cost comparisons across countries.⁹

Compensation costs in U.S. dollars, 2000

Hourly compensation costs in the United States reached nearly \$20 in 2000, about \$2 less than the hourly cost (when adjusted

to U.S. dollars) in Japan but a little more than a dollar higher than the trade-weighted average for Europe, and almost \$4 higher than in Canada. Hourly compensation costs in the four newly industrializing Asian economies were below \$7. Mexican hourly compensation costs in U.S. dollars were well below those of any economy studied. (See table 1.)

These levels of compensation costs can be broken down into three basic components: pay for time worked, other direct pay, and social insurance expenditures—contributing to an understanding of the sources of differences in levels of hourly compensation costs.

Pay for time worked includes basic time and piece rates, plus overtime premiums, shift differentials, other premiums and bonuses paid regularly each pay period, and cost-of-living adjustments.

Other direct pay includes paid leave (vacations, holidays, and other paid leave, except sick leave), seasonal or irregular bonuses and other special payments, selected social allowances, and the cost of payments in kind.

Social insurance expenditures include employer expenditures for legally required insurance programs and contractual and private benefit plans (retirement and disability pensions, health insurance, income guarantee insurance and sick leave, life and accident insurance, occupational injury and illness compensation, unemployment insurance, and family allowances).

In this article, we refer to the combination of other direct pay and social insurance as additional compensation. Analysis of compensation structure after all adjustments (that is, the percentage of compensation cost comprised of pay for time worked, other direct pay, and social insurance) provides insight into the composition of employer costs and yields information about which items are most responsible for differences in total compensation cost levels and trends among countries.

In 2000, compensation costs in Japan were higher than in the United States, but pay for time worked in Japan was about

90 percent of what U.S. employers paid for time worked. (See chart 2.) In Europe, hourly compensation costs were 93 percent of the U.S. level and well above the Canadian level (table 1), but pay for time worked in Europe was just 77 percent of the U.S. level and less than pay for time worked in Canada.¹⁰

These situations are possible because the share of additional compensation (other direct pay and social insurance) is higher in Japan and Europe than in the United States. In Japan, other direct pay was equal to 26 percent of total compensation in 2000, a much higher percentage than in the United States, where other direct pay was only 7 percent of total compensation. (See chart 3.) As a result, when bonuses and leave time (vacation and holiday pay) are included, direct pay (pay for time worked plus other direct pay) in Japan is higher than in the United States. Within the BLS estimates of hourly compensation costs, bonuses are an especially large part of Japanese costs, equaling 15 percent of hourly compensation costs, while in the United States bonuses are less than 1 percent of hourly compensation costs.

Other direct pay was also substantially more important in Europe than in the United States, comprising 17 percent of total compensation in 2000.¹¹ According to BLS estimates of components of other direct pay, bonuses in most of Europe were not as large as in Japan, but they were still considerably higher than in the United States, typically about 5–10 percent of total compensation. Another important component of other direct pay, pay for time not worked, was higher in most European countries than in the United States, averaging between 9–12 percent of total compensation in most European countries, compared with about 6 percent in the United States.

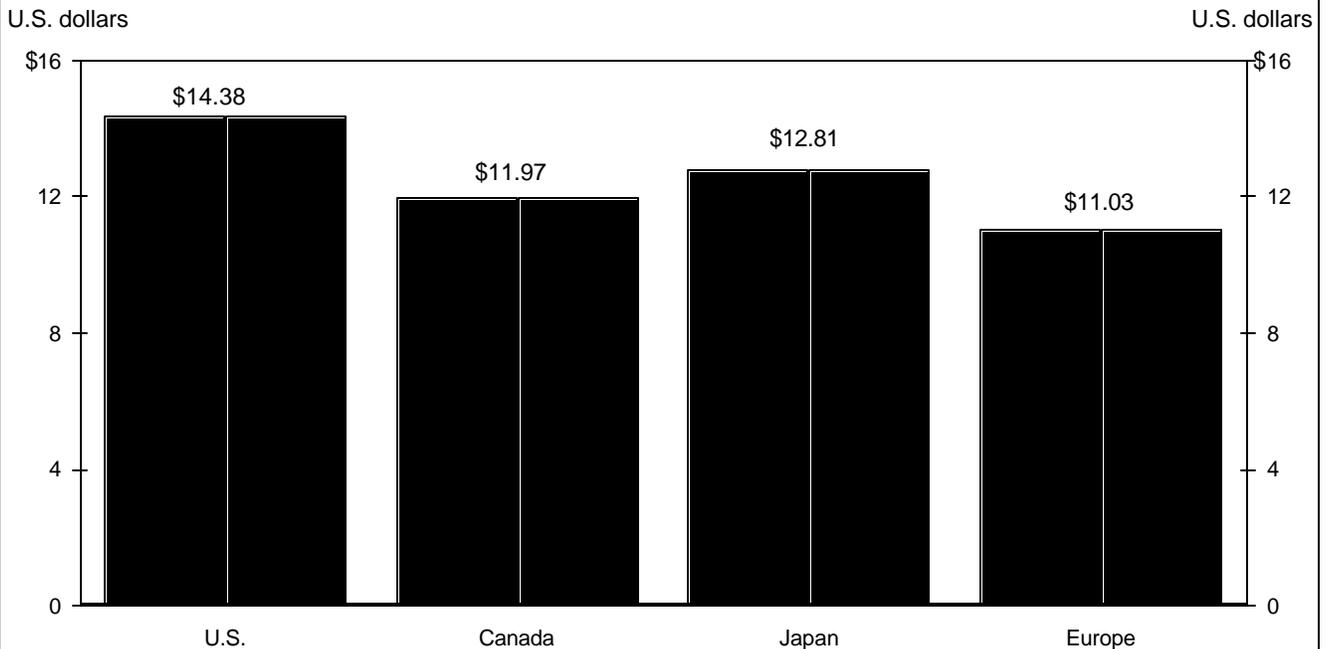
The other major category of compensation costs is social insurance. Social insurance made up a higher percentage of costs in Europe than in the United States, Japan, and Canada in 2000. (See chart 3.) The importance of social insurance among European countries varies considerably. Social insurance cost shares in some countries, such as Belgium, France, Italy, and Sweden were near or above 30 percent. In other European countries, however, including Denmark, Ireland, and the United Kingdom, social insurance cost shares were much lower than in the United States. In the Asian

Table 1. Hourly compensation costs in U.S. dollars for production workers in manufacturing, selected years 1975–2000

[United States = 100]

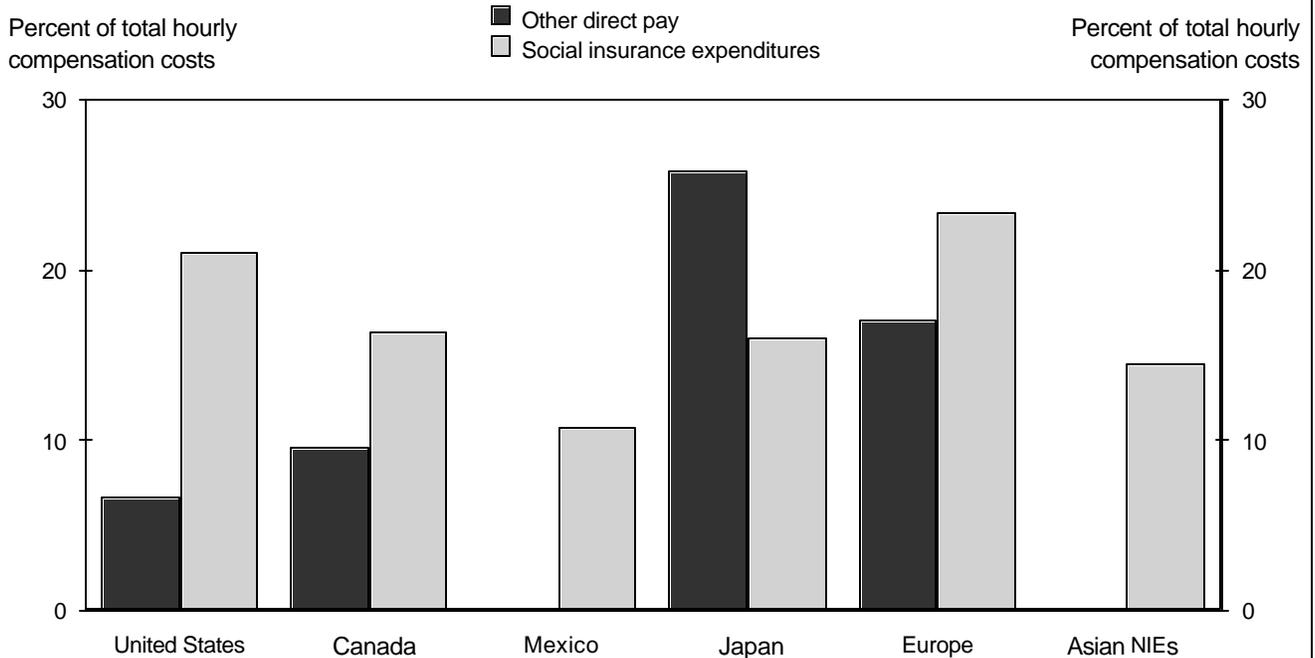
| Country or area | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 |
|------------------------------|----------|----------|-----------|-----------|-----------|-----------|
| United States | 100 | 100 | 100 | 100 | 100 | 100 |
| (cost in U.S. dollars) | (\$6.36) | (\$9.87) | (\$13.01) | (\$14.91) | (\$17.19) | (\$19.86) |
| Canada | 94 | 88 | 84 | 107 | 94 | 81 |
| Mexico | 23 | 22 | 12 | 11 | 9 | 12 |
| Japan | 47 | 56 | 49 | 86 | 139 | 111 |
| Europe | 80 | 100 | 61 | 116 | 128 | 93 |
| Asian NIES | 8 | 12 | 13 | 25 | 37 | 34 |
| All 28 competitors | 60 | 67 | 52 | 83 | 95 | 76 |

Chart 2. Hourly pay for time worked in U.S. dollars for production workers in manufacturing, 2000



NOTE: Separate data for pay for time worked and other direct pay are not available for Mexico and the Asian NIEs.

Chart 3. Importance of other direct pay and social insurance expenditures for production workers in manufacturing, 2000



NOTE: Separate data for pay for time worked and other direct pay are not available for Mexico and the Asian NIEs.

NIEs, social insurance cost shares were only 14.5 percent, but they have been rising as a percentage of total compensation costs over the last 25 years. Mexico's share of social insurance costs in hourly compensation was the lowest of the countries compared.

The analysis of compensation structure illustrates the importance of looking at additional compensation costs. Using only pay for time worked data as a means for comparison would result in an inaccurate assessment of differences in employer costs among countries. As noted above, costs for pay for time worked are higher in the United States than in Japan or Europe, but once items of additional compensation are included, total compensation in Japan and several European countries is significantly higher than the United States.

Compensation costs in U.S. dollars, 1975–2000

Growth over three periods. Between 1975 and 2000, hourly compensation costs in the United States rose at an average annual rate of 4.7 percent. This growth was considerably slower than Japan's rate of 8.3 percent and the 11.1-percent growth rate of the Asian NIEs over the 25-year period. Europe's growth rate was more moderate but still rose at a rate higher than the United States. Only in Canada and Mexico did rates grow at a slower pace than in the United States. (See table 2.)

Compensation costs in the United States grew at about the same rate as in Japan between 1975 and 1985, before slowing considerably for the next 15 years. Only the Asian NIEs exhibited significantly faster growth in compensation costs than did the United States over the 1975–85 period. During 1985–95, costs in U.S. dollars in all the foreign economies except Mexico grew at a rate significantly higher than in the United States. Then, in 1995–2000, costs either declined or grew at much slower rates than in the United States, again with Mexico as the exception.

The years between 1985 and 2000 contained dramatic examples of growth and decline in compensation costs. Growth rates in Europe, Japan, and the Asian NIEs were in the double digits for the 1985–95 period, much higher than the U.S. rate of 2.8 percent. In 1995, however, things changed drastically.

Costs in Europe and Japan actually fell during the 1995–2000 period. The Asian NIEs maintained a positive growth rate during these last 5 years, but hourly compensation cost growth slowed to well below that of the United States.

As in Europe, Japan, and the Asian NIEs, Canadian cost growth also decelerated sharply after 1995, but it is noteworthy that trends in Canada did not follow the same pattern as these other economies. Canadian costs accelerated quickly in the latter half of the 1980s, but did not grow at all from 1990 onward.

The pattern in Mexico was reversed from that of the other foreign economies. Mexican compensation costs grew at the slowest rate during 1975–85, and Mexico was the only economy in which hourly compensation fell between 1985 and 1995. However, Mexican costs grew at the fastest rate by far over the final 5 years of the comparison period.

Changes in relative position. The differences in growth rates of the United States and foreign economies result in changes in the relative position of a country's hourly compensation costs in U.S. dollars over time. Chart 4 shows the position of each foreign economy over time relative to the United States. The U.S. level is set to 100 in all years, and each foreign economy's level is expressed as a percentage of the U.S. level in any given year.

Among the foreign economies, Canadian costs, at 94 percent of the U.S. level, were closest to the United States in 1975. Japanese costs were slightly less than half of U.S. costs, while Mexican costs were about a quarter of the United States. Costs in the Asian NIEs were only 8 percent of the U.S. level, averaging a mere 52 cents per hour.

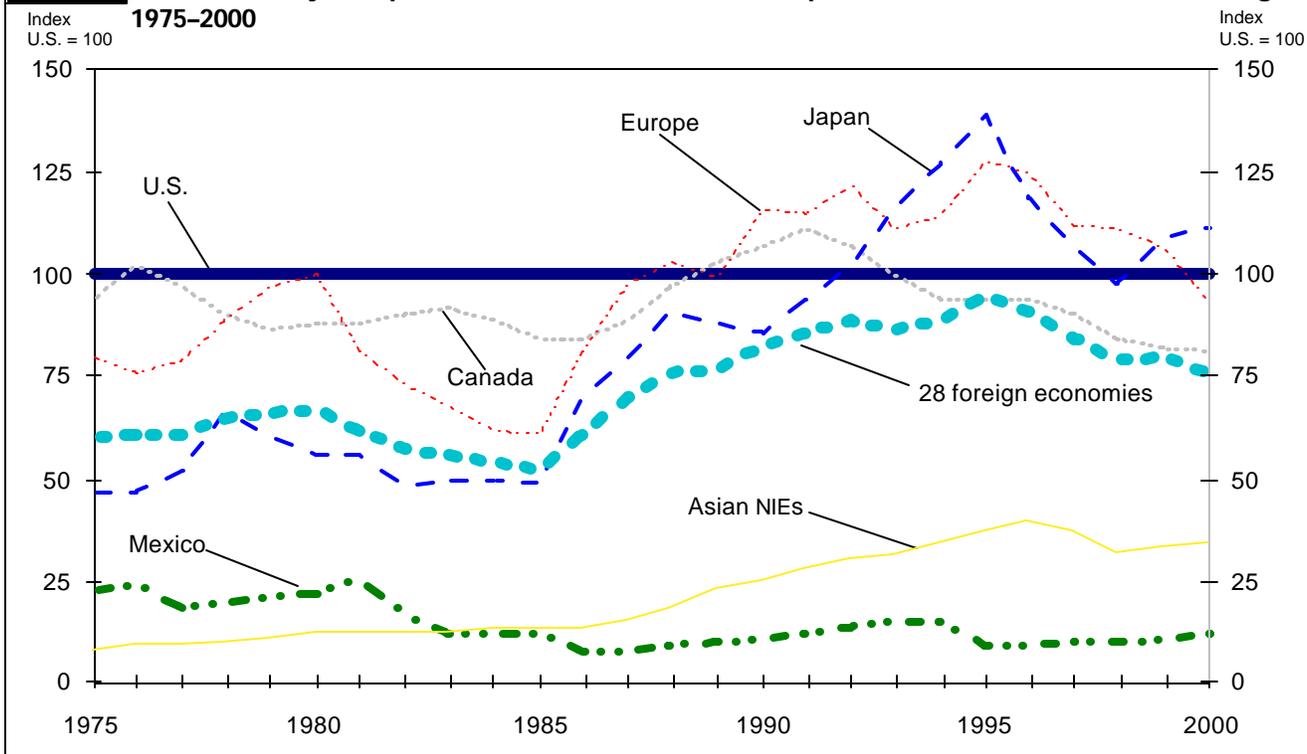
By 1985, U.S. hourly compensation costs per hour had risen to \$13.01, the highest compensation costs of all countries studied. Canada was still the country closest to the United States, but relative costs were now only 84 percent of the U.S. level. After rising to the same level as the United States in 1980, European costs declined 5 consecutive years relative to the United States, and Japanese costs remained at about one-half the U.S. level. Relative to the United States, Mexican costs were sharply lower, and costs in the Asian NIEs higher, with the result that costs in both these competitors were about 12 percent of the U.S. level in 1985.

The years between 1985 and 1995 illustrate dramatic changes in hourly compensation costs for the U.S. competitors. After rising above U.S. costs for the first time in 1992, Japanese costs peaked in 1995, 39 percent higher than the United States. Similarly, costs in Europe increased to a level in 1995 a little below Japan but significantly higher than the United States.

With costs rising even faster than in Japan or Europe, the Asian NIEs continued to close the gap with the United States between 1985 and 1995. After several years in the early 1990s

| Country or area | 1975–2000 | 1975–1985 | 1985–1995 | 1995–2000 |
|------------------------|-----------|-----------|-----------|-----------|
| United States | 4.7 | 7.4 | 2.8 | 2.9 |
| Canada | 4.1 | 6.3 | 3.9 | .1 |
| Mexico | 2.1 | .8 | –.5 | 10.3 |
| Japan | 8.3 | 7.8 | 14.2 | –1.6 |
| Europe | 5.4 | 4.8 | 10.4 | –2.8 |
| Asian NIEs | 11.1 | 12.8 | 14.8 | 1.2 |
| All 28 competitors ... | 6.2 | 6.5 | 9.1 | .0 |

Chart 4. Index of hourly compensation costs in U.S. dollars for production workers in manufacturing, 1975–2000



when costs were higher in Canada than in the United States, Canadian costs were once again lower than the United States by 1995. Mexican costs had been steadily increasing relative to the United States since 1986, but in 1995 Mexican costs were back down to 9 percent of the U.S. level.

Costs in Europe relative to the United States declined every year during the 1995–2000 period, and by 2000 were below the U.S. level. Japanese costs, which had been about \$7 higher than the United States in 1995, fell 3 consecutive years to a level below the United States in 1998. Following rapid growth in costs in 1999 and 2000, however, Japan once again became the economy with the highest compensation costs.

Costs in the Asian NIEs dropped 12.6 percent in 1998, and these countries still had a lower cost level relative to the United States in 2000 than in 1995. Although costs in Mexico rose from 1995 to 2000, Mexico continued to have very low costs in 2000, only about one-third the level of the Asian NIEs, the competitor with the next lowest costs. Canadian costs remained essentially flat after 1995, and, with U.S. costs continuing to rise, were only 81 percent of the U.S. level in 2000.

Compensation in national currency and exchange rates

Changes over time in compensation costs denominated in U.S. dollars reflect the underlying national wage and benefit

trends measured in national currencies, as well as frequent and sometimes sharp changes in currency exchange rates. Between 1975 and 2000, both of these factors played an important part in determining relative trends in compensation costs on a U.S. dollar basis. In this section, trends in both national currency compensation costs and exchange rates are analyzed.

Exchange rate changes play a key role in the competitive position of the United States. After that position deteriorated somewhat between 1975 and 1985 due to the strength of the U.S. dollar, a weakening dollar in 1985–95 helped improve the U.S. competitive situation. The revival of a strong U.S. dollar in the last 5 years of the 1990s corresponded with a decline in U.S. competitiveness as reflected in hourly compensation costs denominated in U.S. dollars.

While volatile fluctuations in exchange rates often overshadow trends in compensation costs in national currency over short time periods, differences in the compensation cost trends in the United States and foreign countries have a significant impact on competitiveness over longer time periods. Throughout those 25 years between 1975 and 2000, hourly compensation costs denominated in national currencies grew faster in most of the competitors than in the United States, contributing to an improvement in the U.S. competitive standing. (See table 3.)

Chart 5 illustrates the combination of the growth in hourly compensation costs in national currency and growth in ex-

Table 3. Hourly compensation costs in U.S. dollars for production workers in manufacturing, average annual percent changes, 1975–2000

[Average annual percent change]

| Country or area | 1975–2000 | 1975–1985 | 1985–1995 | 1995–2000 |
|----------------------------------|-----------|-----------|-----------|-----------|
| U.S. | | | | |
| U.S. dollar basis | 4.7 | 7.4 | 2.8 | 2.9 |
| National currency | 4.7 | 7.4 | 2.8 | 2.9 |
| Exchange rate ¹ | – | – | – | – |
| Canada | | | | |
| U.S. dollar basis | 4.1 | 6.3 | 3.9 | .1 |
| National currency | 5.7 | 9.5 | 4.0 | 1.7 |
| Exchange rate ¹ | –1.5 | –2.9 | –.1 | –1.6 |
| Mexico | | | | |
| U.S. dollar basis | 2.1 | .8 | –.5 | 10.3 |
| National currency | 33.2 | 36.7 | 35.2 | 19.2 |
| Exchange rate ¹ | –23.3 | –26.1 | –27.5 | –7.5 |
| Japan | | | | |
| U.S. dollar basis | 8.3 | 7.8 | 14.2 | –1.6 |
| National currency | 4.0 | 5.5 | 4.0 | 1.2 |
| Exchange rate ¹ | 4.1 | 2.2 | 9.8 | –2.7 |
| Europe | | | | |
| U.S. dollar basis | 5.4 | 4.8 | 10.4 | –2.8 |
| National currency | 6.8 | 10.5 | 5.1 | 3.1 |
| Exchange rate ¹ | –1.3 | –5.1 | 5.0 | –5.7 |
| Asian NIEs | | | | |
| U.S. dollar basis | 11.1 | 12.8 | 14.8 | 1.2 |
| National currency | 11.9 | 15.5 | 11.8 | 5.5 |
| Exchange rate ¹ | –.7 | –2.3 | 2.7 | –4.0 |
| All 28 competitors | | | | |
| U.S. dollar basis | 6.2 | 6.5 | 9.1 | .0 |
| National currency | 9.7 | 13.6 | 8.6 | 4.3 |
| Exchange rate ¹ | –2.6 | –5.2 | 1.1 | –4.0 |

¹ Value of foreign currency relative to the U.S. dollar.

change rates (the value of the foreign currencies). When both bars have values greater than zero, both the increase in hourly compensation in national currency and the changes in exchange rates are contributing to increase hourly compensation costs on a U.S. dollar basis. When the exchange rate bar is negative (for example, Europe in 1975–85), the change in the exchange rate offsets the increase in national currency hourly compensation, indicating that the change in hourly compensation on a U.S. dollar basis is somewhat less than the increase on a national currency basis.

Measured in national currency, hourly compensation costs grew fastest in the 1975–85 period for the United States and each of the foreign economies. Between 1985 and 1995, growth was still strong, but since 1995 growth has slowed considerably in all the competitors while growing at about the same rate in the United States. As an indication of the slowing of growth on a national currency basis, the slowest rate of growth during the 1975–85 period—5.5 percent in Japan—matched the second fastest growth rate in 1995–2000.

While hourly compensation costs in the United States also grew faster during the 1975–85 period than in later periods, they were never as high as the growth rates of costs in na-

tional currency in several foreign economies. Cost growth decelerated faster and earlier in the United States than in the other economies; between 1985 and 1995 costs in all competitors grew at rates faster than the United States. Between 1995 and 2000, however, U.S. growth rates remained the same while compensation costs on a national currency basis continued to moderate in the competitor countries. As a result, only Mexico and the Asian NIEs had significantly higher growth rates than the United States during this period.

The growth rates in national currency, as well as changes in the exchange rates of foreign currencies relative to the U.S., had a major impact on the competitive positions of the United States and the competitors. The severity and timing of the impact followed a different pattern in each competitor.

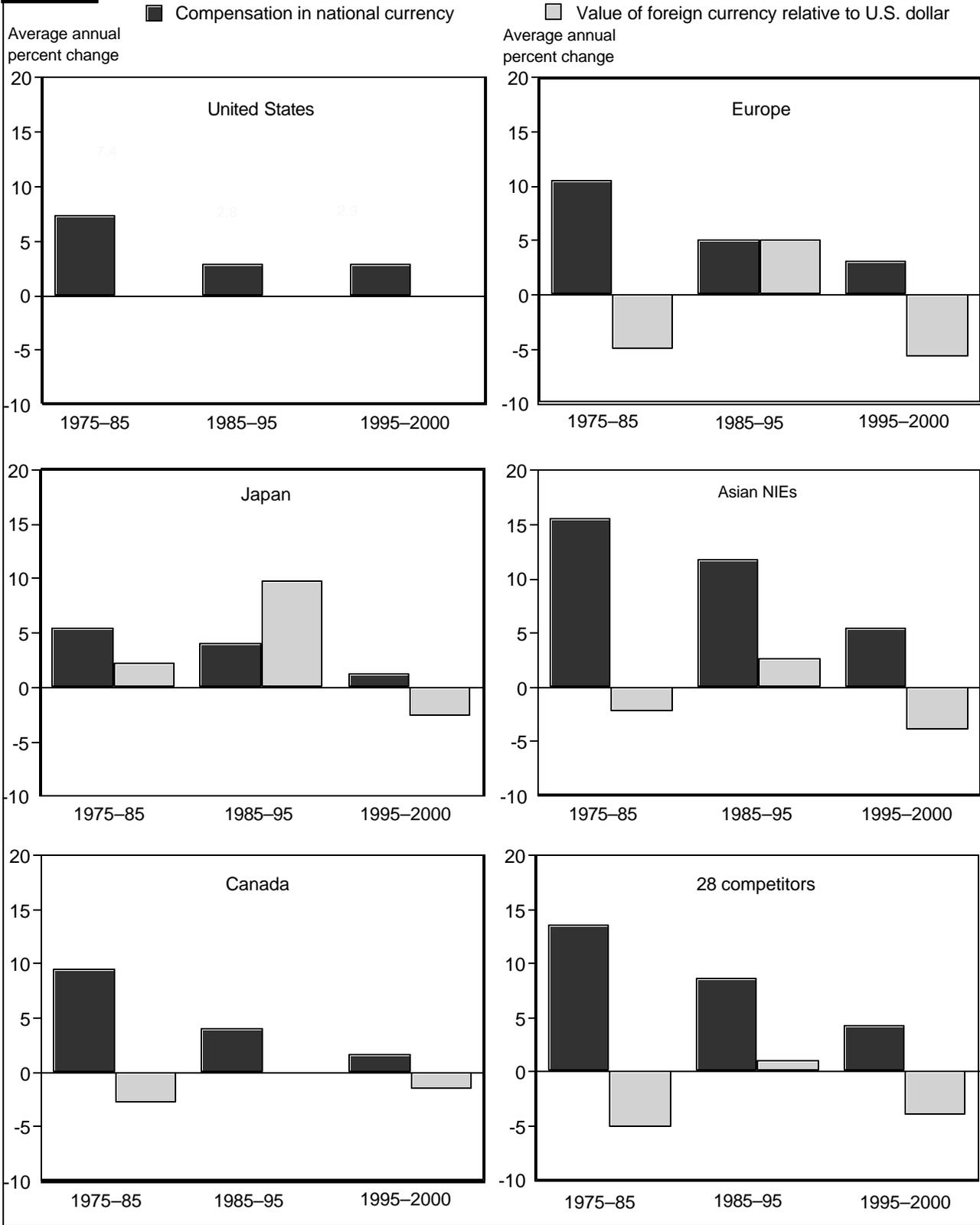
In Europe, the trade-weighted growth of hourly compensation costs measured in national currency was about 2 percentage points higher than growth in the United States over the entire 25-year period. However, the slowdown in growth of European costs over that time was much steeper than the decline in the growth rate of U.S. costs. Between the 1975–85 and 1995–2000 periods, European cost growth rates fell about 7-1/2 percentage points, compared with a 4-1/2 percentage point drop in U.S. growth during the same period. The years 1999 and 2000 are particularly significant in that the growth rate of hourly compensation costs in national currency was lower in Europe than in the United States for the first time since this series began in 1975.

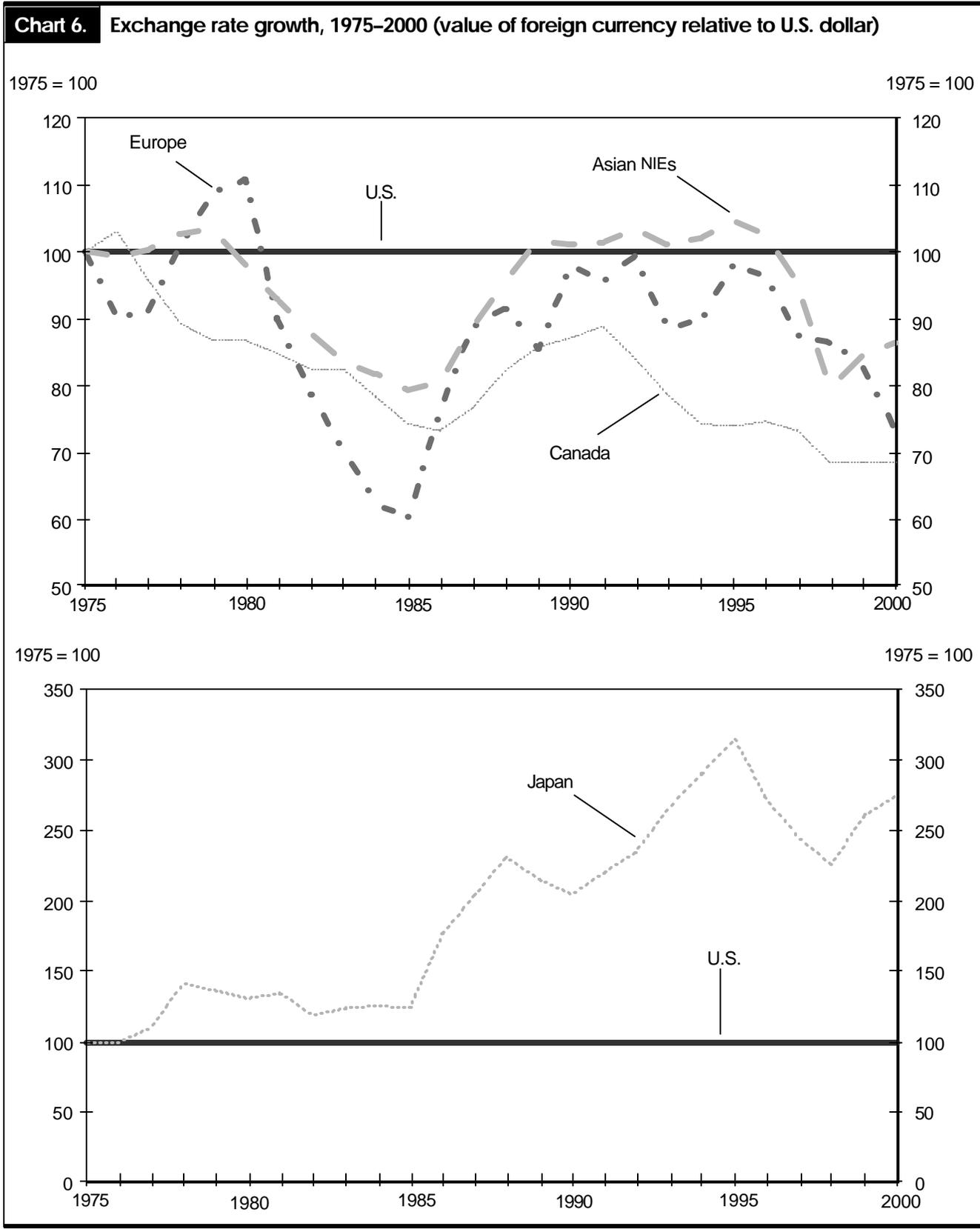
Additional compensation (other direct pay and social insurance) increased at a faster rate than pay for time worked in Europe over the 25-year period, as reflected in the increasing share of total compensation costs accounted for by the additional compensation components. The shares of both increased as a percentage of total compensation costs through 1990, but since that time, the structure of compensation costs in Europe has remained relatively stable. The following shows other direct pay and social insurance as a percentage of total compensation in Europe:

| | <i>Other direct pay</i> | <i>Social Insurance</i> |
|------------|-----------------------------|-----------------------------|
| 1975 | 15.8 | 20.8 |
| 1980 | 16.5 | 22.2 |
| 1985 | 17.2 | 22.6 |
| 1990 | 17.6 | 23.4 |
| 1995 | 17.3 | 23.9 |
| 2000 | 17.0 | 23.3 |

After appreciating moderately against the dollar between 1975 and 1980, the European currencies underwent two distinct periods of change in the 1980s. (See chart 6.) The currencies in Europe began to weaken against the dollar in 1981, declining at a rate of 11.7 percent per year through 1985.

Chart 5. Hourly compensation costs for production workers in manufacturing and exchange rates





Strong growth against the dollar between 1985 and 1990, however, nearly offset the weak performance in the first half of the decade. The net result was that, over the entire decade of the 1980s, exchange rates in Europe declined only slightly against the dollar. In addition, the higher growth rate in national currency costs relative to the United States over the decade, combined with only a moderate decline in the value of the European currencies, drove European costs 16 percent higher than U.S. costs in 1990—a significant increase from 1980, when U.S. and European costs were at the same level.

European exchange rates in 1995 were essentially unchanged from their 1990 levels. European national currency costs, however, were growing at a rate of 1-1/2 percentage points faster than U.S. costs so that, by 1995, European hourly compensation costs in U.S. dollars were 28 percent higher than U.S. costs.

European exchange rates reversed their course beginning in 1996, declining against the dollar in each year between 1996 and 2000.¹² With national currency growth rates slowing in Europe to about the same rate of growth as in the United States, the exchange rate changes brought European costs relative to the United States down to a level lower than the United States in 2000.

In Japan, growth in national currency compensation costs was more moderate than in the other countries and areas considered. Average growth during the 25-year period was 0.7 percentage points lower than U.S. growth. Costs grew at an average of only 5.5 percent over the 1975–85 time period, the lowest of any country, including the United States. This was a remarkably low rate of growth considering that growth rates for all economies were at their peaks during that period.

Japanese cost growth slowed in subsequent periods, and only the United States had a lower growth rate over the 1985–95 period. Between 1995 and 2000, Japanese compensation costs grew at the lowest rate of any of the competitors. In 1999 and 2000, Japanese costs actually declined on a national currency basis while costs in the other competitors continued to grow.

The composition of Japanese compensation has undergone an important change in the past 25 years. Bonuses, which make up a large portion of total compensation in Japan, have been falling as a percentage of total compensation since 1975, when they comprised 19.6 percent of compensation costs. Since that time they have fallen 4.5 percentage points. The following tabulation shows bonuses and social insurance as a percentage of total compensation in Japan:

| | <i>Bonuses</i> | <i>Social Insurance</i> |
|------------|----------------|-----------------------------|
| 1975 | 19.6 | 9.9 |
| 1980 | 18.6 | 11.4 |
| 1985 | 17.6 | 12.6 |
| 1990 | 18.3 | 13.5 |
| 1995 | 16.7 | 14.7 |
| 2000 | 15.1 | 16.0 |

In contrast to the relative decline in bonuses in Japan, the share of social insurance expenditures rose steadily over the last quarter-century. In 1975, social insurance expenditures accounted for just about 10 percent of total compensation costs, but since that time they have grown 6 percentage points. Social insurance in Japan now has an importance as high as Canada and several European countries.

With national currency costs growing at a moderate rate, it was predominantly the increase in the value of the yen relative to the dollar that was responsible for Japan having compensation costs higher than the United States in 2000. (See chart 6.) Japan was the only foreign economy with a currency that was stronger against the dollar in 2000 than in 1975, and the only currency that appreciated in both 1975–85 and 1985–95.

During 1985–95, the strength of the yen pushed Japanese compensation costs well above costs in the United States. However, the latter part of the 1990s saw a reversal in the Japanese exchange rate trend, as the yen weakened for 3 consecutive years. This downward trend lowered Japanese compensation costs to about the same level as U.S. costs in 1998. (See chart 4.) But the yen rebounded strongly in 1999 and 2000, causing the rise of Japanese compensation costs above U.S. costs once again.

Unlike Japan, growth in national currency compensation costs was the major factor that determined the trend in compensation costs for the Asian NIEs relative to the United States between 1975 and 1995. While costs in national currency were growing at double-digit rates, exchange rates were nearly the same in 1995 as in 1975. Thus, the sharp increase in compensation costs on a U.S. dollar basis in the NIEs through 1995 can be attributed nearly entirely to fast growth in national currency compensation costs.

Those national currency growth rates followed the same general slowing pattern in the Asian NIEs as in most of the other foreign economies, but the deceleration took place from a higher growth level. Despite compensation cost growth rates that fell nearly 4 percentage points from the 1975–85 time period to the 1985–95 time period, growth still remained in the double digits in the latter period. Costs then fell another 6 percentage points in the 1995–2000 period, but the rate of growth was still higher than any other competitor except Mexico.

Two factors in particular contributed to the fast pace of hourly compensation cost growth in the NIEs. First, costs in Korea grew faster than the other NIEs throughout the 1975–2000 time period, growing at a rate of 17.7 percent, compared to a trade-weighted average of 9.7 percent for the other three NIEs. Second, social insurance costs as a percentage of compensation costs have been increasing in the NIEs. After falling to a low of 7.8 percent of compensation costs in 1987, social insurance costs rose fairly consistently throughout

the 1990s, and by 2000 made up 14.5 percent of compensation costs.¹³ The following shows social insurance as a percentage of total compensation for Asian NIEs:

| | |
|------------|------|
| 1975 | 9.1 |
| 1980 | 9.9 |
| 1985 | 11.3 |
| 1987 | 7.8 |
| 1990 | 9.5 |
| 1995 | 12.2 |
| 2000 | 14.5 |

While exchange rate changes played a secondary role during most of the period studied, the Asian currency crisis in 1997–98 was a turning point in exchange rate trends in the NIEs. With the exception of Hong Kong, where the currency is pegged to the U.S. dollar, the value of NIEs currencies fell 25.7 percent during the crisis. Combined with slower cost growth on a national currency basis, costs in these countries dropped in 1997 and 1998, when measured in U.S. dollars. (See chart 1.) In 1999 and 2000, these costs recovered somewhat, but failed to reach their pre-crisis levels.

Exchange rates played an important role in the competitive position of Canada. The Canadian dollar steadily depreciated from 1975 to 2000 and, compared with the other competitors, fluctuations in the Canadian currency were modest. On a national currency basis, social insurance in Canada assumed a rising importance over the 25-year period, rising to 16.4 percent of total compensation costs in 2000, up from 8.9 percent in 1975. Altogether, Canadian national currency costs grew at a rate 1 percentage point higher than the United States between 1975 and 2000, but the cumulative effect of the declining Canadian dollar more than offset the faster growth. As a result, Canadian compensation costs went to only 81 percent of the U.S. level in 2000, down from 94 percent of the U.S. level in 1975. (See table 1).

In Mexico, national currency growth rates were substantially higher than for the other competitors throughout the period studied, growing at more than 30 percent per year between 1975 and 2000. However, the Mexican peso was hard hit by adverse economic shocks that led to several devaluations over the past quarter-century. In 1982, the peso was devalued coinciding with a debt crisis that followed a severe recession and liquidity crisis. In 1986, the peso was further devalued in response to the steep fall in the price of oil, Mexico's main source of export revenue. The latest major devaluation occurred in December 1994, when the peso was permitted to float vis-à-vis the dollar.¹⁴ These events severely impacted the Mexican currency to the point where it was the weakest of any of the competitors.

Chart 7 illustrates the effect of these devaluations on the value of the peso and Mexican hourly compensation costs. Each of the three major devaluations resulted in a drop of more than 40 percent in the value of the peso. As a result, Mexican compensation costs as a percent of the U.S. level (lower panel of chart 7) fell sharply in response to each of these events. The impact of these events on Mexican compensation is overwhelming; since 1980 Mexican costs relative to the United States have fallen only during the immediate aftermath of the devaluations—2 years (1982 and 1986) in which devaluations occurred, and 2 years (1983 and 1995) that followed devaluation years. Otherwise, Mexican costs have held steady or increased in the other 16 years. Nevertheless, hourly compensation costs in Mexico have fallen to only 12 percent of the U.S. level in 2000 from a high of 26 percent.

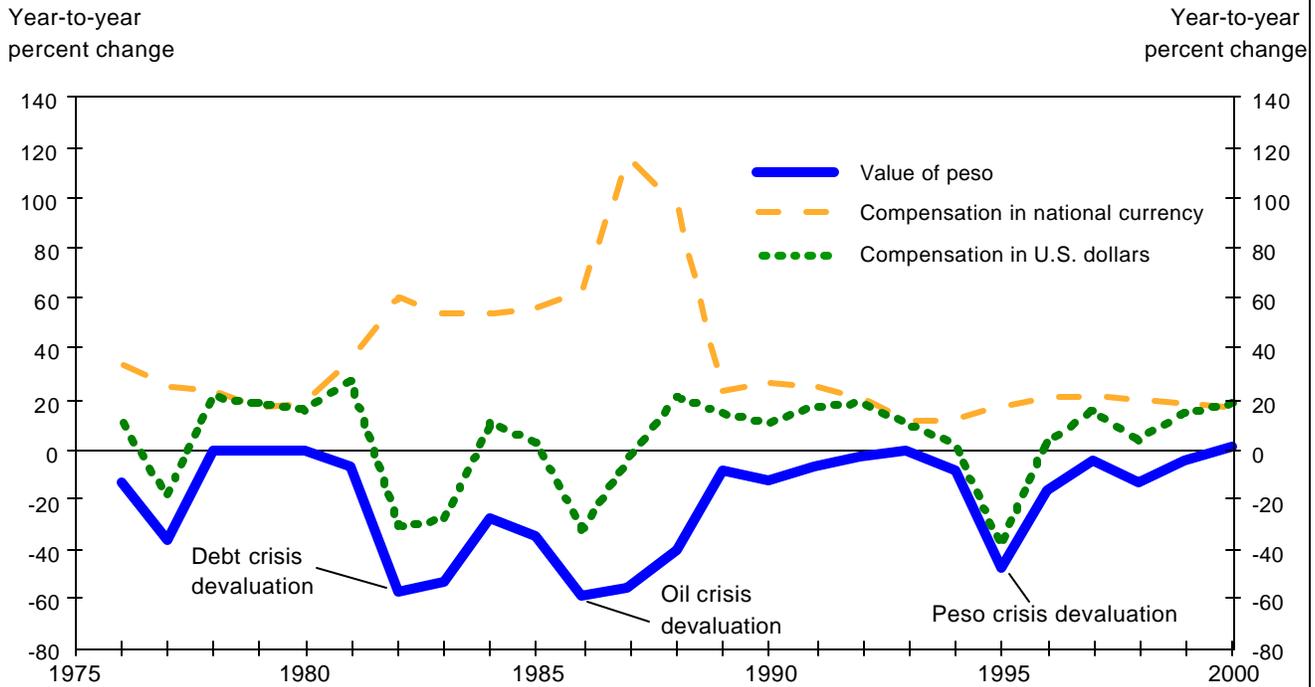
It is notable that hourly compensation cost growth on a national currency basis increased sharply with the first two major devaluations in 1982 and 1986, while the value of the peso continued to fall at a fairly high rate in the years directly following the devaluations. By contrast, during the last devaluation in 1995, the growth rate of national currency compensation costs increased only moderately, but the weakness in the peso abated much more quickly than following previous devaluations—and compensation costs on a U.S. dollar basis had returned to positive growth by the following year.

Conclusion

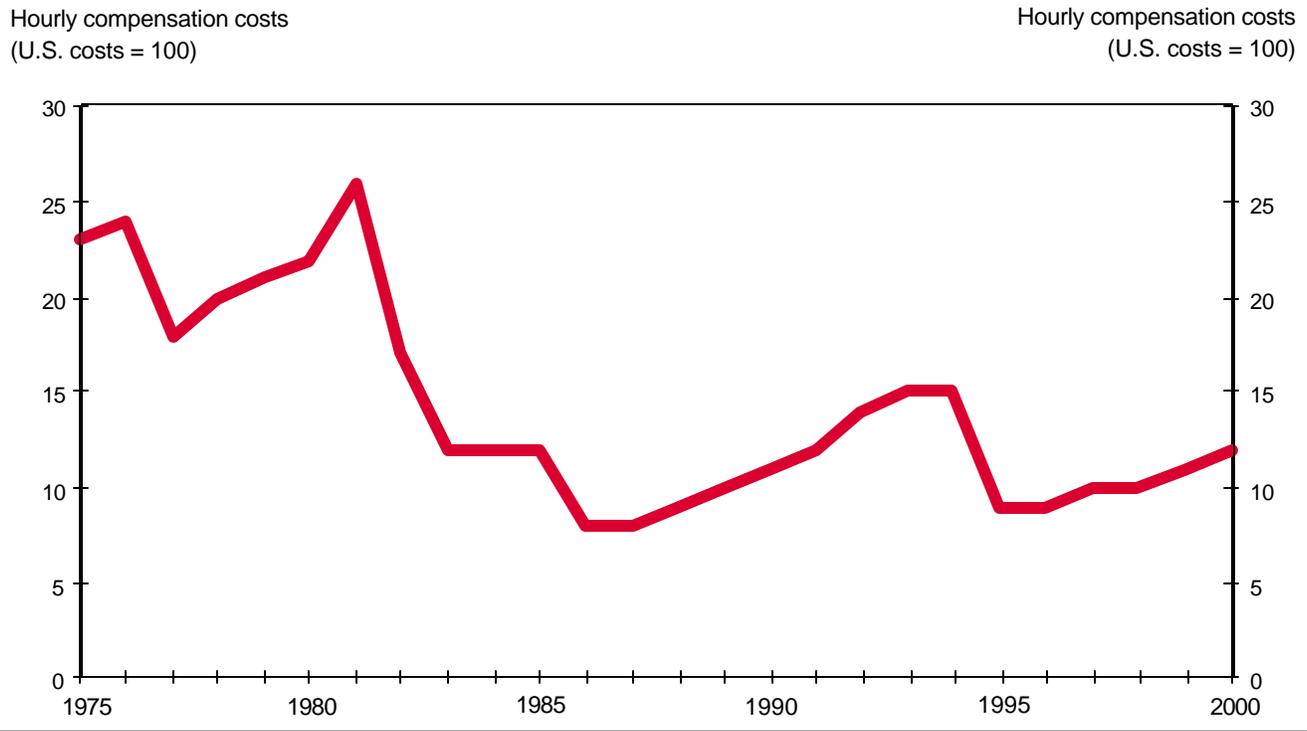
Over the past 25 years, the U.S. competitive position with regard to hourly compensation costs has improved relative to competitors, particularly Japan and Europe, despite some deterioration over the final 5 years of the 20th century. Future trends in this area will undoubtedly be closely watched as governments, manufacturers, and worker bargaining associations examine proposals regarding wages, additional compensation costs, worker pension plans, and work time.

These trends in hourly compensation costs in U.S. dollar terms are often heavily influenced in the short-term by exchange rate movements, but it is important to note that over the past 25 years it was the difference in national currency cost growth rates between the United States and competitors—particularly Europe and the Asian NIEs—that most affected the competitive position of the United States. For many years, growth in hourly compensation costs in the United States was lower, on a national currency basis, than most of the competitors, contributing to the improvement of the U.S. competitive position. This trend recently changed, and national currency hourly compensation is now growing at slower rates in many of the competitors than in the United States.

Chart 7. Changes in compensation and value of the peso in Mexico, and Mexican compensation costs relative to the U.S. dollar, 1975–2000



Mexican hourly compensation costs relative to the United States



Notes

¹ See, for example, “Manufacturing costs, productivity, and competitiveness, 1979–93,” by Edwin R. Dean and Mark K. Sherwood, *Monthly Labor Review*, October 1994, pp. 3–16, for a discussion of input costs, product prices and competitiveness. The offsetting impact on product prices due to productivity gains is discussed in “Comparing 50 years of labor productivity in U.S. and foreign manufacturing,” this issue, pp. 51–65.

² “Labor costs—annual update 2001,” European Industrial Relations Observatory On-Line.

³ “EU labour costs 1999,” *Statistics in focus*, Population and social conditions, Theme 3, 3/2001.

⁴ The Ministers of Finance and Central Bank Governors of five countries (France, Germany, Japan, the United Kingdom, and the United States) met on September 22, 1985, at the Plaza Hotel in New York, in order to review economic developments and policies in their countries. The results of their meeting were summarized in an agreement, known as the “Plaza Accord.” In particular, they noted that the “appreciation of the U.S. dollar” was among the factors that have “contributed to large, potentially destabilizing external imbalances among major industrial countries” and that an “appreciation of the main nondollar currencies against the dollar is desirable. They stand ready to cooperate more closely to encourage this when to do so would be helpful.” For further information, see the University of Toronto Library and the G8 Research Group at the University of Toronto on the Internet at <http://www.library.utoronto.ca/g7/finance/fm850922.htm>

⁵ The purpose of this article is to decompose the rather distinct speed-ups and slowdowns in hourly compensation growth rates for the 28 competitors as illustrated in chart 1. There was no attempt to select time periods to eliminate possible cyclical factors.

⁶ Europe includes the 15 countries of the European Union, Norway, and Switzerland. For the purposes of constructing a time series for hourly compensation for Europe, data for Germany included in the trade-weighted averages for Europe relate to the former West Germany only. Data for Germany are available only from 1993–2000; no data are available for 1975–92. Approximately 90 percent of manufacturing employment for Germany is in the former West Germany, and the level of hourly compensation in Germany is approximately 4 percent lower than in the former West Germany. Using data for Germany rather than data for the former West Germany would lower the level of European compensation costs by approximately 1 percent.

⁷ China is not included because the data needed to construct hourly compensation cost estimates for production workers are not available. Available earnings data are monthly earnings on an all-employee basis; earnings data and hours worked for production workers in manufacturing are not available. In addition, comprehensive surveys on components of compensation not included in earnings are not available.

⁸ The international comparisons of compensation costs do not indicate relative living standards of workers or the purchasing power of their

income. Prices of goods and services vary greatly among countries, and total compensation costs include not only payments made directly to workers, but also employer payments to funds for the benefit of workers. Many of these payments to funds may benefit the workers only indirectly (as is the case with employer payments for unemployment insurance) or at some point in the future (for example, payments to retirement funds). See the appendix to this article.

⁹ The hourly compensation cost measures used in this article differ from the hourly compensation data in “Comparing 50 years of labor productivity in U.S. and foreign manufacturing” on p. 51 of this issue. Hourly compensation data in that article are calculated from national accounts aggregate employee compensation data and estimates of labor input. In addition, the hourly compensation data used in that article relate to all employees or all employed persons. Only indexes of hourly compensation are calculated; no level data are available. Data in the current article are computed using establishment survey data on average earnings and supplementary labor cost data from periodic labor cost surveys and other data sources. These data relate to production and related workers only. See the appendix on p. 63 of this issue.

¹⁰ Separate data for pay for time worked are not available for Mexico and the Asian NIES.

¹¹ Although the trade-weighted average of other direct pay as a percentage of total compensation in Europe is 17 percent, the percentage of other direct pay ranges from just under 10 percent in Ireland to 20 percent or more in Austria, Belgium, and Italy. More information about compensation cost structure in individual European countries can be found in the Supplementary Tables for BLS News Release “International Comparisons of Hourly Compensation Costs for Production Workers in Manufacturing,” available on the Internet at <http://www.bls.gov/fls>

¹² On January 1, 1999, 11 European countries joined the European Monetary Union (EMU): Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. At the same time, currencies of EMU members were established at fixed conversion rates to the euro, the official currency of the EMU. Exchange rates between the national currencies of EMU countries and the U.S. dollar are no longer reported; only the exchange rate between the euro and the U.S. dollar is available.

¹³ The large drop in social insurance in 1987 was primarily the result of a reduction of the rate of employer contributions to the Central Provident Fund (a social security fund) in Singapore. The rate of employer contribution was cut from 25 percent of monthly earnings to 10 percent of monthly earnings effective April 1, 1986.

¹⁴ The exchange rates used in this article are annual averages of daily rates for the entire year. Because this devaluation occurred near the end of 1994, its impact on the annual average of that year was minimized. The full impact of the devaluation is evident in the annual average for 1995, the first full year following the devaluation.

APPENDIX: About the data

The data in this article are hourly compensation costs for production workers in manufacturing. The total compensation measures are prepared by the Bureau of Labor Statistics in order to assess international differences in employer labor costs. Comparisons based on the more readily available average earnings statistics published by many countries can be very 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.

The compensation measures are computed in national currency units and are converted into U.S. dollars at prevailing commercial market currency exchange rates. The foreign currency exchange rates used in the calculations are the average daily exchange rates for the reference period. They are appropriate measures for comparing

levels of employer labor costs. They do not indicate relative living standards of workers or the purchasing power of their income. Prices of goods and services vary greatly among countries, and commercial market exchange rates are not reliable indicators of relative differences in prices.

Definitions

Hourly compensation costs include (1) hourly direct pay and (2) employer social insurance expenditures and other labor taxes. Hourly direct pay includes all payments made directly to the worker, before payroll deductions of any kind, consisting of (a) pay for time worked (basic time and piece rates plus overtime premiums, shift differentials, other premiums and bonuses paid regularly each pay period, and cost-of-living adjustments); and (b) other direct pay (pay for time not worked—vacations, holidays, and other leave, except sick leave—seasonal or irregular bonuses and other special payments, selected social allowances, and the cost of payments in kind). Social insurance expenditures and other labor taxes include (c) employer expenditures for legally required insurance programs and contractual and private benefit plans (retirement and disability pensions, health insurance, income guarantee insurance and sick leave, life and accident insurance, occupational injury and illness compensation, unemployment insurance, and family allowances); and, for some countries, (d) other labor taxes (other taxes on payrolls or employment—or reductions to reflect subsidies—even if they do not finance programs that directly benefit workers, because such taxes are regarded as labor costs). For consistency, compensation is measured on an hours-worked basis for every country.

The BLS definition of hourly compensation costs is not the same as the International Labour Office (ILO) definition of total labor costs. Hourly compensation costs do not include all items of labor costs. The costs of recruitment, employee training, and plant facilities and service—such as cafeterias and medical clinics—are not included because data are not available for most countries. The labor costs not included account for no more than 4 percent of total labor costs in any country for which the data are available.

Production workers generally include those employees who are engaged in fabricating, assembly, and related activities; material handling, warehousing, and shipping; maintenance and repair; janitorial and guard services; auxiliary production (for example, powerplants); and other services closely related to the above activities. Working supervisors are generally included; apprentices and other trainees are generally excluded.

Methods

Total compensation is computed by adjusting each country's average earnings series for items of direct pay not included in earnings and for employer expenditures for legally required insurance, contractual and private benefit plans, and other labor taxes. For the United States and other countries that measure earnings on an hours-paid basis, the figures are also adjusted in order to approximate compensation per hour worked.

Earnings statistics are obtained from surveys of employment, hours, and earnings or from surveys or censuses of manufactures.

Adjustment factors are obtained from periodic labor cost surveys and interpolated or projected to nonsurvey years on the basis of other information for most countries. The information used in-

cludes annual tabulations of employer social security contribution rates provided by the International Studies Staff of the U.S. Social Security Administration, information on contractual and legislated fringe benefit changes from ILO and national labor bulletins, and statistical series on indirect labor costs. For other countries, adjustment factors are obtained from surveys or censuses of manufactures or from reports on fringe-benefit systems and social security. For the United States, the adjustment factors are special calculations for international comparisons based on data from several surveys.

The statistics are also adjusted, where necessary, to account for major differences in worker coverage; differences in industrial classification systems; and changes over time in survey coverage, sample benchmarks, or frequency of surveys. Nevertheless, some differences in industrial coverage remain and—with the exception of the United States, Canada, and several other countries—the data exclude very small establishments (less than 5 employees in Japan and less than 10 employees in most European and some other countries). For the United States, the methods used, as well as the results, differ somewhat from those for other BLS series on U.S. compensation costs.

Hourly compensation costs are converted to U.S. dollars using the average daily exchange rate for the reference period. The exchange rates used are prevailing commercial market exchange rates as published by either the U.S. Federal Reserve Board or the International Monetary Fund.

For further details on survey sources and on special estimation procedures for some countries because of incomplete data, see *International Comparisons of Hourly Compensation Costs for Production Workers in Manufacturing, 1995* (Report 909, Bureau of Labor Statistics, September 1996).

Trade-weighted measures

The trade weights used to compute the average compensation cost measures for selected economic groups are relative importances derived from the sum of U.S. imports of manufactured products for consumption (customs value) and U.S. exports of domestic manufactured products (free along side {f.a.s.} value) in 1992 for each country or area and each economic group. The tabulation shows the share of total U.S. imports and exports of manufactured products in 1992:

| <i>Country or area</i> | <i>1992 trade share</i> | <i>Country or area</i> | <i>1992 trade share</i> |
|----------------------------------|-------------------------|------------------------|-------------------------|
| Canada | 19.2 | Greece | .1 |
| Mexico | 7.6 | Ireland | .6 |
| | | Italy | 2.3 |
| Australia | 1.4 | Luxembourg | .1 |
| Hong Kong SAR ¹ | 2.0 | Netherlands | 1.9 |
| Israel | .8 | Norway | .3 |
| Japan | 15.8 | | |
| | | Portugal | .2 |
| Korea | 3.4 | Spain | .8 |
| New Zealand | .3 | Sweden | .8 |
| Singapore | 2.4 | Switzerland | 1.0 |
| Sri Lanka | .1 | United Kingdom | 4.4 |
| Taiwan | 4.4 | | |

Manufacturing Labor Costs

| <i>Country or area</i> | <i>1992 trade share</i> | <i>Economic group</i> | <i>1992 trade share</i> |
|----------------------------|---------------------------------|-------------------------|---------------------------------|
| Austria | .3 | 28 foreign | |
| Belgium | 1.5 | economies | 80.8 |
| Denmark | .3 | OECD ³ | 71.1 |
| Finland | .2 | Europe | 23.4 |
| France | 3.2 | European Union ... | 22.1 |
| Germany ² | 5.4 | Asian NIES | 12.2 |

The trade data used to compute the weights are U.S. Bureau of the Census statistics of U.S. imports and exports converted to an industrial classification basis from data initially collected under the Harmonized Tariff Schedule commodity classification system.

The Organization for Economic Cooperation and Development (OECD) grouping above includes the countries in this data set that belong to the OECD: Canada, Mexico, Australia, Japan, Korea, New Zealand, and all European countries. Europe as defined for this data set consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. The group labeled "Asian NIES" consists of the four newly industrializing economies of Hong Kong SAR, Korea, Singapore, and Taiwan.

The trade weighted measures relate to all the countries or areas covered in the series. Trade-weighted data for Germany relate to the former West Germany. Estimates are computed for missing country data using the average trend in other economies to estimate the missing data.

The trade-weighted average rates of change are computed as the trade-weighted arithmetic average of the rates of change for the individual countries or areas; the trade-weighted average hourly compensation costs in U.S. dollars are computed as the trade-weighted arithmetic average of cost levels for the individual countries or areas. Rates of change derived from the trade-weighted average hourly compensation cost levels need not be the same as the trade-weighted average rates of change.

Data limitations

Because compensation is partly estimated, the statistics should not be considered as 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 comparative level figures in this article are averages for all manufacturing industries and are not necessarily representative of all component industries. In the United States and some other coun-

tries, such as Japan, differentials in hourly compensation cost levels by industry are quite wide. In contrast, other countries, such as Sweden, have narrow differentials.

Labor costs versus labor income

The hourly compensation figures in U.S. dollars provide comparative measures of employer labor costs; they do not provide inter-country comparisons of the purchasing power of worker incomes. Prices of goods and services vary greatly among countries, and the commercial market exchange rates used to compare employer labor costs do not reliably indicate relative differences in prices. Purchasing power parities—that is, the number of foreign currency units required to buy goods and services equivalent to what can be purchased with one unit of U.S. or other base-country currency—must be used for meaningful international comparisons of the relative purchasing power of worker incomes.

Total compensation converted to U.S. dollars at purchasing power parities would provide one measure for comparing relative real levels of labor income. It should be noted, however, that total compensation includes employer payments to funds for the benefit of workers in addition to payments made directly to workers. (For a few countries, the compensation measures also include taxes or subsidies on payrolls or employment even if they do not finance programs which directly benefit workers.) Payments into these funds provide either deferred income (for example, payments to retirement funds), a type of insurance (for example, payments to unemployment or health benefit funds), or current social benefits (for example, family allowances), and the relationship between employer payments and current or future worker benefits is indirect. On the other hand, excluding these payments would understate the total value of income derived from work because they substitute for worker savings or self-insurance to cover items such as retirement and medical costs.

Total compensation, because it takes account of employer payments into funds for the benefit of workers, is a broader income concept than either total direct earnings or direct spendable earnings. An even broader concept would take account of all social benefits available to workers, including those financed out of general revenues as well as those financed through employment or payroll taxes. □

Footnotes to the APPENDIX

¹ Hong Kong Special Administrative Region of China.

² Former West Germany.

³ Organization for Economic Cooperation and Development.