Employment change and sectoral distribution in 10 countries, 1970–90

Employment growth was fastest in North America and Australia, reflecting primarily their more rapid increases in population; in all countries studied, the service sector was the major source of job growth

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An analysis of employment growth from 1970 to 1990 in 10 industrial countries—Australia, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States—shows that the United States led the pack, with 39 million jobs added to the U.S. economy over the period. Strong employment growth also occurred in Canada and Australia. Following in order were Japan, the Netherlands, and Sweden, each with moderate job growth, but still well below the performances of the two North American countries and Australia. In contrast, employment growth in the remaining countries studied was very limited.

All of the countries that were studied experienced a major shift in the distribution of employment, from agriculture and industry (mining, manufacturing, and construction) into services. As of 1990, the service sector accounted for nearly 60 percent to more than 70 percent of total civilian employment across the 10 countries.

In addition to the employment growth itself, the article examines the sources of the growth and the changing sectoral distribution of employment in these countries from 1970 to 1990. The composition of the rapidly growing service-sector industries is examined, as are international employment trends by gender and by part-time and full-time status.

The analysis ends with 1990 in order to exclude most of the employment effects of the cyclical downturns that all 10 countries experienced in the early 1990's. Both gross domestic product and employment fell in 1991 in the United States, Canada, Australia, Sweden, and the United Kingdom. While the downturns began in 1990, employment rose on an annual basis in all five economies, and only Canada had a decline in output. In the other European countries and Japan, 1990–91 was a period of rising output and employment, although growth began to slacken by 1991.

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Employment growth

Between 1970 and 1990, employment increased by 50 percent in the United States, 59 percent in Canada, 46 percent in Australia, about 23 percent in Japan and the Netherlands, and nearly 20 percent in Sweden. Employment growth was more limited in France, Germany, Italy, and the United Kingdom, rising by 10 percent or less. Most countries had strong employment growth between 1985 and 1990; indeed, in some European countries, this period accounted for more than half of the employment growth registered during the 1970–90 period. In the most extreme cases, employment fell in Germany and the United Kingdom between 1970 and 1985; but it recovered between 1985 and 1990, increasing by 7.5 percent in Germany and 10 percent in the United Kingdom. (See table 1.)

Employment change can be ascribed to three sources: changes in the working-age population, alterations in labor force participation rates, and changes in unemployment rates. All three factors

contributed to the diverse employment growth rates that were experienced across the countries studied.

Changes in the working-age population are determined primarily by birth and death rates, but are also affected by migration. The effects of migration have not been separately analyzed. Changes in participation rates and unemployment rates are affected by underlying economic and social conditions. At the aggregate level, they are also affected by changes in the age-sex composition of the working-age population because of differences in labor force participation rates and unemployment rates by age and sex.

The three sources of employment change can be looked at in the aggregate or can be broken down by sex and age. This article analyzes the changes by sex, but not by age group.[1] Consequently, the effects of changes in the age structure of the population are subsumed under the effects of changes in labor force participation rates and unemployment rates by sex. The effects of changes in the sex composition of the working-age population have been isolated by (1) applying the population-by-sex ratios of the initial- or base-year (1970) to the terminal-year (1990) working-age population, (2) deriving a hypothetical terminal-year employment figure by assuming that it has no effect on the actual terminal-year labor force participation and unemployment rates by sex, and (3) calculating the effects of the three sources of employment growth on the hypothetical terminal-year employment figure. The difference between this hypothetical and the actual terminal-year employment figure, termed the *residual*, is the effect of changes in the sex composition of the population.

The results of this analysis, for the period 1970–90 (1973–90 for the Netherlands),[2] are presented in table 2. The table shows the percentage that each of the three sources supplied to employment growth, the contribution from changes in the distribution of the population by sex (the residual), and an interaction factor. The interaction effect reflects simultaneous changes in labor force participation rates and unemployment rates.

The method used to partition employment growth into the three sources is described in the appendix. It appears to be the most satisfactory method for isolating the major factors, but other formulations could have been used that would have ascribed a substantially greater contribution to interaction effects and less of a contribution to participation rate and unemployment rate effects. (See appendix.)

For four countries (Germany, Italy, the Netherlands, and Sweden), there were breaks in the employment and unemployment data series due to changes in definitions or sources. These changes are described in the appendix. Consistent series were used for the analysis underlying table 2 by estimating the effects of the aforementioned breaks and eliminating them.

During 1970–90, changes in the working-age population exerted the greatest influence on employment growth. Changes in labor force participation rates and unemployment rates affected countries unequally.[3] Changes in the sex composition of the working-age population had very little effect outside of Germany. The interaction effect was small in all cases.

About the data

To analyze overall employment growth and its sources, the employment and unemployment data of the countries studied were adjusted to U.S. concepts wherever significant differences existed. Some adjustments were also made for breaks in series. Such adjustments affect primarily unemployment figures, but some adjustments were made as well to the employment figures. In the analysis of the distribution of employment by economic sector, the employment data for the European countries could not be fully adjusted, leading to small discrepancies in the employment totals between these two analyses. The largest discrepancies relate to the Netherlands. In addition, the data needed to analyze the sources of employment growth in the Netherlands were available only from 1973 onward.

In the classification of employment by broad industrial sector, the U.S. industrial classification system was used as a guide. However, in the classification of employment data by industry within the overall service sector, the data for the United States and several other countries were adjusted to the United Nations International Standard Industrial Classification system in order to provide better concordance among the countries covered in this article.

The analysis relates to civilian employment; that is, it excludes the Armed Forces. All references to population refer to the working-age population. The working-age population excludes all persons below a specified minimum age—generally, 15 or 16 years. The term "Germany" denotes the Federal Republic of Germany in references made to years prior to unification and current-day Germany in references made to years after unification.

See the appendix for further information on data sources and adjustments.

Table 1. **Civilian employment growth in 10 countries, 5-year periods, 1970–90**

Country	Average annual percent change					Total percent change, 1970–90
	1970–75	1975–80	1980–85	1985–90	1970–90	
United States	1.8	3.0	1.5	1.9	2.0	49.9
Canada	3.2	2.9	.9	2.3	1.3	58.8
Australia	1.7	1.4	1.3	3.3	1.9	46.1
Japan	.5	1.2	1.0	1.5	1.0	23.1
France	.6	.5	–.4	.7	.3	7.0
Germany	–.4	.7	–.4	1.5	.3	7.2
Italy	.3	.8	.3	.6	.5	10.4
Netherlands	[1].2	1.7	.5	2.1	[2]1.3	24.2
Sweden	1.0	.8	.3	1.3	.9	18.8
United Kingdom	.2	.1	–.4	1.9	.4	9.2

[1] 1973–75. Employment declined slightly between 1970 and 1972. See box, p. 4.
[2] 1973–90.

SOURCE: Compiled by Bureau of Labor Statistics from national sources.

Population. In all 10 countries, working-age population growth contributed at least 60 percent, and usually far more, to new employment. (See table 2.) For Japan, France, Germany, and Italy, population growth was the only source of employment growth. Especially in these three European countries, and to a lesser extent in Japan, population increased much faster than employment. As a result, potential workers withdrew from the labor force, abstained from entering the labor force, or became unemployed.

In the remaining countries, either employment rose faster than population (the United States, Canada, and Sweden), or employment and population increased at nearly equivalent rates (Australia, the Netherlands, and the United Kingdom). The higher rates of employment growth in North America and Australia reflected, in large part, their more rapid working-age population growth rates. Population growth rates were three-quarters of the U.S. rate in Japan and the Netherlands, about 40 to 60 percent of the U.S. rate in France, Germany, Italy, and Sweden, and only one-quarter of the U.S. rate in the United Kingdom.

The average annual percent increases (based on initial and terminal years only) in working-age population and civilian employment from 1970 to 1990 in all of the countries studied were as follows:

	Percent increase	
	Population	*Employment*
United States	1.6	2.0
Canada	1.7	2.3
Australia	2.0	1.9
Japan	1.2	1.0
France	.9	.3
Germany	.7	.3
Italy	.9	.5
Netherlands (1973–90)	1.2	1.3
Sweden	.6	.9
United Kingdom	.4	.4

Because population growth rates probably had some effect on changes in labor force participation rates and unemployment rates, the influence of differences in population growth rates on the differences in employment growth rates cannot be precisely determined. However, the following tabulation shows what each country's average annual 1970–90 employment growth rate would have been if that country's working-age population growth rate had been the same as the U.S. rate and changes in overall participation rates and unemployment rates were as recorded in the previous tabulation:

	Percent increase	
	Actual, from previous tabulation	*Hypothetical*
United States	2.0	2.0
Canada	2.3	2.2
Australia	1.9	1.5
Japan	1.0	1.4
France	.3	1.0
Germany	.3	1.2
Italy	.5	1.2
Netherlands (1973–90)	1.3	1.6
Sweden	.9	1.9
United Kingdom	.4	1.6

A comparison of the two columns suggests that lower population growth rates accounted for nearly all of the employment growth rate differential between the United States and Sweden, for about three-fourths of the U.S. differential with the United Kingdom, and for about 40–50 percent of the U.S. differentials with Japan, France, Germany, Italy, and the Netherlands. The remaining differences in employment growth rates between the United States and each of Japan, France, Germany, Italy, the Netherlands, and the United Kingdom are due to changes in labor market conditions, as repre-

sented by changing participation rates and unemployment rates.

Labor force participation. In the United States, Canada, Australia, the Netherlands, Sweden, and the United Kingdom, labor force participation rates increased, contributing from about 10 percent to more than 50 percent to new employment. (See table 2.) In contrast, participation rates declined in Japan, France, Germany, and Italy. In these countries, declining participation in the labor force partly negated the contribution of population growth to employment.

The changes in overall participation rates mask substantial differences by sex. Participation rates for women rose everywhere, with large increases occurring in the countries with overall increases in participation rates. In contrast, participation rates for men fell in every country. The percentage point change in labor force participation rates, by gender from 1970 to 1990, are given in the following tabulation:

	Total	*Men*	*Women*
United States	6.0	–3.6	14.2
Canada	9.2	–1.9	20.1
Australia	2.6	–7.6	12.7
Japan	–1.9	–4.5	.4
France	–2.3	–11.6	6.0
Germany	–1.8	–10.1	4.4
Italy	–1.7	–10.6	6.3
Netherlands (1973–90)	3.4	–7.8	14.3
Sweden	4.1	–5.7	13.6
United Kingdom	2.8	–6.5	10.9

With the increase in the percent of employed women in all of the countries studied, the proportion of men in the labor market has dropped. Table 3 illustrates that in 1970, women's employment accounted for less than 40 percent of civilian employment in all of the countries. By 1990, only in Italy and in the Netherlands did women make up less than 40 percent of employment. Scandinavian and North American women have been in the forefront of the movement into the labor force, with Sweden holding the highest percentage share,[4] followed by the United States, Canada, and the United Kingdom.

Unemployment rates. Falling unemployment rates are usually associated with employment growth, because formerly unemployed workers are more likely to have found jobs than to have left the labor force. In contrast, rising unemployment rates imply either that employed workers have lost their jobs (employment falls) or that new entrants into the labor market have been unable to find jobs. The following tabulation shows unemployment rates[5] for 1970 and 1990 in the 10 countries studied (the 1970 figures for Germany, Italy, and Sweden and the 1973 figure for the Netherlands were adjusted to account for subsequent breaks in the respective series):

	Percent	
	1970	*1990*
United States	4.9	5.5
Canada	5.7	8.1
Australia	1.6	6.9
Japan	1.2	2.1
France	2.5	9.1
Germany	.5	5.0
Italy	3.8	7.0
Netherlands	2.6 (1973)	7.5
Sweden	1.2	1.5
United Kingdom	3.1	6.9

Employment growth was slowed, to some extent, by higher unemployment rates in 1990 than in 1970 in all 10 countries. In the United States and Sweden, the small increase in the unemployment rate in 1990 compared with 1970 had virtually no impact on employment growth. (See table 2.) Similarly, although in 1990, the Japanese unemployment rate was nearly double the 1970 figure, its comparatively low level of 2.1 percent had only a small negative effect on employment growth. The effect of Canada's higher 1990 unemployment rate on employment growth over the 1970–90 period was also relatively small. In the remaining countries, 1990 unemployment rates were substantially higher than in 1970 and had larger adverse effects on employment growth.

Changes in unemployment rates usually had the smallest influence on employment growth, but in Australia, France, and Germany, rising unemployment rates affected employment growth as much as or more than changes in labor force participation rates.

Sex composition of the working-age population. Changes in the sex composition of the population—the residual—accounted for 9 percent of Germany's employment growth, but only for about 2 percent or less in the other countries. In 1970, men accounted for 46 percent of the German working-age population, a smaller proportion than in any of the other countries. By 1990, while still lower than in the other countries, the proportion had increased to 47 percent. (The increase reflects the gradual recovery from the huge losses of men in World War II.) Despite a substantial decline from the 1970 figure in Germany's 1990 labor force participation rate for men, the rate is still much higher than the participation rate for women. Consequently, the increase in the proportion of men in the working-age population accounted for

Table 2. **Sources of civilian employment growth, by gender, in 10 countries, 1970–90**

[Percent contribution to employment change]

Year	United States	Canada	Australia	Japan	France	Germany	Italy	Netherlands[1]	Sweden	United Kingdom
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Men	39.4	36.3	39.3	54.1	–31.8	.8	–2.5	19.6	7.9	–18.8
Women	60.6	63.7	60.7	45.9	131.8	99.2	102.5	80.4	92.1	118.8
Population	74.5	69.1	104.6	121.5	275.9	222.6	181.2	93.5	62.3	94.3
Men	46.4	45.9	70.7	74.1	176.7	141.3	131.1	68.6	37.7	59.8
Women	28.1	23.2	33.9	47.4	99.2	81.3	50.1	24.9	24.6	34.6
Labor force participation rate	26.2	38.3	13.1	–16.7	–70.5	–60.8	–48.0	33.5	40.1	52.9
Men	–7.6	–3.8	–19.7	–18.7	–162.9	–130.0	–120.4	–36.2	–25.3	–59.2
Women	33.9	42.1	32.8	2.0	92.4	69.2	72.4	69.7	65.4	112.1
Unemployment rate	–1.7	–6.2	–17.1	–5.4	–108.4	–71.7	–32.4	–22.5	–1.9	–47.1
Men	–2.1	–4.2	–12.4	–2.8	–59.2	–38.4	–16.4	–12.5	–1.7	–29.4
Women	.5	–2.0	–4.7	–2.6	–49.2	–33.3	–16.0	–10.0	–.3	–17.8
Interaction	.3	–.9	–.3	.2	1.4	1.0	–1.3	–3.9	0	–2.3
Men	.1	.1	1.1	.2	8.9	4.9	2.4	1.2	.1	2.3
Women	.2	–1.0	–1.5	.0	–7.5	–3.9	–3.7	–5.1	–.1	–4.6
Residual	.6	–.4	–.1	.5	1.6	8.9	.4	–.5	–.4	2.2
Men	2.6	–1.7	–.4	1.3	4.7	23.0	.9	–1.5	–2.9	7.7
Women	–2.0	1.3	.3	–.8	–3.1	–14.1	–.4	1.0	2.4	–5.6

[1] 1973–90.

NOTE: Because of rounding, subtotals may not add to totals.

SOURCE: Calculations by BLS based on data adjusted to U.S. concepts and adjusted for breaks in series (see appendix).

Table 3. **Percent distribution of civilian employment, by gender, in 10 countries, 1970, 1980, and 1990**

Gender and year	United States	Canada	Australia	Japan	France	Germany	Italy	Netherlands[1]	Sweden	United Kingdom
Women:										
1970	37.7	33.6	32.4	39.0	35.9	36.5	27.7	26.7	39.5	36.6
1980	42.4	39.7	36.4	38.4	39.5	38.0	31.7	30.3	45.1	40.4
1990	45.4	44.7	41.3	40.3	42.3	40.7	34.7	37.0	47.8	43.6
Men:										
1970	62.3	66.4	67.6	61.0	64.1	63.5	72.3	73.3	60.5	63.4
1980	57.6	60.3	63.6	61.6	60.5	62.0	68.3	69.7	54.9	59.6
1990	54.6	55.3	58.7	59.7	57.7	59.3	65.3	63.0	52.2	56.4

[1] 1973–90.

SOURCE: Compiled by BLS from national statistical sources.

a moderately significant proportion of Germany's growth in employment.

Employment shifts by sector

More than 20 years ago, the Bureau of Labor Statistics examined the nature of employment shifts in the United States and nine foreign countries during the 1950–70 period from the more traditional agricultural and industrial sectors of the economy to the expanding service sector.[6] At that time, all countries were losing employment in agriculture, and the rate of growth in industrial employment had moderated. Furthermore, the labor markets in five of the countries covered in this article—the United States, Canada, the Netherlands, Sweden, and the United Kingdom—had become dominated by the service sector, which accounted for more than half of all employed persons in those countries. Australia, which was not studied in the earlier article, also had more than half of its employment in services by 1970. On the other hand, the service sector had not yet predominated the economies of Japan, France, Germany, and Italy.

Over the next two decades, the service sector continued to be the major source of job growth, as the percentage shares of both agricultural and industrial employment declined. Table 4 shows the level of employment, by economic sector, at 5-year intervals from 1970 to 1990, for the 10 countries studied; table 5 shows the percentage distri-

Table 4. **Civilian employment, by economic sector, in 10 countries, at 5-year intervals, 1970–90**

[In thousands]

Year	United States	Canada	Australia	Japan	France	Germany	Italy	Netherlands	Sweden	United Kingdom
Civilian employment:										
1970	78,678	7,919	5,388	50,140	20,328	26,107	19,083	5,156	3,836	24,381
1975	85,846	9,284	5,867	51,530	20,864	25,536	19,395	5,109	4,044	24,720
1980	99,303	10,708	6,284	54,600	21,334	26,486	20,195	5,520	4,214	25,004
1985	107,150	11,221	6,697	57,260	20,915	26,018	20,492	5,624	4,281	24,210
1990	117,914	12,572	7,872	61,710	21,684	27,961	21,074	6,268	4,560	26,620
Agriculture:[1]										
1970	3,567	604	432	8,490	2,751	2,218	3,839	329	314	784
1975	3,507	564	405	6,380	2,156	[2]	3,231	303	261	687
1980	3,529	583	408	5,510	1,854	1,373	2,870	285	237	654
1985	3,338	575	412	4,820	1,582	1,163	2,262	289	208	616
1990	3,355	531	438	4,270	1,310	966	1,876	292	174	568
Industry:[3]										
1970	26,080	2,360	1,886	17,880	7,812	12,706	7,586	1,933	1,456	10,531
1975	25,302	2,613	1,870	18,370	7,883	[2]	7,630	1,697	1,449	9,632
1980	29,136	2,931	1,818	19,180	7,475	11,373	7,694	1,642	1,327	9,059
1985	28,805	2,728	1,713	19,820	6,485	10,437	6,890	1,494	1,244	7,400
1990	29,610	2,959	1,895	20,890	6,284	10,893	6,841	1,620	1,289	7,508
Manufacturing:										
1970	20,746	1,768	1,340	13,750	5,593	10,305	5,293	1,381	1,064	8,465
1975	19,457	1,871	1,275	13,430	5,798	[2]	5,424	1,251	1,138	7,654
1980	21,942	2,111	1,248	13,630	5,495	8,998	5,433	1,176	1,025	7,081
1985	20,879	1,960	1,138	14,480	4,853	8,403	4,761	1,094	968	5,603
1990	21,184	2,001	1,204	15,010	4,612	8,843	[4]4,726	1,196	961	5,384
Services:[5]										
1970	49,031	4,955	3,070	23,770	9,765	11,183	7,658	2,895	2,066	13,066
1975	57,037	6,108	3,592	26,770	10,825	[2]	8,533	3,108	2,334	14,401
1980	66,638	7,194	4,058	29,910	12,005	13,740	9,631	3,593	2,650	15,291
1985	75,006	7,918	4,572	32,620	12,848	14,418	11,340	3,841	2,828	16,194
1990	84,949	9,083	5,539	36,550	14,090	16,102	12,357	4,356	3,097	18,544

[1] Includes forestry, hunting, and fishing.

[2] Not available.

[3] Manufacturing, mining, and construction. For Italy, includes utilities, which are included in services in other countries.

[4] 1989 figure.

[5] Transportation and communication, public utilities, trade, finance and business services, public administration, private household services, and miscellaneous services. For Italy, excludes utilities.

NOTE: Because of rounding, subtotals may not add to totals.

SOURCE: Compiled by BLS from the November 1992 compendium, *Comparative Labor Force Statistics for Ten Countries, 1959–1991.* (See appendix.)

bution of employment, by economic sector, for those countries at the same intervals. The differences between the rates of change in population and employment by sector also confirm this trend. In all of the countries studied, only the rate of change in service employment exceeded the rate of change in population. (See table 6.)

Agricultural work force. In both absolute and relative terms, agricultural employment declined in all of the countries studied. One catalyst of the decline was the improved productivity brought on by mechanized farming: as output per worker rose, fewer workers were required to produce equivalent levels of output.

In 1970, the proportion of employment in agriculture differed widely among the various countries. Agricultural employment represented 20 percent of the employed work force in Italy and 17 percent in Japan. The United Kingdom and the United States had the lowest percentage shares, with less than 5 percent each in agriculture. (See table 5.)

By 1990, agricultural employment had shrunk to less than 10 percent of the employed labor force in every one of the countries studied. As in 1970, Italy had the highest proportion, 9 percent, followed by Japan, 7 percent, and France, 6 percent. The lowest proportions still prevailed in the United Kingdom, 2 percent, and the United States, under 3 percent.

Industrial sector. By 1990, all of the countries studied had lost percentage shares in industrial employment (mining, manufacturing, and construction), compared with 1970 figures. The United Kingdom lost 15 percentage points, the Netherlands lost 12 percentage points, and Australia, Germany, and Sweden lost about 10 percentage points each. In contrast, the 1990 share of industrial employment in Japan fell less than 2 percentage points from the 1970 figure.

In 1970, industry accounted for nearly 50 percent of civilian employment in Germany and 30 or more percent in each of the other countries examined. In 1990, nearly 40 percent of Germany's employment was still in industry; Japan and Italy followed, with about one-third of their labor forces similarly employed. At the low end, the U.S., Canadian, Australian, and Dutch industrial sectors accounted for around a fourth of total employment.

Like industry as a whole, the percentage share of manufacturing employment fell in all of the countries studied. In 1970, manufacturing employment accounted for 40 percent of employment in Germany, for more than one-third of employment in the United Kingdom, and for greater than 20 percent elsewhere; by 1990, manufacturing employment had dropped below 20 percent in the United States, Canada, Australia, and the Netherlands. Germany continued to have the highest percentage share, more than 30 percent, and Japan ranked second, with manufacturing accounting for about a quarter of total employment.

The United States, Canada, Australia, and Japan experienced only *relative* declines in industrial employment from 1970 to 1990: despite short-term fluctuations, overall industrial employment rose in the two North American countries and in Japan over the period, while in Australia it remained at the same level. Notwithstanding the same cyclical fluctuations, manufacturing employment was also higher in 1990 than in 1970 in the United States, Canada, and Japan.[7] In contrast, overall industrial and manufacturing employment declined in absolute numbers in the European countries studied. However, industrial output continued to increase in those countries because of productivity gains.

Population rose faster than industrial employment in all of the countries examined. (See table 6.) In the United States, Canada, and Japan, the differential was 1 percent or less per year. The differential for Australia was much higher, at 2 percent, because its small increase in industrial employment was well below its increase in population. France and the United Kingdom had equally large differentials in population and industrial employment growth rates as Australia did, despite having much smaller increases in population.

Service employment. During the 1970–90 period, service sector employment expanded everywhere, with all of the countries studied evolving

Table 5. **Percent distribution of civilian employment, by economic sector, in 10 countries, at 5–year intervals, 1970–90**

Year	United States	Canada	Australia	Japan	France	Germany	Italy	Netherlands	Sweden	United Kingdom
Agriculture:[1]										
1970	4.5	7.6	8.0	16.9	13.5	8.5	20.1	6.4	8.2	3.2
1975	4.1	6.1	6.9	12.4	10.3	([2])	16.7	5.9	6.5	2.8
1980	3.6	5.4	6.5	10.1	8.7	5.2	14.2	5.2	5.6	2.6
1985	3.1	5.1	6.2	8.4	7.6	4.5	11.0	5.1	4.9	2.5
1990	2.8	4.2	5.6	6.9	6.0	3.5	8.9	4.7	3.8	2.1
Industry:[3]										
1970	33.1	29.8	35.0	35.7	38.4	48.7	39.8	37.5	38.0	43.2
1975	29.5	28.1	31.9	35.6	37.8	([2])	39.4	33.2	35.8	39.0
1980	29.3	27.4	28.9	35.1	35.0	42.9	38.1	29.7	31.5	36.2
1985	26.9	24.3	25.6	34.6	31.0	40.1	33.6	26.6	29.1	30.6
1990	25.1	23.5	24.1	33.9	29.0	39.0	32.5	25.8	28.3	28.2
Manufacturing:										
1970	26.4	22.3	24.9	27.4	27.5	39.5	27.7	26.8	27.7	34.7
1975	22.7	20.2	21.7	26.1	27.8	([2])	28.0	24.5	28.1	31.0
1980	22.1	19.7	19.9	25.0	25.8	34.0	26.9	21.3	24.3	28.3
1985	19.5	17.5	17.0	25.3	23.2	32.3	23.2	19.5	22.6	23.1
1990	18.0	15.9	15.3	24.3	21.3	31.6	[4]22.8	19.1	21.1	20.2
Services:[5]										
1970	62.3	62.6	57.0	47.4	48.0	42.8	40.1	56.2	53.9	53.6
1975	66.4	65.8	61.2	52.0	51.9	([2])	44.0	60.8	57.7	58.3
1980	67.1	67.2	64.6	54.8	56.3	51.9	47.7	65.1	62.9	61.2
1985	70.0	70.6	68.3	57.0	61.4	55.4	55.3	68.3	66.1	66.9
1990	72.0	72.2	70.4	59.2	65.0	57.6	58.6	69.5	67.9	69.7

[1] Includes forestry, hunting, and fishing.
[2] Not available.
[3] Manufacturing, mining, and construction. For Italy, includes utilities, which are included in services in other countries.
[4] 1989 figure.
[5] Transportation and communication, public utilities, trade, finance and business services, public administration, private household services, and miscellaneous services. For Italy, excludes utilities.

NOTE: Because of rounding, subtotals may not add to 100 percent.

SOURCE: Compiled by BLS from the November 1992 compendium, *Comparative Labor Force Statistics for Ten Countries, 1959–1991.* (See appendix.)

Table 6. **Employment change, by economic sector, relative to population change, in 10 countries, 1970–90**

[Employment growth rates minus population growth rates]

Year	United States	Canada	Australia	Japan	France	Germany	Italy	Netherlands[1]	Sweden	United Kingdom
Total civilian employment:										
1970–90	0.5	0.6	–0.1	–0.2	–0.6	–0.4	–0.4	0.0	0.3	0.0
1970–80	.3	.9	–.5	–.4	–.5	–.6	–.3	–.1	.4	.0
1980–90	.6	.4	.3	.0	–.6	–.2	–.5	.2	.2	.1
Agriculture:[2]										
1970–90	–1.9	–2.4	–1.9	–4.6	–4.5	–4.8	–4.4	–1.5	–3.5	–2.0
1970–80	–2.1	–2.5	–2.6	–5.5	–4.8	–5.5	–3.7	–2.4	–3.3	–2.1
1980–90	–1.7	–2.2	–1.2	–3.7	–4.2	–4.2	–5.0	–.9	–3.6	–1.9
Industry:[3]										
1970–90	–1.0	–.6	–2.0	–.5	–2.0	–1.5	–1.4	–1.8	–1.2	–2.1
1970–80	–.9	.0	–2.4	–.6	–1.4	–1.9	–.7	–2.5	–1.5	–1.8
1980–90	–1.0	–1.1	–1.5	–.4	–2.5	–1.1	–2.1	–1.3	–.8	–2.4
Manufacturing:										
1970–90	–1.5	–1.1	–2.5	–.8	–1.9	–1.5	[4]–1.5	–1.6	–1.1	–2.7
1970–80	–1.5	–.4	–2.7	–1.3	–1.2	–2.1	–.6	–2.6	–.9	–2.1
1980–90	–1.5	–1.8	–2.3	–.3	–2.5	–.9	[5]–2.4	–1.0	–1.2	–3.2
Services:[6]										
1970–90	1.2	1.4	1.0	.9	1.0	1.1	1.6	1.0	1.5	1.4
1970–80	1.1	1.6	.8	1.1	1.1	1.3	1.5	1.3	2.0	1.3
1980–90	1.3	1.1	1.2	.8	.8	.9	1.6	.8	1.0	1.4

[1] 1973–90.
[2] Includes forestry, hunting, and fishing.
[3] Manufacturing, mining, and construction. For Italy, includes utilities, which are included in services in other countries.
[4] 1970–89.
[5] 1980–89.
[6] Transportation and communication, public utilities, trade, finance and business services, public administration, private household services, and miscellaneous services. For Italy, excludes utilities.

SOURCE: Compiled by BLS from the November 1992 compendium, *Comparative Labor Force Statistics for Ten Countries, 1959–1991*. (See appendix.)

service-dominated labor markets. In 1970, service sector employment accounted for 40 percent to 63 percent of total employment, with Japan, France, Germany, and Italy at the lower end. By 1978, Japan, France, and Germany had reached 50 percent employment in services. Around 1982, Italy became the last country among those studied to pass the 50-percent threshold.

In 1990, Canada and the United States had the highest proportions of employment in services, 72 percent each. They were followed closely by Australia, the Netherlands, and the United Kingdom, with about 70 percent each. Japan, Germany, and Italy had the lowest proportions, 58 to 59 percent.

According to several studies, various factors explain the increase in service employment in the United States. First, most service work is labor intensive, thus requiring more workers per unit of output than do occupations in industry. Second, the expansion of global trade bolstered the demand for services in the air transport and wholesale trade industries, for knowledge-based services, and for finance, insurance, and personal services. Third, over the 1970–90 period, the service sector was less sensitive to the effects of economic downturns than the industrial sector was: while the goods-producing sector lost jobs in 1974–75 and in the early 1980's, service sector jobs continued to increase during both periods. Finally, the domestic demand for services related to health care, food, day care, and leisure activities proliferated.[8] Fueling the demand in several of these areas was the aging of the population and the rapid entry of women into the labor force. A 1984 BLS study attributed most American service sector employment growth to the rise in labor force participation of women.[9] Many of these factors have also been cited as reasons for the prolific service employment growth in Japan and Europe.[10]

In contrast to employment in agriculture and industry, service sector employment increased faster than population growth in all 10 countries. (See table 6.) Relative to population growth, service sector employment increased fastest in Italy (a 1.6-percent differential in growth rates), followed closely by Sweden (a 1.5-percent differential) and Canada and the United Kingdom (1.4-percent differentials). Japan had the smallest increase in services relative to population growth (a 0.9-percent differential). The United States and Canada had the best absolute job creation perform-ances in services, but they did not generate more service jobs relative to population growth than did many of the other countries. In fact, the employment shift to services may be no more intensive in the two

North American countries than it is in some European countries.

Service subsectors. A more detailed analysis of the components of the service sector reveals that employment increased strongly in two major areas: community, social, and personal services; and finance, insurance, real estate, and business services. (See table 7.) Employment in wholesale and retail trade, restaurants, and hotels rose rapidly in some countries, but much more slowly in others. In the remaining two subsectors—public utilities and transportation and communication—employment growth was much slower: in the Netherlands (1975–90), public utility employment declined, and in the United Kingdom (1970–89), transportation and communication employment declined. (Because the available Italian figures for the service subsector are from 1977 to 1990, Italy is excluded from the following analysis of the 1970–90 trends.)

Table 8 shows employment change relative to population change within the three largest service subsectors as of 1990. (These subsectors were the same both in each country and across all of the countries studied.) During 1970–90, finance, insurance, real estate, and business services exhibited the fastest rate of increase among the major service industries. At 4.6 percent, the United Kingdom had the largest increase relative to population growth in this subsector, with the remaining countries near 3 percent each. The rates of change

Table 7. **Civilian employment in the service subsectors in 10 countries, at 5-year intervals, 1970–90**

[In thousands]

Year	United States	Canada	Australia	Japan	France	Germany	Italy	Netherlands	Sweden	United Kingdom
Public utilities:										
1970	949	89	106	280	163	191	[1]	[2]	24	391
1975	986	107	107	320	172	[2]	[1]	48	32	355
1980	1,179	124	130	300	189	215	[1]	50	36	353
1985	1,243	121	137	330	210	243	[1]	53	40	305
1990	1,292	136	107	300	204	255	[1]	41	37	[4]292
Wholesale and retail trade, restaurants and hotels:										
1970	15,988	1,613	1,228	10,530	3,122	3,837	[2]	[2]	556	4,007
1975	18,708	2,036	1,343	11,730	3,259	[2]	[3]3,547	899	585	4,516
1980	21,339	2,411	1,467	12,980	3,413	4,079	3,765	985	582	4,818
1985	23,747	2,613	1,559	13,800	3,454	4,224	4,375	980	591	4,922
1990	26,049	3,014	1,960	14,850	3,756	4,554	[4]4,467	1,114	657	[4]5,306
Transport and communication:										
1970	4,734	609	412	3,250	1,207	1,480	[2]	[2]	266	1,640
1975	5,032	705	455	3,320	1,264	[2]	[3]1,109	296	272	1,582
1980	5,619	782	461	3,500	1,319	1,572	1,124	328	295	1,580
1985	5,825	755	516	3,440	1,369	1,530	1,093	346	300	1,443
1990	6,307	815	539	3,770	1,397	1,622	[4]1,153	386	320	[4]1,548
Finance, insurance, real estate, and business services:										
1970	5,349	563	380	2,160	1,070	1,100	[2]	[2]	192	1,214
1975	6,427	750	431	2,690	1,323	[2]	[3]421	330	214	1,622
1980	8,351	1,018	518	3,170	1,591	1,540	418	435	283	1,837
1985	11,005	1,128	660	3,940	1,705	1,880	718	518	321	2,348
1990	13,346	1,457	907	5,190	2,174	2,214	[4]858	652	396	[4]3,094
Community, social, and personal services:[5]										
1970	22,012	2,081	944	7,570	4,203	4,575	[2]	[2]	1,028	5,814
1975	25,882	2,510	1,256	8,770	4,807	[2]	[3]3,879	1,536	1,231	6,323
1980	30,148	2,859	1,452	9,920	5,493	6,335	4,224	1,794	1,454	6,703
1985	33,187	3,300	1,700	11,110	6,111	6,544	5,154	1,945	1,576	7,177
1990	37,955	3,661	2,028	12,420	6,559	7,458	[4]5,618	2,162	1,687	[4]7,968

[1] Included in industry.
[2] Not available.
[3] 1977.
[4] 1989.
[5] Includes public administration, education, health, and recreation services.

SOURCE: Compiled by BLS from national sources (United States, Canada, Australia, Japan, Italy, and Sweden) and the Organisation for Economic Cooperation and Development's *Labour Force Statistics Yearbook, 1970–1990* and *Quarterly Labour Force Statistics, 3rd Quarter, 1992* (France, Germany, the Netherlands, and the United Kingdom). Where necessary, adjustments for international comparability have been made by BLS. (See appendix.)

Table 6 **Employment change in all services and in the three largest service subsectors as of 1990 relative to population change in 10 countries, 1970–90**

[Employment growth rates minus population growth rates]

Year	United States	Canada	Australia	Japan	France	Germany	Italy[1]	Netherlands[2]	Sweden	United Kingdom[1]
All services:										
1970–90	1.2	1.4	1.0	0.9	1.0	1.1	1.5	1.0	1.5	1.3
1970–80	1.1	1.6	.8	1.1	1.1	1.3	1.5	1.4	2.0	1.3
1980–90	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Wholesale and retail trade, restaurants and hotels:										
1970–90	.9	1.5	.4	.5	.0	.1	[3]	.2	.3	1.1
1970–80	.9	1.9	.0	.9	–.1	–.2	[3]	.3	–.1	1.5
1980–90	.9	1.0	.8	.1	.2	.4	1.0	.1	.7	.5
Finance, insurance, real estate, and business services:										
1970–90	3.1	3.2	2.5	3.2	2.7	2.8	[3]	3.4	3.1	4.6
1970–80	2.5	3.9	1.1	2.7	3.1	2.6	[3]	4.1	3.4	3.9
1980–90	3.7	2.4	3.8	3.8	2.4	3.0	4.8	3.0	2.9	5.4
Community, social, and personal services:[4]										
1970–90	1.2	1.2	1.9	1.3	1.4	1.7	[3]	1.0	2.0	1.2
1970–80	1.2	1.0	2.4	1.5	1.7	2.5	[3]	1.6	3.0	1.1
1980–90	1.2	1.3	1.4	1.0	1.0	.9	2.3	.8	.9	1.4

[1] Period ending in 1989 for Italy and the United Kingdom.
[2] Period beginning in 1975 for the Netherlands.
[3] Not available.
[4] Includes public administration, education, health, and recreation services.

NOTE: The subsectors listed are the fastest growing both in each country and across all of the countries studied

SOURCE: Compiled by BLS from national sources (United States, Canada, Australia, Japan, Italy, and Sweden) and the Organisation for Economic Co-operation and Development's *Labour Force Statistics Yearbook, 1970–1990* and *Quarterly Labour Force Statistics, 3rd Quarter, 1992* (France, Germany, the Netherlands, and the United Kingdom). Where necessary, adjustments for international comparability have been made by BLS. (See appendix.)

in the subsector relative to population were more than twice as rapid as for total services.

Community, social, and personal services (henceforth referred to as personal services) include jobs in areas such as advertising, beauty shops, health and legal services, education, and public administration. This subsector accounted for the highest percentage shares of services during 1970–90 in all of the countries studied, except for Australia (1970–80) and Japan, where employment in trade, restaurants, and hotels was highest. (See table 9.) The importance of personal services can be illustrated by comparing its share in relation to that of industrial employment. In 1970, industrial employment eclipsed personal services employment in all countries. By 1990, however, employment in personal services surpassed industrial employment everywhere but Japan, Germany, and Italy, and it exceeded manufacturing employment everywhere but Japan and Germany. (See tables 5 and 9.)

Wholesale and retail trade, restaurants, and hotels (henceforth referred to as trade) was the second largest group of services, in terms of number employed, in every country studied, except for Japan (1970–90) and Australia (1970–80), where it was the dominant service sector employer. The share of this subsector rose everywhere but the Netherlands and Sweden. In 1970, the percent share of manufacturing employment was greater than that of trade employment in all countries; however, by 1990, more North American and Australian jobs were in trade than in manufacturing, and in Japan trade and manufacturing jobs were equally distributed.

The fastest rates of growth in personal services, relative to population growth, occurred in Australia and Sweden, the slowest in Canada, the United States, the Netherlands, and the United Kingdom. Relative trade growth was fastest in Canada and the United Kingdom and was unchanged in France and Germany. (See table 8.)

Part-time employment

The employment gains made by services and the rapid entry of women into the labor force fueled an expansion in part-time employment from 1970 to 1990. The demand for part-time workers appears to have increased principally for two reasons: first, part-time workers offer employers greater flexibility in adjusting labor inputs to shifts in demand, which is particularly attractive to many service sector employers; second, some employers have

recruited part-time employees to reduce labor costs, because part-time workers receive lower wages and fewer fringe benefits than full-time workers do.[11]

The supply of part-time employees has also increased. Part-time work often meets the personal needs of workers. It may allow youths to combine work with education, women to combine work with family responsibilities, and individuals to enjoy more leisure time. Students and the elderly have contributed to the rise in part-time employment, but the prime source has been women, who accounted for approximately 3 out of 4 part-time workers in 1990.[12]

Part-time employment figures compiled by the Organisation for Economic Co-operation and Development are used in the following analysis. Definitions for part-time employment vary among countries and are not fully comparable to U.S. definitions.[13] As a result, the figures give general patterns, but should be interpreted with caution.

Part-time jobs outpaced full-time jobs in their rate of growth over the 1973–90 period in all of the countries studied except Italy. (See table 10.) The greatest increases occurred in the Netherlands and Australia. In both countries, the trend is attributed to the substantial rise in the number of women in the labor force and deliberate Government policies to promote part-time employment.[14] As regards Italy, according to the Organisation for Economic Co-operation and Development, a partial explanation for its anomalous status may be

Table 9. **Percent distribution of civilian employment in the service subsectors in 10 countries, at 5-year intervals, 1970–90**

[Percent of total civilian employment]

Year	United States	Canada	Australia	Japan	France	Germany	Italy	Netherlands	Sweden	United Kingdom
Public utilities:										
1970	1.2	1.1	2.0	0.6	0.8	0.7	(1)	(2)	0.6	1.6
1975	1.1	1.1	1.8	.6	.8	(2)	(1)	.9	.8	1.4
1980	1.2	1.2	2.1	.6	.9	.8	(1)	.9	.9	1.4
1985	1.2	1.1	2.0	.6	1.0	.9	(1)	.9	.9	1.3
1990	1.1	1.1	1.4	.5	.9	.9	(1)	.7	.8	[3]1.1
Wholesale and retail trade, restaurants and hotels:										
1970	20.3	20.4	22.8	21.0	15.4	14.7	(2)	(2)	14.5	16.4
1975	21.8	21.9	22.9	22.8	15.6	(2)	[4]18.0	17.6	14.5	18.3
1980	21.5	22.5	23.8	23.8	16.0	15.4	18.6	17.8	13.8	19.3
1985	22.2	23.3	23.3	24.1	16.5	16.2	21.3	17.4	13.8	20.3
1990	22.1	24.0	24.9	24.1	17.3	16.3	[3]21.5	17.8	14.4	[3]19.5
Transportation and communication:										
1970	6.0	7.7	7.6	6.5	5.9	5.7	(2)	(2)	6.9	6.7
1975	5.9	7.6	7.8	6.4	6.1	(2)	[4]5.6	5.8	6.7	6.4
1980	5.7	7.3	7.3	6.4	6.2	5.9	5.6	5.9	7.0	6.3
1985	5.4	6.7	7.7	6.0	6.5	5.9	5.3	6.2	7.0	6.0
1990	5.3	6.5	6.8	6.1	6.4	5.8	[3]5.6	6.2	7.0	[3]5.9
Finance, insurance, real estate, and business services:										
1970	6.8	7.1	7.1	4.3	5.3	4.2	(2)	(2)	5.0	5.0
1975	7.5	8.1	7.3	5.2	6.3	(2)	[4]2.1	6.5	5.3	6.6
1980	8.4	9.5	8.2	5.8	7.5	5.8	2.6	7.9	6.7	7.3
1985	10.3	10.1	9.9	6.9	8.2	7.2	3.5	9.2	7.5	9.7
1990	11.3	11.6	11.5	8.4	10.0	7.9	[3]4.1	10.4	8.7	[3]11.7
Community, social, and personal services:[5]										
1970	28.0	26.3	17.5	15.1	20.7	17.5	(2)	(2)	26.8	23.8
1975	30.1	27.0	21.4	17.0	23.0	(2)	[4]19.7	30.1	30.4	25.6
1980	30.4	26.7	23.1	18.2	25.7	23.9	20.9	32.5	34.5	26.8
1985	31.0	29.4	25.4	19.4	29.2	25.2	25.2	34.6	36.8	29.6
1990	32.2	29.1	25.8	20.1	30.2	26.7	[3]27.0	34.5	37.0	[3]30.2

[1] Included in industry.
[2] Not available.
[3] 1989.
[4] 1977.
[5] Includes public administration, education, health, and recreation services.

SOURCE: Compiled by BLS from national sources (United States, Canada, Australia, Japan, Italy, and Sweden) and the Organisation for Economic Co-operation and Development's *Labour Force Statistics Yearbook, 1970–1990* and *Quarterly Labour Force Statistics, 3rd Quarter, 1992* (France, Germany, the Netherlands, and the United Kingdom). Where necessary, adjustments for international comparability have been made by BLS. (See appendix.)

Table 10. **Average annual rates of change in part-time and full-time employment in 10 countries, 1973–90**

Country	1973–81		1981–90		1973–90	
	Full time	Part time	Full time	Part time	Full time	Part time
United States	1.9	3.3	1.8	1.7	1.8	2.4
Canada	2.6	7.4	1.2	3.0	1.9	5.0
Australia	.6	5.5	1.6	5.2	1.1	5.3
Japan	.5	2.3	.8	3.6	.7	3.0
France	.2	5.0	–.2	4.4	.0	4.7
Germany	–.2	2.3	[1].0	[1]1.6	[2]–.1	[2]1.9
Italy	1.7	–1.4	[3].1	[3]1.6	[4].8	[4].1
Netherlands	[5].7	[5]6.0	.3	9.3	[6].5	[6]8.0
Sweden	[7].4	4.8	1.1	.2	[8].6	[8]1.8
United Kingdom	–.4	1.3	[3].2	[3]3.3	[4]–.1	[4]2.2

[1] 1981–88.
[2] 1973–88.
[3] 1981–89.
[4] 1973–89.
[5] 1975–81.
[6] 1975–90.
[7] 1976–81.
[8] 1976–90.

NOTE: Definitions of full-time and part-time employment vary among countries. (See appendix.)

SOURCE: Unpublished tabulations from the Organisation for Economic Co-operation and Development.

that an abundance of concealed employment is conducted on a part-time basis and is probably not fully reflected in the Italian employment statistics.[15] Also, while the Italian statistics show almost no growth in part-time employment over the period since 1973, data for the 1980's indicate that part-time jobs accounted for nearly all of Italy's employment growth.

Because full-time employment still constitutes the bulk of jobs—at least 3 out of 4—in the countries studied, its growth generally has a greater influence on total job growth than part-time employment does. However, between 1973 and the late 1980's, full-time employment receded in Germany and the United Kingdom and remained stable in France. Thus, in those three countries, overall employment rose exclusively from increases in part-time employment.

Conclusion

Employment growth was much faster in the United States, Canada, and Australia than in any of the other countries in the study presented in this article, primarily from more rapid increases in population. Lower population growth rates explain nearly all of the employment growth rate differential between the United States and Sweden, about three-fourths of the U.S. differential with the United Kingdom, and about 40 to 50 percent of the U.S. differential with Japan, France, Germany, Italy, and the Netherlands.

Population growth was the major source of employment growth in all of the countries studied. U.S., Canadian, and Swedish employment rose faster than population because the employment generated from rising labor force participation rates for women was far greater than the losses that resulted from declines in participation rates for men and the negative effects of higher unemployment rates. In Australia, the Netherlands, and the United Kingdom, employment growth and population growth were about equal because the effects of rising participation rates for women offset both falling participation rates for men and the large increases in unemployment rates. Finally, employment growth was weaker than population growth in France, Germany, Italy, and—to a far lesser extent—Japan, because overall labor force participation rates declined and unemployment rates rose.

In all countries except Japan, women had a greater effect on employment growth than men did. Most notably, women's contribution to employment growth came through changes in labor force participation rates. And in four countries—France, Germany, Italy, and the United Kingdom—women were the sole contributors to employment growth.

As in the United States, the shift to a service-dominated economy occurred in the other industrialized countries. Within the service sector, the subsector of finance, insurance, real estate, and business services displayed the fastest increase, growing twice as rapidly as total services. However, as of 1990, community, social, and personal services was the largest subsector employer in all countries except Japan and accounted for a greater share of total civilian employment than the goods-producing sectors in all countries except Japan, Germany, and Italy. □

Footnotes

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[1] Disaggregating the U.S. data by the age groups 16–19 years, 20–24 years, 25–54 years, and 55 years and older results in raising population as a source of employment growth from 75 percent to 79 percent of the total contribution and lowering labor force participation rates as a source of employment growth from 26 percent to 23 percent of the total contribution (although the contribution of women's participation rates rises by 1 percentage point). In general, the 20–24 and

25–54 age groups follow the aggregated pattern, the contribution to employment change from 16- to 19-year-olds is negative for the group's population, and the contribution to employment change from changes in labor force participation rates is negative for women as well as for men among those 55 years and older.

[2] For the analysis of sources of employment change, the data for the Netherlands begin in 1973 because data on Dutch unemployment and labor force participation, adjusted to U.S. concepts, are available only from 1973 onward. Data on employment by major economic sector, shown in later tables, are available from 1970 onward. (See box, page 4, and appendix.)

[3] The analysis is, of course, affected by the initial and terminal years selected. This is particularly true for the more volatile unemployment rate. In 1970, unemployment was beginning to rise in the United States and Canada, but was well below the rates reached in the early and mid-1980's. Unemployment moved down in the latter half of the 1980's in both countries, but unemployment rates in both countries were higher in 1990 than in 1970. All of the other countries had relatively low unemployment rates in 1970, but they rose by the 1980's. Australia and all of the European countries except Sweden experienced very large increases in their unemployment rates. While most of these countries saw falling rates by 1990, the 1990 rates in each country were well above that country's 1970 rates. Although higher in 1990 than in 1970, Japan's unemployment rate was still only 2.1 percent. Sweden's unemployment rate doubled by the mid-1980's, but in 1990, it was about the same as in 1970. The use of 1970 and 1990 as the initial and terminal year for analysis appears to be representative of the broad labor market changes that have occurred over the past two decades.

[4] According to the Organisation for Economic Co-operation and Development, women's participation rates in Nordic countries are inflated by the frequent use of generous sickness benefits and various family leave policies for child rearing. In 1989, 17 percent of Swedish workers counted as employed had been absent during the entire reference week, a figure that was double the amount recorded in other countries. See *OECD Employment Outlook* (Organisation for Economic Co-operation and Development, July 1991), pp. 177–97.

[5] Internationally comparable unemployment figures are available in the November 1992 compendium, *Comparative Labor Force Statistics for Ten Countries, 1959–1991*, available from the Bureau of Labor Statistics, Office of Productivity and Technology. See also table 49 in the "Current Labor Statistics" section of the *Monthly Labor Review*.

[6] Constance Sorrentino, "Comparing employment shifts in 10 industrialized countries," *Monthly Labor Review*, October 1971, pp. 3–11.

[7] With the economic downturn, U.S. manufacturing employment fell below the 1970 level in 1991.

[8] See Ronald E. Kutscher and Valerie A. Personick, "Deindustrialization and the shift to services," *Monthly Labor Review*, June 1986, pp. 3–13; Geoffrey H. Moore, "The Service Industries and the Business Cycle," *Business Economics*, April 1987, pp. 12–17; Thomas Nardone, "Finance, insurance, and real estate: employment growth during 1982–87," *Monthly Labor Review*, July 1988, pp. 24–27; and Lois M. Plunkert, "The 1980's: a decade of job growth and industry shifts," *Monthly Labor Review*, September 1990, pp. 3–16.

[9] Michael Urquhart, "The employment shift to services: where did it come from?" *Monthly Labor Review*, April 1984, pp. 15–22.

[10] See Giulio De Caprariis, "Structural Changes in Employment in Italy," *Review of Economic Conditions in Italy*, May/August 1988, pp. 179–203; Sharon Hallett, "The Growth of Services: Some Social and Geographical Implications," *Service Industries Journal*, April 1989, pp. 261–79; and Tom Elfring, "New Evidence in the Expansion of Service Employment in Advanced Countries," *Review of Income and Wealth*, Series 35, Number 4, December 1989, pp. 409–40.

[11] See *OECD Employment Outlook* (Organisation for Economic Co-operation and Development, September 1985), pp. 26–29; Chris de Neubourg, "Part-time work: An international quantitative comparison," *International Labour Review*, 1985, Vol. 124, No. 5, pp. 559–76; Joseph E. Thurman and Gabriele Trah, "Part-time work in international perspective," *International Labour Review*, Vol. 129, No. 1, 1990, pp. 23–40; and Industrial Relations Services, "Non-standard forms of employment in Europe," *European Industrial Relations Review*, EIRR Report Number Three, July 1990.

[12] In the mid-1980's, the percentage of women in part-time employment began to moderate and, in most European countries, to decline. In all countries except the Netherlands, a majority of women work full time. (See *OECD Employment Outlook* (Organisation for Economic Co-operation and Development, July 1991), p. 46.) A final source that cannot be overlooked is involuntary part-time workers: individuals who work part time because full-time jobs are not available. For a more detailed analysis of this category, see *OECD Employment Outlook* (Organisation for Economic Co-operation and Development, July 1990), pp. 179–93; and Chris Tilly, "Reasons for the continuing growth of part-time employment," *Monthly Labor Review*, March 1991, pp. 10–18.

[13] For more information on definitions of part-time employment, see the appendix, as well as *OECD Employment Outlook*, September 1985, Technical Appendix Note A, "Definitions of Part-time Employment," pp. 130–31; and *OECD Employment Outlook*, July 1990, pp. 41–42.

[14] De Neubourg, "Part-time work"; and *OECD Economic Surveys: Australia, 1987/1988* (Organisation for Economic Co-operation and Development, July 1988), p. 26.

[15] The many part-time jobs that are concealed within the unrecorded "underground economy" in Italy fall into two groups. The first includes students, pensioners, and retired persons who work, but are not counted as employed because they do not respond as such in labor force surveys. The second group appears in official statistics as among the unemployed. Although registered as unemployed and responding that they are jobless in labor force surveys, the individuals in this group work, usually part time. (See *OECD Economic Surveys: Italy, 1985/1986* (Organisation for Economic Co-operation and Development, July 1986), p. 37; and *OECD Employment Outlook*, September 1985, p. 27.)

APPENDIX: Data sources and methods

The overall and sectoral employment statistics for 6 of the 10 countries studied—the United States, Canada, Australia, Japan, Italy, and Sweden—were obtained directly from monthly or quarterly household surveys of the population of those countries. The employment data for France, Germany, the Netherlands, and the United Kingdom are official estimates by each of those countries' national statistical offices, based upon a combination of annual labor force surveys, population censuses, establishment surveys or censuses, and other

sources. These official estimates were reported to the Organisation for Economic Co-operation and Development and published in its annual volume, *Labour Force Statistics*. Some adjustments to the data therein have been made by BLS for purposes of historical comparability and better comparability across countries.

Employment data are available from both household and establishment surveys for most countries. For example, in the United States, both the household Current Population Survey (CPS) and the establishment Current Employment Statistics (CES) survey provide monthly figures on employment. International comparisons based on household surveys are generally preferable to those based solely on establishment surveys. Household surveys provide more comparable data across countries and cover all types of employment and all sectors of the economy, whereas establishment surveys often exclude the agricultural sector and the self-employed, frequently exclude small establishments, and sometimes cover only the industrial sector. Also, there are generally more historical breaks in series associated with establishment surveys.

Further, employment data from household surveys relate to people, while the data from establishment surveys relate to jobs. Household surveys enumerate people according to the sector of their main job. Thus, people who hold two or more jobs are counted only once in a household survey, but they could be counted two or more times in an establishment survey.

Unemployment statistics used in this article in the analysis of sources of employment growth were also obtained directly from the monthly or quarterly surveys for the six countries listed above. For the remaining four countries, monthly data on unemployment registrations were benchmarked to annual labor force surveys. Where necessary, the data have been adjusted for comparability with U.S. unemployment statistics.[1]

Population data refer throughout to the civilian noninstitutional working-age population, except for Japan and Germany, for which the institutional working-age population is also included.

Adjustments

In some cases, certain modifications in the basic data were necessary for greater comparability across countries. The data for the United States relate to the population 16 years of age and older. The age limits used by the other countries vary from 14 years and older to 16 years and older, except that Sweden also imposes an upper age limit of 74 years. The overall statistics have been adjusted, insofar as possible, to the age at which compulsory schooling ends in each country, and the Swedish data have been adjusted to include persons older than the upper age limit. However, the employment data by sector have not been completely adjusted for the differing age limits. (For example, Swedish data cover ages 16 to 74 years because no data are available on the sectoral distribution of persons aged 75 and older. In 1990, persons aged 75 and older made up 0.3 percent of Sweden's total civilian employment.

Under the U.S. definition, unpaid family workers who worked fewer than 15 hours a week are excluded from the employed. This practice conformed to definitions recommended by the International Labour Office until 1982, when the agency changed its recommendation to include all unpaid family workers, regardless of hours worked. Figures for unpaid family workers in Italy, Japan, and Germany have been adjusted to the U.S. definition. In 1990, unpaid family workers working fewer than 15 hours a week made up less than 0.2 percent of civilian employment in Italy and Germany and 0.9 percent in Japan. For Italy and Germany, the distributions of this group by economic sector and subsector were estimated on the basis of the sectoral and subsectoral distribution of all unpaid family workers. For Japan, published data were available on the distribution of the group by economic sector and subsector.

Family worker adjustments were not made for any of the other countries studied, which all follow the current International Labour Office recommendation. The available information for these countries indicates that adjustments for family workers would be very small.

All employment data are annual averages, based either on data from quarterly or monthly labor force surveys or on estimates by foreign statistical offices. In the case of Australia, sectoral data were available only for the month of August for 1970 and 1975. These data were adjusted to an annual average basis by the Organisation for Economic Co-operation and Development. For the Netherlands, sectoral data for 1970 to 1985 refer to January 1 of each year. The BLS adjusted this series to a midyear basis by averaging the data for the current year and the following year to obtain the new current-year estimate.

In some cases, the sectoral data did not sum to the employment totals used in the analysis of the sources of employment growth. This was because some of the adjustments made to the overall data could not be allocated by sector; also, in some cases, there was a small miscellaneous category of employment that could not be allocated by sector. For Sweden, the two series differed because of the different upper age limits, explained above. For France, the data on employment by sector include 15-year-olds, and for Germany, such data include 14-year-olds, while the overall data in those countries exclude the respective individuals.

For the Netherlands and the United Kingdom, separate series are used for the overall data and the data on employment by sector. For the Netherlands, the overall data are derived from a combination of the European Communities' labor force survey and national statistics, while the data on employment by sector are official estimates prepared by the Dutch Central Bureau of Statistics. For the United Kingdom, the overall data come from annual estimates based on the April labor force survey, which began in 1973. Overall data for 1970 were based on linking official estimates of employment (based mainly on employment censuses) to the 1973 labor force survey. Employment by sector for the United Kingdom was not available from the labor force surveys. The sectoral data used in this article are based on a combination of sources in the United Kingdom: the census of employment, the census of agriculture, population censuses, and the labor force surveys.

Industrial classification

Countries develop industrial classification systems to meet their own needs. Thus, these systems differ from

country to country. A United Nations International Standard Industrial Classification (ISIC) system was designed to serve as a guide and a standard for comparisons among countries that compile data using different systems. Some countries follow the ISIC directly, while others develop their classification systems in a manner that permits relatively easy reclassification into ISIC categories, for example, by using more detailed subclassifications. The U.S. Standard Industrial Classification (SIC) and the ISIC are relatively compatible, but there are differences between them.

To provide a better industrial concordance among the countries covered in this article, U.S. SIC's for service sector industries were modified to match ISIC categories more closely. The reason for doing things this way, rather than the other way round, is that data for some of the foreign countries could not easily be adjusted to U.S. SIC's. In particular, there are three areas of unsuitability. First, the ISIC classifies hotels with wholesale and retail trade, whereas the U.S. SIC places hotels in the services division (called community, social, and personal services in the ISIC). Second, the ISIC includes business services in finance, insurance, and real estate, while the U.S. SIC places business services in the services division. Third, the ISIC includes radio and television broadcasting in community, social, and personal services, whereas the U.S. SIC includes it in transportation and communications. Table A–1 shows the effects of these differences on the percentage distribution of U.S. employment by service subsector in 1970 and 1990.

No adjustments have been made for other differences between the U.S. SIC and the ISIC. The chief remaining differences are that (1) units which both manufacture and sell at retail are classified as retail trade in the U.S. SIC and as manufacturing in the ISIC and (2) units which repair capital goods are classified as services in the U.S. SIC and generally as manufacturing in the ISIC.

Figures for Canada, Japan, and Australia were also adjusted to correspond closely to the ISIC service sector categories. For Canada and Japan, business services were shifted from personal services to finance, insurance, and real estate. In all three countries, hotels were transferred from personal services to wholesale and retail trade. In Canada and Australia, restaurants were also transferred from personal services to wholesale and retail trade.

For Canada, figures for restaurants and hotels and business services for 1975–90 were derived from data reported in the Organisation for Economic Co-operation and Development's *Labour Force Statistics Yearbook*. The 1970 figures were estimated by the BLS based on 1971 and 1981 population census figures supplied by Statistics Canada. For Australia, data on employment in restaurants and hotels were published by the Australian Bureau of Statistics. For Japan, figures for employment in hotels and business services were supplied by the Japanese Statistics Bureau, while figures for hotels were derived from population censuses. For business services, data for 1980 to 1990 were from labor force surveys, whereas data for 1970 to 1980 were estimated by the BLS from population census figures.

No adjustments were made to the subsectoral data for France, Germany, the Netherlands, and the United Kingdom. The figures used were as reported under the ISIC system in the aforementioned *Labour Force Statistics Yearbook*.

In one respect, the data from the foreign countries have been adapted to the U.S. SIC system. In the broad categorization of employment among agriculture, industry, and services, the U.S. system places public utilities in the services sector, while the ISIC includes public utilities in the industrial sector. In this case, adjustment of the foreign data to the U.S. SIC was possible in all countries except Italy.

Breaks in series

In the series on employment by sector, there is one break: in 1987, the Netherlands introduced a new monthly labor force survey. In this case, the BLS has linked the previous series to the new series. The previous series, which related to January 1 of each year, was adjusted to a midyear basis by averaging the data for the current year and the following year to obtain the new current-year estimate.

Similarly, in the overall employment and unemployment series, there are breaks for Germany (1987), Italy (1986), the Netherlands (1983), and Sweden (1987). For both Germany and the Netherlands, the 1983 breaks reflect the replacement of labor force survey results tabulated by the national statistical offices with those tabulated by the European Community Statistical Office, EUROSTAT. The Dutch figures for 1983 onward also reflect the replacement of person-year employment data with data from the Dutch Survey of Employed Persons. According to BLS estimates, the impact of the two changes was to lower the adjusted unemployment rates by 0.3 percentage point for Germany and by about 2 percentage points for the Netherlands. For Italy, the break in the series reflects a change in the survey questionnaire, resulting in a significant increase in the number of people reported as seeking work in the past 30 days. The impact was to increase the Italian unemployment rate approximating U.S. concepts by 1.2 percentage points. In Sweden, a new questionnaire was introduced in which questions regarding current availability were added and the period for which one was classified as actively seeking work was reduced from 60 days to 4 weeks. These changes resulted in lowering Sweden's unemployment rate by 0.5 percentage point.

Estimates were made to account for each of the foregoing breaks in series, which related mainly to unemployment. The adjusted figures were then used in the analysis of the sources of employment growth. Unemployment was adjusted by calculating a revised 1970 unemployment rate (1973 for the Netherlands), using the ratio of the new to the old unemployment rate at the series break. The number of unemployed and the labor force were then adjusted, to correspond to the revised unemployment rate. For Germany and the Netherlands, employment was adjusted as well, by applying the ratio of the new to the old employment figure at the series break.

Part-time employment data

The data breaking down employment into full-time and part-time work were supplied by the Organisation for

Table A–1. **Effects of adjustments to SIC categories on distribution of U.S. employment, by subsector, service industry, 1970 and 1990**

Subsector	1970	1990
U.S. Standard Industrial Classification		
Service sector total	100.0	100.0
Public utilities	1.9	1.5
Wholesale and retail trade	30.6	28.6
Transportation and communications	10.0	7.7
Radio and television broadcasting	.3	.3
Finance, insurance, and real estate	6.3	9.4
Services	51.2	52.8
Hotels	2.0	2.1
Business services	4.6	6.3
International Standard Industrial Classification		
Service sector total	100.0	100.0
Public utilities	1.9	1.5
Wholesale and retail trade and restaurants and hotels	32.6	30.7
Transportation and communications	9.7	7.4
Finance, insurance, real estate, and business services	10.9	15.7
Community, social, and personal services	44.9	44.7

Economic Co-operation and Development in an unpublished tabulation. No adjustments to U.S. concepts were made; therefore, intercountry comparisons of levels of part-time work should be made with caution.

Member countries of the Organisation for Economic Co-operation and Development define part-time work in accordance with one of the following three approaches:

- a classification based on the worker's perception of his or her employment situation;
- a cutoff (generally 30 or 35 hours) based on usual working hours, with persons usually working fewer hours considered part-time workers;
- a cutoff based on actual hours worked during the reference week.

According to the Organisation for Economic Co-operation and Development, a criterion based on actual hours will generally yield a part-time rate that is higher than that yielded by a criterion based on usual hours, particularly if there are temporary reductions in working time as a result of holidays or illness, or for economic reasons, and the like. On the other hand, the agency is uncertain whether a classification based on the worker's perception will necessarily yield estimates of part-time work that are higher or lower than those yielded by a criterion based on a fixed cutoff. France changed from a definition based on a temporal cutoff (30 hours) in 1981 to one based on the respondent's perception in 1982. The latter criterion appeared to produce slightly higher estimates.

A worker's being classified as employed part time is based on the worker's perception of his or her employment situation in Germany, Italy, the United Kingdom, and, since 1982, France. Persons who usually work fewer than 35 hours per week are classified as part-time workers in the United States, Australia, the Netherlands, and Sweden. Prior to 1975, Canada also used a cutoff of 35 hours to distinguish between full-time and part-time work, but as of 1975, Canadian part-time workers are those who usually work fewer than 30 hours per week. In Japan, persons who actually worked fewer than 35 hours during the reference week are classified as part-time workers.

There are breaks in the part-time and full-time series for Canada, France, and Sweden. For Canada, data for 1970–74 were adjusted by the Organisation for Economic Co-operation and Development to the 30-hour cutoff, based on 1975 new-to-old ratios. For France, the break in series occurred in 1982 and is described above. No adjustments have been made to link the data. For Sweden, there are two breaks in series. First, the upper age limit was changed from 74 to 64 in 1986. Accordingly, the Organisation for Economic Co-operation and Development has excluded part-time workers aged 65–74 years from the data for years prior to 1986. Second, as described above, the Swedish labor force survey was revised in 1987. No adjustments have been made to link the data.

Sources of employment growth

As stated in the body of this article, employment growth can be ascribed to the following sources:

1. growth in the working-age population;
2. changes in labor force participation rates;
3. changes in unemployment rates;
4. an interaction term, which reflects simultaneous changes in labor force participation rates and unemployment rates.

The following formulas are used to partition employment growth into these sources (in the formulas, P denotes population, L labor force, E employment, and U unemployment; the subscript 0 denotes the initial year of the variable to which it is attached and t the terminal year of the variable):

1. Effect of population change, with no change in participation rate or unemployment rate:

$$\frac{E_0}{P_0}\,(P_t - P_0)$$

2. Effect of change in participation rate (equals (a) change in participation rate with no change in population or unemployment rate, plus (b) change in participation rate with change in population but no change in unemployment rate):

$$\left(\frac{L_t}{P_t} - \frac{L_0}{P_0}\right)P_0\left(1 - \frac{U_0}{L_0}\right)$$

$$+\left(\frac{L_t}{P_t}-\frac{L_0}{P_0}\right)(P_t-P_0)\left(1-\frac{U_0}{L_0}\right)$$

$$=\left(\frac{L_t}{P_t}-\frac{L_0}{P_0}\right)P_t\left(1-\frac{U_0}{L_0}\right)$$

3. Effect of change in unemployment rate (equals (a) change in unemployment rate with no change in population or participation rate, plus (b) change in unemployment rate with change in population but no change in participation rate):

$$-\left(\frac{U_t}{L_t}-\frac{U_0}{L_0}\right)L_0$$

$$+\left(\frac{U_t}{L_t}-\frac{U_0}{L_0}\right)\frac{L_0}{P_0}(P_t-P_0)$$

$$=-\left(\frac{U_t}{L_t}-\frac{U_0}{L_0}\right)\frac{L_0}{P_0}P_t$$

4. Interaction of change in participation rate and change in unemployment rate (equals (a) interaction with no change in population, plus (b) interaction with change in population):

$$-\left(\frac{U_t}{L_t}-\frac{U_0}{L_0}\right)\left(\frac{L_t}{P_t}-\frac{L_0}{P_0}\right)P_0$$

$$+-\left(\frac{U_t}{L_t}-\frac{U_0}{L_0}\right)\left(\frac{L_t}{P_t}-\frac{L_0}{P_0}\right)(P_t-P_0)$$

$$=-\left(\frac{U_t}{L_t}-\frac{U_0}{L_0}\right)\left(\frac{L_t}{P_t}-\frac{L_0}{P_0}\right)P_t$$

All calculations were made for men and women separately and were summed. (Calculations done for both sexes combined would be slightly different.)

If the above formulas are used directly, the results will reflect not only changes in, for example, the participation rate for women, but also the effects of changes in the distribution of the population by sex. To eliminate the effects of changes in the distribution of the population by sex on the other sources of employment change, the figures used in the body of the article were calculated by holding the initial-year population by sex ratios constant and assuming that this would have no effect on the terminal-year participation rates and unemployment rates by sex. That is, prior to applying the formulas, first, the terminal-year (1990) total working-age population figures were divided into men and women using the initial-year (1970) population by sex ratios, and, second, hypothetical terminal-year employment figures for men and for women were calcu-

Table A-2. **Sources of civilian employment growth, by gender, in 10 countries, 1970–90, alternative formulation to methodology used in article**

[Percent contribution to employment change]

Year	United States	Canada	Australia	Japan	France	Germany	Italy	Netherlands[1]	Sweden	United Kingdom
Total contribution..	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Men	39.4	36.3	39.3	54.1	-31.8	.7	-2.5	19.7	7.9	-18.7
Women	60.6	63.7	60.7	45.9	131.8	99.3	102.5	80.3	92.1	118.7
Population	74.5	69.1	104.6	121.5	275.9	222.6	181.2	93.5	62.3	94.3
Men	46.4	45.9	70.7	74.1	176.7	141.3	131.1	68.6	37.7	59.8
Women	28.1	23.2	33.9	47.4	99.2	81.3	50.1	24.9	24.6	34.6
Labor force participation rate	19.1	27.3	8.8	-13.1	-59.0	-52.4	-40.4	27.4	35.9	48.7
Men	-5.6	-2.7	-13.3	-14.6	-136.4	-112.1	-101.2	-29.6	-22.7	-54.5
Women	24.7	30.0	22.1	1.5	77.4	59.7	60.9	57.0	58.6	103.1
Unemployment rate	-1.2	-4.4	-11.5	-4.2	-90.8	-61.8	-27.2	-18.4	-1.8	-43.4
Men	-1.6	-3.0	-8.4	-2.2	-49.6	-33.1	-13.8	-10.2	-1.5	-27.0
Women	.4	-1.4	-3.2	-2.0	-41.2	-28.7	-13.4	-8.2	-.3	-16.3
Interaction	6.9	8.4	-1.7	-4.7	-27.7	-17.3	-14.0	-1.9	4.0	-1.8
Men	-2.6	-2.2	-9.3	-4.6	-27.3	-18.4	-19.3	-7.7	-2.7	-4.8
Women	9.5	10.6	7.7	-.2	-.4	1.1	5.3	5.7	6.7	2.9
Residual	.6	-.4	-.1	.5	1.6	8.9	.4	-.5	-.4	2.2
Men	2.6	-1.7	-.4	1.3	4.7	23.0	.9	-1.5	-2.9	7.7
Women	-2.0	1.3	.3	-.8	-3.1	-14.1	-.4	1.0	2.4	-5.6

[1] 1973–90.

NOTE: This table corresponds to table 2, except that simultaneous changes in (1) the working-age population and labor force participation rates and in (2) the working-age population and unemployment rates have been assigned to the interaction term, along with simultaneous changes in labor force participation rates and unemployment rates.

SOURCE: Calculations by BLS based on data adjusted to U.S. concepts and adjusted for breaks in series.

lated by applying the terminal-year labor force participation rates and unemployment rates by sex to the hypothetical working-age population figures. The difference between these results and the actual change in employment is termed the *residual.*

As noted in the text, this formulation appears to be the most satisfactory method for showing the contributions of changes in labor force participation rates and unemployment rates to employment growth. An alternative method that seemed less satisfactory would add further interaction terms by assigning to interaction the simultaneous changes in the working-age population, as well as (1) changes in participation rates, (2) changes in unemployment rates, and (3) the simultaneous changes in participation rates and unemployment rates (part (b) of formulas 2, 3, and 4). In an analysis done by the Organisation for Economic Co-operation and Development to decompose the sources of labor force growth, the joint changes in population and labor force participation rates were assigned to interaction.[2] Another alternative would be to divide the interaction terms equally into their components, but there is no reason to believe that they should be equally divided.

Table A–2, following the format of table 2, shows the effect of assigning all joint changes to interaction. The result is, of course, to reduce the employment change effects assigned solely to changes in participation rates and solely to changes in unemployment rates and to increase the importance of the undistributed (interaction) effects. Nevertheless, the basic conclusions of the article regarding the sources of employment change remain the same.

Footnotes to the appendix

[1] See *International Comparisons of Unemployment,* Bulletin 1979 (Bureau of Labor Statistics, August 1978); and unpublished supplements.

[2] *OECD Employment Outlook,* July 1990, pp. 6–10.

No fundamental change in industrial relations

I do not regard the U.S. industrial-relations system as having been replaced or fundamentally transformed by change that made its appearance in the 1980's . . . (Some of the rules that appeared in the 1980's have been largely reversed or disappeared, such as two-tier wage structures and lump-sum contract settlements.) Most of the developments of the 1980's in my view represented adaptations to the changing demographic, market, technological, and political environment, and to the relations among the actors, inducing changes in the contours of the system and some rules; but they did not fundamentally transform the U.S. industrial-relations system.

—John T. Dunlop

Industrial Relations Systems, revised edition
(Boston, MA, Harvard Business School Press, 1993), pp. 20–21.