



MONTHLY LABOR REVIEW

U.S. Department of Labor
Bureau of Labor Statistics
August 1985

In this issue:
Employment and unemployment in the first half of 1985
Unemployment in ten industrial countries
New worklife tables





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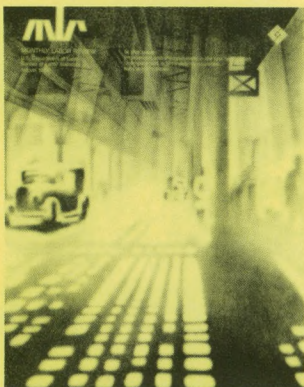
BUREAU OF LABOR STATISTICS
Janet L. Norwood, Commissioner

The Monthly Labor Review is published by the Bureau of Labor Statistics of the U.S. Department of Labor. Communications on editorial matters should be addressed to the Editor-in-Chief, Monthly Labor Review, Bureau of Labor Statistics, Washington, D.C. 20212.
Phone: (202) 523-1327.

Subscription price per year—\$24 domestic; \$30 foreign. Single copy \$4, domestic; \$5 foreign. Subscription prices and distribution policies for the Monthly Labor Review (ISSN 0098-1818) and other Government publications are set by the Government Printing Office, an agency of the U.S. Congress. Send correspondence on circulation and subscription matters (including address changes) to: Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

Make checks payable to Superintendent of Documents.

The Secretary of Labor has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through April 30, 1987. Second-class postage paid at Washington, D.C. and at additional mailing addresses.



August cover:

"Checkerboard," a 1926 lithograph by Louis Lozowick; photograph courtesy National Collection of Fine Arts, Washington, D.C.

Cover design by Melvin Moxley

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MONTHLY LABOR REVIEW

AUGUST 1985

VOLUME 108, NUMBER 8

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Employment rose in the first half of 1985 as the recovery entered its third year

The total employment gain and unemployment decrease since the recovery began compare favorably with the earlier postwar recoveries; but recently, manufacturing has weakened largely due to the strong U.S. dollar and deteriorating trade balance

SUSAN E. SHANK

Employment continued to increase in the first half of 1985, but, as is typical in later stages of recoveries, the pace of job growth slackened. Two and one-half years after the 1981–82 recession trough, total employment was up by 7.6 million or 7.7 percent. This gain was substantially greater than the 6.1-percent average in the first 2½ years of recovery from earlier postwar recessions.¹ Nonfarm payroll employment rose by an even larger amount—8.6 million over the recovery period. (See note on survey differences in box.) The service-producing sector and construction accounted for all the growth in nonfarm payroll employment in the first half of 1985. In contrast, after showing strong job gains in the first year and a half of recovery, manufacturing employment slowed and then declined during the first half of 1985. The unemployment rate, which fell sharply throughout 1983 and most of 1984, has shown little movement since last fall.

This article summarizes employment and unemployment developments in the first half of 1985 and compares the performance of key labor market indicators in the ninth and tenth quarters of this recovery with similar periods in earlier postwar recoveries. Changes during the first half of 1985 refer to movements in seasonally adjusted data from the fourth quarter of 1984 to the second quarter of 1985.

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Employment

Total civilian employment continued to expand, rising by about 800,000 in the first half of 1985; however, this was less than the 1.0 million gain posted in the second half of 1984 and much smaller than the increases recorded earlier in the recovery. At 106.8 million in the second quarter of 1985, employment had increased by approximately 7.6 million from the recession trough in the fourth quarter of 1982. Nearly 6 million of this increase occurred in the first 1½ years of the recovery.

Age and gender. The employment gain in the first half of 1985 was concentrated among adult women (650,000 of 800,000), which represented a return to the secular pattern of the 1970's and early 1980's, when women also accounted for a disproportionately large share of employment growth. This trend had been interrupted during the first 2 years of the current recovery, when adult men, who had experienced the sharpest job cutbacks during the recession, recorded the largest employment gains. However, adult male employment rose by only 100,000 in the first half of 1985. (See table 1.)

The employment-population ratio (the proportion of a given population that is employed) provides additional insight into trends in employment for adult men and women in recent years. The ratio for men has declined since the mid-1950's, and this trend accelerated considerably during the recession period of the early 1980's. The following

Sources of the data

Data discussed in this article come from two sources: (1) household interviews, and (2) reports from employers. The Current Population Survey is conducted monthly in a sample of about 60,000 households and provides information on the labor force, employment, and unemployment by demographic and economic characteristics.

The Current Employment Statistics program is a monthly survey of more than 200,000 nonagricultural establishments and provides information on the number of persons on business payrolls, as well as on average hours and earnings.

The long-term movements of employment from these two surveys have been very similar but differences in short-run changes, especially over the course of a business cycle, are not unusual. As pointed out in this article, the establishment survey has shown considerably more employment growth during the current recovery and, in particular, over the past year, than the household survey. Although the precise reasons for this divergence are unclear, there are several factors which can cause different survey results. These include differences in definition, coverage, methods of collection, and estimating procedures.

tabulation shows the employment-population ratio of adult men and women in selected periods:

	<i>Men</i>	<i>Women</i>
1979 annual	76.5	47.7
1982 IV quarter	70.9	48.2
1984 IV quarter	73.4	50.4
1985 II quarter	73.2	50.9

Despite a rebound in the first 2 years of the recovery, the adult male ratio in mid-1985 remained well below its 1979 level. In contrast, the employment-population ratio for women 20 years of age and over has shown a secular increase, except for pauses during economic recessions, such as occurred in the early 1980's. However, as was the case in previous business cycles, the ratio for women resumed its upward climb in this recovery, and topped 50 percent for the first time in 1984.

Teenage employment was little changed in the first half of 1985. However, the decrease in youth employment that was evident in the early 1980's bottomed out in 1984. Each year between 1979 and 1983, teenage employment dropped, reflecting both the decline in the youth population and the effect of back-to-back recessions in 1980 and 1981-82. The teenage employment-population ratio fell from a high of 48.5 percent in 1979 to 41 to 42 percent during most of 1982 and 1983. It then recovered to about 44 percent late last year and fluctuated between 44 and 45 percent in the first half of 1985.

Industry. Construction, retail trade, and services have been the most rapidly growing industry divisions throughout the current recovery, and they continued to post the largest job

gains going into 1985. Together these three divisions accounted for 1.2 million of the 1.5 million increase in total nonfarm payroll employment during the first half of 1985. By contrast, manufacturing has shown almost no job growth since mid-1984 and actually declined in the second quarter of 1985. (See table 2.)

Construction employment reached an all-time high of 4.6 million in the second quarter of 1985—up 800,000, or 21 percent from the 1982 recession low. Approximately 200,000 of the construction employment gain occurred in the first half of the year. Services and retail trade, whose job growth during the recovery substantially outpaced the increase in total nonfarm payroll employment, continued to post large job gains in the first half of 1985—about 600,000 in services and 400,000 in retail trade. In addition, job growth continued in finance, insurance, and real estate; wholesale trade; and transportation and public utilities in the first half of 1985, while government employment was little changed.

After rebounding strongly during the first 1½ years of the current recovery and regaining about 60 percent of the jobs lost during the recession, increases in factory employment slowed markedly in the subsequent year, and a decline took place between the first and second quarters of 1985. International economic forces have had an increasingly important effect on factory employment in recent years. As the economy rebounded strongly in 1983 and 1984, the exchange value of the U.S. dollar rose, compared with the currencies of our major trading partners,² making it more difficult for U.S. manufactured goods to compete with foreign products. Part of the leveling off in U.S. industrial output and employment in late 1984 and into 1985 was related to increased imports. The value of U.S. imports of manufactured goods rose by 39 percent for the year ending in the third quarter of 1984, compared with the preceding year.³

While the slowing in manufacturing job growth since mid-1984 reflected increased pressure from imports, other factors, such as the moderation in job gains that occurs at this stage of most recoveries, also had an impact. After jumping by 1.3 million in the first six quarters of the recovery, factory employment showed little growth in the second half of 1984, and then decreased from the first to the second quarter of 1985. Total manufacturing employment was almost unchanged between the second quarters of 1984 and 1985, but declines occurred in several industries that have a history of import sensitivity—primary metals, textiles, apparel, and leather. In contrast, modest job gains occurred over the last year in printing and publishing; rubber and miscellaneous plastics products; and, most notably, transportation equipment. But while automobile employment continued to rise, the bulk of the transportation equipment job gain occurred in aircraft and parts, and guided missiles and space vehicles.

Employment in mining, which has also been affected by international developments, showed little cyclical responsiveness during the 1982-85 period. Rather, the number of

Table 1. Employment status by sex, age, race, and Hispanic origin, selected seasonally adjusted quarterly averages, 1981-85

[Numbers in thousands]

Characteristic	Peak	Trough	1984				1985	
	III 1981	IV 1982	I	II	III	IV	I	II
Total								
Civilian labor force	108,519	110,892	112,650	113,514	113,754	114,185	115,158	115,176
Percent of population	63.7	64.1	64.1	64.5	64.4	64.5	64.9	64.7
Employed	100,477	99,121	103,768	104,985	105,306	105,951	106,732	106,758
Employment-population ratio	59.0	57.3	59.1	59.6	59.6	59.8	60.1	60.0
Unemployed	8,041	11,772	8,882	8,529	8,447	8,233	8,426	8,417
Unemployment rate	7.4	10.6	7.9	7.5	7.4	7.2	7.3	7.3
Men, 20 years and over								
Civilian labor force	57,192	58,356	59,352	59,571	59,798	60,013	60,082	60,164
Percent of population	78.8	78.7	78.3	78.3	78.3	78.3	78.2	78.1
Employed	53,719	52,570	55,199	55,637	55,952	56,274	56,314	56,381
Employment-population ratio	74.0	70.9	72.8	73.1	73.3	73.4	73.3	73.2
Unemployed	3,473	5,786	4,153	3,934	3,846	3,738	3,768	3,783
Unemployment rate	6.1	9.9	7.0	6.6	6.4	6.2	6.3	6.3
Women, 20 years and over								
Civilian labor force	42,455	44,100	45,275	45,924	46,058	46,335	46,953	47,137
Percent of population	52.0	52.9	53.3	53.9	53.8	53.9	54.5	54.6
Employed	39,575	40,141	42,117	42,838	42,928	43,285	43,797	43,945
Employment-population ratio	48.5	48.2	49.6	50.2	50.2	50.4	50.9	50.9
Unemployed	2,880	3,959	3,158	3,087	3,129	3,051	3,155	3,192
Unemployment rate	6.8	9.0	7.0	6.7	6.8	6.6	6.7	6.8
Both sexes, 16 to 19 years								
Civilian labor force	8,871	8,436	8,022	8,019	7,898	7,837	8,123	7,875
Percent of population	54.9	54.1	53.7	54.3	53.9	53.8	55.7	54.3
Employed	7,183	6,409	6,452	6,510	6,426	6,392	6,620	6,432
Employment-population ratio	44.4	41.1	43.2	44.1	43.9	43.9	45.4	44.3
Unemployed	1,688	2,027	1,570	1,508	1,472	1,444	1,503	1,442
Unemployment rate	19.0	24.0	19.6	18.8	18.6	18.4	18.5	18.3
White								
Civilian labor force	94,916	96,567	98,096	98,619	98,425	98,755	99,747	99,671
Percent of population	64.1	64.4	64.5	64.8	64.6	64.7	65.1	64.9
Employed	88,831	87,460	91,437	92,233	92,172	92,626	93,487	93,357
Employment-population ratio	60.0	58.3	60.1	60.6	60.5	60.7	61.0	60.8
Unemployed	6,085	9,107	6,659	6,387	6,253	6,129	6,260	6,314
Unemployment rate	6.4	9.4	6.8	6.5	6.4	6.2	6.3	6.3
Black								
Civilian labor force	11,022	11,509	11,816	11,942	12,102	12,263	12,302	12,347
Percent of population	60.3	61.5	61.5	61.9	62.4	63.0	62.9	62.9
Employed	9,291	9,155	9,842	10,035	10,187	10,409	10,396	10,499
Employment-population ratio	50.9	48.9	51.2	52.0	52.5	53.4	53.2	53.5
Unemployed	1,730	2,354	1,973	1,907	1,915	1,854	1,906	1,848
Unemployment rate	15.7	20.5	16.7	16.0	15.8	15.1	15.5	15.0
Hispanic origin								
Civilian labor force	6,433	6,719	7,079	7,183	7,305	7,417	7,317	7,361
Percent of population	63.8	63.6	64.2	64.6	65.2	65.5	64.2	64.1
Employed	5,797	5,685	6,299	6,405	6,532	6,636	6,574	6,584
Employment-population ratio	57.5	53.8	57.1	57.6	58.3	58.7	57.7	57.3
Unemployed	636	1,033	780	778	773	781	742	777
Unemployment rate	9.9	15.4	11.0	10.8	10.6	10.5	10.1	10.5

NOTE: Detail for race and Hispanic-origin groups will not sum to totals because data for the "other races" group are not presented and Hispanics are included in both the white and black population groups.

jobs in mining fell from about 1.2 million in early 1982, when a world-wide oil glut developed, to about 950,000 in mid-1983. (Oil and gas extraction account for 6 of 10 mining jobs.) U.S. mining employment increased only slightly over the past 2 years, as the demand for oil remained weak. Similarly, world copper prices plummeted in the early 1980's, and U.S. copper ore mining employment fell by more than 50 percent between 1981 and 1985.

Unemployment

The civilian worker unemployment rate held steady at 7.3 percent in the first half of 1985, about the same as in late 1984, but was down sharply from the recession high of 10.7 percent in November-December 1982. From mid-1984 to mid-1985, employment increases just about kept pace with labor force growth, leaving both the level and rate of unemployment about unchanged. There were also

Table 2. Employees on nonagricultural payrolls by industry, selected seasonally adjusted quarterly averages, 1981-85

[In thousands]

Industry	Peak III 1981	Trough IV 1982	1984				1985	
			I	II	III	IV	I	II
Total	91,412	88,721	93,035	94,013	94,915	95,849	96,640	97,324
Goods producing	25,642	22,982	24,402	24,680	24,681	24,973	25,077	25,053
Mining	1,189	1,029	965	973	983	977	976	980
Construction	4,159	3,836	4,255	4,313	4,368	4,432	4,537	4,648
Manufacturing	20,294	18,117	19,182	19,394	19,509	19,564	19,564	19,425
Durable goods	12,194	10,485	11,315	11,487	11,613	11,673	11,676	11,581
Nondurable goods	8,099	7,631	7,867	7,907	7,897	7,891	7,888	7,844
Service producing	65,770	65,740	68,633	69,333	70,055	70,876	71,563	72,271
Transportation and public utilities	5,183	5,023	5,108	5,148	5,193	5,233	5,267	5,300
Wholesale trade	5,374	5,214	5,453	5,516	5,580	5,649	5,699	5,748
Retail trade	15,250	15,183	16,224	16,454	16,682	16,960	17,166	17,369
Finance, insurance, and real estate	5,316	5,356	5,607	5,657	5,706	5,756	5,811	5,886
Services	18,691	19,133	20,360	20,627	20,876	21,174	21,502	21,807
Government	15,957	15,831	15,882	15,931	16,017	16,104	16,118	16,160

no significant changes in jobless rates for major worker groups in the first two quarters of 1985. The rate for adult men (6.3 percent) remained below that for adult women (6.8 percent). For teenagers, the unemployment rate has fluctuated around 18.5 percent for the past year. Jobless rates for whites (6.3 percent), blacks (15.0 percent), and persons of Hispanic origin (10.5 percent) were all virtually unchanged from late 1984 through the first half of 1985.

Industry and occupation. While the overall unemployment rate was about the same in late 1984 and the first half of 1985, the rate for workers in manufacturing industries increased.⁴ During the first 2 years of this recovery, the factory jobless rate was cut in half—to 7.2 percent by the fourth quarter of 1984. However, as employment growth slowed and then halted in 1985, the rate rose to 7.6 percent in the first quarter of 1985 and to 7.8 percent in the second quarter, with most of the increase coming in the durable goods industries. By contrast, in construction, where job growth remained strong, the unemployment rate in second-quarter 1985 was down from fourth-quarter 1984 (12½ versus 14 percent).

Employment rose and unemployment rates decreased for most major occupational groups over the last year. (Unadjusted data for the first halves of 1984 and 1985 are compared because there has been insufficient time to develop seasonally adjusted data based on the 1980-census occupational classification system.⁵) Executive, administrative, and managerial workers recorded the largest employment gains from 1984 to 1985, and their jobless rate decreased from 2.9 to 2.7 percent. In contrast, employment actually declined over the past year for machine operators, assemblers, and inspectors (most of whom are in manufacturing). At the same time, the jobless rate for this occupation edged

up, following a very large drop between the first halves of 1983 and 1984.

Duration. Although there was little change in the total jobless level, the mean duration of unemployment declined to 15½ weeks in 1985 from 17 weeks in the fourth quarter of 1984. This measure, which normally lags changes in the total unemployment rate, did not start to decrease until the fourth quarter of 1983 (a full year after the trough) and, in the first half of 1985, remained well above the pre-recession low. The weight given to the very long-term jobless in calculating the mean duration of unemployment causes this delayed response to cyclical swings. The number of persons jobless for 27 weeks or more fell rapidly between mid-1983 and late 1984 (from 2.8 million to 1.4 million), but then declined more moderately—to 1.3 million by the second quarter of 1985. However, the median duration of unemployment, which is much less affected than the mean by the very long-term jobless,⁶ continued to fall and, at 6.5 weeks in the second quarter of 1985, reached its lowest level since mid-1980.

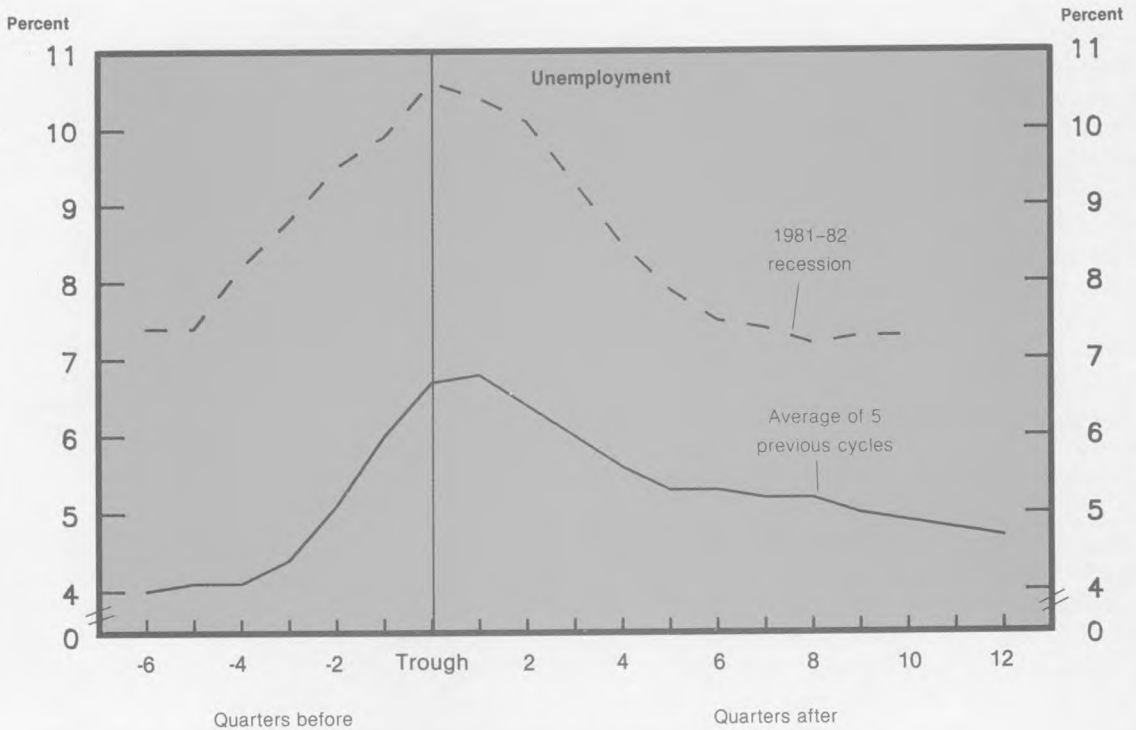
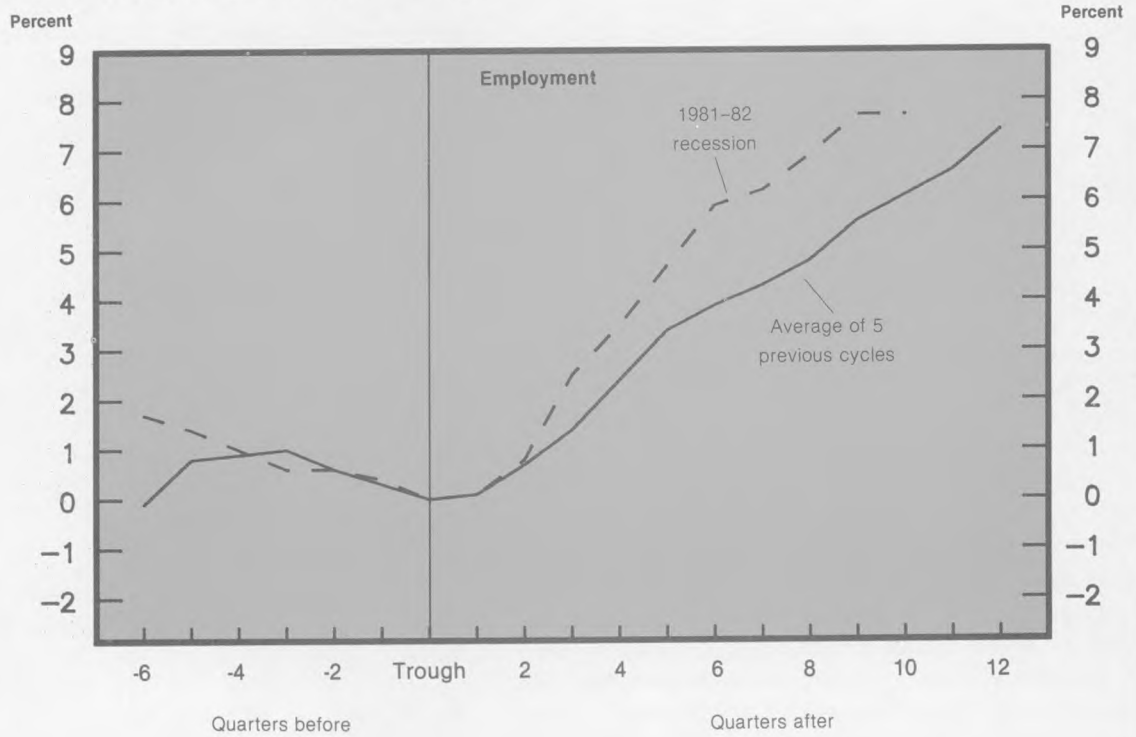
Discouraged workers and short workweeks. Despite continued employment growth, the number of discouraged workers—persons who report that they want to work but have not actively looked for jobs because they believe they could not find any—has improved only moderately since the second quarter of 1984. As was the case with total unemployment, the number of discouraged workers fell sharply in the first 6 quarters of the recovery (from 1.8 million to 1.3 million). It fluctuated between 1.2 million and 1.3 million for the next three quarters and then decreased to 1,150,000 in the second quarter of 1985. All of the recent decline occurred among women, who continue to comprise a large share of the discouraged total.

Another measure of underutilized resources, persons working part-time for economic reasons—principally, those whose hours had been cut back and those who could only find part-time jobs—displayed a similar pattern in the current recovery. The number of involuntary part-time workers decreased from the recession high of 6.7 million to 5.7 million in the second quarter of 1984, and then fluctuated around the latter figure for the following year.

Cyclical perspectives

Many economic indicators flashed signals of weakness in late 1984 and the early months of 1985. The low growth of real gross national product in the first quarter of 1985 (0.3 percent at an annual rate) and the leveling off in the index of industrial production after mid-1984 were significant changes from figures posted earlier in the recovery. In addition, the index of leading economic indicators declined in 3 of the 6 months since December 1984. However, a slowing or even a pause in the pace of economic growth is not unusual during the third year of a recovery. In fact,

Chart 1. Civilian employment percent changes and the unemployment rate during the 1981-82 recession and the average of five previous business cycles, in selected quarters, before and after cyclical trough¹



¹ The National Bureau of Economic Research designates business cyclical troughs.

NOTE: The most recent values plotted for 1981-85 are for the second quarter of 1985.

the recent moderation in key labor market indicators is characteristic of other postwar recoveries at similar points in time. The sharpest employment rebound and unemployment drop normally occur in the first 1½ years of a recovery. (See chart 1.)

The current recovery-expansion has followed the postwar pattern, that is, it was much stronger in the earlier than later stages. The growth in total employment slowed to an average of 0.4 percent per quarter over the most recent four quarters from a very strong 1.2 percent in the previous four quarters. Overall, total employment increased substantially more in the first 2½ years of the current recovery than in comparable periods of earlier recoveries (7.7 versus 6.1 percent). Most of this difference stemmed from the extremely strong employment gains from mid-1983 to mid-1984, as growth over the subsequent year has been very similar to that experienced from the seventh through the tenth quarters of other postwar recoveries.

The employment-population ratio, which equaled the previous high of 60.1 percent in the first half of this year, is another measure of the strength of the current expansion. In the 10 quarters following the 1982 recession trough, the ratio rose by 2.7 points, about twice the increase recorded in similar periods of the five earlier recoveries. All major worker groups experienced healthy employment-population ratio rebounds during the current recovery, but the largest increases occurred for blacks and teenagers, two groups that had experienced very substantial drops in their ratios during the 1980 and 1981–82 recessions. Reflecting the moderation in employment growth, the overall ratio increased 0.4 point from mid-1984 to mid-1985, after jumping 2.3 points in the first six quarters of the recovery.

The pickup in private nonfarm payroll jobs in the first 2½ years of this recovery also compares very favorably with previous recoveries—10 percent this time, compared with an average of 9 percent. Job gains in construction, retail trade, and services in this recovery all set records for

the first 10 quarters of a postwar recovery. In contrast, the manufacturing employment increase over the last 10 quarters (7.2 percent) was below the average gain in the previous five recoveries (9.5 percent). However, changes in manufacturing employment have much less impact on total employment today than they did in the early postwar business cycles. As the long-term shift to the service-producing sector has continued, factory jobs dropped from 40 percent of the private nonfarm total in 1948 to 25 percent in 1984.

Total unemployment fell by 3.4 million or 28 percent in the first 10 quarters of the current recovery, compared with an average decrease of 24 percent for similar time periods in the five previous recoveries. However, in 5 of the 6 postwar recoveries studied,⁷ the unemployment drop was heavily concentrated in the first 1 to 1½ years after the trough. The total unemployment rate typically displayed a similar sharp initial improvement and then leveled off or even increased slightly for several quarters. The virtual stability in the unemployment rate from late 1984 to mid-1985 conforms to this pattern.

AS THE CURRENT RECOVERY has moved into its third year in 1985, the economy continued to create jobs, but at a slower pace than earlier in the recovery. Also, employment growth since late 1984 was just sufficient to accommodate the labor force, as both the number unemployed and the rate leveled off. These developments are typical of this stage in post-World War II economic recoveries, in which employment gains and unemployment reductions have been sharpest in the first 1 to 1½ years of recovery. The total employment gain and unemployment decrease over the first 2½ years of this recovery compare very favorably with similar periods in earlier postwar recoveries. However, the recent weakness in manufacturing indicates that the strong U.S. dollar and the deteriorating trade balance have had an adverse effect on industrial employment. □

—FOOTNOTES—

¹The National Bureau of Economic Research designates business cycle peaks and troughs. Two of the eight postwar recoveries did not last for 10 quarters (those following the 1958 and 1980 recessions) and therefore are excluded from the analysis in this article.

²The trade weighted exchange value of the U.S. dollar in the first quarter of 1985 was 40 percent above the 1980 average.

³*Trade and Employment, Years Ending Third Quarter 1983 and 1984*, Publication No. TM-4-84, (U.S. Bureau of the Census and Bureau of Labor Statistics, 1985).

⁴Unemployed persons are classified according to the industry and occupation of their last full-time job lasting 2 weeks or more.

⁵Beginning in January 1983, occupational data from the Current Population Survey were coded and published according to the 1980 Census

system which evolved from the Standard Occupational Classification System. Seasonal adjustment of data based on the new classification system will not be possible until 5 years of data are available. For further information on the change in occupation classification, see "Revisions in the Current Population Survey Beginning in January 1983," *Employment and Earnings*, February 1983, pp. 7–15.

⁶The mean or average duration of unemployment is calculated by summing weeks of continuous joblessness for all unemployed persons and dividing by the number unemployed. The median duration simply divides the distribution of unemployed persons into two equal groups—those jobless for periods of time shorter than the median and those jobless for longer.

⁷Both the level and rate of unemployment were about unchanged for four quarters following the trough of the 1969–70 recession.

Recent trends in unemployment and the labor force, 10 countries

Marked gains in employment and sharp declines in joblessness in the United States contrast with little or no movement in Western Europe and Japan; youth labor market since 1980 is analyzed

JOYANNA MOY

The United States recovered from the 1981–82 recession earlier than most other major industrial nations. In response to strong output growth in 1983, U.S. employment growth resumed and unemployment fell throughout the year. These trends continued through the first half of 1984, with employment growth accelerating and unemployment dropping sharply. Since then, the civilian unemployment rate has remained virtually flat at around 7.3 percent, while employment has increased sufficiently to absorb increases in the labor force. In Canada, output also began recovering in early 1983 and the jobless rate fell steadily during the year, but not so quickly as in the United States. Canadian unemployment also stabilized at a record high level in 1984, but Canada's employment recovery was weaker than that of the United States. The North American recovery was followed by a more modest recovery in Japan. Japan's employment growth was the strongest since 1973, although the unemployment rate remained at a historic peak. In Western Europe, where the recovery has lagged behind North America's and Japan's, unemployment continued to rise and employment continued to fall during 1983. In 1984, French, German, British, and Italian unemployment rates increased further while Swedish rates stabilized. Employment began to inch upward in some of the European countries—most notably in Great Britain.

At the end of 1984, unemployment rates were at double-digit levels in the Netherlands, Great Britain, Canada, and

France. Japan and Sweden continued to have the lowest jobless rates, and the U.S. rate was in the middle of the international spectrum. (See table 1.)

The recent recession was accompanied by very high levels of unemployment for young people. Unemployment rates for teenagers and young adults (ages 20 to 24) rose sharply in 1981 and 1982 in all countries studied. These rates continued upward or stabilized at high levels in 1983. Improvement for U.S. youth in 1984 was generally not matched abroad. Youth unemployment rates were two to three times as high as adult rates in most countries, with much greater differentials for teenagers than for young adults.

This article compares unemployment and related labor market statistics in the United States and nine foreign nations—Canada, Australia, Japan, France, Germany, Great Britain, Italy, the Netherlands, and Sweden. The foreign data have been adjusted to approximate comparability with U.S. definitions of employment and unemployment.¹ Unemployment rates by age² are compared for the United States and eight of the nine other countries (the Netherlands is excluded). These data have also been adjusted to U.S. concepts, except those for Great Britain.

The estimates presented here may differ from those previously published by the Bureau of Labor Statistics because of revisions of seasonal adjustment factors or basic data and the incorporation of more detailed or more recent survey results. It should be noted that adjustments to the British figures are based on household surveys taken through 1981. The figures for all other countries are based on survey data collected most recently in 1983 (for France and the Neth-

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Table 1. Quarterly unemployment rates (civilian labor force basis), seasonally adjusted, 1980-85

Period	United States	Canada	Australia	Japan	France ¹	Germany ¹	Great Britain	Italy ^{1,2}	Sweden
1980	7.1	7.5	6.1	2.0	6.4	2.9	6.8	3.9	2.0
I	6.3	7.5	6.0	1.9	6.2	2.7	5.7	4.0	1.8
II	7.3	7.7	6.3	2.0	6.5	2.8	6.2	3.9	2.0
III	7.7	7.4	6.2	2.1	6.5	3.0	7.1	3.9	1.9
IV	7.4	7.2	6.0	2.2	6.6	3.2	8.2	3.9	2.2
1981	7.6	7.5	5.8	2.2	7.5	4.1	10.4	4.3	2.5
I	7.4	7.3	5.8	2.2	6.8	3.4	9.4	3.9	2.2
II	7.4	7.1	5.5	2.3	7.5	3.8	10.1	4.2	2.2
III	7.4	7.4	5.9	2.2	7.8	4.3	10.8	4.2	2.5
IV	8.2	8.3	6.0	2.2	7.8	4.8	11.1	4.8	3.0
1982	9.7	11.0	7.2	2.4	8.4	5.9	11.8	4.8	3.1
I	8.8	8.9	6.2	2.3	8.2	5.4	11.4	5.0	3.0
II	9.5	10.4	6.6	2.4	8.4	5.7	11.6	4.8	3.1
III	9.9	12.2	7.2	2.4	8.5	6.1	12.1	4.7	3.4
IV	10.6	12.8	8.8	2.5	8.5	6.7	12.3	4.6	3.1
1983	9.6	11.9	10.0	2.7	8.6	7.5	12.8	5.3	3.5
I	10.4	12.5	9.6	2.7	8.5	7.2	12.8	4.9	3.3
II	10.1	12.2	10.3	2.7	8.5	7.6	13.0	5.4	3.5
III	9.3	11.6	10.3	2.7	8.6	7.6	13.0	5.3	3.6
IV	8.5	11.2	9.7	2.6	8.8	7.5	12.7	5.6	3.4
1984	7.5	11.3	9.0	2.8	10.1	7.8	13.0	5.6	3.1
I	7.9	11.4	9.4	2.8	9.6	7.7	12.8	5.5	3.2
II	7.5	11.4	9.2	2.7	10.1	7.9	12.9	5.6	3.2
III	7.4	11.2	8.8	2.8	10.3	8.0	13.2	5.5	3.1
IV	7.2	11.1	8.6	2.7	10.4	7.8	13.1	5.6	2.9
1985									
I	7.3	11.1	8.5	2.6	10.5	7.9	13.2	5.4	3.0

¹Preliminary for Great Britain from 1982 onward and for France, Germany, and Italy from 1984 onward.

²Quarterly data are for January, April, July, and October.

NOTE: Quarterly figures for France, Germany, Italy, and Great Britain are calculated by applying annual adjustment factors to current published data, and therefore should be viewed as only approximate indicators of unemployment under U.S. concepts. Published data for Australia, Canada, Japan, and Sweden require little or no adjustment.

erlands) or 1984 (all other countries). Historical data for all series beginning with 1959 or 1960 for most countries are available upon request.

Unemployment trends compared

The international array of unemployment rates underwent some major changes in rankings in the late 1970's to early 1980's. (See table 2.) The United States, which had previously been at the high end of the spectrum, moved down to the middle. Some European countries, notably the Netherlands and Great Britain, had jobless increases so large that they moved from the low to the high end of the array. Germany, which had long had one of the lowest jobless rates, became a mid-range country. Only Japan and Sweden maintained their positions as low unemployment countries; Canada continued at the high end of the spectrum; and Italy maintained a mid-range jobless rate.

Joblessness in the United States rose steadily from 1980 through the end of 1982. The unemployment rate peaked in the fourth quarter of 1982 at 10.6 percent, the highest quarterly rate recorded in the post-World War II era. At the beginning of 1983, joblessness began moving downward. As the economic recovery gathered momentum, the unemployment rate plummeted. By December 1983, the jobless rate, 8.2 percent, was more than 2 percentage points

lower than in January. The decline continued until mid-1984. During the second half of 1984 and early 1985, the unemployment rate remained virtually unchanged. In the first quarter of 1985, the jobless rate, 7.3 percent, was 3.5 percentage points lower than the recession high.

The Canadian recession, probably the most severe among the Organization for Economic Cooperation and Development (OECD) member states,³ bottomed out in the fourth quarter of 1982, when the jobless rate peaked at a record 12.8 percent. Throughout 1983, the unemployment rate fell steadily, reaching 11.2 percent in the fourth quarter. However, the rate inched upward during the first half of 1984 to 11.4 percent. Unemployment rates moved back down in the second half, and the December rate of 10.8 percent was the lowest in 2½ years.

In Japan, unemployment rates rose steadily from 2.0 percent in 1980 to 2.4 percent in 1982. A new plateau was reached in the first quarter of 1983 when the unemployment rate reached 2.7 percent. Japanese jobless rates have since shown very little movement.

In Australia, unemployment began rising in the second half of 1981 and rose sharply during 1982 and the first half of 1983, exceeding 10 percent for the first time. The rate began to fall at the end of 1983 and by the fourth quarter of 1984, had dropped to 8.6 percent.

In Western Europe, unemployment rates reached new highs during the 1983-84 period. By late 1983, the rapid rise in unemployment was brought to a halt in Germany, Great Britain, Italy, and Sweden. However, except for a moderate downturn in Sweden, jobless rates remained near their levels of a year earlier throughout 1984 and early 1985. In contrast, French unemployment continued to rise.

In Germany, lengthy labor disputes during the spring of 1984 in the metalworking and printing industries and the subsequent losses in output contributed to the dampened demand for labor. After the settlement of the disputes in August, the demand for labor increased and the unemployment rate began to inch downward.

The French jobless rate was stable between mid-1982 and the third quarter of 1983, partly a reflection of the impact of various government actions to counter the rise in unemployment, including measures to accelerate early retirements and to expand youth training programs. However, the labor market situation subsequently deteriorated, as "the effects of the different programs seem to have worn off as of the last quarter of 1983."⁴ Between the third quarter of 1983 and the first quarter of 1985, the jobless rate rose by almost 2 percentage points.

In Italy, the unemployment rate rose approximately one-half a percentage point a year from 1980 to 1983. In the fourth quarter of 1983, the rate reached 5.6 percent, the highest in nearly two decades. Throughout 1984, the jobless rate remained at this level, which seems low compared with those of most of the other European countries. However, there are a very large number of Italians who wish to work

but are not currently seeking jobs and who do not appear in the unemployment figures after adjustment to U.S. definitions. Such discouraged workers are discussed later.

The Swedish unemployment rate began to move slowly upward in mid-1980, reaching a new high of 3.6 percent by the third quarter of 1983. The labor market situation improved at the end of 1983 and early 1984. The decline in the jobless rate was suspended in the second quarter but resumed at midyear. By December, the 2.8-percent unemployment rate was the lowest in 3 years.

A major reason for Sweden's low unemployment rates relative to those of the other nations studied is the existence of extensive labor market programs. When economic conditions deteriorate, labor market schemes such as public relief work, vocational training, and sheltered workshops are utilized to absorb the excess supply of labor. The number of persons affected by these various schemes fluctuates in conjunction with the business cycle but has exceeded the number of unemployed for the past decade. In 1983, the number of persons enrolled in these programs was equivalent to 3.7 percent of the labor force. In comparison, the unemployment rate was 3.5 percent.

Unemployment in Great Britain rose steadily from 1980 to mid-1983. Since early 1981, the jobless rate has exceeded 10 percent, peaking at 13 percent in mid-1983. In the fourth quarter of 1983, unemployment declined slightly, but the improvement was shortlived—in the third quarter of 1984, unemployment resumed its upward movement and reached a new peak of 13.2 percent.

Quarterly jobless rates approximating U.S. concepts are not available for the Netherlands. However, the number of seasonally adjusted registered unemployed has risen steadily since 1980. By 1983, the Dutch rate averaged more than 14 percent, the highest of any country studied. In 1984, the jobless rate continued to rise, and reached a new high of 15 percent. In response to the rapid rise in joblessness, the Dutch government took "various structural measures designed to lessen unemployment by increasing the profitability of employing young workers and by lessening the attraction of being unemployed."⁵ Minimum wages for persons under age 23 were cut, the length of time for which unemployment benefits are paid to those under age 23 was shortened, and unemployment insurance benefits were reduced by excluding end-of-year bonuses in calculating benefits.

Unemployment rates by sex. In the past, women have had higher unemployment rates than men in all the countries studied, except in Great Britain. (See table 3.) In 1982 and 1983, this historical relationship was reversed in two countries—the United States and Canada. The reason for this reversal was the greater cyclical sensitivity of male employment which overrode the factors which generally push female unemployment higher. In 1984, unemployment rates declined for both men and women. Because the jobless rate

for men declined more rapidly, the historical relationship of higher female unemployment rates reappeared in both countries.

In Japan, Australia, and Western Europe (except Great Britain), female unemployment rates remained well above male rates throughout the recession, although male jobless rates rose more rapidly than female rates with two exceptions—Italy and Japan. In Italy, unemployment growth has generally been faster for men than for women, but this trend was reversed in 1983. In Japan, unemployment rates have generally risen more slowly for men than for women. The Japanese system of lifetime employment which covers "regular employees" is not extended to temporary and casual workers. Seven of ten regular employees are men, while a similar percentage of temporary and casual workers are women.

Job creation: U.S. leads

The contrast between the North American and European experiences in employment creation is stark and predates the recent recession. In the 10 years to 1983, almost 18 million additional jobs were created in North America, while the six Western European countries experienced a net loss of 840,000 jobs. Japan and Australia also gained jobs over the period, but not nearly as fast as North America. (See chart 1.)

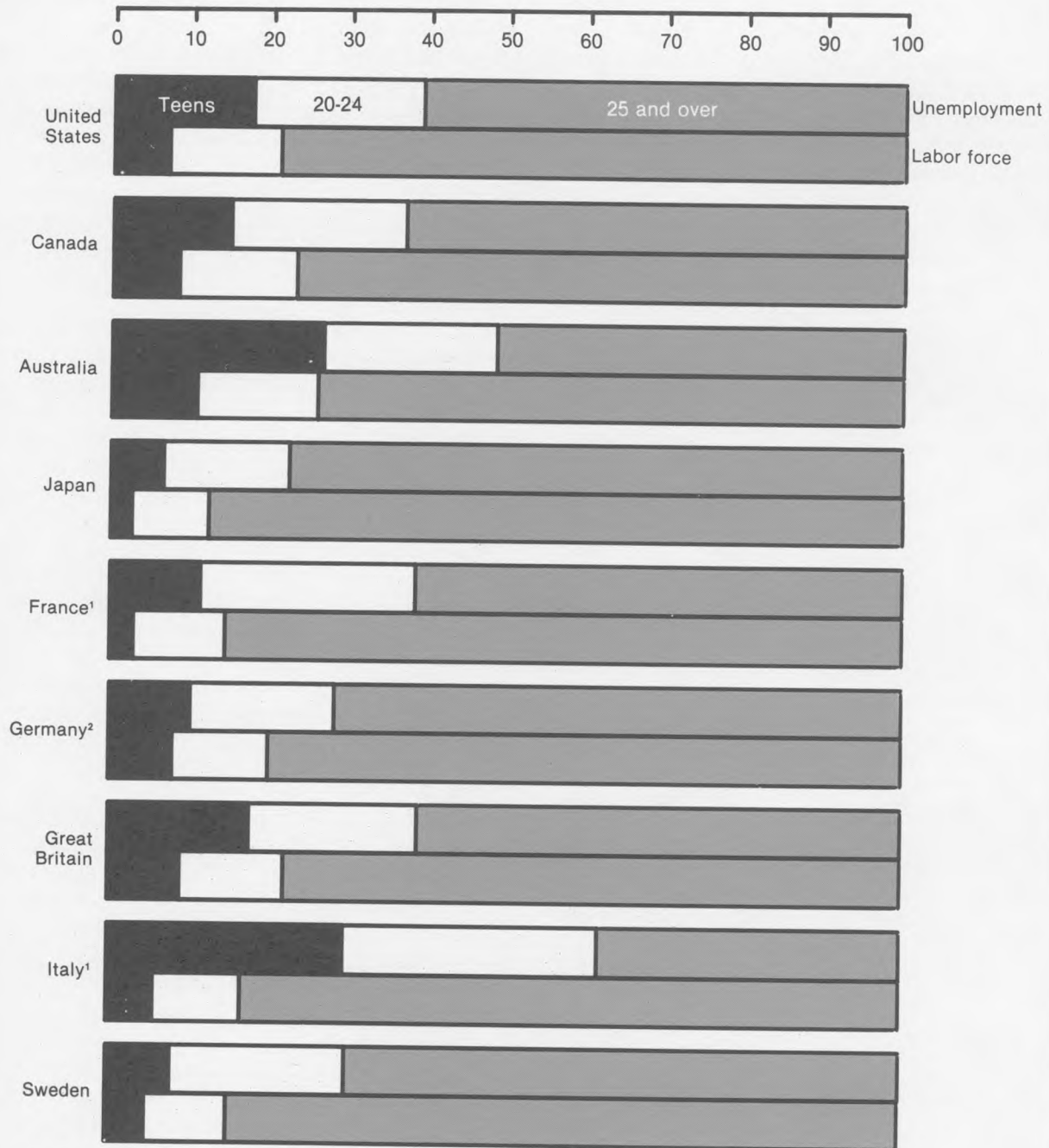
In 1983, U.S. employment rebounded strongly from its 1982 decline. More than 1.3 million jobs were created, in continued sharp contrast with the six European countries which lost 715,000 jobs. U.S. employment growth accelerated in 1984, as 4.2 million jobs were added. Canadian job creation, which had outpaced that in the United States in the 1970's, has not been as strong in the 1980's. Canadian job growth in 1984 was 2.5 percent, compared with the 4.1-percent increase in U.S. employment.

Japanese employment has been rising at a steady pace, even increasing in 1982 when sharp declines occurred in North America. In 1983, nearly 1 million more Japanese had jobs than the year before, and growth continued in 1984. Australia's employment growth resumed in 1984 after declining in the previous year.

In Western Europe, employment has generally declined since 1980, but some turnabout in the trend began to occur in 1983 and 1984. In 1983, small gains in employment were recorded in Italy and Sweden, and the prerecession level was regained in Italy. In 1984, employment continued to rise in Sweden, but resumed its decline in Italy. Great Britain recorded gains in employment in the first half of the year and Germany's jobs increased in the fourth quarter.

Besides the large differences in overall employment trends, there is also a marked difference in the types of jobs which are being created. Full-time jobs have been increasing faster than part-time opportunities in the United States. In contrast, part-time jobs have grown more strongly in Europe, Japan, and Australia. OECD estimates indicate that, on a net new

Chart 2. Percent distribution of unemployment and the labor force by age, 1984



¹ Data are for 1983.

² Data are for 1982.

job basis, one of two new jobs created in Europe since the first oil shock in 1973 was a part-time job, compared with one of five new jobs in the United States.⁶

Comparative and current data on part-time work in Europe are difficult to obtain. However, data are available for North America, Japan, and Australia. In the United States, the number of persons working full-time schedules increased faster than part-time employment in both 1983 and 1984. In 1983, 98 percent of the increase in overall employment was accounted for by increased numbers of persons on full-time schedules. In 1984, the increase in full-time employment, 4.4 million, exceeded the 4.2 million increase in overall employment, reflecting the decline in involuntary part-time work. The number of persons voluntarily working part-time schedules, however, rose 2 percent or 260,000, although the proportion of overall employment in this category continued to decline.

In Canada, growth in full-time jobs exceeded growth in part-time jobs in 1984. Almost 90 percent of the 270,000 jobs created were full time. However, full-time employment did not regain its prerecession level or proportion of overall employment. In contrast, the number of part-time jobs has increased steadily since 1980. The proportion of part-time to overall employment stabilized in 1984 after having risen between 1981 and 1983.

The situation in Japan regarding part-time jobs parallels that of Europe. To protect the lifetime employment system for their regular employees, Japanese enterprises have increased the use of part-time and casual workers who can be easily hired and fired. Part-time workers do not receive many of the benefits such as retirement, vacation, and sick leave accorded to regular employees and, therefore, cost less to employ. In 1983, employment of full-time regular employees rose 2 percent, while employment of part-time and cas-

Table 2. Civilian labor force, employment, and unemployment approximating U.S. concepts, 10 countries, 1975-84

[Numbers in thousands]

Year	United States	Canada	Australia	Japan	France	Germany	Great Britain	Italy	Netherlands	Sweden
Labor force:										
1975	93,775	9,974	6,169	52,530	21,600	26,130	25,130	20,080	4,820	4,123
1976	96,158	10,203	6,244	53,100	21,840	25,900	25,290	20,300	4,890	4,149
1977	99,009	10,500	6,358	53,820	22,100	25,870	25,430	20,530	4,950	4,168
1978	102,251	10,895	6,443	54,610	22,290	26,000	25,620	20,630	5,010	4,203
1979	104,962	11,231	6,519	55,210	22,470	26,240	25,710	20,910	5,100	4,262
1980	106,940	11,573	6,693	55,740	22,570	26,500	25,870	21,210	5,290	4,312
1981	108,670	11,904	6,810	56,320	22,640	26,610	25,870	21,410	5,500	4,326
1982	110,204	11,958	6,910	56,980	22,900	26,640	¹ 25,880	21,450	¹ 5,560	4,350
1983	111,550	12,183	6,997	58,110	22,800	26,640	¹ 25,980	21,610	¹ 5,720	4,369
1984	113,544	12,399	7,133	58,480	¹ 22,990	¹ 26,700	¹ 26,390	¹ 21,600	¹ 5,740	4,385
Labor force participation rate:²										
1975	61.2	61.1	63.2	62.4	56.7	54.4	63.1	47.5	49.2	65.9
1976	61.6	61.1	62.7	62.4	56.9	53.8	63.2	47.8	49.1	66.0
1977	62.3	61.6	62.7	62.5	57.0	53.4	63.2	48.0	49.0	65.9
1978	63.2	62.7	62.0	62.8	57.1	53.3	63.3	47.7	48.8	66.1
1979	63.7	63.4	61.7	62.7	57.0	53.3	63.2	47.8	49.0	66.6
1980	63.8	64.1	62.2	62.6	56.7	53.2	63.2	48.0	50.0	67.0
1981	63.9	64.8	62.0	62.6	56.5	52.9	62.2	48.0	51.3	66.8
1982	64.0	64.1	61.8	62.7	56.7	52.5	¹ 61.9	47.4	¹ 51.2	66.8
1983	64.0	64.4	61.5	63.1	56.1	52.8	¹ 62.4	47.2	¹ 52.4	¹ 66.9
1984	64.4	64.8	¹ 61.5	62.7	¹ 56.3	¹ 53.1	¹ 62.7	¹ 47.5	¹ 52.3	¹ 67.0
Employment:										
1975	85,846	9,284	5,866	51,530	20,700	25,230	24,000	19,480	4,570	4,056
1976	88,752	9,477	5,946	52,020	20,850	25,010	23,810	19,600	4,630	4,083
1977	92,017	9,651	6,000	52,720	21,030	24,970	23,840	19,800	4,700	4,093
1978	96,048	9,987	6,038	53,370	21,110	25,130	24,040	19,870	4,750	4,109
1979	98,824	10,395	6,111	54,040	21,110	25,460	24,360	20,100	4,830	4,174
1980	99,303	10,708	6,284	54,600	21,120	25,730	24,100	20,380	4,960	4,226
1981	100,397	11,006	6,416	55,060	20,950	25,520	23,190	20,480	4,990	4,218
1982	99,526	10,644	6,415	55,620	20,980	25,060	¹ 22,820	20,430	¹ 4,930	4,213
1983	100,834	10,734	6,300	56,550	20,840	24,650	¹ 22,650	20,470	¹ 4,890	4,218
1984	105,005	11,000	6,490	56,870	¹ 20,670	¹ 24,610	¹ 22,960	¹ 20,400	¹ 4,880	4,249
Employment-population ratio:³										
1975	56.1	56.9	60.1	61.2	54.3	52.5	60.3	46.1	46.6	64.8
1976	56.8	56.7	59.7	61.1	54.3	52.0	59.5	46.1	46.5	64.9
1977	57.9	56.6	59.2	61.2	54.3	51.6	59.3	46.3	46.5	64.8
1978	59.3	57.5	58.1	61.3	54.1	51.5	59.4	45.9	46.3	64.6
1979	59.9	57.7	57.9	61.4	53.6	51.7	59.8	45.9	46.4	65.3
1980	59.2	59.3	58.4	61.3	53.1	51.6	58.9	46.1	46.9	65.6
1981	59.0	59.9	58.4	61.2	52.3	50.7	55.8	45.9	46.5	65.1
1982	57.8	57.0	57.3	61.2	51.9	49.4	¹ 54.6	45.2	¹ 45.4	64.7
1983	57.9	56.7	55.4	61.4	51.3	48.8	¹ 54.2	44.7	¹ 44.8	¹ 64.6
1984	59.5	57.4	¹ 56.0	61.0	¹ 50.6	¹ 48.9	¹ 54.6	¹ 44.8	¹ 44.5	¹ 64.9

See footnotes at end of table.

Table 2. Continued—Civilian labor force, employment, and unemployment approximating U.S. concepts, 10 countries, 1975–84

[Numbers in thousands]

Year	United States	Canada	Australia	Japan	France	Germany	Great Britain	Italy	Netherlands	Sweden
Unemployment:										
1975	7,929	690	302	1,000	900	890	1,130	610	250	67
1976	7,406	726	298	1,080	990	890	1,480	700	260	66
1977	6,991	849	358	1,100	1,070	900	1,590	740	250	75
1978	6,202	908	405	1,240	1,180	870	1,580	760	260	94
1979	6,137	836	408	1,170	1,360	780	1,350	810	270	88
1980	7,637	865	409	1,140	1,450	770	1,770	830	330	86
1981	8,273	898	394	1,260	1,690	1,090	2,680	920	510	108
1982	10,678	1,314	495	1,360	1,920	1,580	3,060	1,020	1,630	137
1983	10,717	1,448	697	1,560	1,960	1,990	3,330	1,140	1,830	151
1984	8,539	1,399	642	1,610	2,320	2,090	3,430	1,200	1,860	136
Unemployment rate:										
1975	8.5	6.9	4.9	1.9	4.2	3.4	4.5	3.0	5.2	1.6
1976	7.7	7.1	4.8	2.0	4.5	3.4	5.9	3.4	5.3	1.6
1977	7.1	8.1	5.6	2.0	4.8	3.5	6.3	3.6	5.0	1.8
1978	6.1	8.3	6.3	2.3	5.3	3.4	6.2	3.7	5.2	2.2
1979	5.8	7.4	6.3	2.1	6.1	3.0	5.3	3.9	5.3	2.1
1980	7.1	7.5	6.1	2.0	6.4	2.9	6.8	3.9	6.2	2.0
1981	7.6	7.5	5.8	2.2	7.5	4.1	10.4	4.3	9.3	2.5
1982	9.7	11.0	7.2	2.4	8.4	5.9	11.8	4.8	11.3	3.1
1983	9.6	11.9	10.0	2.7	8.6	7.5	12.8	5.3	14.5	3.5
1984	7.5	11.3	9.0	2.8	10.1	17.8	13.0	15.6	15.0	3.1
Unemployment rate, as published:⁴										
1975	8.5	6.9	4.9	1.9	4.2	4.7	3.9	5.9	5.0	1.6
1976	7.7	7.1	4.8	2.0	4.5	4.6	5.4	6.7	5.3	1.6
1977	7.1	8.1	5.6	2.0	4.8	4.5	5.7	7.2	5.1	1.8
1978	6.1	8.3	6.3	2.2	5.3	4.3	5.6	7.2	5.1	2.2
1979	5.8	7.4	6.3	2.1	6.0	3.8	5.2	7.7	5.1	2.1
1980	7.1	7.5	6.1	2.0	6.4	3.8	6.7	7.6	5.9	2.0
1981	7.6	7.5	5.8	2.2	7.5	5.5	10.2	8.4	9.1	2.5
1982	9.7	11.0	7.2	2.4	8.4	7.5	11.9	9.1	12.6	3.1
1983	9.6	11.9	10.0	2.6	8.6	9.1	12.7	9.9	17.1	3.5
1984	7.5	11.3	9.0	2.7	10.1	9.1	12.9	10.4	17.6	3.1

¹Preliminary estimate.²Civilian labor force as a percent of the civilian working-age population.³Civilian employment as a percent of the civilian working-age population.

⁴Published and adjusted data are identical for the United States, Canada, and Australia. For France, unemployment as a percent of the civilian labor force; for Japan, Italy, and Sweden, unemployment as a percent of the civilian labor force plus career military personnel; for Germany, Great Britain, and the Netherlands, registered unemployed (excluding adult students in Great Britain) as a percent of employed wage and salary workers plus the unemployed. Except for France, which does not publish an unemployment rate, these are the usually published unemployment rates for each country. Published rates shown for Germany, Great Britain, and the Netherlands cannot be computed from data contained in this table.

NOTE: Data for the United States relate to the population age 16 and over. Published data for France, Germany and Italy relate to the population age 14 and over; for Sweden, to the population age 16 to 74; and for Canada, Australia, Japan, Great Britain, and the Netherlands, to the population age 15 and over. Beginning in 1973, published data for Great Britain relate to the population age 16 and over. The adjusted statistics have been adapted, insofar as possible, to the age at which compulsory schooling ends in each country. Therefore, adjusted statistics for France relate to the population age 16 and over; for Germany, to the population age 15 and over; and for the Netherlands, to the population age 14 and over for 1973–74, and to the population age 15 and over from 1975 onward. The age limits of adjusted statistics for Canada, Australia, Japan, Great Britain, and Italy coincide with the age limits of the published statistics. Statistics for Sweden remain at the lower age limit of 16, but have been adjusted to include persons age 75 and over.

ual workers rose 9 percent. However, the number of full-time jobs created was more than double the number of new part-time jobs. During the 1978–82 period, the part-time work force rose by an average 2.5 percent a year. As indicated earlier, the majority of part-time and casual workers are women, while the majority of regular employees are men.

In 1984, the use of part-time workers continued to increase in Japan. According to a survey on part-time employment conducted in late 1984, manufacturing and wholesale and retail enterprises tended “to cut down their regular payroll work forces in favor of more part-timers”⁷ to minimize payroll costs.

In Australia, growth in part-time jobs also accelerated in 1984. Part-time jobs increased twice as rapidly as full-time jobs. However, the number of full-time jobs created, 133,000, far exceeded the number of part-time jobs, 56,000. The

proportion of full-time employees to overall employment has continued to decline.

The part-time category may include persons working reduced hours both voluntarily and involuntarily. The discussion here focuses on involuntary part time only. Trends in the number of persons working part time for economic reasons gives further background to comparative employment trends. These data indicate that some countries have a much larger group of underemployed persons than do others.

Employers in all countries use the mechanism of short-time work to varying degrees to maintain their experienced work forces during times of reduced business. In Europe and Japan, unemployment compensation systems provide for payments to workers on shorter hours for economic reasons. This is generally not the case in the United States and Canada.

Table 3. Labor force participation rates and unemployment rates (civilian labor force basis), by sex, 1975-84

Year	United States	Canada	Australia	Japan ¹	France	Germany	Great Britain	Italy	Netherlands ²	Sweden
Labor force participation rate³										
Men:										
1975	77.9	78.4	82.2	81.2	74.4	73.1	81.4	70.4	73.1	77.0
1976	77.5	77.6	81.5	81.0	74.4	72.1	81.3	70.2	(⁴)	76.5
1977	77.7	77.7	81.0	80.4	74.0	71.6	80.8	69.2	71.8	75.6
1978	77.9	78.1	79.8	80.1	73.8	71.3	80.3	68.5	(⁴)	75.1
1979	77.8	78.5	79.5	79.9	73.0	71.1	79.7	68.1	70.4	75.1
1980	77.4	78.4	79.2	79.6	72.4	70.4	79.5	67.7	(⁴)	74.9
1981	77.0	78.4	78.9	79.6	71.8	69.6	78.6	67.5	70.0	73.9
1982	76.6	77.0	78.4	79.3	71.3	68.8	⁵ 77.7	66.6	(⁴)	73.5
1983	76.4	76.7	77.7	79.2	69.5	68.8	⁵ 77.0	65.9	69.8	⁵ 73.1
1984	76.4	76.6	⁵ 77.3	78.5	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)	⁵ 72.7
Women:										
1975	46.3	44.4	44.5	44.8	40.8	38.4	46.6	26.6	26.9	55.2
1976	47.3	45.2	44.3	44.8	41.1	38.2	46.9	27.5	(⁴)	55.8
1977	48.4	46.0	44.8	45.7	41.8	37.8	47.4	28.6	27.6	56.7
1978	50.0	47.9	44.5	46.4	42.1	37.8	48.0	28.6	(⁴)	57.5
1979	50.9	49.0	44.3	46.6	42.6	37.9	48.2	29.2	29.1	58.5
1980	51.5	50.4	45.5	46.6	42.6	38.2	48.3	29.9	(⁴)	59.3
1981	52.1	51.7	45.5	46.7	42.8	38.3	47.8	30.1	32.9	60.1
1982	52.6	51.7	45.4	47.0	43.5	38.4	⁵ 47.5	30.0	(⁴)	60.5
1983	52.9	52.6	45.5	48.0	44.0	38.8	⁵ 47.8	30.1	34.8	⁵ 61.0
1984	53.6	53.5	⁵ 46.2	47.8	(⁴)	(⁴)	(⁴)	(⁴)	(⁴)	⁵ 61.5
Unemployment rate										
Men:										
1975	7.9	6.2	3.8	1.9	2.9	3.3	4.9	2.2	3.8	1.4
1976	7.1	6.3	3.9	2.1	3.0	3.1	6.3	2.4	(⁴)	1.3
1977	6.3	7.3	4.6	2.0	3.2	2.9	6.6	2.5	4.0	1.5
1978	5.3	7.5	5.4	2.2	3.7	2.7	6.2	2.5	(⁴)	2.1
1979	5.1	6.6	5.2	1.9	4.2	2.3	5.5	2.7	3.7	1.9
1980	6.9	6.9	5.1	1.7	4.2	2.3	7.3	2.7	(⁴)	1.7
1981	7.4	7.0	4.8	1.9	5.2	3.4	11.3	2.9	6.4	2.4
1982	9.9	11.1	6.4	1.9	6.1	5.2	⁵ 13.1	3.3	(⁴)	3.0
1983	9.9	12.1	9.7	(⁴)	6.6	6.6	⁵ 14.2	3.7	12.4	3.4
1984	7.4	11.2	8.7	(⁴)	(⁴)	⁵ 6.7	⁵ 14.3	(⁴)	(⁴)	3.0
Women:										
1975	9.3	8.1	7.0	3.8	6.2	3.6	3.9	5.0	6.9	2.0
1976	8.6	8.4	6.4	3.8	7.1	4.0	5.1	5.8	(⁴)	2.0
1977	8.2	9.4	7.5	4.3	7.5	4.5	5.7	6.0	6.7	2.2
1978	7.2	9.6	7.9	4.3	7.9	4.4	6.1	6.2	(⁴)	2.4
1979	6.8	8.8	8.2	4.1	9.0	4.1	4.9	6.4	8.1	2.3
1980	7.4	8.4	7.9	3.3	9.8	3.8	6.2	6.7	(⁴)	2.3
1981	7.9	8.3	7.4	3.6	10.9	5.1	8.8	7.1	11.4	2.7
1982	9.4	10.9	8.5	4.0	11.7	7.0	⁵ 9.9	7.5	(⁴)	3.4
1983	9.2	11.6	10.4	(⁴)	11.5	8.8	⁵ 10.8	8.5	16.2	3.5
1984	7.6	11.4	9.5	(⁴)	(⁴)	⁵ 9.6	⁵ 11.3	(⁴)	(⁴)	3.2

¹Unemployment rates estimated on the basis of special March survey data for 1977 through 1980. Adjustments for 1975-76 are based on March 1977 data, and adjustments for 1981-82 are based on March 1980 data.

²Data refer to March-May.

³Data relate to the civilian labor force approximating U.S. concepts as a percent of the civilian noninstitutionalized working-age population. Working age is defined as 16 years and over in the United States, France, and Sweden; 15 years and over in Australia,

Canada, Germany, and Japan; and 14 years and over in Italy. For Great Britain, the lower age limit was raised from 15 to 16 in 1973. For the Netherlands, the lower age limit was raised from 14 to 15 in 1975. The institutionalized working-age population is included in Japan and Germany.

⁴Not available.

⁵Preliminary estimate.

In the United States, the number of persons working part time for economic reasons (persons on reduced hours as well as persons employed in part-time jobs who want full-time work) rose between 1980 and 1983. In 1982, the number increased 30 percent to 6.2 million, or 6.2 percent of the employed. In 1983, the number continued to rise, although at a much slower pace, and the ratio of persons affected remained unchanged. In 1984, the number of persons working part-time for economic reasons declined to 5.7 million, or 5.5 percent of the employed.

The number of U.S. workers on reduced hours increased steadily from 1978 to 1982. In 1982, the number rose by

one-third to 3.3 million, approximately 3.3 percent of civilian employment. In 1983, the number began to decline and, by 1984, fewer than 2.5 million persons, 2.3 percent of employment, were on reduced work schedules.

The number of persons in the United States working part time because they could only find part-time jobs also increased by one-third in 1982. However, the peak occurred in 1983, when there were 3.1 million part-time workers who were unable to find full-time jobs. This group typically continues to increase even after employers restore the hours of those they have put on short work hours. In 1984, the number who could find only part-time jobs declined for the

first time since 1978 to 2.9 million, or 2.8 percent of employment.

In Canada, persons whose hours were cut back for economic reasons followed a similar pattern. The number affected rose from 1980 to 1982, with a dramatic increase of 76 percent to 146,000 (1.4 percent of civilian employment) by 1982. In the following 2 years, the number of persons working shorter hours for economic reasons decreased. By 1984, 112,000 (1.2 percent of civilian employment) were on reduced work schedules.

Data are also collected on the number of Canadians working part time because they could only find part-time work. In 1980, nearly 250,000 part-time workers wanted to work full time but could not find such jobs. By 1984, the number had more than doubled to 510,000 persons. The proportion of employed persons working part time who want full-time work also doubled, rising from 2.3 percent in 1980 to 4.6 percent in 1984.

In France, the number of persons who were compensated for working shorter hours peaked in 1981. About 320,000 workers (1.5 percent of civilian employment) were compensated for 17.4 million days not worked. In 1982, the number of persons affected declined 40 percent and the number of days compensated fell 30 percent. In 1983, the numbers of both workers and days compensated rose 20 percent. Approximately 240,000 French workers (1.1 percent of civilian employment) were reimbursed for 14.6 million days not worked. In 1984, the number of workers receiving short-time compensation rose 15 percent, while the number of days compensated rose 5 percent. Nearly 275,000 workers (1.1 percent of civilian employment) were paid for 15.2 million days not worked.

In Germany, the number of persons receiving payments for shortened work schedules continued to increase in 1983, but the rate of growth decelerated significantly, rising just 11 percent, compared with 75 percent in 1982. Approximately 675,000 employees, 2.7 percent of German employment, worked shorter hours for economic reasons in 1983. In 1984, the number of persons receiving short-time benefits decreased 40 percent; approximately 385,000 persons, or 1.6 percent of German employment, worked shorter hours for economic reasons in 1984.

In Italy, the number of hours subsidized by the Wage Supplement Fund increased each year from 1980 to 1983. The rate of increase ranged from 85 percent in 1981, to 6 percent in 1982, and to 30 percent in 1983. By 1983, the number of hours subsidized had risen to almost 700 million, equivalent to 390,000 person years, or 1.9 percent of civilian employment. In 1984, the number of hours subsidized rose an additional 9 percent to 760 million hours, equivalent to 420,000 person years, or 2.1 percent of civilian employment.

In Great Britain and the Netherlands, the number of persons affected by involuntary short-time schedules declined in 1983. In Britain, emphasis has shifted away from the

Temporary Short Time Working Compensation Scheme. This scheme, which ended in September 1984, subsidized 68,000 workers in 1983, about one-eighth the number subsidized in 1981. Approximately 0.3 percent of total employment was affected in 1983, compared with 2.3 percent in 1981. In the Netherlands, the number of persons on shorter hours has declined since 1982, although the number of hours compensated rose until 1983. The number of persons affected fell nearly 30 percent over the 1982–83 period, to 16,200, or about 0.3 percent of employment. Hours compensated declined 17 percent to 9.5 million.

Other indicators favorable for U.S.

Unemployment and employment are the key indicators of the labor market, but there are other statistics which give added perspective to international comparisons. The labor force brings together the two key indicators in one concept as it represents all persons either working or seeking work. The labor force participation rate and the employment-population ratio show the extent to which labor force and employment growth are keeping pace with population growth. Finally, trends in the number of discouraged workers tell us about an important group of potential labor force entrants.

Even during the recession years of the 1980's, the labor force increased in all countries, with two exceptions—1983 declines in France and Germany. Labor force growth was far more rapid in Canada, the United States, Australia, and Japan, than in Western Europe. North American and Japanese increases in the 1980–83 period represented expanding employment and unemployment components, except in 1982, when North American employment declined. In 1984, big employment increases fueled labor force growth in the United States and, to a lesser extent, in Japan, Canada, and Australia. In contrast, European labor force growth so far in the 1980's has been associated with sharp growth in joblessness and declining employment.

Although all countries' labor forces were larger in the 1983–84 period than in 1980, only the United States, Canada, Japan, and the Netherlands had seen increases in labor force participation rates. In other words, labor force growth exceeded working age population growth in these nations. In Australia and Western Europe—except the Netherlands—participation rates either declined or remained virtually unchanged (in Sweden), as labor force growth fell below population growth. In some European countries, notably Germany, increasing emigration of foreign workers contributed to the decline. Programs promoting early retirement have been a factor in France, Germany, Great Britain, and Italy. Rising numbers of discouraged workers (discussed later) have also contributed to the decline in European participation rates.

Activity rates for men fell in all countries after 1980, while rates for women rose in all countries. (See table 3.) In most cases, these developments were continuations of longer term trends, and the reasons for them have been

described by Constance Sorrentino in 1983.⁸ Although there are many reasons for the rising participation of women, this trend may partly reflect the "added worker" phenomenon. When household income is rising slowly or has been reduced (either because of unemployment or shorter hours), the desire for additional income tends to draw women from non-market activities into the labor market.

In Japan, women formerly moved from employment to out of the labor force, bypassing unemployment. In recent years, however, they have tended to remain in the labor market, immediately seeking work upon becoming jobless, and thus maintaining rising participation rates. This pattern is also beginning to emerge in the Netherlands.

The United States was the only country with a higher employment-to-population ratio in 1984 than in 1980. Even in Canada, Japan, and Australia—countries with higher employment in 1984 than in 1980—employment growth was outpaced by population growth, and employment ratios declined. Some of the Western European countries had particularly sharp decreases in this ratio because employment actually declined while the working-age population increased.

Discouraged workers. Discouraged workers are persons not in the labor force who state a current desire for work but who are not actively seeking a job because they think they cannot find one. Current data on these workers are available for five countries—the United States, Canada, Australia, Italy, and Sweden. However, because definitions vary from country to country, international comparisons should be made cautiously.

In the United States, the number of discouraged workers peaked at the same time as the number of unemployed. In the fourth quarter of 1982, the number of discouraged workers, 1.8 million, was equal to about 15 percent of the unemployed. By the fourth quarter of 1984, the number had declined by .5 million, but was still equivalent to about 15 percent of unemployment.

In the United States, there is no requirement of prior job search in order to be classified as discouraged. Data from several sources indicate that a large proportion of discouraged workers test the job market only infrequently. More than half report no jobseeking efforts in the year preceding the interview.⁹

In Canada, however, the definition of discouraged workers requires that active steps to find work must have been taken within 6 months prior to the interviews. The number of Canadian discouraged workers has declined steadily from the fourth quarter 1982 peak of 133,000, equivalent to 9 percent of unemployment. By the fourth quarter of 1984, discouragement was reported at 84,000 persons, equivalent to 6 percent of the number of jobless.

In Australia, the definition of discouraged workers is also more restrictive than in the United States. Australia requires persons who want a job but who have not taken active steps

to find work to be available to start work within 4 weeks. (The United States does not specifically apply an availability criterion to its discouraged worker definition.) This availability criterion was applied to the Australian definition of discouraged workers beginning in September 1983. In a supplementary survey conducted in March 1984, discouraged workers numbered 116,000, comparable to 17 percent of the unemployed. In addition, persons who wanted to work, had not actively sought work, and who were not available to begin a new job within 4 weeks, averaged 224,000 in the March 1984 survey, comparable to one-third of the unemployed.

In Italy, discouraged workers—according to U.S. definitions—outnumber the unemployed. In 1982 and 1983, the ratio of discouraged workers to the unemployed was approximately 11 to 10. However, approximately 90 percent of these discouraged workers are classified as unemployed by the Italian authorities because they have sought work, although not in the past month, the cutoff point in the U.S. definition of unemployment. In Italy, discouraged workers are defined as persons not in the labor force who declare their desire and availability for work at the time of the survey but who have not sought work because they think they cannot find a job. When this definition is used, the ratio of discouraged workers to the unemployed is less than 8 percent.

In Sweden, the number of discouraged workers fell to 50,000 in 1984 after averaging 60,000 in 1982 and 1983. The number of discouraged jobseekers in 1984 was comparable to almost 40 percent of the unemployed. This proportion has declined steadily since 1979.

Youth unemployment stays high

The recession of the early 1980's aggravated an already serious problem of high youth (under age 25) unemployment. Even in prosperous years, young persons experience higher unemployment rates than adults. Youth problems in the labor market have been attributed to such factors as lack of skills, inadequate training or counseling, the difficulties of transition from school to work, insufficient work experience, and loose labor force attachment. Cyclical downturns compound these problems because young people lack seniority and are more vulnerable to dismissal.

The extent of youth unemployment varies widely, and international differences have changed dramatically over time.¹⁰ For instance, during the 1960's through the early 1970's, European countries, with the exception of Italy, had much lower levels of youth unemployment than the United States and Canada. In 1970, the youth jobless rates in the United States, Canada, and Italy averaged around 10 percent, compared with rates of 2 to 6 percent in Australia, Japan, France, Great Britain, and Sweden. The German youth unemployment rate was under 1 percent.

Since the 1974-75 recession, however, the traditional gap between North American and European youth rates has narrowed or disappeared. Youth rates in Western Europe

first matched and then exceeded the rates in the United States and Canada. In 1982, youth unemployment rates rose in all countries and reached new highs. (See table 4.) The rates for persons under age 25 were 18 to 21 percent in North America, France, Great Britain, and Italy; 14 percent in Australia; and 4 to 8 percent in Japan, Germany, and Sweden, three of the four countries with the lowest overall jobless rates. In 1983, the youth unemployment rate moved downward slightly in the United States and Great Britain, but continued to rise in the other countries studied. Unemployment rates for persons under age 25 in all countries but Japan, Germany, and Sweden exceeded those in the United States.

In 1984, the youth unemployment rate declined in North America, Australia, and Sweden, and fell back to its pre-recession level in the United States. In Britain, the youth jobless rate remained unchanged. In contrast, it continued to rise among Japanese youth.

The dramatic turnaround in demographic trends was an important factor influencing the comparative youth unemployment picture. In North America, birth rates peaked in the late 1950's. In Western Europe, however, the peak occurred in the early to mid-1960's, which coincided with the tapering off of North American birth rates. In Australia and Japan, the peak was reached much later, in the 1970's.

In the United States and Canada, the children born during

the baby boom reached working age in the early 1970's, whereas those in Western European countries reached working age nearly 10 years later, during a period of generally declining economic growth. For Australia and Japan, the entry of the baby-boom generation is just beginning or yet to come.

Trends for teenagers. Aggregate unemployment rates for persons under 25 years of age tend to mask the separate trends for teenagers (under age 20)¹¹ and young adults (age 20 to 24).

Historically, unemployment rates among teenagers have been considerably higher than those for young adults in all countries studied except Germany. Double-digit teenage unemployment rates have been the rule rather than the exception in North America, Australia, and most of Western Europe in the last decade.

In 1975, teenage jobless rates rose sharply in all countries studied except Sweden, where extensive labor market programs were implemented to maintain employment. Teenage jobless rates reached new highs of nearly 20 percent in the United States, and 13 to 17 percent in Canada, Australia, France, Great Britain, and Italy. In Japan, Germany, and Sweden, the rates were much lower, around 5 percent.

Following the 1974-75 recession, teenage jobless rates declined slowly in the United States, but continued to rise

Table 4. Unemployment rates (civilian labor force basis), by age, 1980-84

Age group	United States	Canada	Australia	Japan	France ¹	Germany ¹	Great Britain ²	Italy	Sweden
1980:									
All working ages	7.1	7.5	6.1	2.0	6.1	2.7	6.6	3.9	2.0
Under 25 years	13.9	13.2	12.6	3.5	16.2	3.5	12.6	14.5	5.1
Teenagers ³	17.8	16.2	17.1	4.2	25.9	3.5	15.7	18.4	7.7
20-24 years	11.5	11.0	8.9	3.3	13.0	3.5	10.3	12.1	3.7
25 years and over	5.1	5.4	3.7	1.8	4.3	2.4	4.9	1.7	1.4
1981:									
All working ages	7.6	7.5	5.8	2.2	7.0	3.6	10.1	4.3	2.5
Under 25 years	14.9	13.2	11.4	4.1	18.2	4.8	18.1	16.0	6.5
Teenagers ³	19.6	16.2	15.6	5.6	29.1	4.3	21.1	20.9	9.6
20-24 years	12.3	11.2	8.2	3.7	15.1	5.1	15.9	13.0	4.9
25 years and over	5.4	5.6	3.7	2.0	5.0	3.3	7.9	1.9	1.8
1982:									
All working ages	9.7	11.0	7.1	2.4	7.8	5.3	11.8	4.8	3.1
Under 25 years	17.8	18.8	13.9	4.3	20.3	7.5	20.6	17.7	7.6
Teenagers ³	23.2	21.9	18.5	5.6	31.3	6.9	24.1	23.7	10.9
20-24 years	14.9	16.8	10.4	4.0	17.3	8.0	18.0	14.2	6.0
25 years and over	7.4	8.4	4.7	2.1	5.6	4.8	9.3	2.1	2.3
1983:									
All working ages	9.6	11.9	9.9	2.7	8.0	(⁴)	11.6	5.3	3.5
Under 25 years	17.2	19.9	18.3	4.6	21.2	(⁴)	20.4	19.2	8.2
Teenagers ³	22.4	22.2	23.6	6.4	30.7	(⁴)	23.4	26.6	10.6
20-24 years	14.5	18.5	14.6	4.1	18.8	(⁴)	18.2	15.6	7.0
25 years and over	7.5	9.4	6.9	2.4	5.8	(⁴)	9.1	2.5	2.6
1984:									
All working ages	7.5	11.3	9.0	2.8	(⁴)	(⁴)	11.6	(⁴)	3.1
Under 25 years	14.0	17.9	16.8	5.1	(⁴)	(⁴)	20.4	(⁴)	6.1
Teenagers ³	18.9	20.0	22.3	6.9	(⁴)	(⁴)	22.8	(⁴)	5.0
20-24 years	11.5	16.8	12.9	4.6	(⁴)	(⁴)	18.8	(⁴)	6.7
25 years and over	5.8	9.3	6.3	2.5	(⁴)	(⁴)	9.1	(⁴)	2.6

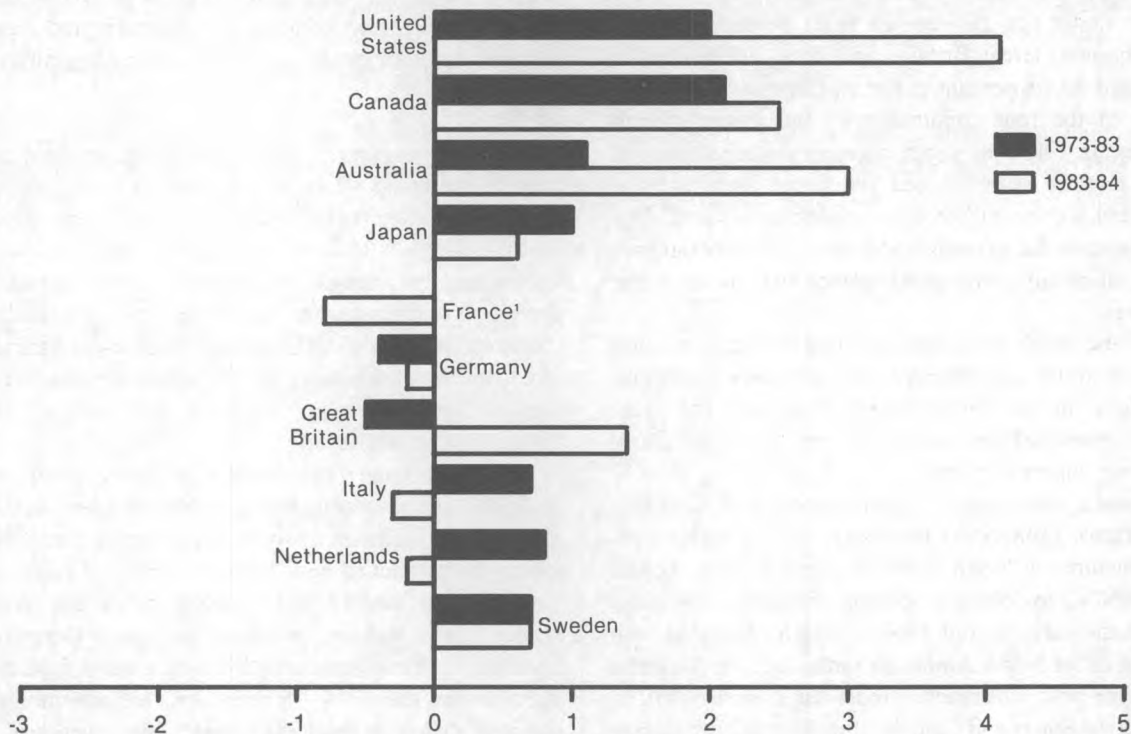
¹French data are for March 1980, 1981, and 1983 and April-May 1982; German data are for April 1980 and 1982 and May 1981.

²Data are not adjusted to U.S. concepts. Adjusted figures for youth would be slightly higher than those published here and adult rates would be slightly lower.

³Data are for 16- to 19-year-olds in the United States, France, Great Britain, and Sweden; 15- to 19-year-olds in Canada, Australia, Japan, and Germany; and 14- to 19-year-olds in Italy.

⁴Not available.

Chart 1. Average annual percent change in employment, 10 countries, 1973-83 and 1983-84



¹ Zero percentage change in France during the 1973-83 period.

in most of the other countries studied. By 1979, teenage rates matched or surpassed the U.S. rate of 16 percent in Canada, Australia, France, and Italy. In the early 1980's, teenage jobless rates were once again rising sharply in all countries studied. In 1982, new highs were recorded, 31 percent in France and 20 to 25 percent in North America, Australia, Great Britain, and Italy. Swedish teens had rates in excess of 10 percent for the first time. Japanese and German teens recorded jobless rates of around 6 percent, the lowest among the countries studied here. In 1983, teenage jobless rates declined in the United States, France, Great Britain, and Sweden, but continued to rise in the other countries studied. In 1984, teenagers in the United States, Canada, Australia, Great Britain, and Sweden recorded lower unemployment rates than in the previous year. In Japan, the teenage jobless rate continued to rise.

Trends for young adults. Historically, unemployment rates among young adults have remained lower than among teenagers in all countries studied except Germany. Since 1977, the German teenage jobless rate has been lower than that for young adults. In addition, unemployment rates for young adults have risen more rapidly than teenage rates in Germany, as well as in Canada, Australia, France, Great Britain, and Sweden.

In 1975, young adult jobless rates ranged from 10 to 15 percent in North America and Italy to less than 5 percent

in Japan, Germany, and Sweden. From 1976 to 1978, the young adult rate moved downward in the United States, while continuing to rise in most of the other countries. In 1979, the rates remained unchanged or declined in all countries but France.

Beginning in 1980, sharp rises in young adult joblessness were recorded. Between 1980 and 1982, the unemployment rate for persons age 20 to 24 rose 20 to 30 percent in the United States, Japan, Australia, France, and Italy, and 50 to 75 percent in Canada, Great Britain, and Sweden. The largest increase by far occurred in Germany, where the rate more than doubled. Nevertheless, the 1982 German rate, 8.0 percent, was still among the lowest of the nine countries. Only Japanese and Swedish young adults had lower rates (4.0 and 6.0 percent). In contrast, young adult unemployment rates clustered between 14 to 18 percent in North America and Western Europe.

In 1983, unemployment rates among 20- to 24-year-olds continued to rise in all countries studied except the United States. The steepest rise was recorded in Australia, where the rate rose 40 percent to 14.6 percent. This was the first time the Australian young adult rate had exceeded that in the United States. Young adults in four other countries—Canada, France, Great Britain, and Italy—experienced higher rates of joblessness than those in the United States. (In 1980, only France and Italy had higher unemployment rates for 20- to 24-year-olds than the United States.)

In 1984, lower jobless rates for 20- to 24-year-olds were recorded in Canada, Australia, and Sweden, as well as in the United States. In Japan and Great Britain, the young adult jobless rate rose at an accelerated pace.

Youth share of unemployment declining

Youth account for a disproportionate share of the unemployed. (See table 5 and chart 2.) In 1980, more than

40 percent of the jobless were under age 25, except in Japan and Germany where just 20 to 25 percent of the unemployed were young persons. During the same year, youth comprised one-fourth of the labor force in North America and Australia, one-sixth in Western Europe, and one-eighth in Japan.

Over the 1981-83 period, the youth share of both the unemployed and the labor force moved downward in all

Table 5. Percent distribution of the labor force and the unemployed, by age, 1980-1984

Age group	United States	Canada	Australia	Japan	France ¹	Germany ¹	Great Britain ²	Italy	Sweden
All working ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Labor force									
1980:									
Under 25 years	23.7	26.4	27.3	12.4	15.7	20.1	21.1	17.2	16.3
Teenagers ³	8.8	11.0	12.2	2.6	3.7	8.5	9.2	6.6	5.7
20-24 years	14.9	15.5	15.1	9.8	12.0	11.6	12.0	10.5	10.6
25 years and over	76.3	73.5	72.7	87.6	84.3	79.9	78.9	82.8	83.7
1981:									
Under 25 years	23.1	25.8	27.1	12.2	15.2	20.2	21.6	17.3	15.7
Teenagers ³	8.3	10.5	11.9	2.6	3.4	8.2	9.3	6.5	5.3
20-24 years	14.8	15.3	15.2	9.7	11.8	12.0	12.3	10.8	10.4
25 years and over	76.9	74.2	72.9	87.8	84.8	79.8	78.4	82.7	84.3
1982:									
Under 25 years	22.3	24.7	26.8	12.2	14.9	20.1	22.0	17.2	15.7
Teenagers ³	7.7	9.5	11.5	2.5	3.3	8.0	9.4	6.3	5.3
20-24 years	14.6	15.2	15.3	9.6	11.6	12.1	12.6	10.9	10.4
25 years and over	77.7	75.3	73.2	87.8	85.1	79.9	78.0	82.8	84.3
1983:									
Under 25 years	21.7	23.9	26.5	12.4	14.6	(⁴)	22.2	16.9	15.4
Teenagers ³	7.3	8.8	11.0	2.7	3.0	(⁴)	9.3	5.9	5.2
20-24 years	14.4	15.1	15.5	9.7	11.6	(⁴)	12.9	11.0	10.2
25 years and over	78.3	76.1	73.5	87.6	85.4	(⁴)	77.8	83.1	84.6
1984:									
Under 25 years	21.1	23.3	26.0	12.4	(⁴)	(⁴)	22.2	(⁴)	15.3
Teenagers ³	7.0	8.4	10.8	2.7	(⁴)	(⁴)	9.1	(⁴)	5.0
20-24 years	14.1	14.9	15.2	9.7	(⁴)	(⁴)	13.1	(⁴)	10.3
25 years and over	78.9	76.7	74.0	87.6	(⁴)	(⁴)	77.8	(⁴)	84.7
Unemployed									
1980:									
Under 25 years	45.9	46.7	56.3	21.0	41.1	26.8	40.6	63.9	41.9
Teenagers ³	21.8	23.7	34.3	5.3	15.5	11.3	21.9	31.3	22.1
20-24 years	24.0	22.9	22.0	15.8	25.5	15.5	18.7	32.5	19.8
25 years and over	54.1	53.3	43.7	79.0	58.9	73.2	59.4	36.1	58.1
1981:									
Under 25 years	45.2	45.3	53.7	22.2	39.5	27.2	38.8	64.1	40.7
Teenagers ³	21.3	22.7	32.2	6.4	14.1	9.9	19.4	31.5	20.4
20-24 years	23.9	22.7	21.5	15.9	25.4	17.2	19.4	32.6	20.4
25 years and over	54.8	54.7	46.3	77.8	60.5	72.8	61.2	35.9	59.3
1982:									
Under 25 years	40.9	42.2	52.0	22.1	38.9	28.5	38.5	63.7	38.0
Teenagers ³	18.5	19.0	29.7	5.9	13.4	10.3	19.2	31.4	18.2
20-24 years	22.4	23.3	22.4	16.2	25.6	18.2	19.3	32.4	19.7
25 years and over	59.1	57.8	48.0	77.9	61.1	71.5	61.5	36.3	62.0
1983:									
Under 25 years	38.8	40.0	48.8	21.2	38.6	(⁴)	38.9	61.4	36.4
Teenagers ³	17.1	16.5	26.2	6.4	11.4	(⁴)	18.7	29.8	15.9
20-24 years	21.7	23.5	22.6	14.7	27.2	(⁴)	20.2	32.5	20.5
25 years and over	61.2	60.0	51.2	78.8	61.4	(⁴)	61.1	38.6	63.6
1984:									
Under 25 years	39.1	37.1	48.6	22.6	(⁴)	(⁴)	39.0	(⁴)	30.1
Teenagers ³	17.6	14.9	26.8	6.7	(⁴)	(⁴)	17.8	(⁴)	8.1
20-24 years	21.5	22.2	21.8	15.8	(⁴)	(⁴)	21.2	(⁴)	22.1
25 years and over	60.9	63.0	51.4	77.4	(⁴)	(⁴)	61.0	(⁴)	69.9

¹French data are for March 1980, 1981, and 1983 and April-May 1982; German data are for April 1980 and 1982 and May 1981.

²Data are not adjusted to U.S. concepts.

³Data are for 16- to 19-year-olds in the United States, France, Great Britain, and Sweden; 15- to 19-year-olds in Canada, Australia, Japan, and Germany; and 14- to 19-year-olds in Italy.

⁴Not available.

Table 6. Ratios of youth-to-adult unemployment rates, 1980-84

Year	United States	Canada	Australia	Japan	France ¹	Germany ¹	Great Britain ²	Italy	Sweden
Youth-to-adult ratio³									
1980	2.7	2.4	3.4	1.9	3.7	1.5	2.6	8.5	3.6
1981	2.8	2.4	3.1	2.0	3.6	1.5	2.3	8.4	3.6
1982	2.4	2.2	3.0	2.0	3.6	1.6	2.2	8.4	3.3
1983	2.3	2.1	2.7	1.9	3.7	(⁴)	2.2	7.7	3.2
1984	2.4	1.9	2.7	2.0	(⁴)	(⁴)	2.2	(⁴)	2.3
Teenage-to-adult ratio⁵									
1980	3.5	3.0	4.6	2.3	6.0	1.5	3.2	10.8	5.5
1981	3.6	2.9	4.2	2.8	5.8	1.3	2.7	11.0	5.3
1982	3.1	2.6	3.9	2.7	5.6	1.4	2.6	11.3	4.7
1983	3.0	2.4	3.4	2.7	5.3	(⁴)	2.6	10.6	4.1
1984	3.3	2.2	3.5	2.8	(⁴)	(⁴)	2.5	(⁴)	1.9
Young adult-to-adult ratio⁶									
1980	2.2	2.0	2.4	1.8	3.0	1.5	2.1	7.1	2.6
1981	2.3	2.0	2.2	1.8	3.0	1.6	2.0	6.8	2.7
1982	2.0	2.0	2.2	1.9	3.1	1.7	1.9	6.8	2.6
1983	1.9	2.0	2.1	1.7	3.2	(⁴)	2.0	6.2	2.7
1984	2.0	1.8	2.1	1.8	(⁴)	(⁴)	2.1	(⁴)	2.6

¹French data are for March 1980, 1981, and 1983 and April-May 1982; German data are for April 1980 and 1982 and May 1981.

²Data are not adjusted to U.S. concepts.

³Ratio of unemployment rate for persons under age 25 to rate for persons age 25 and over.

⁴Not available.

⁵Ratio of teenage unemployment rate to rate for persons age 25 and over.

⁶Ratio of unemployment rate for persons age 20 to 24 to rate for persons age 25 and over.

countries studied. Adult workers were especially hard hit during the recession and their jobless rates rose more rapidly than those for youth, with the result that the adult share of unemployment increased while the youth share decreased. The number of youth reaching working age and entering the labor market tapered off during this period. Increased numbers of young discouraged workers also contributed to the declining youth share of the labor force. The declines in youth shares of unemployment and labor force were larger in North America and Australia than in Europe and Japan.

By 1983, the youth share of the unemployed had fallen to less than 40 percent in all of the countries, except Australia and Italy. However, this was still more than twice their share of the labor force. In 1984, the downward trend in the youth portion of unemployment was reversed in the United States and Japan. The youth share of the labor force reached a plateau in Japan and Great Britain and continued to decline in the other countries.

The trends in teenage and young adult shares of unemployment and labor force do not strictly follow those of youth as a whole. During the 1980-83 period, the teenage share of both the unemployed and the labor force fell in all countries except Japan where the share of unemployment rose and the share of the labor force remained the same. In contrast, the trend for young adults showed more variation. The young adult share of unemployment fell only in the United States and Japan. However, the share of the labor force declined in four countries—the United States, Canada, France, and Sweden. The young adult portion of unemployment rose in Canada, Australia, and Europe, while the share of the labor force rose in Australia, Germany, Great Britain, and Italy.

In 1984, the pattern of falling teenage share of the unemployed and the labor force was continued in Canada, Great Britain, and Sweden. In the United States, Australia, and Japan, the rising teenage portion of unemployment was accompanied by continued declining shares of the labor force. The share of both the unemployed and the labor force among young adults declined in North America and Australia and rose in Great Britain and Sweden in 1984, compared with 1983. Overall, the teenage shares of the unemployed and of the labor force have been lower than the young adult shares although the teenage jobless rates have been higher.

Youth-to-adult unemployment ratios narrow

The ratio of youth-to-adult unemployment rates can be used as an indicator of the relative severity of youth joblessness. (See table 6.) Since 1980, the ratio has narrowed in North America, Australia, Great Britain, Italy, and Sweden. While unemployment rates for both youth and adults have risen steadily, growth in the adult rate has far exceeded growth in the youth rate. In Japan, France, and Germany, the ratio has shown little change, as the growth rates of both adult and youth unemployment rates have been about equal.

In 1983, the youth-to-adult unemployment differential was, by far, widest in Italy where overall youth jobless rates were nearly eight times greater than the adult rate. The teenage-to-adult ratio was even higher—about 11. The young adult-to-adult ratio was, in contrast, about six. In Italy, as in the other European countries studied, legal restrictions and collective bargaining agreements make it very difficult to dismiss workers. Also, institutional arrangements encourage

the use of reduced hours for experienced members of the work force. As conditions improve, employers tend to increase hours rather than initiate hiring of new workers. Thus youth, who are frequently first-time jobseekers, find it very difficult to obtain jobs.

In 1983, the youth-to-adult unemployment ratio averaged 3.5 in Australia, France, and Sweden and 2 in North America, Japan, and Great Britain. The lowest ratio (1.6) was recorded in Germany where apprenticeship programs tend to shield youth from unemployment. In 1984, the youth-to-adult ratios were little changed, except in Sweden, where the ratio fell from 3.2 to 2.3 as the unemployment situation improved for young persons, but not for workers age 25 and over.

The teenage-to-adult unemployment ratio also narrowed steadily between 1980 and 1983 in all countries studied except Italy and Sweden. In Italy, the ratio widened sharply

between 1979 and 1982, but returned to its 1979 level in 1983. In Japan, the ratio peaked in 1981 and has since remained at about that level. In 1984, the U.S. teenage-to-adult ratio rose for the first time since 1981 as the adult jobless rate fell more rapidly than the teenage rate. In Sweden, the reverse occurred, with the ratio dropping 50 percent as jobless rates fell sharply among teenagers and stabilized among adults.

The young adult-to-adult ratio generally followed the same pattern as the teenage-to-adult ratio, with the differential slowly narrowing in the United States, Australia, Japan, Great Britain, and Italy from 1980 to 1984. In France and Germany, however, the ratio widened somewhat. The changes in the young adult-to-adult ratio were smaller than the changes in the teenage ratio. The differential was again highest in Italy and lowest in Germany where the ratios were 6 and 1.5, respectively. □

—FOOTNOTES—

¹For further information, see *International Comparisons of Unemployment*, Bulletin 1979 (Bureau of Labor Statistics, 1978), appendix B; and Supplement to Bulletin 1979 (Bureau of Labor Statistics, 1983), appendix B.

²For additional information, see *Youth Unemployment: An International Perspective*, Bulletin 2098 (Bureau of Labor Statistics, 1981); and Constance Sorrentino, "Youth unemployment: an international perspective," *Monthly Labor Review*, July 1981, pp. 3-15.

³National Institute of Economic Research, *The Swedish Economy, Autumn 1983* (Stockholm, Norstedts Tryckeri, 1983), p. 3.

⁴Organization for Economic Cooperation and Development, *Economic Survey of France* (Paris, OECD, July 1984), p. 27.

⁵Organization for Economic Cooperation and Development, *Economic Survey of the Netherlands* (Paris, OECD, February 1984), p. 12.

⁶Organization for Economic Cooperation and Development, *Employment Outlook* (Paris, OECD, September 1984), pp. 17-18.

⁷"Use of Part-timers Is an Increasingly Favorite Practice of Japanese Business Enterprises for Saving Cost of Labor," *Japan Economic Review*, Jan. 15, 1985, p. 9.

⁸For earlier data and discussion, see Constance Sorrentino, "International comparisons of labor force participation, 1960-81," *Monthly Labor Review*, February 1983, pp. 23-36.

⁹Paul O. Flaim "Discouraged workers: how strong are their links to the job market?" *Monthly Labor Review*, August 1984, pp. 8-11.

¹⁰For earlier data and discussion, see *Youth Unemployment*, Bulletin 2098; and Constance Sorrentino, "Youth unemployment."

¹¹The statistics have been adapted, insofar as possible, to the age at which compulsory schooling ends in each country. Therefore, the adjusted statistics relate to 16- to 19-year-olds in the United States, France, Great Britain, and Sweden; 15- to 19-year-olds in Canada, Australia, Japan, and Germany; and 14- to 19-year-olds in Italy.

Revised worklife tables reflect 1979–80 experience

New worklife estimates, based on an expanded sample of individuals, provide more complete measures of labor force behavior than were previously possible; the effects of race and educational attainment on lifetime economic activity are explored for the first time

SHIRLEY J. SMITH

It is estimated that if mortality conditions and labor force entry and exit rates held constant at levels observed in 1979 to 1980, males born during those years would work about a third longer (38.8 years) over their lifetimes than would their female counterparts (29.4 years). Whites would work considerably longer than blacks and others, with white women working more than 2 years longer and white men nearly 7 years longer than their minority counterparts. The impact of education would be seen not only in occupational choice, but also in the total length of time spent in the labor force. Although remaining in school might delay career entry, those who studied longest would also spend the most years being economically active.

The Bureau of Labor Statistics has been producing worklife estimates for the U.S. population since 1950. Initially, these estimates portrayed workers as being continuously active from the time of initial labor force entry until final retirement. In 1982, after completing a major study of worklife methodology, the BLS published its first set of increment-decrement, or multistate, working life tables for the years 1970 and 1977.¹ Based on observed rates of labor force entry and exit at all ages, those tables for the first time

quantified the impact of midlife labor force withdrawal and reentry on worklife duration. Their publication drew responses from many economists involved in litigation of wrongful injury or death cases. Several such responses have been published in the *Monthly Labor Review*,² and some of the refinements proposed by readers have since been implemented in BLS worklife research.³

This analysis incorporates some of those refinements, updates the 1982 study, and presents a new set of official worklife estimates based on patterns observed during the period 1979–80. It also adds two new dimensions to the discussion, for the first time exploring how race and educational background affect lifetime labor force behavior.

Method of the new study

As was the case with previous BLS worklife estimates, the new figures have been calculated from information collected in the Current Population Survey (CPS), a nationwide monthly household survey conducted by the Bureau of the Census on behalf of the BLS.⁴ Individuals are interviewed during each of 4 successive months, and again in the same 4 months of the following year. Questions focus on the labor force behavior of household members during the week preceding each interview.

For the period of study, CPS records have been matched so that each person's status at the beginning and end of a 12-month interval can be compared. Labor force transitions

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have been registered if labor force status changed between the two reference dates. Transition rates have been developed for each age, sex, race, and educational category to identify the group's unique pattern of labor force mobility.

The worklife tables for 1977 were derived from a single matched sample of about 40,000 persons, interviewed in January 1977 and again in January 1978. To provide the additional demographic detail presented below, the current study pools six matched samples focusing on individuals' labor force status in a given month of 1979 and in the same month of 1980. Specifically, the study focuses on persons interviewed in the following months of each of the 2 years: January, March, May, July, September, and November. Together the six samples include nearly 255,000 matched responses.⁵

The multistate working life table model is extremely sensitive to rapid changes in rates of labor force entry or withdrawal. Tables based on a recessionary period, during which labor force exits increase, present a very bleak picture of lifetime labor force involvement. Conversely, those calculated during periods of rapid recovery or expansion tend to overstate the average degree of lifetime labor force attachment. To avoid the problems caused by the cyclical swings of the early 1980's, the current study rests on data for a somewhat earlier but less turbulent period, 1979 to 1980.

The cost of avoiding cyclical irregularities in this way is that certain secular trends may be understated. To the extent that underlying patterns of male and female labor force involvement have converged since 1980, the sex differentials in this report may overstate those now in evidence. However, until it is possible to update the tables again, the 1979-80 period has been judged the most viable for calculation of multistate worklife estimates.

Factors affecting worklife duration

In the working life tables for 1970 and 1977, worklife duration was treated as if it were a simple function of sex and age. Tables were prepared separately for men and women, giving no additional demographic or functional detail by race, educational attainment, occupation, or other characteristics that might distinguish high from low turnover groups.

In reality, labor force attachments are influenced by a variety of factors, including training, health, marital and family responsibilities, economic opportunity, and additional sources of income. However, it is not feasible to control for all of these factors in computing worklife expectancy. For example, while worklife estimates by occupation are in particular demand, it would require development of a clustering scheme for occupations by prevailing work patterns, together with study of job changes among potentially hundreds of occupations, to compute them. The only other approach is to assume that no such changes occur.⁶ Because neither of these alternatives is practical, no such estimates are computed. Nonetheless, this study does add

two new dimensions to the estimation of worklife: race and education. Tables are presented separately for each of these two variables. However, the combined impact of race and education has not been computed because the present matched sample is too limited to develop reliable joint probabilities.

Working life tables show the combined effects of mortality and labor force mobility rates on lifetime labor force involvement. The mortality estimates used in this report are averages of the 1979 and 1980 values released by the National Center for Health Statistics.⁷ Tables by race incorporate the effects of sex- and race-specific mortality. Those focusing on education employ only sex-specific rates, because there are no comparable mortality tables by education. Of course, access to health care is apt to be correlated with schooling. If it were possible to quantify this relationship, the tables would probably show still wider discrepancies between the worklives of the less and more educated.

Apart from the factors listed above, all of which affect the behavior of workers, certain properties of the data may also influence our perception of that behavior. Model assumptions and sample design are two such factors. The BLS worklife model has changed little since 1977; it should cause no marked discontinuities.⁸ However, the expanded sample, in which subsets are observed at six different points during the year, captures more labor force mobility than was evident in the earlier tables. In particular, the new sample includes two groups of persons whose labor force behavior was observed, retrospectively, in May and July of each of the 2 years. This is the period during which students and seasonal workers are most likely to report themselves as economically active.

Neither worklife expectancies nor net flows appear to have changed greatly between 1977 and the end of the decade. But rates of labor force accession and separation rose noticeably. Because of modification of the sample, such differences should not be interpreted as an accurate reflection of "changes" in mobility rates.

Developments between 1977 and 1979-80

The general relationships observed in earlier worklife tables remained valid through the end of the 1970's. Women continued to have higher probabilities of labor force exit and reentry than men. Consequently, men continued to have longer worklives, on average, than women. (See table 1.) Not surprisingly, the worklife expectancy of persons in the labor force was higher than that of the inactive population. The gap was small for young persons, but widened considerably with age. Men who were in the labor force at age 50 could expect to work 6.3 years longer than other men at that age. The comparable figure for women was 4.6 years.

Between 1977 and 1980, the cross-sectional participation rates of men changed very little. (See table 2.) Those of older teenagers and men above the age of 55 dropped slightly. In contrast, the activity rates of women continued to climb. There was an overall gain of more than 3 percentage points,

Table 1. Worklife expectancy of the population, 1970 and 1977, and of all persons by labor force status in 1979-80, by sex and age

[In years]

Sex and age	Worklife expectancy of the population		Worklife expectancy by current labor force status, 1979-80		
	1970	1977	Total	Active	Inactive
Men					
0	37.8	37.9	38.8	—	38.8
16	38.7	38.5	39.1	39.8	38.4
20	37.3	36.8	36.8	37.4	35.4
25	34.4	33.4	33.1	33.5	30.5
30	30.6	29.2	28.9	29.2	24.5
35	26.1	24.7	24.5	24.8	19.0
40	21.7	20.3	20.0	20.4	14.0
45	17.4	15.9	15.7	16.3	9.6
50	13.4	11.7	11.6	12.3	6.0
55	9.5	7.8	7.8	8.7	3.3
60	6.0	4.3	4.4	5.7	1.9
65	3.1	1.9	2.3	4.1	1.3
70	1.4	.9	1.2	3.2	.7
75	.6	.5	.6	1.7	.4
Women					
0	22.3	27.5	29.4	—	29.4
16	22.5	27.7	29.3	30.1	28.7
20	21.3	26.0	27.2	27.9	26.0
25	19.0	23.0	24.0	24.8	22.4
30	16.7	19.9	20.8	21.7	19.0
35	14.6	16.8	17.6	18.6	15.6
40	12.3	13.7	14.3	15.5	11.9
45	9.9	10.5	11.1	12.5	8.2
50	7.5	7.5	8.0	9.8	5.2
55	5.2	4.8	5.2	7.2	2.8
60	3.1	2.5	3.0	5.0	1.6
65	1.4	1.1	1.5	3.8	.9
70	.5	.5	.8	3.0	.5
75	.1	.1	.3	1.3	.2

with the largest change occurring in the age range 25 to 54. This change in cross-sectional rates signaled shifts in the underlying patterns of labor force involvement. However, because the multistate model builds on flow data (that is, entry and exit rates) rather than stocks (activity rates), the relationship between changes in activity rates and worklife values is sometimes weak.⁹

During the period in question, the observed participation rate for men 16 and older edged downward from 77.7 percent to 77.4 percent, while their worklife expectancy rose by .6 years. Worklife expectancies held steady for men aged 55 to 64, despite a modest drop in activity rates. Further, despite the observed drop in participation rates of those 65 and older, worklife expectancies for these men actually rose slightly as life expectancy increased.

Among women 16 and older, whose total activity rate rose by 3.1 percentage points, worklife duration increased by 1.8 years. The fact that expectancies rose across the board indicates that women of all ages were developing a stronger bond with the job market.

The relationship between lifespans and worklife expectancies is particularly revealing. (See table 3.) Between 1977 and the end of the decade, the life expectancy of the average 20-year-old man rose by half a year. His worklife expectancy went unchanged, the entire gain being allocated to nonmarket activity. Women of the same age also gained a

half year of life, but allocated this additional time to labor force activity and reduced nonmarket time by an average of .7 years, for a total worklife gain of 1.2 years. As a result, the sex differential in worklife continued to narrow. Whereas in 1977 the 20-year-old woman could expect to work 70.7 percent as long as her male counterpart, by 1979-80 the ratio had risen to 73.9 percent.

The trend toward earlier retirement observed between 1970 and 1977 appeared to have leveled off in the closing years of the decade. The worklife expectancy of 65-year-old men, which had dropped from 3.1 years in 1970 to 1.9 in 1977, was 2.3 years by the end of the decade. (See table 4.) For women of a comparable age, the figure had dropped from 1.4 to 1.1 years, but stood at 1.5 years by 1979-80. The model's insensitivity to hours of work makes it difficult to interpret these changes. They may well reflect the impermanence of many retirement decisions, and the fact that so-called retirees often resume part-time jobs for either economic or social reasons.¹⁰

The new tables show little change in the proportion of persons expected to die while economically active. (See table 4.) In 1977, the figures for men and women were 27.0 percent and 9.5 percent, respectively, compared with 27.4 percent and 10.4 percent for 1979-80.

Differentials by race and education

Although expansion of the data base for the present study has obscured our view of changing labor force mobility rates, this loss has been more than offset by an improved perspective on racial and educational differentials. Data users have long pressed for more focused tables, and the new estimates should meet some of their more urgent needs.

Life table models derive their estimates of lifetime behavior not from panel studies but from a series of cross-sectional surveys collected during a single year. Each age

Table 2. Annual average civilian labor force participation rates by sex and age, 1977 and 1980

[In percent]

Sex and age	1977	1980	Change, 1977-80
Men, total			
16-17	77.7	77.4	-.3
18-19	50.3	50.1	-.2
20-24	72.5	71.3	-1.2
25-34	85.7	85.9	.2
35-44	95.4	95.2	-.2
45-54	95.7	95.5	-.2
55-64	91.2	91.2	—
65 and over	74.0	72.1	-1.9
	20.1	19.0	-.9
Women, total			
16-17	48.4	51.5	3.1
18-19	42.2	43.6	1.4
20-24	60.5	61.9	1.4
25-34	66.5	68.9	2.4
35-44	59.5	65.5	6.0
45-54	59.6	65.5	5.9
55-64	55.8	59.9	4.1
65 and over	41.0	41.3	.2
	8.1	8.1	—

group in the population being analyzed contributes a single year of life to the synthetic whole. It is possible to derive group-specific estimates only if the group is closed to entry and exit. If its members remain so classified for life, the experiences of older persons can be used to derive a synthetic "future" for the young.

In the new tables, the population is subdivided by sex, race, and educational attainment. While subject to misclassification, each of these traits is normally fixed during the adult years. Sex and race are particularly stable, and beyond the mid 20's, education—especially as classified here—is also relatively fixed. Only persons who already have some advanced training are likely to continue schooling, and attainment levels, once achieved, cannot be lost. Because these groupings are closed, they satisfy the constraints of the model. And because they relate closely to labor force behavior, they are substantively meaningful controls.

The specific categories of tabulation have been dictated by sample size and population distribution. The two racial categories displayed are white (88 percent of the sample) and blacks and others (12 percent). A separate set of tables details years of schooling completed, using the categories of less than high school (about 20 percent of the sample), high school graduate to 14 years (about 52 percent of the sample), and 15 years or more (about 28 percent). At older ages, the sample of highly educated persons is very thin, particularly for women. This has made the more conventional cutoff of a college degree impossible to implement.

Race. Because the two components of worklife estimates, mortality and labor force behavior, are known to vary by race, the estimates themselves must also do so if appropriately tabulated. The new tables based on 1979–80 data now allow us to quantify the lifetime relationship between race and labor force involvement. As might be expected, the impact is striking, particularly for men.

Consider first the probabilities of moving into and out of the labor force. Among all men ages 16 to 64 who are outside the job market, whites are more likely to enter than are their minority counterparts. (See table 5.) Among those already in the labor force, blacks and others are the more likely to withdraw. The pool of inactive minority members is thus disproportionately large and contributes to a high incidence of labor force mobility at all ages.

The result is that minority men are estimated to average 4.3 labor force entries and 3.9 withdrawals per lifetime, while white men average 3.9 entries and 3.6 withdrawals. (See table 4.) Based on the observations for the reference period, the worklife expectancy of blacks and others was nearly 7 years shorter than that of whites (32.9 years vs. 39.8 years). Minority men spent an average of just 50 percent of their lives in labor force activity, compared with 56 percent for whites. This difference was all the more striking because whites tended to live longer, allowing them greater potential for both a longer worklife and post-retirement leisure. Far more blacks and others were likely to die before retirement (31.7 percent as against 26.7 percent for whites).

Table 3. Changes in life and worklife expectancies by sex, selected years, and changes from 1977 to 1979–80

Worklife model, sex, and year	Life expectancy		Worklife expectancy			Inactive years (total population)		Percent of lifespan active		Ratio of female to male worklife expectancies at age 20
	At birth	At age 20	All persons		Workers	From birth	From age 20	From birth	From age 20	
			At birth	At age 20						
Men										
Conventional model:										
1900	46.3	42.2	32.1	37.8	39.4	14.2	4.4	69.3	89.6	(1)
1940	61.2	48.6	38.1	39.7	41.3	23.1	7.1	62.3	84.8	(1)
1950	65.5	48.9	41.5	41.4	43.1	24.0	7.5	63.4	84.7	(1)
1960	66.8	49.6	41.1	40.9	42.9	25.7	8.7	61.5	82.5	(1)
Increment-decrement model:										
1970	67.1	49.6	37.8	37.3	38.0	29.4	12.3	56.3	75.2	(1)
1977	69.3	51.3	37.9	36.8	37.3	31.5	14.5	54.7	71.7	(1)
1979–80	70.0	51.8	38.8	36.8	37.4	31.2	15.0	55.4	71.0	(1)
Change, 1977 to 1979–80 .....	.7	.5	.9	.0	.1	-.3	.5	.7	-.7	(1)
Women										
Conventional model:										
1900	48.3	43.8	6.3	(2)	(2)	42.0	(2)	13.0	13.7	(2)
1940	65.7	50.4	12.1	11.9	(2)	53.6	38.5	18.4	23.6	30.0
1950	71.0	53.7	15.1	14.5	(2)	55.9	39.2	21.3	27.0	35.0
1960	73.1	55.7	20.1	18.6	37.3	53.0	37.1	27.5	33.4	45.0
Increment-decrement model:										
1970	74.8	56.7	22.3	21.3	22.1	52.4	35.4	29.8	37.6	57.1
1977	77.1	58.6	27.5	26.0	26.7	49.7	32.6	35.7	44.4	70.7
1979–80	77.6	59.1	29.4	27.2	27.9	48.2	31.9	37.9	46.0	73.9
Change, 1977 to 1979–80 .....	.5	.5	1.9	1.2	1.2	-1.5	-.7	2.2	1.6	3.2

¹Not applicable.

²Data not available.

Table 5. Rates of labor force accession and separation per 1,000 persons at risk, by sex, race, and years of schooling completed, 1979-80

Age	Men						Women					
	Total	Race		Years of schooling completed			Total	Race		Years of schooling completed		
		White	Black and other	Less than high school	High school to 14 years	15 years or more		White	Black and other	Less than high school	High school to 14 years	15 years or more
	Labor force accessions per 1,000 inactive men						Labor force accessions per 1,000 inactive women					
16-19	596.1	620.1	525.8	506.0	—	—	527.5	564.1	409.3	425.4	—	—
20-24	666.4	672.6	649.0	511.2	719.2	685.2	454.8	457.5	462.1	320.1	457.4	568.7
25-29	681.4	693.1	646.8	477.2	721.9	783.3	341.8	334.1	397.6	268.3	342.7	422.0
30-34	547.1	558.1	520.6	330.1	568.3	802.2	292.3	289.3	320.0	229.8	303.3	319.3
35-39	407.1	444.3	306.9	271.9	403.0	757.2	271.3	274.7	248.0	185.0	287.3	330.2
40-44	297.8	327.9	208.7	235.1	285.6	539.1	221.7	226.3	189.1	149.0	237.2	287.3
45-49	217.7	218.5	213.2	172.8	233.2	350.6	164.1	163.9	165.1	136.2	170.4	199.8
50-54	168.8	175.0	138.8	123.3	213.3	260.9	122.7	120.4	141.7	102.4	127.4	155.3
55-59	120.9	129.0	75.1	93.4	142.8	174.5	81.1	79.0	100.3	67.8	85.8	99.6
60-64	88.6	92.0	62.9	81.4	93.7	103.8	56.4	55.0	68.7	48.4	64.0	55.4
65-69	75.3	75.1	76.4	68.5	78.7	95.6	41.8	40.9	50.1	37.7	47.9	38.5
70-74	52.0	51.8	54.5	51.9	50.2	54.0	33.3	33.9	27.1	29.7	38.9	36.2
75 and over	3.9	4.2	1.0	4.7	3.7	1.2	3.1	3.2	2.2	2.6	4.1	3.7
	Labor force separations per 1,000 active men						Labor force separations per 1,000 active women					
16-19	277.6	262.9	429.2	277.6	—	—	354.8	335.6	523.2	436.5	—	—
20-24	120.8	112.5	186.3	143.9	107.5	170.4	227.6	218.8	289.8	360.5	228.1	190.7
25-29	56.6	52.6	89.8	90.9	50.9	60.1	183.8	184.0	184.4	300.3	191.9	153.3
30-34	36.7	33.5	65.0	58.4	38.8	30.9	154.5	157.0	140.7	247.3	160.3	121.4
35-39	30.0	27.7	52.0	52.4	30.0	21.8	128.5	129.1	124.8	190.0	133.0	94.9
40-44	30.8	28.6	49.7	51.3	27.3	25.0	111.2	109.8	119.8	157.1	114.4	78.3
45-49	36.5	34.1	56.1	50.4	35.0	28.3	109.7	109.1	112.8	145.8	114.3	70.5
50-54	50.1	48.3	66.8	69.2	48.4	36.4	114.7	113.8	122.6	153.2	111.6	86.5
55-59	98.9	96.3	127.2	133.6	91.8	71.2	151.5	149.9	166.1	192.0	140.0	139.3
60-64	232.5	227.5	286.5	295.3	225.6	160.8	253.5	252.4	262.8	275.8	249.4	238.6
65-69	337.9	332.4	386.7	405.0	325.2	246.2	339.4	333.2	393.9	352.3	335.4	322.7
70-74	381.8	380.3	374.2	443.1	367.6	277.2	384.5	377.4	428.0	417.1	380.3	317.4
75 and over	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0

anticipate fewer transitions in either direction.

Over a lifetime, the average man with 15 years of schooling or more can expect to work 6.5 years longer than his classmate who left high school before graduation (41.1 vs. 34.6). The same increment to education will have twice as much impact on the worklife duration of a woman, adding an average of 12.6 years to her economically active life (34.9 vs. 22.3 years).

Table 6 isolates the impact of education during three periods of the worklife cycle: the early and middle phases and the preretirement years. It displays the number of years the average person can be expected to work during each such phase, by sex and years of schooling completed.

At younger ages, education has a two-pronged effect on men: While failure to earn a high school diploma costs the individual about a year and a half of worklife between the ages of 20 and 39, remaining in school also imposes a cost in terms of forgone employment opportunities. However, among the group ages 40 to 59, the payoff from education is very evident. Those completing 15 years of school or more can expect to work 1 year longer than high school graduates, and 3 years longer than those who did not graduate. Even though higher education, with its greater compensation returns, may ease the financial strain of retirement, it seems to engender a sense of "career commitment" in many men which holds them in the labor force. (This is

evident in the separation rates in table 5.) Examples of this phenomenon include self-employed career professionals such as attorneys and physicians, who are reputed to remain active long after most wage and salary workers have retired. An additional effect of schooling seems to be that—among those who have "retired," at least in terms of their principal job—the most educated are the most likely to return to work in some capacity, as reflected in accession rates. Finally, if educational attainment is positively correlated with good health and longevity, untreated health problems may discourage economic activity among the least educated, least

Table 6. Worklife expectancy of the population between specific ages,¹ by sex and years of schooling completed, 1979-80

Sex and years of schooling completed	Age		
	20 to 39	40 to 59	60 and over
Men, total	17.6	16.3	4.4
Less than high school	16.0	14.5	3.4
High school to 14 years	17.9	16.6	4.7
15 years or more	17.6	17.5	6.3
Women, total	13.1	11.6	3.0
Less than high school	9.5	8.8	2.3
High school to 14 years	13.1	11.8	3.4
15 years or more	14.0	14.7	3.5

¹Computed using the difference in workyears remaining at ages 20, 40, and 60, divided by survivors to each initial age.

affluent groups, further widening the worklife gap associated with schooling. Thus, in the final phase of the work cycle, the most educated group remain active 1.6 years longer than high school graduates and 3 years longer than those who never finished high school.

The work patterns of women vary more widely than those of men. Consequently, education has a stronger potential impact on female worklife behavior than on that of males. The new tables show this effect to be the greatest during the prime working ages. Between the ages of 20 and 39, women face fundamental tradeoffs among schooling, child-rearing, and employment. The opportunity costs of child-rearing increase with job skills. During this phase of life, the woman with 15 years of schooling or more is likely to work nearly a year longer than the high school graduate, and 4.5 years longer than her classmate who left high school early. The differential remains, and in fact widens, throughout midlife. During the next 20 years of her life cycle, the highly educated woman is likely to work 2.9 years longer than the high school graduate, and 5.9 years longer than the nongraduate. The tables suggest that the relationship between education and retirement patterns is looser for women than for men. As with men, the most educated show the least inclination to retire early. (See table 5.) However, once they have done so, these women are less likely than men with comparable training to reverse their decision. (As evidence, compare accession rates of the most educated men and women in table 5.)

Conclusions

This latest worklife study, based on a larger sample of individuals than had been used previously, has enabled us

to examine two new dimensions of worklife behavior. It has also provided more complete measures of movement into and out of the labor force than were previously possible.

During the period between 1977 and 1979–80, the worklife expectancy of adult men held relatively steady, while that of women continued to edge upward. For both sexes, there were indications that many retirement decisions were being reversed. However, because the model does not measure hours of labor force involvement, the workyears remaining to older persons may in fact be less “intense” now than they were at the beginning of the decade.

Race seems to have more bearing on the worklife patterns of men than of women. The tables confirmed that minority men are both more likely to leave the labor force and less likely to reenter than are whites. The racial differential for women affects timing of movement more than it does overall volume.

The more important factor affecting worklife patterns of women is educational attainment. Using the categories displayed here, we find that women appear to reap twice as much “payoff” from additional schooling as do men. Their additional training appears to drive up the opportunity costs of alternative activities, encouraging longer and more continuous careers for those who have pursued higher education.

Opportunity costs also appear to play an important role in the retirement process. For both sexes, higher education is associated with later retirement. Among the men who do retire, the most educated are most prone to reenter the work force. The swifter, more permanent retirement pattern of persons without high school diplomas may be due, in part, to health differentials by educational attainment, mentioned but not fully controlled for in this study. □

FOOTNOTES

¹ See Shirley J. Smith, “New worklife estimates reflect changing profile of labor force,” *Monthly Labor Review*, March 1982, pp. 15–20; Shirley J. Smith, *Tables of Working Life: The Increment–Decrement Model*, Bulletin 2135 (Bureau of Labor Statistics, 1982); and Shirley J. Smith, *New Worklife Estimates*, Bulletin 2157 (Bureau of Labor Statistics, 1982).

² See David M. Nelson, “The use of worklife tables in estimates of lost earning capacity,” *Monthly Labor Review*, April 1983, pp. 30–31; John L. Finch, “Worklife estimates should be consistent with known labor force participation,” *Monthly Labor Review*, June 1982, pp. 34–36; Kenneth J. Boudreaux, “A further adjustment needed to estimate lost earning capacity,” *Monthly Labor Review*, October 1983, pp. 30–31; and George C. Alter and William E. Becker, “Estimating lost future earnings using the new worklife tables,” *Monthly Labor Review*, February 1985, pp. 39–42.

³ We now estimate David Nelson’s index of median years to final retirement. Following a suggestion by George Alter and William Becker, we also make assumptions of retirement beyond age 75 explicit. It is assumed that no one enters the labor force after age 75, and that anyone active at exact age 76 either leaves the work force or dies before their 77th birthday.

⁴ The sample for 1979 included 56,000 potential households. It was

temporarily expanded to 65,000 households in 1980, and now contains a potential of 60,000 units.

⁵ Because many respondents appear in more than one of these monthly matches, the number of individuals included in the pooled sample is considerably less than 255,000.

⁶ The multistate model is equipped to deal with a variety of different “transitions” simultaneously. It could incorporate data on moves between occupations, if those data were reliable. However, interoccupational mobility has proven difficult to measure accurately, and the number of categories involved would hopelessly fragment the sample. We hope eventually to develop a few occupational clusters, characterized by unique behavioral patterns. Only in this way can the model realistically control for occupation.

⁷ National Center for Health Statistics, *Vital Statistics of the United States, 1979*, vol. II, section 6, “Life Tables,” DHHS Publication No. (PHS)84–1101 (U.S. Government Printing Office, 1984); National Center for Health Statistics, *Vital Statistics of the United States, 1980*, vol. II, section 6, “Life Tables,” DHHS Publication No. (PHS)84–1104 (U.S. Government Printing Office, 1984); and unpublished tables from the National Center for Health Statistics, Public Health Service.

⁸ The internal calculations of the model now begin at age 13, when by definition all persons are outside the labor force. Entries and exits at 14 and 15 are recorded to yield a more complete count of the labor force at

exact age 16. This increased precision has had a minor impact on estimates of worklife values at birth and in the early teens, but the effect is imperceptible at later ages.

⁹Shirley J. Smith, "Labor force participation rates are not the relevant factor," *Monthly Labor Review*, June 1983, pp. 36–38.

¹⁰Although it would be useful to examine changes in the labor force entry and exit rates of older persons to learn more about the retirement process, the expanded sample has rendered such comparisons impossible.

It captures far more gross movement than was evident in earlier tables. For all men, the 1977 study indicated an average of 3.0 labor force entries per lifetime; the 1979–80 tables set this average at 3.9. The earlier tables indicated an average of 2.7 voluntary withdrawals, while this set shows a figure of 3.6. The picture for women is quite similar. Lifetime entries were estimated at 4.5 in 1977. With the more sensitive modified sample, the estimate for 1979–80 was 5.5. Voluntary withdrawals were estimated at 4.4 per lifetime in 1977, 5.4 at the end of the decade.

Problems and prospects

The rate of unionization—union membership as a percentage of the wage and salary work force—has generally fared less favorably in the United States during a large part of the post-1945 period, and especially in the last 10 or 12 years, than in most other democratic, industrialized nations. For some nine countries for which reliable union membership data are available, only in the United States and Japan was membership as a percentage of all wage earners significantly lower by 1979 than it had been in 1948. . . . In the case of Japan, the high point of union membership reached briefly right after World War II seems to have been something of a historical exception.

In passing it should be noted that in absolute numbers, U.S. union membership—22.8 million in 1979—is far higher than any of these other nations. This comparatively high absolute membership provides considerable resources to U.S. unions and helps account for their very important role in international labor circles. Even continued membership stagnation would not change the strength of the international position of the U.S. union movement in the years ahead. If international labor relations take on added importance in the coming decade, as, for example, in new union efforts to cope with multinational corporations, the relatively large size of a number of American unions could make them a powerful force in such efforts.

—EVERETT M. KASSALOW,

"The Future of American Unionism: A Comparative Perspective,"
The Annals of the American Academy of Political and Social Science,
May 1984, p. 56–57.

The FMCS contribution to nonlabor dispute resolution

During the 1961–80 period, the Federal Mediation and Conciliation Service shared its expertise with parties outside the labor-relations arena; results demonstrate the promise of mediation for the speedy, low-cost resolution of many different types of economic and social conflicts

JEROME T. BARRETT

Four formal procedures—litigation, arbitration, negotiation, and mediation—are commonly used for the legitimate resolution of disputes between individuals or groups. In litigation and arbitration, a third party is empowered to decide the issue in question. Negotiation has the advantage of allowing the parties to participate fully in developing a solution with which each can live. Mediation blends the advantages of the other three methods, employing an objective third party, but leaving the decision on the outcome to those who must abide by it.

Since its establishment in 1947, the U.S. Federal Mediation and Conciliation Service (FMCS), the oldest and largest mediation agency in the world,¹ has acquired considerable expertise through the resolution of labor-management disputes. During the past two decades, the Service increasingly shared its skills by helping to resolve disputes outside the private-sector industrial relations arena. This article reviews the recent contributions of the Service to problem resolution in nontraditional areas. The discussion is based on FMCS documents, interviews with mediators and recipients of Service assistance, and the author's own experience as former head of the staff involved in the expanded scope.

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Testing new waters

Prior to the appointment of William Simkin as director of the FMCS in 1961, the Service had not worked beyond its legislative mandate in private-sector labor-management relations. The emergence of public employee unionism in the 1960's changed this.

Although the Service lacked legislative authority to handle disputes between public employees and their employers, no other organization was available in most instances to provide assistance. In response to public pressure and the urgent requests of the parties, the Service began providing mediation on a case-by-case basis. Because many of these public employee disputes in large cities were civil rights disputes as well, the Service was drawn further afield from its usual work into new and unfamiliar areas.

J. Curtus Counts, who followed Simkin as FMCS director in 1969, continued the policy of *ad hoc* mediation of public employee disputes, but otherwise made no changes in the mission of the Service. However, the appointment of William Usery to the post in July 1973 ushered in what was to be a major growth period for the agency. By strongly urging an expanded role for the Service, Usery persuaded the Administration and the Congress to increase his staff and budget accordingly.

In 1973, Usery's plans for the Service led him to create the Office of Technical Services within the agency's national

office. This office was to coordinate and promote technical assistance cases, conduct an improved professional development program for the mediators, provide a technical information and research function to assist the field mediator, and experiment with new uses of mediation. During the 4 years of its existence, the office was the focal point of an increasing amount of non-labor-relations work within the Service.

In early 1974, Usery convened a 3-day meeting of all Service managers to discuss the agency's role. The major result was the adoption of a five-part mission statement. While four parts specifically referred to labor-management relations, the fifth envisioned an expanded role in "[d]eveloping the art, science and practice of dispute resolution." This mission statement remains in effect today.

During the oil crisis in 1974, Director Usery personally became involved in some non-labor-relations disputes between independent truckers and oil companies, and between independent gas station operators and the oil companies. In the same year, the Service undertook what is probably the most noteworthy example of nontraditional mediation, the settlement of a longstanding dispute between two Indian tribes.

The Hopi-Navajo dispute. Geographically the largest Indian reservation in the United States, covering 2½ million acres in northeastern Arizona, the Hopi-Navajo reservation had been created by executive order in 1882. There followed years of disagreement over land use by the two tribes, during which many traditional dispute-resolving procedures were used with only partial and temporary success. In 1974, Congress enacted a statute directing the FMCS to try to mediate the dispute.

Accordingly, the Service hired former Director Simkin as principal mediator for the project. Congress appropriated \$500,000 to finance the mediation, and \$50 million was made available to other Federal agencies to help implement the settlement by relocating fences, villages, families, burial grounds, and monuments. If settlement were not fully achieved within 6 months, the mediator was to make a report with recommendations to the Federal District Court.

After months of work by the mediation team, supported with information from other government agencies, agreement was reached in principle on most issues. The mediators' report and recommendations to the Federal Court were adopted and enforced by the terms of a March 1977 ruling. However, because many questions remained on the implementation, the court and the tribes requested that the mediation effort continue. For the next year, Simkin continued to help the parties on an as-needed basis.

The success of this mediation effort was praised by the court, the tribes, the Bureau of Indian Affairs of the Department of the Interior, and the media. The length of the dispute, the sacred nature of some issues, the uniqueness of the Indian culture and habits, and the failure of the nu-

merous prior efforts to settle the problem all had contributed to the difficulty of the mediation project. But unlike the earlier efforts—treaties, litigation, court orders, executive orders, and acts of Congress which produced answers to narrow questions—mediation allowed the parties to deal with their needs and desires, and in that way to develop solutions with which they both could live.

The Home Owners' Warranty program. Another extensive project begun during the Usery directorship involved the Home Owners' Warranty (HOW) program of the National Association of Home Builders. The HOW program was started in 1973 as a method of formally resolving disputes that arise between home builders and home buyers. The program, provided under a warranty, used mediation and arbitration to resolve differences. Before HOW was created, the National Association of Home Builders came to the FMCS for advice and assistance.

The Service provided numerous suggestions on how the program might work, and extensive help in preparing and conducting more than 20 training sessions for HOW staff throughout the country during 1973 and 1974. Once the program was operating, technical advice was offered to HOW conciliators who encountered mediation problems. And in 1976, when the Federal Trade Commission issued rules on warranties and guaranties under the newly passed Magnuson-Moss Bill, the Service assisted HOW in getting approval from the commission for the program to operate as an experiment under the new rules. Without this approval, HOW mediators trained by the FMCS would have become ineligible to participate in dispute resolution.

The Oglala Sioux election. Former Deputy Director James Scarce became Director of the FMCS in the spring of 1976. As Deputy, Scarce had acted as the liaison with the Bureau of Indian Affairs and other Federal agencies during the Hopi-Navajo mediation effort. As a result of these contacts, the Oglala Sioux Tribe of Pine Ridge Reservation in South Dakota contacted Scarce in 1975 to discuss its need for a neutral organization to oversee a tribal election. (The previous election had been hotly contested and the results controversial.) After considerable discussion—and an urgent request from the Bureau of Indian Affairs—the Service agreed to help.

The Pine Ridge reservation, geographically the second largest in the country, was home to 12,000 tribal members and 3,500 non-Indians. Twenty-one polling places were needed to cover its 2 million acres. The Service was to oversee the election conducted by the tribal election board by developing the election rules and procedures, training the election judges and observers, and providing a trained election adviser at each polling place during the primary and general elections. These advisers were FMCS mediators and retirees from the Department of Labor and the National

Labor Relations Board who were selected by and who worked under the direction of the Service.

Both elections were held without major problems during January 1976.²

Federal agencies. A number of Federal agencies also requested help from the Service during the tenure of Usery and Searce. A few examples will illustrate both the types of requests and the Service's responses.

- *Community Relations Service (CRS).* The CRS is a branch of the U.S. Department of Justice charged with mediating civil rights disputes. During 1973–79, FMCS helped develop position descriptions for its mediators, conducted a number of training sessions for the mediators, developed an internship program, and arranged for liaison between field mediators of the two agencies in cases involving both civil rights and labor relations.
- *Federal Bureau of Investigation (FBI).* The FBI training facility in Quantico, VA, conducts training for State and local police officers. At the Bureau's request, the FMCS in 1975 critiqued training sessions and instructional materials intended to aid officers in dealing with domestic disputes and hostage taking. The Service also helped develop suggestions for nonviolent response to these explosive situations.
- *Department of Commerce.* Between 1976 and 1980, the Service helped the Science and Technology Division of the Commerce Department develop a system to resolve disputes over voluntary standards for manufactured products.
- *Law Enforcement Assistance Administration and Equal Employment Opportunity Commission.* The Service provided mediation training to the staff of both agencies.

The Washington Lab. During much of the 1973–77 period, the Service's Office of Technical Assistance responded to the many opportunities in the Washington, D.C., area to provide assistance in resolving nonlabor disputes. This was a mutually beneficial arrangement—the parties were guided toward long-term solutions for their problems, and the Service got the opportunity to experiment and apply its skills in new areas. The range of Service activities included: 1) mediating a racial dispute within the District of Columbia fire department; 2) setting up a procedure for settling disputes between landlords and tenants in the District, and mediating several cases to help get the system working; 3) mediating a racial dispute between custodians and teachers in the Arlington County, VA, schools; 4) working behind the scenes with the Environmental Protection Agency, the Steelworkers union, and an interested citizen group on a proposed District of Columbia City Council ordinance banning the sale of beverages in cans; and 5) training the staff of the Montgomery County, MD, Consumer Complaint Office in negotiation and mediation skills.

The later years

Wayne Horvitz, who became Director of the FMCS in April 1977, was acquainted with nontraditional mediation, having spent 2 years as a consultant to the National Center for Dispute Settlement during the late 1960's. During his tenure, the first continuing use of FMCS mediators in non-labor-management cases began with age discrimination disputes. Under the Age Discrimination Act of 1975, discrimination on the basis of age is prohibited in programs and activities that receive Federal funds. Responsibility for enforcing the Act was assigned to the Secretary of Health, Education, and Welfare (HEW). Following months of discussion and planning, the FMCS and HEW developed a system for handling these cases that featured mediation. The uniqueness of this system was emphasized by HEW Secretary Califano in a 1978 speech on aging:

We propose, for the first time in the history of civil rights enforcement, to enlist the Federal Mediation and Conciliation Service to review claims of discrimination and resolve them, within no more than 60 to 90 days. No other civil rights program in our government employs such a process of third party mediation. But perhaps, in time, every one of our civil rights programs should feature such a mediation process.³

FMCS used the introduction of this program to test a modified "assessment center" concept for recruiting, selection, and training.⁴ An evaluation phase was conducted using an innovative case handling system: In one-half of the Service's regional offices, the cases were mediated by specially trained FMCS mediators who also continued to handle their normal labor-management caseloads. In the other regions, individuals from outside the agency were selected to mediate on an as-needed basis. These persons, called community conciliators, were recruited and trained through various community-based mediation centers.⁵

During the first 18 months of the program, the Service handled a total of 94 age discrimination cases, with 55 percent requiring no further action after mediation.⁶

Helping other Federal agencies. The Horvitz directorship was characterized by an increase in the amount of non-labor-management work done by the Service for other Federal agencies. One such effort involved the Office of Environmental Planning of the Federal Highway Administration (FHA), which contacted FMCS in the spring of 1979 to discuss its need for training in negotiation skills. The employees of FHA and their State counterparts were involved in the condemnation of property and the exercise of eminent domain in the construction of highways, activities which often give rise to conflict. After discussions over several months, an agreement was reached between the two agencies providing for the detailing of two mediators to learn more about environmental disputes and the work of the FHA, and several week-long training programs by FMCS covering a variety of dispute-resolving methods such as negotiating, prioritizing, consensus building, and problem solving.⁷

The Service also received requests for training assistance from a number of other agencies which had concluded that their programs would be helped by having a staff more skilled in conflict resolution. Among these agencies were the Veterans' Reemployment Office of the Department of Labor, the Office of Civil Rights of the Department of Health and Human Services, and the Department of Housing and Urban Development. Some agencies simply sought advice on how to systematically deal with conflicts. Although staff time limited the number of requests which FMCS could satisfy, such help was given to the Division of Standards and Regulations of the Environmental Protection Agency, the Environmental Office of the Department of Energy, and the Council on Environmental Quality within the Executive Office of the President.

Non-Federal work. Although the emphasis during the Horvitz directorship was on helping Federal agencies, some assistance was given to other organizations. A few of these cases, discussed below, will demonstrate the nature of these Service efforts.

In 1979, FMCS and the Home Owners Warranty (HOW) program staff cooperated to create the National Academy of Conciliators to assume responsibility for administering the HOW program and to provide other dispute settlement services. Over the next 2 years, the Service gave extensive assistance to the Academy in developing its staff. Since its establishment, the Academy has served more than 30 clients in dispute settlement work, and continues to increase its role and impact in new areas of dispute settlement.

In 1978-79, the Service provided assistance to the Family Mediation Association, a nationwide organization of lawyers, psychologists, marriage counselors, social workers, and clergy. Since its establishment, the Association had typically employed a very formal and structured form of mediation in its sensitive and important work. At the request of some Association members, FMCS undertook a cooperative training and consultation program, which ultimately resulted in some modification of the formal mediation techniques.

In a 1980 case, the Attorney General of Alaska requested FMCS assistance in developing a dispute settlement system for land use problems. A new State law required local governments to clear their land use plans with the Alaska Coastal Management Council. The Council wanted to adopt a dispute settlement system that could resolve conflicts among local planners, natives, and land resource developers. A State Assistant Attorney General met with FMCS in Washington, D.C., to discuss a system that would include Service participation. A mediator then traveled to Alaska to meet with the Council and to discuss the system and the FMCS role in it. The Council adopted the system, which designated FMCS to select and assign mediators as disputes arose.

In a final example, the FMCS was asked to serve in an advisory capacity on a project funded by the Department of Education and administered by the National Association of

Social Workers. The intent of the project was to apply mediation techniques to conflicts arising from a law requiring the educational mainstreaming of handicapped children within public school systems. During 1979-80, the Service provided advice and suggestions to, and shared instructional materials and training strategies with, the director of the mainstreaming program.

Mediators carry on the tradition

Because of budget cuts in 1981 and 1982, all Service involvement with nonlabor work was stopped, except for a small program dealing with age discrimination mediation. However, interviews conducted by the author with FMCS field mediators during 1983 revealed that many of them continue to initiate their own work in the nonlabor field, motivated by personal interest, opportunity, community involvement, feelings of professional responsibility, or intellectual curiosity. The range of activities reported by these mediators includes providing general or specific information about mediation; providing training; helping to develop dispute settlement systems; and the actual mediation of cases. Examples of recent projects undertaken by interviewees provide evidence of the value of mediation to such diverse entities as governments, communities, universities, minority groups, troubled families, and even to the Nation's judicial system. It is noteworthy that most of the mediators who reported taking on nonlabor cases enjoyed the work and intend to continue their involvement in some capacity.

CERTAINLY, the use of nontraditional mediation has increased greatly during the past 10 years. Given the experience of FMCS in mediation, and its demonstrated willingness to share that expertise, there is no doubt that the Service contributed immeasurably to the evolution and spread of this highly effective, low-cost means of conflict resolution. □

FOOTNOTES

ACKNOWLEDGMENT: Funds for this study were provided by the National Institute for Dispute Resolution, Washington, D.C.

¹Through its predecessor organization, the U.S. Conciliation Service, the FMCS can trace its history to the creation of the U.S. Department of Labor in 1913.

²Federal Mediation and Conciliation Service, "Report on the 1976 Primary and General Election of the Oglala Sioux Tribe, Pine Ridge Indian Reservation, South Dakota," February 1976.

³Joseph A. Califano, "Remarks to the National Journal Conference on the Economics of Aging," Nov. 30, 1978, Washington, D.C.

⁴Jerome T. Barrett and Lucretia Dewey Tanner, "The FMCS Role in Age Discrimination Complaints: New Uses of Mediation," *Labor Law Journal*, November 1981, pp. 749-50, describes more fully the assessment center concept, which relies heavily on training through case studies and role playing exercises.

⁵Because of budget cuts in 1981-82, the community conciliators were fired. Age discrimination mediation is now performed exclusively by FMCS mediators.

⁶See Barrett and Tanner, "The FMCS Role," pp. 745-54.

⁷Jerome T. Barrett, "Skilled Are the Peacemakers," *Northeast Training News*, June 1980, p. 19.

Technical Note



Modeling Army enlistment supply for the All-Volunteer Force

DAVID K. HORNE

The success of the All-Volunteer Force depends upon the ability of the U.S. military to meet its manpower requirements. The Army alone intends to maintain a total active duty force of 780,000.¹ This target requires approximately 140,000 new accessions each year. Army recruiting has exceeded overall enlistment goals since 1979, but this trend may soon be reversed in wake of the recent economic expansion. The rising demand for labor is reducing youth unemployment and increasing wages, inducing more youths to enter the civilian labor market. In addition, the population aged 17 to 21 is predicted to fall 6.4 percent between 1985 and 1990.² The pool of potential recruits is limited even further by higher enlistment standards mandated by Congress in 1983.

The greatest recruiting challenge facing the Army is to attract a sufficient number of "high-quality males," particularly those who are high school graduates and score above the 50th percentile on the Armed Forces Qualifying Test (category 1-3A), hereafter referred to as graduate-senior males (GSM 1-3A). Evidence suggests that the number of accessions by such individuals is supply constrained, with total manpower goals being met by accepting lower category or nongraduate males, or women, as needed. The first sign of recruiting difficulty, then, may not be a fall in the total number of accessions, but rather a decrease in the percent of accessions among the GSM 1-3A group. Although such a decline may not have a significant immediate effect on total accessions, the emphasis on maintaining the quality of the force requires that the Army be able to compete successfully for "high quality" males.

This report models the peacetime supply of graduate-senior (1-3A) males with no prior military service, with particular interest in the effects of both unemployment and earnings on the Army enlistment rate. The model is then used to generate short-run forecasts. These projections are

useful to manpower planners, not only for developing recruitment policies but also for allocating current accessions to military occupational specialties.

Analytical framework

In a simple one-period model, an individual chooses to enlist if the military wage at least equals his or her reservation wage.³ This reservation wage is a function of the alternative earnings in the civilian sector, the probability of receiving a wage offer in that sector, and the net utility of the nonpecuniary factors such as military lifestyle, travel, loss of personal freedom, and risk. It is clear that both earnings and unemployment rates in the civilian economy should influence enlistment rates.⁴ However, much of the recent research, particularly that research using time-series or pooled cross-sectional data, finds no such effects. These and other anomalous results may be due to model misspecification.

When an individual decides to join the Army, he or she signs a contract. The contract may specify immediate entry, or a delay for up to 12 months. Because the enlistment decision is made at the time of contract, total contracts are the appropriate quantity to use as the dependent variable. Accessions at any time are a combination of past and present contracts, and reflect the loss of those individuals who may not actually enlist despite the contract. Some studies have used accessions rather than contracts as the dependent variable, producing ambiguous results.⁵

The recruiting success in the 1981-84 period has been widely attributed to high youth unemployment rates. Yet the relationship between enlistment and unemployment has been difficult to identify empirically. Many studies have found no unemployment effect,⁶ or have reported unemployment significant with lags of 1 and 3, but not 2, months.⁷ Previous studies use a wide range of unemployment rate measures, such as aggregate unemployment or the jobless rate for 16- to 19-year-old males. Because most male recruits are from 17 to 21 years old, the readily available unemployment rate for males ages 16 to 21 is intuitively a logical choice. This rate also generates the best fit in the regression equations.

Compensation is now a significant inducement for enlistment, particularly for individuals desiring to save for further schooling. Soldiers currently receive \$573.60 per

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month in basic pay at entry, rising to \$620.40 after advanced individual training (or 4 months). In addition, the Services provide food and housing (or subsistence allowance), a clothing allowance, medical care, social security contributions, retirement benefits after 20 years' service, commissary and exchange benefits, and tax exemption for all allowances. Soldiers may qualify for "special" and incentive pay, and supplemental benefits and allowances. Educational bonuses are also quite substantial. With educational contributions and other related bonuses, a soldier may obtain up to \$24,000 in educational benefits for a 4-year tour, and somewhat less for shorter tours. Therefore, the actual compensation package may be quite attractive, particularly for youths just out of high school with little or no work experience.

Not all recruits receive incentive and supplemental pay, nor do all recruits who qualify for enlistment bonuses elect to participate in the program. For simplicity, military compensation is estimated in this analysis as the sum of basic pay, allowances for quarters and subsistence, and the tax advantage derived from the nontaxable status of the allowances. Over time, this series is highly correlated with total compensation. However, the level of military compensation is probably not as important alone as it is relative to civilian earnings. In a one-period model, the opportunity costs might be considered to be youth earnings, although using this series introduces substantial error into the analysis.⁸ When military service affects future earnings or when the individual is comparing enlistment with schooling, the rationale for comparing military with civilian youth compensation is less clear. In this analysis, military pay was compared to earnings estimates for production or nonsupervisory workers on private nonagricultural payrolls obtained from the Bureau of Labor Statistics. This series can be interpreted as an average measure of earnings for jobs which are similar in nature to many Army jobs for the enlisted force.

Compensation enters this model with a slightly different twist. Previous analyses simply included a compensation ratio, usually the ratio of military to civilian pay, as an independent variable. Yet the two series are not comparable. The BLS earnings series are essentially moving averages because wages are continually changing throughout the economy over time. Military compensation, however, usually increases just once each year. Therefore, the ratio of military to civilian compensation rises once each year, and then falls for 11 months. Simple econometric models which include the pay ratio yield anomalous results, and the size as well as the sign of the pay effect varies as alternative lags are chosen.⁹ In this analysis, military pay is first converted to a moving average, and is then compared to civilian earnings. It appears that the real wage *difference* has a larger impact in the model than the wage *ratio*. Thus, the pay variable of choice is the real difference of the two earnings series expressed as moving averages.

The Army devotes considerable resources to recruiting. In fiscal 1984, the Army spent close to \$235 million on recruiting and examining activities alone.¹⁰ Two recruiting factors are easily measured and are statistically significant: (a) the number of recruiters, and (b) the real advertising expenditures on national media.

Finally, the male population ages 16 to 21 is included in the model, albeit indirectly. The dependent variable is number of contracts divided by male population, and recruiters are also expressed as recruiters per eligible male, or recruiter density. The enlistment (contract) forecasts are adjusted by population projections to produce the level of expected contracts.

The model to be estimated takes the form:

$$S/POP = F(\text{Pay}, U, \text{Recruit}/POP, \text{Adver})$$

where:

- S = the supply of graduate-senior (1-3A) males;
- POP = population of eligible males;
- Pay = real military compensation relative to civilian earnings;
- Recruit = number of recruiters;
- U = the unemployment rate for 16- to 21-year-olds; and
- Adver = Army advertising expenditures.

Results

Because the model initially exhibited a significant amount of serial correlation, the generalized least squares (GLS) technique was used.¹¹ Various two-stage GLS specifications of the enlistment model have been estimated using quarterly data covering second-quarter 1977 through second-quarter 1984 and are provided in table 1. The results demonstrate that both the earnings and unemployment variables exert a sizable and statistically significant effect on Army enlistments. In addition, the number of recruiters and national advertising expenditures are also important. The current unemployment rate, although possessing the right sign, is not statistically significant. This is not surprising because individuals would not be expected to respond immediately to an increase in unemployment, wishing to test the civilian job market first before enlisting in the military.

Equation 4 substitutes a pay *ratio* for the pay *difference* used in the other equations. While the ratio term is significant, the higher mean squared error demonstrates an inferior fit. This result is particularly interesting because most other studies use such a ratio as the pay variable. Equations 5 and 6 exhibit two of the Almon polynomial lags fit to the unemployment variable.¹² Neither quadratic distributed lag fits the data very well. The final regression includes only those variables which appear to be significant. Unemployment lagged two quarters is significant at the .10 level; all other variables meet the .05 significance test. The coefficients are quite stable across various specifications.

Table 1. Results of generalized least squares regressions of the determinants of military accessions, second-quarter 1977–second-quarter 1984

Equation	Intercept	Variable							Autoregressive parameter (p)	R ²	Mean squared error
		Unemployment rate			Civilian-military pay difference	Recruiter-to-population ratio	National advertising				
		Current	Lagged one period	Lagged two periods			Current	Lagged one period			
1	-48.4 (0.7)	—	3.11 (2.9)	2.18 (2.0)	-0.023 (3.0)	2.92 (2.8)	0.51 (2.8)	—	.70	.90	24.4
2	—	0.23 (0.23)	2.57 (2.70)	2.24 (2.23)	-0.028 (7.1)	2.09 (2.9)	0.52 (3.3)	0.24 (0.9)	.76	—	20.7
3	—	—	2.66 (3.2)	2.26 (2.3)	-0.028 (7.4)	2.15 (3.5)	0.52 (3.4)	0.23 (0.9)	.79	—	19.5
4	-4.18 (5.3)	—	3.65 (3.2)	2.01 (1.7)	¹ 316.11 (2.5)	3.98 (4.0)	0.58 (2.9)	—	.61	.92	29.0
5 ²	—	0.23 (0.2)	2.62 (2.3)	1.99 (1.8)	-.028 (7.6)	2.30 (2.9)	0.47 (2.5)	—	.67	—	26.9
6 ²	—	0.30 (0.3)	2.50 (3.6)	³ 2.28/.35 (3.3/0.3)	-0.028 (7.5)	2.36 (2.8)	0.48 (2.6)	—	.67	—	26.8
7	—	—	2.73 (2.8)	² 2.03 (1.9)	-0.028 (7.9)	2.33 (3.5)	0.47 (2.7)	—	.71	—	24.8

¹Pay ratio.

²Quadratic Almon distributed lag equation.

³Coefficients and statistics for second and third lags.

⁴Significant at .10 level.

NOTE: t statistics in parentheses.

End-point elasticities have been calculated for each of the significant variables from equation 7. Unemployment, with an elasticity of .73 (for both lags combined), has a large impact on the level of contracts. For example, it is estimated that the fall from 17 percent to 16 percent in the unemployment rate for 16- to 21-year-old males would result in a decline of almost 600 GSM 1-3A contracts per quarter. The impact of changes in the unemployment rate is felt after a lag of one to two quarters.

The effect of military compensation is also significant. The pay elasticity based on equation 7 is 2.7, which implies that a military pay increase of approximately \$115 will result in an increase of 390 GSM 1-3A contracts per quarter. It is interesting to note that the pay ratio in this study generates an elasticity of 2.1. This is comparable with other enlistment studies which find ratio elasticities of around 2.0.

The recruiter elasticity of .76 implies that 100 additional recruiters will induce 232 "high quality" potential recruits to enlist per quarter, or more than 9 per year per additional recruiter. Additional recruiters will yield more contracts from other recruit categories as well.

Finally, the national advertising elasticity of .044, based on an annual expenditure level of \$45.6 million, implies that a \$100,000 increase in expenditures per quarter should result in 5.6 additional graduate-senior male recruits per quarter. At this rate, the advertising cost to attract a single additional contract is \$17,857. This number appears unduly high, but excludes the associated increase in contracts in other recruit categories.

Enlistment projections

The Army uses enlistment projections to set recruiting goals, allocate recruiting resources, and distribute recruits

to various military occupational specialties. The forecasts provided here are generated assuming a constant pay differential and no changes in the number of recruiters per eligible male. Recruiting resources and goals did rise over fiscal 1984, and the projections reflect this recruiting policy change. The forecasts allow the civilian unemployment rate to fall to 6.3 percent by 1988, which is consistent with the August 1984 unemployment projections of the U.S. Congressional Budget Office. The predicted unemployment rate series for 16- to 21-year-old males is derived from forecasts of the total civilian rate, based on the past relationship between the two series. The rate for young males is therefore assumed to fall to 14.5 percent by 1988. Table 2 presents

Table 2. Quarterly Army enlistment contracts and accessions for graduate-senior (1-3A) males, 1984–first-quarter 1987

Calendar year and quarter	Contracts ¹	Accessions ¹
1984:		
I	13,469	13,776
II	12,809	16,116
III	15,920	9,916
IV	13,635	18,619
1985:		
I	13,714	12,891
II	13,666	12,846
III	13,636	12,818
IV	13,587	12,772
1986:		
I	13,530	12,718
II	13,472	12,664
III	13,416	12,611
IV	13,361	12,559
1987:		
I	13,308	12,563

¹Entries for 1984 are actual numbers of contracts and accessions. All other entries are forecast estimates.

quarterly numbers of contracts and accessions for 1984 and forecasts for first-quarter 1985 through first-quarter 1987.

These results demonstrate the manpower problem facing the Army over the next several years. The forecast contract numbers do not adjust for the delayed entry program loss, which averages approximately 6 percent for graduate-senior males; some persons who sign a contract do not actually enlist when they are due to enter the Army. This effect is illustrated by the forecast accessions in table 2. Given the target of about 60,000 accessions per year for the next few years, the Army alone would be facing a shortfall which increases over time if no counteractive discretionary policies are implemented. Data from the U.S. Army Recruiting Command for fiscal 1984-86 illustrate the problem dramatically:

Fiscal year	Predicted accessions	Accession goals
1984	58,450	58,370
1985	51,154	57,300
1986	50,397	60,000

The delayed entry program creates a manpower pool which can be reduced when recruiting becomes difficult. Because recruits have some control over the length of the delay, accessions fluctuate relative to contracts from quarter to quarter. The increase in retention rates experienced by the Army in recent years may reduce the number of accessions needed to maintain the desired manpower levels in the future.¹³ However, the latest reenlistment rates may indicate a reversal of this trend.

Error analysis. Because the model has been developed to generate forecasts of enlistment contracts, its forecasting properties are considered here. Because the model is estimated over 28 quarters, leaving only 21 degrees of freedom, relatively few back forecasts can be derived. One-quarter-ahead forecasts for five quarters (1983: II-1984: II) were generated, and the mean squared error calculated on the basis of percent changes over time. The error shares are then allocated among the regression, bias, and disturbance proportions.¹⁴ A good forecasting model should have relatively little bias and regression error. If the actual numbers of contracts (A_t) are regressed on predicted values (P_t), the regression can be expressed as:

$$A_t = \alpha + \beta P_t$$

The bias proportion is zero if $\alpha = 0$, and the regression proportion is zero if $\beta = 1$. The disturbance proportion remaining is the random error in the regression. Because the forecast error is expressed in terms of percent changes over time, the root mean squared error provides a measure of error in percent terms. The error allocation is provided above:

Error type	Proportion of total forecast error
Regression	.123
Bias	.184
Disturbance	.693
Total	1.000
Root mean squared error	.028

The root mean squared error is 2.8 percent, well within the range of respectable forecast error. The majority of the error is disturbance error, as expected. The bias proportion is quite reasonable, despite the fact that the number of contracts peaked in first-quarter 1983 and began to decline in the next quarter. The bias proportion should fall even further given a longer forecasting horizon. However, the small number of degrees of freedom prevents using an extended forecast test. In any case, the low bias and regression error and the large disturbance proportion indicate that the forecast model is performing well.

These forecasts may perhaps be more accurately described as simulations. It is expected that the Army will, in fact, increase recruiting resources to meet the potential recruiting difficulties ahead. Therefore, the actual shortfall will most likely differ from current estimates. The latest data show that large increases in recruiting resources, in light of the projected shortfall for fiscal 1984, have indeed resulted in more enlistments. The projections in this report provide information on expected enlistment only if everything else (including relative pay and recruiting resources) is held constant, and if the economy continues strong with unemployment declining. While the number of recruiters and national advertising are the only recruiting variables in the model, it is likely that other variables such as the level of resources available to the recruiters, or pressure on recruiters to produce accessions, will influence the level of enlistment as well.

The aggregate time-series models are particularly useful for short-term projections and can be updated and estimated quickly and easily. In the long run, however, aggregation problems become important. Parameter estimates cannot be precise for this level of aggregation and must be used with caution for policy analysis. Our model does not control for competition from the other services, nor for the fact that many recruiting districts met or exceeded recruiting goals.¹⁵ These factors may be significant, although experimentation with limited-information maximum-likelihood estimation incorporating the demand by other services in the time-series model did not yield satisfactory results. The possibility that the contracts are demand constrained is minimized by modeling "high quality" male contracts. Any such constraint would lead to a negative bias in the estimated coefficients. The contract projections become very tenuous when predicting more than several quarters into the future.

Conclusions

The U.S. Army could face serious recruiting problems throughout the remainder of the 1980's. The two primary causes of this shortfall would be economic gains and the continued decline in the population of eligible males. The model demonstrates that unemployment rates are an important determinant of peacetime enlistment, in contrast with many previous studies, and that military compensation relative to civilian earnings is of paramount importance to potential recruits. The recruitment shortfall can be reduced if appropriate manpower management policies are implemented. The number of recruiters is also significant, as are national advertising expenditures.

The model appears to fit the data well over the entire period, while the one-period-ahead forecasts for the four quarters of 1984 differ from actual contracts by between 1.5 and 3.0 percent. Of course, the forecasts are expected to be less accurate as the projections approach 1990, because they depend upon the state of the economy as well as military personnel policy. □

FOOTNOTES

¹The characteristics of the Armed Forces are discussed in Carol Boyd Leon, "Working for Uncle Sam: a look at members of the armed forces," *Monthly Labor Review*, July 1984, pp. 3-9.

²*Projections of the Population of the United States, by Age, Sex, and Race: 1983 to 2080, Current Population Reports, Series P-25, No. 952* (U.S. Bureau of the Census, 1984).

³A one-period model is described in Anthony C. Fisher, "The Cost of the Draft and the Cost of Ending the Draft," *American Economic Review*, June 1969, pp. 239-54.

⁴In a life-cycle framework the model becomes more complex. The impact of the enlistment decision on future income must be considered. Training and educational opportunities may have little effect on current wages, but are reflected in future income. The life-cycle model thus provides a more realistic approach to the enlistment problem. See David K. Horne, *An Economic Analysis of Army Enlistment Supply*, Technical Report 85-4 (Alexandria, VA, Army Research Institute, 1985).

⁵Examples include Lee D. Olvey, James R. Golden, and Robert C. Kelley, *The Economics of National Security* (Wayne, NJ, Avery Publishing Group, 1984); Richard L. Fernandez, *Forecasting Enlisted Supply: Projections for 1979-1990* (Santa Monica, CA, The Rand Corp., 1979); and Colin Ash, Bernard Udis, and Robert F. McNown, "A Military Personnel Supply Model and Its Forecasts," *American Economic Review*, March 1983, pp. 145-55. For a critique of Ash and others, see Charles Dale and Curtis Gilroy, "Enlistments in the All-Volunteer Force: Note," *American Economic Review*, June 1985.

⁶Insignificant unemployment effects are found in Lawrence Goldberg, *Enlisted Supply: Past, Present, and Future* (Alexandria, VA, Center for Naval Analyses, 1982), as well as in Ash and others, "A Military Personnel Supply Model," and Fernandez, *Forecasting Enlisted Supply*.

⁷See Charles Dale and Curtis L. Gilroy, "The Effects of the Business Cycle on the Size and Composition of the U.S. Army," *Atlantic Economic Journal*, March 1983, pp. 45-53.

⁸Problems with the teen wage series are discussed in Charles Brown, *Military Enlistments: What Can We Learn From Geographic Variation?* Working Paper 1261 (Cambridge, MA, National Bureau of Economic Research, Inc., January 1984). An extract appears in the *American Economic Review*, March 1985, pp. 228-34.

⁹For example, Dale and Gilroy, "The Effects," use a 2-month lead on pay to obtain the correct sign.

¹⁰The advertising expenditure data, as well as the contract and recruiting data, were provided by the U.S. Army Recruiting Command.

¹¹Simultaneity is a potentially serious problem, specifically between the male population statistic in the denominator and independent variables such as civilian earnings and unemployment. However, the time horizon covered in the estimation (7 years) is relatively short, and the variation in the size of the male population during the period is small. This simultaneity is likely to be more of a problem in the long run if the decline in the male population age 16 to 21 begins to exert downward pressure on unemployment and upward pressure on age-specific wages. For short-run prediction and modeling, one would expect the effect of changes in the cohort size to have a small effect on age-specific unemployment and wages. The wage effect is estimated by Hong W. Tan and Michael P. Ward, *Forecasting the Wages of Young Men: The Effects of Cohort Size* (Santa Monica, CA, The Rand Corp., 1984).

¹²The Almon polynomial technique may be briefly described as follows: If the current value of the dependent variable, y_t , depends upon both current and past values of an independent variable x , the distributed-lag regression model can be written:

$$y_t = \beta_0 x_t + \beta_1 x_{t-1} + \dots + \beta_k x_{t-k} - u_t$$

Least squares estimation of the model loses k degrees of freedom, and the x 's exhibit multicollinearity. Some structure can be imposed on the β 's, such as a quadratic polynomial where $\beta_j = \alpha_0 + \alpha_1 j + \alpha_2 j^2$. Substituting for the β 's, the regression model is $y_t = \alpha_0 z_{0t} + \alpha_1 z_{1t} + \alpha_2 z_{2t} + u_t$, where $z_{0t} = \sum_{i=0}^k x_{t-i}$, $z_{1t} = \sum_{i=0}^k ix_{t-i}$, and $z_{2t} = \sum_{i=0}^k ix_{t-i}^2$. The y_t is regressed on the constructed z variables. The estimated α 's are then used to derive the β 's. For more information, see G.S. Maddala, *Econometrics* (London, McGraw-Hill International Book Co., 1977), pp. 355-59.

¹³This is suggested by James R. Hosek, Richard L. Fernandez, and David W. Grissmer, *Active Enlisted Supply: Prospects and Policy Options*, mimeo (Santa Monica, CA, The Rand Corp., 1984).

¹⁴Henri Theil, *Applied Economic Forecasting* (Amsterdam, North Holland Publishing Co., 1966).

¹⁵The impact of the recruiting of other services is significant in the pooled time-series model in Thomas V. Daula and D. Alton Smith, "Estimating Enlistment Models for the U.S. Army," in Ronald G. Ehrenberg, ed., *Research in Labor Economics*, vol. 7 (Greenwich, CT, JAI Press Inc., forthcoming 1985).

Establishment survey incorporates March 1984 employment benchmarks

JOHN B. FARRELL

With the release of data for May 1985, the Bureau of Labor Statistics introduced its annual revision of national estimates of employment, hours, and earnings from the monthly survey of establishments. These revisions are based on March 1984 benchmark employment counts, the most recent available. As is the usual practice with the introduction of updated benchmarks, the Bureau has also revised the seasonally adjusted series for the previous 5-year period and has introduced new seasonal adjustment factors.

Adjustment procedure. Monthly employment estimates from the establishment survey are based on information provided by a sample of establishments. Each year, the "bench-

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marking" procedure adjusts these estimates to accord with independently derived, comprehensive counts of employment. These comprehensive counts are obtained primarily from summations of the mandatory unemployment insurance (UI) reports filed by employers with their State employment security agencies. For the 2 percent of employment not covered by unemployment insurance, such as employees of religious and charitable organizations, other sources are used to derive the benchmark. Because estimates of hours and earnings are weighted by employment estimates, they are also subject to change as a result of benchmarking.

The comprehensive benchmark employment counts are compared with sample-based estimates in table 1. The March 1984 benchmark for total nonagricultural employment—92.6 million—was 353,000 above the corresponding sample-based estimate, a difference of 0.4 percent. Note that a downward revision of 172,000 in manufacturing was more than offset by upward revisions of 262,000 in retail trade and 120,000 in construction.

The current revision affects unadjusted series from April 1983 (the month following the previous benchmark) forward to the current month's estimate. Revision of the seasonal adjustment factors affects seasonally adjusted series from January 1980 forward. Unadjusted series from April 1984 forward and seasonally adjusted series from January 1981 forward are subject to revision in future benchmark adjustments.

The benchmark procedure serves as a quality control process by providing a more accurate measure of employment levels and thus a better perspective on trends. Normally, new benchmarks are determined for March of each year for the most detailed industrial classification levels at which estimates are made.

The time required for compiling UI summaries and processing a benchmark is generally about 15 months. Employment estimates for the period between benchmarks, in

this case April 1983 through February 1984, usually are adjusted by applying a ratio of the March 1984 difference between the benchmark and the estimate. Approximately $\frac{1}{12}$ of the March 1984 difference is added to the April 1983 estimate, $\frac{2}{12}$ to the May 1983 estimate, and so forth, so that the difference is "wedged" over the 12-month period from the preceding benchmark to the new one. Summaries of UI data may also be substituted for the "wedged" results, if it is apparent that the UI employment data more accurately reflect the trend of the series. Data subsequent to the new benchmark, in this case from April 1984 forward, usually are revised by linking the sample trend for each successive month to the new March 1984 levels.

Benchmarks for BLS series on women workers, production or nonsupervisory workers, hours, and earnings are not available. The women and production or nonsupervisory worker series are revised by applying ratios derived from the sample to the revised all-employee figures. Revisions at the basic cell level are then added to become the summary level revisions.

Average weekly hours and average hourly earnings are estimated directly from reported figures at the cell level and are not revised. However, broader industry groupings of hours and earnings series require a weighting mechanism to yield meaningful averages. The production or nonsupervisory worker employment estimates for the basic cells are used as weights for the hours and earnings estimates for broader industry groupings. Adjustments of the all-employee estimates to new benchmarks may alter the weights, which in turn may change the estimates for hours and earnings of production and nonsupervisory workers at higher levels of aggregation.

Seasonal adjustment. Most economic time series display a regular seasonal movement, which can be estimated on the basis of experience. By eliminating that part of the change which can be ascribed to usual seasonal variation, it is possible to observe the underlying cyclical and other nonseasonal movements in the series.

Each year, employment, hours, and earnings data from the new benchmark are incorporated into the calculation of updated seasonal adjustment factors. The Bureau uses the X-11 ARIMA (Auto-Regressive Integrated Moving Average) seasonal adjustment methodology, developed by Statistics Canada.¹ X-11 ARIMA is an adaption of the standard ratio-to-moving average method, which provides for "moving" adjustment factors to take account of changing seasonal patterns. The ARIMA method is used to project the unadjusted data forward for 1 year prior to seasonally adjusting the series, so as to lessen the need for revisions of historical data in future seasonal adjustments. (ARIMA projections are not used in series where the projections do not meet test requirements.)

Seasonal adjustment factors are recalculated annually, and updated factors are published in *Employment and Earn-*

Table 1. Difference between nonagricultural employment benchmarks and estimates, by industry, March 1984

(Numbers in thousands)

Industry	Benchmark	Estimate	Difference	
			Number	Percent
Total nonagricultural employment	92,587	92,234	353	0.4
Total private	76,371	76,030	341	.4
Mining	952	967	-15	-1.6
Construction	3,914	3,794	120	3.1
Manufacturing	19,151	19,323	-172	-.9
Transportation and public utilities	5,063	5,055	8	.2
Wholesale trade	5,447	5,421	26	.5
Retail trade	15,891	15,629	262	1.6
Finance, insurance, and real estate	5,588	5,565	23	.4
Services	20,365	20,276	89	.4
Government	16,216	16,204	12	.1
Federal	2,779	2,756	23	.8
State	3,793	3,785	8	.2
Local	9,644	9,662	-18	-.2

ings in conjunction with the new benchmark. Seasonally adjusted data are not published for four series characterized by small seasonal components relative to their irregular components.² However, these series are used in aggregating to broader seasonally adjusted levels.

Publication plans. Revised estimates of employment, hours, and earnings appeared in the June issue of *Employment and Earnings*, along with a more complete discussion of the benchmarking procedure. Estimates reflecting the new benchmark also appeared in the Current Labor Statistics section of the *Monthly Labor Review* beginning with the July issue.

All historical data revised in this benchmark appear in *Supplement to Employment and Earnings* issued in July 1985. The supplement contains revised seasonally adjusted

data for January 1980 through February 1985 and revised unadjusted data for April 1983 through February 1985. Data for earlier periods have not been revised and can be found in *Employment, Hours, and Earnings, United States, 1909-84*, Bulletin 1312-12 (Bureau of Labor Statistics, April 1985). All publications may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

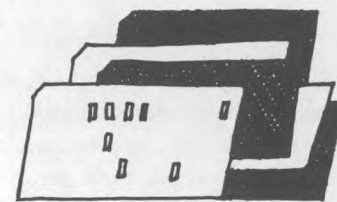
—FOOTNOTES—

¹ A detailed description of the procedure appears in Estella Bee Dagum, *The X-11 ARIMA Seasonal Adjustment Method*, Catalogue No. 12-564E (Statistics Canada, February 1980).

² The four series are average hourly earnings for mining, and average weekly hours for mining, tobacco manufactures, and rubber and miscellaneous plastics products.

A note on communications

The *Monthly Labor Review* welcomes communications that supplement, challenge, or expand on research published in its pages. To be considered for publication, communications should be factual and analytical, not polemical in tone. Communications should be addressed to the Editor-in-Chief, *Monthly Labor Review*, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C. 20212.



Employment problems and their effect on family income, 1979-83

ELLEN SEHGAL

A few years ago, the Bureau of Labor Statistics started the publication of an annual report which examines three of the key problems that workers may face during the course of a year—unemployment, involuntary part-time work, and earnings below the minimum-wage equivalent for full-time year-round employment—and analyzes whether and to what extent these problems affect the economic welfare of workers and their families. An important feature of the report is that it determines the proportion of such workers whose family income falls below the poverty line.¹

The first report in this annual series² was based on data from the March 1980 Current Population Survey (CPS) and focused on the employment situation in 1979. The most recent report in the series—“Linking Employment Problems to Economic Status”—uses data from the March 1984 CPS and focuses on the situation in 1983.

The report shows that considerably fewer persons experienced any of the above-mentioned three labor market difficulties in 1983 than in 1982. However, among those who did, the proportion whose family income fell below the poverty line increased slightly, continuing a trend evident since 1979. The key data for 1983 and prior years are summarized in table 1.

As table 1 shows, of the 23.8 million persons who encountered some unemployment during the year, about 23 percent lived in families with incomes below the poverty level. Of the 14.9 million who worked part time involuntarily, either because their work hours were reduced or because they could not find full-time work, about 19 percent were members of families in poverty. Finally, of the nearly 4.5 million full-time year-round workers who earned less than \$6,700 (the minimum-wage equivalent), approximately 31 percent were in families living in poverty.

In many cases, the same person encountered more than one of the problems and was thus counted in at least two

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of the above categories, most often unemployment and involuntary part-time work. Therefore, the total number of individual workers experiencing one of the above problems or more is not the simple aggregation of the three categories (43.2 million) but a much lower number (35.8 million).

Employment problems

Unemployment. Of the 23.8 million persons with some unemployment in 1983, more than 4 million were jobless a month or less. On average, however, those with unemployment spent 14 weeks without a job over the year, and close to one-fourth were members of families whose incomes for 1983 fell below the poverty level. Furthermore, even when unemployment did not result in poverty, it may have caused some reductions in family living standards. The differences in family income between persons with and without unemployment were particularly large for blacks: the median family income for those with unemployment was 47 percent lower than that for those who were free of unemployment during the year.

Involuntary part-time work. There were two types of workers among the 14.9 million who, although preferring a full-time job, worked part time during at least some of 1983. One group consisted of workers who had been in full-time jobs but whose workweek was cut back, at least temporarily, because of material shortages or slack demand. The other type consisted of workers who had not been able to secure full-time work and had to settle for a part-time job. The latter group were generally on part time for much longer periods than the former.

Table 1. Persons with employment problems, 1979-83

(Numbers in thousands)

Employment problem	1979	1980	1981	1982	1983
Persons with unemployment:					
Number	18,468	21,410	23,382	26,493	23,799
Percent below poverty line	14.3	17.5	19.1	20.5	22.9
Persons with involuntary part-time employment:					
Number	11,455	13,033	14,627	16,064	14,903
Percent below poverty line	13.4	15.4	16.7	18.0	19.1
Persons with low earnings:					
Number	4,922	5,199	5,202	4,608	4,453
Percent below poverty line	22.4	24.4	26.5	29.8	30.5

There also was a big difference in the incidence of poverty between the two groups. It was 14 percent for those whose involuntary part-time work was because of material shortages or slack work and nearly twice as high (27 percent) for those who could find only part-time work. For blacks, the proportion in either of these two categories whose families were in poverty was much higher—26 and 45 percent.

Low earnings. The economic recovery in 1983 was reflected in an increase of about 2.9 million in the number of workers employed full time year round, which reached 66.8 million. However, about 7 percent of these workers reported earnings below \$6,700—that is, less than what one would have earned from a full year's work at the Federal minimum wage of \$3.35 an hour. Many of these workers were self-employed or otherwise exempted from coverage under the minimum-wage law. Nevertheless, nearly one-third reported total family income below the poverty level.

Teenagers and workers 65 years old and over were the most likely to report low earnings for full-year work: more than one-third of youth age 16 to 19 and about one-quarter of workers age 65 and over in 1983. Overall, the incidence of low earnings was much higher for women (9 percent) than for men (5 percent).

Trends since 1979

Between 1979 and 1983, the number of persons with some unemployment during the year increased and decreased in line with the fluctuations of the economy. However, as shown in table 1, there was a gradual but sustained annual increase over this period in the proportion of persons with unemployment whose family income fell below the poverty line. The same pattern also prevailed for the persons with involuntary part-time employment.

The number of full-time year-round workers with earnings below the \$6,700 minimum-wage equivalent rose slightly between 1979 and 1981 and declined thereafter, even in 1982 when the number of persons with the other employment problems was increasing. But the meaning of the decline is difficult to interpret. To a certain extent, it may have reflected the fact that the Federal minimum wage remained at the same level while the wages of most workers kept inching upward. On the other hand, given the severity of the recession, some low-wage workers who previously had worked a full year may not have been able to do so in 1982. They may thus have fallen among the persons with other employment problems.

An additional phase of the research discussed in the report cited above focused on individual workers for whom both the labor force status and poverty status were tracked over a 2-year period. It was found that of the workers who had been in poverty in 1982, about one-half were no longer so the following year. Among those who remained poor in 1983—a year of strong economic performance—many were members of families maintained by women. This suggests

that noneconomic factors, such as the makeup of families, are important determinants of poverty status. □

FOOTNOTES

¹The poverty thresholds, based primarily on a U.S. Department of Agriculture study of the consumption requirements of families by size, are updated annually to reflect changes in the Consumer Price Index. The poverty threshold for a family of four in 1983 was \$10,178. However, when making such determinations, only cash income is considered.

²The report was launched in response to recommendations from the National Commission on Employment and Unemployment Statistics. *Linking Employment Problems to Economic Status*, Bulletin 2222, Stock No. 029-001-02838-5, \$2, is for sale by the Superintendent of Documents, Washington 20402.

Pay levels in meat products reflect trimmed rates

Straight-time hourly earnings of production workers averaged \$7.80 in meatpacking plants and \$7.61 in prepared meat products plants in June 1984, according to a study by the Bureau of Labor Statistics.¹ These averages represent increases of 12 and 17 percent since a similar survey in May 1979.² Average annual increases were 2.3 percent for meatpacking and 3.1 percent for prepared meat products, contrasting sharply to the 6.8-percent annual rate for non-durable goods manufacturing during approximately the same period.³

The pace of pay increases in meat plants partly reflects wage concessions agreed to by the United Food and Commercial Workers Union in bargaining with a number of meat companies. These companies sought reduced labor costs to compete against newer, lower-cost firms with modern facilities and distribution methods. Concessions included reductions in base hourly wage rates, suspension of automatic cost-of-living adjustments (even though COLA clauses were retained in the contracts), and hiring rates set below existing levels.⁴ Some reductions in employee benefit levels were also negotiated at a few companies.

Seven-tenths of the meatpacking and nearly three-fifths of the prepared meat products workers were in plants with collective bargaining agreements covering a majority of their production work force in June 1984. Most of these workers were represented by the United Food and Commercial Workers Union (AFL-CIO).

At the time of the June 1984 survey, meatpacking plants employed 82,948 production workers—down 20 percent since the May 1979 survey. Employment in prepared meat products plants was up slightly during the period—from 48,804 to 50,854 production workers.

The \$7.80 average in meatpacking plants and the \$7.61 in prepared meat products plants also represented broadly dispersed earnings in both industries. Hourly earnings of individual workers ranged from the \$3.35 Federal minimum

to more than \$14. The middle 50 percent of workers in meatpacking earned between \$6.50 and \$8.75 an hour, while the corresponding range in prepared meat products was \$5.70 to \$9.59. Large differences in skill levels required for the industries' varied manufacturing processes contributed to the relatively wide dispersions in pay.

Regional pay differences were also large, especially for prepared meat products workers. June 1984 averages were highest in the Pacific States (\$8.60 an hour in meatpacking and \$9.03 in prepared meat products) and lowest in the Southeast (\$6.22 and \$5.70). The regions with the largest employments for both industries—the Great Lakes region and the Middle West—averaged \$8.31 and \$8.41 an hour in meatpacking and \$8.76 and \$7.16 in prepared meat products.

Seventy-nine occupations were selected to represent the various skills and pay levels in meatpacking and prepared meat products plants. These occupations accounted for approximately two-fifths of the production workers in each industry. Among these occupations, hourly averages in meatpacking plants ranged from \$6.14 for washers who clean beef carcasses to \$10.15 for maintenance millwrights. Jobs in meatpacking with at least 2,000 employees and their hourly averages were: shipping packers, \$7.25; trimmers, \$7.41; night cleaners, \$7.76; boners preparing boxed beef, \$7.99; and general maintenance workers, \$8.85.

In prepared meat products plants, occupational averages ranged from \$6.25 for hangers (bellies) to \$11.26 for stationary engineers. Shipping packers, numerically the most important job studied in this industry, averaged \$6.83. Other numerically important jobs (having at least 1,000 workers) and their pay averages included night cleaners, \$7.46; slicing-machine operators, \$7.52; truckdrivers, \$7.90; ham boners, \$8.71; and general maintenance workers, \$8.90.

Virtually all production workers in each industry were in plants providing paid holidays, paid vacations, and at least part of the cost of various health and insurance plans. Retirement pension plans covered approximately two-thirds of the production workers in each industry. Seven to ten holidays annually were typical, as were 1 to 5 weeks of vacation pay (depending on years of service).

A comprehensive bulletin on the study, *Industry Wage Survey: Meat Products, June 1984*, may be purchased from any of the Bureau's regional sales offices or the Superintendent of Documents, Government Printing Office, Washington, DC 20402. The bulletin provides additional information on occupational pay, such as earnings distributions and averages by type of company, size of establishment, and union contract status, and the incidence of selected employee benefits. □

—FOOTNOTES—

¹In meatpacking, the study covered establishments employing 50 workers or more and primarily engaged in slaughtering cattle, hogs, sheep, lambs, and calves either for the establishment's own account or on a

contract basis for the trade (SIC 2011, as defined in the 1972 *Standard Industrial Classification Manual*, prepared by the U.S. Office of Management and Budget). For prepared meat products, the study covered establishments employing 20 workers or more and primarily engaged in manufacturing sausages and other products from purchased meats (SIC 2013).

Wage data in this article are straight-time hourly earnings, which exclude premium pay for overtime and for work on weekends, holidays, and late shifts.

²See "Wages in meatpacking and prepared meat products, May 1979," *Monthly Labor Review*, June 1981, p. 53.

³Increases for nondurable goods manufacturing are from the wage and salary component of the Bureau's Employment Cost Index for the 5 years ending in June 1984.

⁴See Bureau of Labor Statistics, *Current Wage Developments*, January 1982 and March 1984 issues.

The status of women in Canada's labor force

Almost 2 million women joined the Canadian labor force during the 1970's and about half entered male-dominated fields, according to a study on the role of women in the economy published by the Economic Council of Canada. Authors of the study state that although there was an increase in the number of women who attained higher education, worked more hours, and entered nontraditional occupations, their progress was offset by a larger number of those who had secondary school education, received lower earnings, and entered traditional occupations.

In 1971, the participation rate for women was 33.9 percent and by 1981 it was 52.9 percent (compared with 76.4 percent and 79.4 percent for men). All of the age groups increased their participation rates except those in the 65-and-over age group. Those in the 25–34 and 35–44 age groups had the largest increase—almost 50 percent, while those 15–19 participated almost as much as their male counterparts (51.2 percent, compared with 55.0 percent).

The authors, Jac-André Boulet and Laval Lavellée, state further that although the participation rates of women with children increased sharply, those who had few or no family responsibilities made up 83 percent of the increased number of women in the labor market. The reason for this activity is the slight decline in the number of working age women with preschool children and the 30-percent increase in the number of other women without such responsibilities.

Education played a major role in the economic status and labor force participation of women. In 1972–73, 39 percent of the total undergraduate student population was made up of women, and by 1981–82, the figure increased to 47 percent. Those women in the Master's and Doctorate programs increased their number from 28 percent to 42 percent in the same periods, and tended to fare better in the labor force in terms of occupations and earnings. The participation rate of women with a bachelor's degree or diploma below a bachelor's increased 12.7 percent, the highest increase of

all the educational attainment levels among women as well as men.

During the 10-year period, the number of women in the 20 highest paid occupations quadrupled—32,050 to 125,755—while that of men only doubled. However, in the 20 lowest paid occupations, the number of women almost doubled—750,00 to 1,175,430—compared with the relatively small increase for the men.

Earnings were another area in which Canadian women enhanced their status. In 1970, the average annual earnings of women were 51.2 percent of men's, by 1980, the average was 54.4 percent. However, in terms of average hourly wages, the female-male earnings gap narrowed from about 66 percent that of men to almost 72 percent during the same period.

One out of six families was headed by only one parent, and five out of six single-parent families were headed by women. Earnings of these women were very low, and transfer income was low such that most of them were in poverty.

The financial status of women during preretirement and retirement is also discussed in the study. Mainly, women face more financial hardships during their retirement years than do elderly men because they earned less than men, lacked coverage in employer-sponsored pension plans, worked fewer hours or had more part-time jobs, and they tended to work in nonunionized companies which do not have pension plans. Moreover, those women who lived alone, mainly widows, were among the most impoverished.

In an attempt to remedy the difficulties that women face in the labor market, Canadian governments have either proposed or adopted recommendations such as: equal pay for equal work; training for women re-entering the job market, with emphasis on nontraditional occupations; expansion of part-time work and job sharing; professional development courses; adequate day care centers; and parental leave.

In conclusion, the authors state that if current trends in Canada's labor market continue, there will be "an even more dramatic improvement in the economic status of women" in the 1980's.

The report, *The Changing Economic Status of Women*, is available from Canadian Government Publishing Centre, Supply and Services Canada, Ottawa, Canada K1A 0S9, for \$8.35. □

Earnings of 1975 Vietnam refugees surpass U.S. average in 4 years

Starting low on the U.S. economic ladder, South Vietnamese refugees of 1975 have moved up rapidly, according to a recently published study.

In 1976, the refugees had median earnings subject to Social Security taxes of \$4,242, while the median for all U.S. workers was \$6,235. By 1979, the corresponding totals were \$8,874 and \$7,478. Thus, in 4 years refugee earnings rose from 68.1 percent of taxable U.S. earnings to 118.6 percent.

Authors Reginald P. Baker and David S. North urge caution in interpreting the data, because the "refugee population is younger, and has a higher proportion of males than the U.S. labor force, thus tending to overstate the refugees' relative success in the labor market." They also note that most of the Indochinese who resettled here in 1975, the year the Saigon government fell, were "relatively well prepared for life in the U.S."

Their report, *The 1975 Refugees: Their First Five Years in America*, was published in 1984 by New TransCentury Foundation, Washington, DC. □

Foreign Labor Developments



ILO examines impact of technology on worker safety and health

TADD LINSENMAYER

Industrial robots, computer-controlled machine tools, video display terminals—these and other space-age technologies can help reduce workplace injuries and illnesses if safety, health, and work organization factors are built in during design and development. But when accident and illness prevention techniques for new technologies are adopted only after worker injuries or illnesses begin, the result can be serious new workplace hazards.

These are the fundamental conclusions of a special meeting of safety and health experts held by the International Labor Organization (ILO) in Geneva, Switzerland, March 25–29, 1985.

The ILO has become increasingly concerned about the impact of new technology on worker safety and health. It convened this meeting of 15 government, worker, and employer experts from the United States, Eastern and Western Europe, Canada, and Australia to take a broad look at the safety and health impact of new technology in industrialized countries, focusing on such areas as robotics, biotechnology, office equipment, and chemicals.

The ILO experts agreed that new technology can reduce some safety and health hazards by relieving workers of arduous or dangerous physical tasks or removing them from exposure to dust and toxic substances. Examples include automated materials handling equipment and the growing use of robot welders and painters in the automobile industry.

The experts suggested that involving and consulting workers at the earliest possible stage in the introduction of new technology will help promote these benefits. They also emphasized the importance of training and retraining to make employers and workers more aware of the safety and health potential of new technology.

But the ILO experts were equally concerned about potential new hazards. With technology being developed, introduced, and transferred at an accelerating pace, governments,

workers, and employers are faced with a variety of new serious safety and health hazards about which, all too often, little is known.

The experts expressed special concern about safeguarding against hazards which, while not immediately apparent, are inherent in some new technologies. One example is the unpredictable action patterns of robot arms. Studies in Europe, Japan, and the United States have identified a number of real and potential robot hazards—which, in a few cases, have caused fatal accidents—involved primarily in programming and repair activities.¹

Some experts were concerned that computer reliability can also be a serious problem in cases where computers control or monitor work processes. They noted that the nuclear and aerospace industries frequently use redundancy techniques (for example, secondary computers) to provide an adequate margin of safety, but these techniques require resources and skills not usually found in many parts of manufacturing.

The ILO experts agreed that occupational stress has become an increasingly serious health issue. New technology can either increase or decrease work-related stress depending on how it is used—and that may mean changing the organization of work to reduce the stress, fatigue, and monotony often associated with some types of new technology.

Occupational stress is not a new issue in the United States. The Congressional Office of Technology Assessment, in a 1984 report on office hazards, called stress “one of the most pervasive health problems in the United States.” Work-related emotional disorders are recognized in 19 States and accounted for more than 15 percent of total workers’ compensation costs in California in 1980, according to data cited by the Office of Technology Assessment.²

The ILO experts acknowledged that it is not easy to separate occupational and other sources of stress. They concluded, however, that some new technologies can create stress if insufficient attention is paid to work organization issues. Examples include monotony and isolation in automated machinery control rooms, faster paced production lines, electronic monitoring of work performance, possible fragmentation and reduced skill requirements of jobs, reduced opportunities for worker responsibility and discretion, and poor ergonomic design in offices using computers and other video display terminals (VDT) and equipment.

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Health hazards, particularly exposure to toxic chemicals, were a major concern of the experts. Some were convinced that it is very difficult for national safety and health authorities to keep pace with the rapid development and introduction of new chemicals into the workplace. In the United States, for example, some 60,000 chemicals are reportedly in commercial use, only a handful of which are subject to Federal or State regulation.³

The ILO experts said more should be done to exchange information between employers and workers—and, in some cases, communities—about the potential hazards involved in industrial chemicals. Similar concerns in the United States have led more than 20 States to enact “right-to-know” laws requiring employers to inform workers and community officials about toxic substances being produced or used commercially.⁴

American employers, responding to the Union Carbide methyl isocyanate leak in Bhopal, India, recently announced a voluntary program to provide hazard information on workplace chemicals. Earlier this year, the Chemical Manufacturers Association announced plans to expand the chemical industry’s involvement in community response planning and emergency networks and to give the public access to information on hazardous chemicals.⁵

The ILO experts agreed that “it might be necessary to rely also on a general legal duty of care” because of the difficulty of developing standards fast enough to keep pace with the introduction of new workplace chemicals.

The notion of a general legal duty to prevent worker exposure to chemical hazards has been a controversial issue in the United States for some years. The Occupational Safety and Health Act of 1970 contains such a “general duty clause”: Section 5(a) (1) requires each employer to “furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”⁶

Because the development of new Federal standards on chemical hazards has become extremely complex and time consuming, some groups (particularly American unions) have strongly urged the Occupational Safety and Health Administration (OSHA) to use the “general duty clause” more aggressively to cite recognized health hazards not covered by specific OSHA standards.

OSHA significantly expanded use of the general duty clause during the 1970’s, reaching a peak of 3,816 citations in fiscal year 1979. Since then, however, its use has been scaled back, largely because of serious legal and administrative questions about its use.⁷ In fiscal year 1984, OSHA

issued 413 such citations. Current OSHA policy permits general duty clause citations when there is no applicable standard, the hazard presents a probability of death or serious harm to employees, and abatement is considered feasible.

Finally, the experts called for further examination of long-term, low-level exposure to non-ionising radiation. Workers using computers and other video display terminals complain of a variety of problems associated with VDT use. These include stress and such physical problems as eye strain and musculoskeletal ailments. In some cases, workers have also complained about suspected VDT health hazards, citing higher than normal incidences of eye cataracts and reproductive problems for pregnant women.

A number of VDT studies in the United States and other industrialized countries have confirmed that stress and physical hazards can arise from poor ergonomic design of offices using VDT equipment. In most cases, these can be corrected through proper lighting, reduction of glare, flexible working tables and chairs, adequate rest periods, and other physical or work organization modifications.

So far, however, government and industry studies have not found evidence of health effects related to exposure to VDT non-ionizing radiation. The National Institute for Occupational Safety and Health is continuing to investigate the issue.⁸

The meeting of experts concluded by urging the ILO to focus future discussions on the safety and health implications of new technology within particular sectors. The meeting also called for fuller use of the International Occupational Safety and Health Hazard Alert System—an international system developed with a U.S. Department of Labor grant designed to facilitate the rapid exchange of technical information on known or suspected safety and health hazards—as well as other information exchange programs. □

—FOOTNOTES—

¹ International Labor Office, *Implications of new technologies for work organization and occupational safety and health in industrialized countries*, October 1984, p. 10.

² Robert Arndt and Larry Chapman, *Potential Office Hazards and Controls*, September 1984, p. 29. A paper prepared for the Office of Technology Assessment, U.S. Congress.

³ *The Washington Post*, Jan. 3, 1985.

⁴ *Newsweek*, Dec. 17, 1984.

⁵ “CMA Launches Campaign on Accidents,” *Chemical Marketing Reporter*, Apr. 1, 1985, p. 3.

⁶ Public Law No. 91-596, 84 Stat. 1590, effective April 28, 1971.

⁷ Donald L. Morgan and Mark N. Duvall, “OSHA’s General Duty Clause: An Analysis of Its Use and Abuse,” *Industrial Relations Law Journal*, Vol. 5:283, pp. 300-02.

⁸ Arndt and Chapman, p. 97.

Major Agreements Expiring Next Month

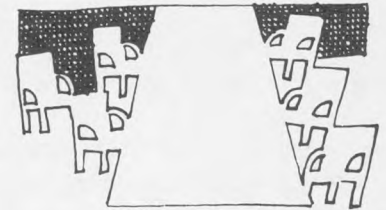


This list of selected collective bargaining agreements expiring in September is based on information from the Bureau's Office of Wages and Industrial Relations. The list includes agreements covering 1,000 workers or more. Private industry is arranged in order of Standard Industrial Classification.

Employer and location	Private industry	Labor organization ¹	Number of workers
Western States Field Construction Negotiating Committee Inc. (Interstate)	Construction	Boilermakers	5,300
National Electrical Contractors Association, South Florida Chapter (Miami, FL)	Construction	Electrical Workers (IBEW)	1,050
Mechanical Contractors Association (Houston, TX)	Construction	Plumbers	1,500
Swift and Co. (Interstate)	Food products	Food and Commercial Workers	1,200
Hygrade Food Products Corp. (Interstate)	Food products	Food and Commercial Workers	1,500
Nabisco, Inc. (Interstate)	Food products	Bakery and Tobacco Workers	10,000
John Morrell and Co. (Interstate)	Food products	Food and Commercial Workers	3,000
Shirts, pajamas and other cotton garments manufacturers (Interstate)	Apparel	Clothing and Textile Workers	12,500
Single pants manufacturers (Interstate)	Apparel	Clothing and Textile Workers	12,500
Interco-Florsheim Shoe Co. (Interstate)	Leather	Clothing and Textile Workers; Food and Commercial Workers	5,000
Fafnir Bearing Division of Textron, Inc. (New Britain, CT)	Machinery	Auto Workers	2,100
Washington Metal Trades, Inc. (Seattle, WA)	Machinery	Machinists; Boilermakers	1,200
ITT Avionics and Defense Communications (Interstate)	Electrical products	Electronic Workers (IUE)	1,050
Eagle Electric Manufacturing Co., Inc. (Long Island City, NY)	Electrical products	Auto Workers	1,100
Sanyo Manufacturing Corp. (Forrest City, AR)	Electrical products	Electronic Workers (IUE)	2,000
Design and Manufacturing Corp. (Connersville, IN)	Electrical products	Auto Workers	1,200
American Motors Corp. (Milwaukee, WI)	Transportation equipment	Auto Workers	14,000
General Dynamics Corp., Land Systems Division (Interstate)	Transportation equipment	Auto Workers	5,300
Sperry Rand Corp. (Great Neck, NY)	Instruments	Electronic Workers (IUE)	3,800
Duquesne Light Co. (Pennsylvania)	Utilities	Electrical Workers (IBEW)	2,900
Safeway Stores Inc. (Kansas City, MO)	Retail trade	Food and Commercial Workers	1,100
Food Employers Council, Inc., warehouses (Southern California)	Retail trade	Teamsters (Ind.)	1,500
Food Employers Council, Inc., office employees (Southern California)	Retail trade	Teamsters (Ind.)	1,500
Kroger Co. (Cleveland, OH)	Retail trade	Food and Commercial Workers	1,250
Bruno Food Stores (Alabama)	Retail trade	Food and Commercial Workers	2,500
Prudential Insurance Co. (Interstate)	Insurance	Food and Commercial Workers	16,000
Alliance of Motion Picture and TV Producers (Los Angeles, CA)	Amusements	Office and Professional Employees	2,300
Brigham and Women's Hospital, nurses (Boston, MA)	Hospitals	Nurses' Association (Ind.)	1,400
	Government activity	Labor organization¹	Number of workers
California: Los Angeles Board of Education, teachers	Education	United Teachers of Los Angeles	26,000
Los Angeles Department of Power and Water, 2 agreements	Utilities	Electrical Workers (IBEW)	6,700
Florida: Dade County, 5 agreements	Multidepartments	Fire Fighters; Transport Workers; Nurses' Association (Ind.); Police Benevolent Association (Ind.); State, County and Municipal Employees	7,300
Indiana: Evansville Board of Education, teachers	Education	Education Association (Ind.)	1,250
Pennsylvania: State Turnpike employees	Transportation	Teamsters (Ind.)	1,500
Washington: Seattle Community College, faculty	Education	Teachers	1,500

¹Affiliated with AFL-CIO except where noted as independent (Ind.).

Developments in Industrial Relations



Auto industry update

In a move to improve the competitive position of Chrysler Corp.'s Dayton, OH, plant, the company and Local 775 of the International Union of Electronic Workers negotiated a 5-year agreement that provides for lower pay rates and benefit levels for workers hired after March 28. Union officials said the employees agreed to the changes because of the increased competition expected to result from two Japanese plants that will open in the United States in the near future, as well as existing competition from a General Motors Corp. electrical equipment plant in Dayton. The Chrysler plant, which employs 1,750 members of the union, produces automotive air conditioners, heating components, oil coolers, and plastic injection moldings.

The BEST agreement—Building Employment Security Together—supplements the parties' existing 3-year agreement which expires in November 1986. Under the BEST agreement, new employees in the most common job classifications will start at \$7 an hour, or about 57 percent of the top rate for the classification. They will receive periodic progression increases until they attain the top rate after 10 years of service. Similar starting and progression provisions apply to new workers in other classifications. The new workers, who will also receive reduced benefits during their first 10 years of employment, are eligible for a new bonus plan that will pay them 55 cents per hour after they complete 5 years of service and the bonus will continue until they attain the top rate for their pay classification. The reduced pay rates do not apply to skilled workers, but the reduced benefit levels do.

To open up jobs to younger employees, the agreement provides incentives for employees to quit their job or to retire if eligible.

Elsewhere in the industry, the Auto Workers and Mazda Motor Co. signed an initial agreement for a plant in Flat Rock, MI, that is scheduled to produce 240,000 cars annually, beginning in the spring of 1987. To help persuade Mazda to open the plant in the United States—rather than continuing to produce all its vehicles in Japan—the Auto

Workers agreed to give Mazda some labor cost advantages over the domestic auto manufacturers. A union official said the agreement represents progress rather than concessions because, "We want a minimum of adversarial relationships with employers" and, "We're doing all these things for a particular reason, and that is to keep jobs for our people."

The new plant is expected to have a labor cost advantage of about \$6 an hour. One provision sets pay rates at 85 percent of those prevailing at Ford Motor Co. when the Mazda plant starts production. The balance of the cost saving will come from lower benefit levels and broadening of job classifications to permit the company to utilize workers in a variety of jobs.

In California, the Auto Workers were in the midst of negotiations on an initial contract with New United Motor Manufacturing Inc. for a new plant in Fremont. The Toyota Motor Corp.—General Motors Corp. joint venture occupies a plant GM had shut down.

Bruce Lee, UAW's Region 6 director, confirmed that the union was considering a system under which job classifications would be broadened. In exchange for performing the greater variety of duties, part of the cost saving would be allocated to the workers under a "pay for knowledge" system.

General Motors also was involved in negotiations with the UAW on an initial contract for workers at Saturn Corp., a subsidiary set up to utilize "state of the art" manufacturing procedures to produce small cars at prices competitive with foreign producers. The location of the new facility is not expected to be announced until GM and the UAW agree on wages, benefits, and work rules.

Clothing industry contracts

The Ladies' Garment Workers and several associations of clothing manufacturers negotiated 3-year contracts expected to eventually affect about 125,000 members of the union. The initial accords were with employers in dress, coat and suit, sportswear, and rainwear manufacturing.

The employees will not receive a wage increase in the first contract year, but the employers' financing of benefits was increased to an amount equal to 3.75 percent of payroll, from 2.75 percent. A union official said the resulting improvements in benefits will vary among contracts because of varying conditions of the funds, and that most of the

"Developments in Industrial Relations" is prepared by George Ruben of the Division of Developments in Labor-Management Relations, Bureau of Labor Statistics, and is largely based on information from secondary sources.

increased funding will be used to help offset rapidly rising medical costs.

The workers will receive a 6-percent pay increase in the second year and a 5-percent increase in the third year. According to the union, pay was about \$6 to \$6.50 an hour at the May 31, 1985, expiration date of the prior 3-year contract, which provided for wage increases totaling \$1.10 an hour.

The employers had initially proposed a 3-year wage freeze, contending that any substantial labor cost increase would further erode their ability to compete against foreign producers rapidly increasing their sales in the United States.

In another segment of the apparel industry being buffeted by increased imports, the Clothing Manufacturers Association and the Amalgamated Clothing and Textile Workers agreed to take a "breather" from tough bargaining by extending their agreement for 4 months. The 1982 agreement for 53,000 workers in men's and boys' apparel manufacturing had been scheduled to expire May 31. In the current talks, the association led off with a demand for a 15-month pay freeze, linkage of possible future increases to inflation and market conditions, and an easing of work rules. Under the 38-month 1982 contract, the workers had received pay raises totaling \$1.05 an hour, bringing their range to \$7-\$8 an hour.

J.P. Stevens settlement provides for job security

In textile manufacturing, J.P. Stevens and Co. and the Clothing and Textile Workers negotiated a 3-year contract to succeed their 1983 contract. Prior to their initial settlement in 1980, the parties had engaged in 17 years of bitter controversy over the union's efforts to organize all Stevens plants in North Carolina, South Carolina, and other southern States.

The new 1985 contract covers about 3,500 workers at 9 plants in Roanoke Rapids and Wallace, NC. According to Bruce Raynor, the union's regional director, the union sought no increase in the average wage of \$6.80 an hour because it was more interested in protecting job security. Raynor said the improved layoff recall procedures, severance pay, and training provisions provided by the accord were needed because "of the flood of imports destroying American textile jobs. . . ."

Earlier in the year, the parties had negotiated a 4.6-percent pay increase under a reopening provision of the 1983 contract. The provision, which was continued in the new contract, permits either party to reopen negotiations on wages and benefits at not less than 6-month intervals.

American Tobacco Co. settles early

More than 2,000 employees of American Tobacco Co. were covered by contracts negotiated 8½ months prior to the scheduled January 31, 1986, expiration date of the existing contracts. The new 3-year contracts were effective June 1, 1985.

Bobbie Green, president of Local 183 of the Bakery, Confectionery and Tobacco Workers, said the union initiated the early negotiations because of possible job losses indicated by increasing automation in the plants, several short workweeks that had occurred, and rumors of layoffs.

The accords, covering operations in Durham and Reidsville, NC, and Richmond, VA, provided for 35 cents an hour wage increases on January 1, 1986, and June 1 of 1986 and 1987. The provision for automatic quarterly cost-of-living pay adjustments also was continued. Adjustments are calculated at 1 cent an hour for each 0.3-point movement in the BLS CPI-W (1967 = 100).

Under a new Supplemental Unemployment Benefits plan, laid-off employees will receive payments equal to 1 week's salary for each year of service, followed by payment of \$150 a week until they have received payments for a combined total of 26 weeks.

Other terms include increased pensions; an improved union vision care plan; an additional paid holiday, bringing the total to 13 a year; lowering of the eligibility for long-term disability benefits to 1 year of service, from 12 years; and 6 weeks of paid vacation after 25 years of service (formerly 29 years) and 7 weeks after 30 years (formerly 34 years).

There were no indications that early negotiations will be initiated at other tobacco companies, where agreements are generally scheduled to expire at various times in 1986.

Gimbels to give pay raises every six months

A new contract between Gimbels Department Stores and the Retail, Wholesale and Department Store Union provides for a \$40 a week wage increase over the 3-year contract term. The \$40 increase will be paid in increments of \$10, \$8, \$7, \$9, and \$6 a week at 6-month intervals. The accord covered 5,000 employees at 10 stores in Connecticut, New Jersey, and New York.

The \$40 increase compared with \$45 the union recently negotiated with Bloomingdales for 4,000 workers, and \$65 it negotiated with R.H. Macy and Co. for 6,000 workers.

Other terms at Gimbels included an increase in employer financing of health and welfare benefits to 9 percent of payroll, from 8 percent; an increase in the number of paid sick leave days, subject to approval of the trustees; and an additional paid holiday to be taken on Martin Luther King, Jr.'s birthday or on another day of the employee's choice.

Stock exchange workers settle, avert strike

The New York Stock Exchange settled with 1,300 members of the Office and Professional Employees union minutes before the workers were scheduled to start their first strike against the exchange since 1948.

The union did not win its demand for lifetime job guarantees for employees with at least 17 years of service, but the 3-year contract does establish a plan to help counter the loss of 300 jobs expected to result from increased automation

of trading operations. The plan provides for spreading the available work by converting employees with less than 10 years of service to a 4-day workweek at 80 percent of their previous weekly pay. To some extent, the loss of jobs could also be alleviated by a 1-hour increase in the trading day being considered by the exchange.

Other terms included 5-percent annual pay increases, retroactive to the November 1984 termination date of the preceding contract, and a 25-percent increase in severance pay. According to the exchange, pages and reporters average \$560 a week and floor workers with 7 years of experience earn almost \$30,000 a year.

Court rules on mandatory retirement in airlines

In a unanimous ruling, the Supreme Court limited the conditions under which an employer can require employees to retire before age 70. In the decision, written by Justice John Paul Stevens, the Court rejected Western Airlines' argument that an employer need only offer a "rational reason," such as airline safety, for requiring employees to retire before age 70.

Instead, the Court said an employer must show that a particular age is "reasonably necessary to the normal operation of the particular business" and that "all or nearly all employees above an age lack the qualifications." If unable to do so, an employer must demonstrate that it is "highly impractical" to test each new employee to prove that after the designated age each employee remains qualified.

The decision will immediately affect Western and other airlines that have mandatory retirement policies, and also will have an impact in other industries. All pilots are required to retire at age 60 under a Federal Aviation Administration regulation—which was not changed by the Court ruling—but some air carriers permit pilots to "downgrade" to flight engineer status at age 60 and continue working. Western and some other carriers did not permit flight engineers to work beyond age 60, which led to the legal challenge.

Pension fund trustees can see payroll records

The Supreme Court expanded the right of pension fund trustees to examine the employee records of companies contributing to multiemployer benefit plans. The case originated in 1979, when some employers rejected a request by trustees of the Teamsters' Central States Pension and Health and Welfare funds for access to payroll records of employees the employers claimed were not covered by the plans. The

trustees' request resulted from their concern that some of the employers were evading payments to the funds by underreporting the number of covered employees.

Justice Thurgood Marshall, writing for the six-member Court majority, said the proposed audit "is entirely reasonable" in light of the provisions of the Employee Retirement Income Security Act of 1974. Continuing, Marshall said that audits of all employee records are "a proper means of verifying that the employer has accurately determined the class of covered employee," particularly in view of the fact that the number of covered employees reduces the employer's liability to the funds.

Writing for the three-member minority, Justice John Paul Stevens agreed with the majority that the law does not prohibit such an audit by trustees, but he contended that the audit could not be performed because it was not specifically authorized by the Teamsters' labor contracts with employers.

The Court's decision reversed the finding of the Sixth Circuit Court of Appeals that such an audit was unwarranted because the trustees could rely on the Department of Labor to regulate employer contributions.

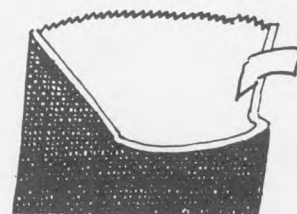
Court rules on employer-sponsored health plans

In a decision with wide significance, the Supreme Court held that States may require employer-sponsored health insurance plans to cover particular ailments. In the case, the Court upheld a Massachusetts law requiring insurance companies to include mental-health care in employer plans. The law was challenged by the Metropolitan Life Insurance Co. and Travelers Insurance Co.

In the unanimous decision, written by Justice Harry A. Blackmun, the Court found that such laws do not conflict with Federal laws regulating collective bargaining and employee benefit plans. The decision ends doubts about the legality of required-coverage laws enacted by about half the States and raises the possibility that other States will enact such laws.

Another possible result will be increased pressure on the Congress by industry and insurance groups seeking Federal laws prohibiting States from adopting laws requiring certain types of health insurance. During the Supreme Court proceedings, one industry group presented a friend-of-the-court brief contending that companies operating in a number of States are hit with unwarranted costs resulting from the need to vary their insurance plans from State to State. In another brief, the AFL-CIO advocated abolition of such variations in insurance plans, contending that it makes collective bargaining "more . . . difficult." □

Book Reviews



Hardship and help in the 1930's

A History of the American Worker, 1933-1941: A Caring Society—The New Deal, the Worker, and the Great Depression. By Irving Bernstein. Boston, Houghton Mifflin Co., 1985. 338 pp. \$22.95.

During the summer of 1932, when I was young and looking for work, I had lunch one day with J. B. S. Hardman, editor of *Advance*, the journal of the Amalgamated Clothing Workers. At one point, I said something to the effect that the volume of unemployment was so great that a social explosion was inevitable. Hardman, a wise man, realized that I was thinking in terms of barricades and banners in the streets. He replied, "Don't forget that at least three-fourths of the workers still have jobs."

We did avoid the barricades during the traumatic 1930's. The American economy, even during the Great Depression, had an underlying vitality. But the price of its survival was profound institutional and social change, including a large expansion in trade union organization, changes in the structure and outlook of the union movement, large and diverse Federal relief programs, the creation of a body of protective labor and social legislation, and a long-lasting political realignment.

A Caring Society is the final volume of Professor Irving Bernstein's trilogy on the history of the American worker during the years 1920 to 1941. *The Lean Years* covered the period 1920 to 1933 and dealt with labor conditions and industrial relations law; the decline in trade union organization during the sharp but short-lived depression following World War I and its failure, for both internal and external reasons, to grow during the subsequent years of prosperity; and the devastating effects of the Great Depression beginning toward the end of 1929. *Turbulent Years* covered the tremendous upsurge of labor militancy during the partial recovery in economic activity between 1933 and 1941; the emergence through legislation of a national policy on collective bargaining; the extension of trade union organization to many strategic sectors of the economy; and the split in the labor movement that was to last for two decades. *A Caring Society* also deals with the 1933 to 1941 period. Its focus is on the temporary measures devised for unemployment relief; the passage of national social security and labor

standards legislation; and the increased awareness of the worker in literature and the arts.

When President Franklin Delano Roosevelt was inaugurated in 1933, the unemployment rate had reached about 25 percent. Relief for the poor and jobless far exceeded the capacity of private agencies and State and local governments. The problem was attacked by the new Federal administration in a series of measures providing for direct relief payments, increased employment on public works, and, specifically for young people, employment in an imaginative project for the conservation of natural resources and on work programs to enable students from relatively low income families to further their education. These measures contributed to the partial recovery in economic activity after 1933, and served to ease the human tragedy associated with the Great Depression. But even by 1940, when our defense program got under way, unemployment exceeded 14 percent of the labor force.

Added to the New Deal emergency legislation for unemployment relief were other measures that laid the foundation, as Bernstein notes, of the American version of the welfare state. These principally were the Social Security Act (1935), which provided for a measure of protection against old-age dependency and involuntary unemployment through social insurance, and for several categorical public assistance programs, and the Fair Labor Standards Act (1938), which established minimum wage, maximum hour, and child labor standards for workers in industries engaged in commerce or in the production of goods for commerce.

The third major piece of New Deal legislation affecting the status of workers, the National Labor Relations Act (1935), was considered by Bernstein in the second volume of his trilogy. That act guaranteed workers the right to join unions of their own choosing and placed a duty upon employers to bargain collectively. It was designed to minimize conflict over the issue of union recognition and also to correct the perceived inequality of power between workers and employers in the labor market.

There was inevitably a substantial measure of improvisation in the development and enactment of the body of social legislation that marks the New Deal period. There were conflicts of policy and personalities within the Administration, congressional and constituency interests that

required conciliation, and constitutional hurdles to overcome. Although there is little that is really new in his account of this complicated process, Bernstein paints a clear and evocative picture of the development and implementation of Federal social legislation during this extraordinary period in our history.

The failure of the economy to recover fully from the Great Depression until the defense and war period, and particularly for the sharp slump that occurred in 1937 and 1938, was due, in Bernstein's view, to the failure of the Administration to fully accept Keynesian ideas on fiscal and monetary policy in relation to output and employment. John Maynard Keynes did communicate with President Roosevelt, and there was a personal meeting between them in 1934. But it was not until 1936 when *The General Theory of Employment, Interest, and Money* was published that Keynes' views were fully elaborated and began to penetrate academic and Federal Administration circles. Moreover, there are other keys to the midterm slump, including the rapid rise in labor costs during 1937.

Approximately one-fourth of *A Caring Society* is devoted to the effect of the depression as reflected in literature, art, photography, and song. There was graphic portrayal in numerous novels, plays of workers and working conditions, the impact of joblessness, and union organizing struggles. Bernstein presents brief synopses of many of these works, some of which have enduring literary merit. Except for a brief reference to Daniel Aaron's *Writers on the Left*, he does not deal with the ideological currents in the literary life of the period. On another level, the folk ballad, which had deep indigenous roots among workers in some ethnic groups and in some industries, also flourished during the 1930's. In painting, a strong tendency toward social realism developed, and documentary photography, although not new, expanded during the Great Depression and provided an indelible record of its social consequences.

A Caring Society properly focuses attention on the vast human tragedy of the mass unemployment of the depression years, and on the Federal legislative response beginning in 1933. It deals only marginally with the experience of the employed sector of the labor force during this period. But it was the dimensions of the unemployment problem that resulted in the rapid creation of the basic institutions of a welfare state. Had the emergency not occurred, these institutions, in an increasingly complex and urbanized society, undoubtedly would have emerged, but more slowly and perhaps in a somewhat different form.

Professor Bernstein should feel a great sense of accomplishment in the completion of this trilogy on the history of the American worker over two decades as dissimilar as the 1920's and 1930's. All of those interested in industrial relations and labor economics should feel indebted to him.

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Washington, DC.

A key to labor market research

The National Longitudinal Surveys of Labor Market Experience: An Annotated Bibliography of Research.
By Kezia V. Sproat, Helene Churchill, Carol Sheets.
Lexington, MA, D. C. Heath and Co., Lexington Books,
1985. 429 pp. \$40.

This is an annotated bibliography of close to 900 studies based on data from the National Longitudinal Surveys of Labor Market Experience. The surveys, initiated in the mid-1960's, and funded primarily by the U.S. Department of Labor, provide major employment-related information on nationally representative samples of five cohorts of the population, comprising 33,000 individuals: young men age 14 to 24 in 1966, who were interviewed periodically through 1981; men age 45 to 59, interviewed through 1983; women age 14 to 24 and 30 to 44, still being interviewed; and young men and women age 14 to 21 who were first interviewed in 1979 and continue to be interviewed. The cohorts were chosen to represent subsets of the population at critical transition stages of working life, namely, youth who are recent entrants to the work force, women who are likely to be reentering the work force, and men in their preretirement and retirement years.

As seen in the bibliography, the topics examined have been many and diverse. They include not only the "expected" issues for analysis such as long term unemployment, labor market effects of education and training, and male-female earnings differentials, but also research subjects such as health, family well-being, fertility, delinquency, collective bargaining, and job search.

The indexes in the bibliography include a list of titles and topic descriptors, as well as a list of studies arranged by cohort. This makes it convenient for the reader to look up those subject areas in which he or she has a particular interest. The list of topic descriptors, however, could have been better chosen. As the authors note in the preface, "Because the descriptors were generated by a number of abstractors working independently of each other, it is advisable to look also at Index B [the list of titles] if one wants to do a reasonably thorough literature review on any particular subject."

On the whole, the summaries of the studies provide clear descriptions of the purpose of the research and major findings. Still, in some cases, the hypotheses or the findings are not mentioned, and in some summaries, which describe the methodology of the research, the descriptions are difficult for the reader to understand.

Notwithstanding these concerns, this bibliography should be highly useful to researchers in the employment and training field. It has been long needed.

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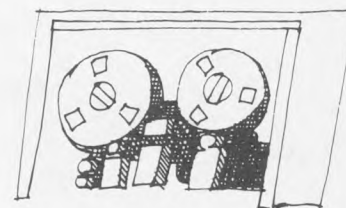
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Current Labor Statistics



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NOTES ON CURRENT LABOR STATISTICS

This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics. A brief introduction to each group of tables provides definitions, notes on the data, sources, and other material usually found in footnotes.

Readers who need additional information are invited to consult the BLS regional offices listed on the inside front cover of this issue of the *Review*. Some general notes applicable to several series are given below.

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might otherwise mask short-term movements of the statistical series. Tables containing these data are identified as "seasonally adjusted." Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years.

Seasonally adjusted labor force data in tables 3-8 were revised in the February 1985 issue of the *Review*, to reflect experience through 1984.

Beginning in January 1980, the BLS introduced two major modifications in the seasonal adjustment methodology for labor force data. First, the data are being seasonally adjusted with a new procedure called X-11/ARIMA, which was developed at Statistics Canada as an extension of the standard X-11 method. A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method* by Estela Bee Dagum (Statistics Canada Catalogue No. 12-564E, January 1983). The second change is that seasonal factors are now being calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at mid-year for the July-December period. Revisions of historical data continue to be made only at the end of each calendar year.

Annual revision of the seasonally adjusted payroll data shown in tables 11, 13, 15, and 17 were made in July 1985 using the X-11 ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in tables 29 and 30 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month to month and from quarter to quarter are published for numerous Consumer and Producer

Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of \$3 and a current price index number of 150, where 1967 = 100, the hourly rate expressed in 1967 dollars is \$2 ($\$3/150 \times 100 = \2). The resulting values are described as "real," "constant," or "1967" dollars.

Availability of information. Data that supplement the tables in this section are published by the Bureau of Labor Statistics in a variety of sources. Press releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule given below. More information from household and establishment surveys is provided in *Employment and Earnings*, a monthly publication of the Bureau. Comparable household information is published in a two-volume data book—*Labor Force Statistics Derived From the Current Population Survey*, Bulletin 2096. Comparable establishment information appears in two data books—*Employment, Hours, and Earnings, United States*, and *Employment, Hours, and Earnings, States and Areas*, and their annual supplements. More detailed information on wages and other aspects of collective bargaining appears in the monthly periodical, *Current Wage Developments*. More detailed price information is published each month in the periodicals, the *CPI Detailed Report* and *Producer Prices and Price Indexes*.

Symbols

p = preliminary. To improve the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.

r = revised. Generally, this revision reflects the availability of later data but may also reflect other adjustments.

n.e.c. = not elsewhere classified.

Schedule of release dates for BLS statistical series							
Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Export and Import Price Indexes	August 1	2nd quarter	.....	.....	.....	.....	.....
Employment situation	August 2	July	September 6	August	October 4	September	1-11
Producer Price Index	August 9	July	September 13	August	October 11	September	23-27
Consumer Price Index	August 22	July	September 24	August	October 23	September	19-22
Real earnings	August 22	July	September 24	August	October 23	September	12-16
Productivity and costs:							
Nonfinancial corporations	August 27	2nd quarter	.....	.....	.....	.....	29-32
Nonfarm business and manufacturing . . . . .	.....	.....	.....	.....	October 28	3rd quarter	29-32
Major collective bargaining settlements . . . . .	.....	.....	.....	.....	October 28	1st 9 months	36-37
Employment Cost Index . . . . .	.....	.....	.....	.....	October 29	3rd quarter	33-35

EMPLOYMENT DATA FROM THE HOUSEHOLD SURVEY

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 59,500 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

Employed persons include (1) all civilians who worked for pay any time during the week which includes the 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. Members of the Armed Forces stationed in the United States are also included in the employed total. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

Unemployed persons are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff or waiting to start new jobs within the next 30 days are also counted among the unemployed. The **overall unemployment rate** represents the number unemployed as a percent of the labor force, including the resident Armed Forces. The **unemployment**

rate for all civilian workers represents the number unemployed as a percent of the civilian labor force.

The **labor force** consists of all employed or unemployed civilians plus members of the Armed Forces stationed in the United States. Persons **not in the labor force** are those not classified as employed or unemployed; this group includes persons who are retired, those engaged in their own housework, those not working while attending school, those unable to work because of long-term illness, those discouraged from seeking work because of personal or job market factors, and those who are voluntarily idle. The **noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy, and members of the Armed Forces stationed in the United States. The **labor force participation rate** is the proportion of the noninstitutional population that is in the labor force. The **employment-population ratio** is total employment (including the resident Armed Forces) as a percent of the noninstitutional population.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the preceding years. These adjustments affect the comparability of historical data presented in table 1. A description of these adjustments and their effect on the various data series appear in the Explanatory Notes of *Employment and Earnings*.

Data in tables 2-8 are seasonally adjusted, based on the seasonal experience through December 1984.

1. Employment status of the noninstitutional population, 16 years and over, selected years, 1950-84

(Numbers in thousands)

Year	Noninstitutional population	Labor force										Not in labor force
		Number	Percent of population	Employed						Unemployed		
				Total	Percent of population	Resident Armed Forces	Civilian			Number	Percent of labor force	
							Total	Agriculture	Nonagricultural industries			
1950	106,164	63,377	59.7	60,087	56.6	1,169	58,918	7,160	51,758	3,288	5.2	42,787
1955	111,747	67,087	60.0	64,234	57.5	2,064	62,170	6,450	55,722	2,852	4.3	44,660
1960	119,106	71,489	60.0	67,639	56.8	1,861	65,778	5,458	60,318	3,852	5.4	46,617
1965	128,459	76,401	59.5	73,034	56.9	1,946	71,088	4,361	66,726	3,366	4.4	52,058
1966	130,180	77,892	59.8	75,017	57.6	2,122	72,895	3,979	68,915	2,875	3.7	52,288
1967	132,092	79,565	60.2	76,590	58.0	2,218	74,372	3,844	70,527	2,975	3.7	52,527
1968	134,281	80,990	60.3	78,173	58.2	2,253	75,920	3,817	72,103	2,817	3.5	53,291
1969	136,573	82,972	60.8	80,140	58.7	2,238	77,902	3,606	74,296	2,832	3.4	53,602
1970	139,203	84,889	61.0	80,796	58.0	2,118	78,678	3,463	75,215	4,093	4.8	54,315
1971	142,189	86,355	60.7	81,340	57.2	1,973	79,367	3,394	75,972	5,016	5.8	55,834
1972	145,939	88,847	60.9	83,966	57.5	1,813	82,153	3,484	78,669	4,882	5.5	57,091
1973	148,870	91,203	61.3	86,838	58.3	1,774	85,064	3,470	81,594	4,355	4.8	57,667
1974	151,841	93,670	61.7	88,515	58.3	1,721	86,794	3,515	83,279	5,156	5.5	58,171
1975	154,831	95,453	61.6	87,524	56.5	1,678	85,845	3,408	82,438	7,929	8.3	59,377
1976	157,818	97,826	62.0	90,420	57.3	1,668	88,752	3,331	85,421	7,406	7.6	59,991
1977	160,689	100,665	62.6	93,673	58.3	1,656	92,017	3,283	88,734	6,991	6.9	60,025
1978	163,541	103,882	63.5	97,679	59.7	1,631	96,048	3,387	92,661	6,202	6.0	59,659
1979	166,460	106,559	64.0	100,421	60.3	1,597	98,824	3,347	95,477	6,137	5.8	59,900
1980	169,349	108,544	64.1	100,907	59.6	1,604	99,303	3,364	95,938	7,637	7.0	60,806
1981	171,775	110,315	64.2	102,042	59.4	1,645	100,397	3,368	97,030	8,273	7.5	61,460
1982	173,939	111,872	64.3	101,194	58.2	1,668	99,526	3,401	96,125	10,578	9.5	62,067
1983	175,891	113,226	64.4	102,510	58.3	1,676	100,834	3,383	97,450	10,717	9.5	62,665
1984	178,080	115,241	64.7	106,702	59.9	1,697	105,005	3,321	101,685	8,539	7.4	62,839

EMPLOYMENT, HOURS, AND EARNINGS DATA FROM ESTABLISHMENT SURVEYS

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by over 200,000 establishments representing all industries except agriculture. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

Employed persons are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

Production workers in manufacturing include blue-collar worker supervisors and all nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 12-16 include production workers in manufacturing and mining; construction workers in construction; and nonsupervisory workers in transportation and public utilities; in wholesale and retail trade; in finance, insurance, and real estate; and in services industries. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The **Hourly Earnings Index** is calculated from average hourly earnings data adjusted to exclude the effects of two types of changes that are unrelated

to underlying wage-rate developments: fluctuations in overtime premiums in manufacturing (the only sector for which overtime data are available) and the effects of changes and seasonal factors in the proportion of workers in high-wage and low-wage industries.

Hours represent the average weekly hours of production or nonsupervisory workers for which pay was received and are different from standard or scheduled hours. **Overtime hours** represent the portion of gross average weekly hours which were in excess of regular hours and for which overtime premiums were paid.

The Diffusion Index, introduced in table 17 of the May 1983 issue, represents the percent of 185 nonagricultural industries in which employment was rising over the indicated period. One-half of the industries with unchanged employment are counted as rising. In line with Bureau practice, data for the 3-, 6-, and 9-month spans are seasonally adjusted, while that for the 12-month span is unadjusted. The diffusion index is useful for measuring the dispersion of economic gains or losses and is also an economic indicator.

Notes on the data

Establishment data collected by the Bureau of Labor Statistics are periodically adjusted to comprehensive counts of employment (called "benchmarks"). The latest complete adjustment was made with the release of May 1985 data, published in the July 1985 issue of the *Review*. Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Unadjusted data have been revised back to April 1983; seasonally adjusted data have been revised back to January 1980. Unadjusted data from April 1984 forward, and seasonally adjusted data from January 1981 forward are subject to revision in future benchmarks. Earlier comparable unadjusted and seasonally adjusted data are published in *Employment, Hours, and Earnings, United States, 1909-84*, BLS Bulletin 1312-12.

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9-20. See also BLS *Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982).

UNEMPLOYMENT INSURANCE DATA

NATIONAL UNEMPLOYMENT INSURANCE DATA are compiled monthly by the Employment and Training Administration of the U.S. Department of Labor from monthly reports of unemployment insurance activity prepared by State agencies. Railroad unemployment insurance data are prepared by the U.S. Railroad Retirement Board.

Definitions

Data for **all programs** represent an unduplicated count of insured unemployment under State programs, Unemployment Compensation for Ex-Servicemen, and Unemployment Compensation for Federal Employees, and the Railroad Insurance Act. The total may include persons receiving Federal-State Extended Benefits.

Under both State and Federal unemployment insurance programs for civilian employees, insured workers must report the completion of at least 1 week of unemployment before they are defined as unemployed. Persons not covered by unemployment insurance (about 10 percent of the labor force) and those who have exhausted or not yet earned benefit rights are

excluded from the scope of the survey. **Initial claims** are notices filed by persons in unemployment insurance programs to indicate they are out of work and wish to begin receiving compensation. A claimant who continued to be unemployed a full week is then counted in the insured unemployment figure. The **rate of insured unemployment** expresses the number of insured unemployed as a percent of the average insured employment in a 12-month period.

Average weekly seasonally adjusted insured unemployment data are computed by BLS' Weekly Seasonal Adjustment program. This procedure incorporated the X-11 Variant of the Census Method II Seasonal Adjustment program.

An **application** for benefits is filed by a railroad worker at the beginning of his first period of unemployment in a benefit year; no application is required for subsequent periods in the same year. **Number of payments** are payments made in 14-day registration periods. The **average amount of benefit payment** is an average for all compensable periods, not adjusted for recovery of overpayments or settlement of underpayments. However, **total benefits paid** have been adjusted.

18. Unemployment insurance and employment service operations

[All items except average benefits amounts are in thousands]

Item	1984								1985				
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. ^P	May ^P
All programs:													
Insured unemployment	2,290	2,166	2,327	2,184	2,083	2,149	2,441	2,778	3,361	3,339	3,113	2,766	....
State unemployment insurance program: ¹													
Initial claims ²	1,388	1,387	1,767	1,459	1,260	1,758	1,825	2,074	2,610	1,662	1,507	1,633	....
Insured unemployment (average weekly volume)	2,215	2,111	2,270	2,129	2,023	2,072	2,355	2,691	3,264	3,239	3,016	2,680	....
Rate of insured unemployment	2.6	2.5	2.6	2.5	2.3	2.4	2.7	3.1	3.7	3.6	3.4	3.0	....
Weeks of unemployment compensated	9,304	8,053	8,380	8,716	7,209	8,092	8,421	9,211	12,382	11,759	11,680	10,914	....
Average weekly benefit amount for total unemployment	\$123.69	\$121.96	\$119.83	\$120.24	\$122.49	\$123.19	\$123.95	\$125.36	\$126.68	\$127.28	\$128.98	\$127.58	....
Total benefits paid	\$1,109,268	\$948,381	\$974,135	\$1,017,804	\$853,424	\$962,856	\$1,005,727	\$1,114,781	\$1,505,278	\$1,450,239	\$1,423,315	\$1,347,878	....
State unemployment insurance program: ¹ (Seasonally adjusted data)													
Initial claims ²	1,614	1,559	1,661	1,618	1,707	1,746	1,765	1,602	1,766	1,814	1,709	1,714	....
Insured unemployment (average weekly volume)	2,300	2,356	2,457	2,355	2,567	2,461	2,551	2,541	2,532	2,585	2,614	2,648	....
Rate of insured unemployment	2.7	2.7	2.8	2.7	3.0	2.8	2.9	2.9	2.8	2.9	2.9	2.9	....
Unemployment compensation for ex-servicemen: ³													
Initial claims ¹	12	12	13	14	13	15	13	12	14	12	12	10	....
Insured unemployment (average weekly volume)	18	18	18	19	20	21	22	23	24	22	21	19	....
Weeks of unemployment compensated	79	71	71	79	72	86	87	88	102	86	82	76	....
Total benefits paid	\$10,577	\$9,467	\$9,573	\$10,715	\$9,820	\$11,766	\$11,984	\$11,930	\$13,901	\$11,720	\$11,193	\$10,510	....
Unemployment compensation for Federal civilian employees: ⁴													
Initial claims	9	11	12	10	9	15	12	11	14	9	8	9	....
Insured unemployment (average weekly volume)	20	19	20	19	19	21	23	24	27	26	24	20	....
Weeks of unemployment compensated	88	76	80	83	69	85	89	94	113	101	101	88	....
Total benefits paid	\$10,529	\$8,994	\$9,489	\$9,776	\$8,198	\$10,088	\$10,830	\$11,386	\$14,017	\$12,847	\$12,786	\$11,169	....
Railroad unemployment insurance:													
Applications	2	11	25	7	6	9	10	11	13	4	3	3	3
Insured unemployment (average weekly volume)	19	16	16	17	18	21	26	29	31	34	34	23	16
Number of payments	54	38	35	37	34	46	52	61	94	74	75	64	43
Average amount of benefit payment	\$188.45	\$187.37	\$189.06	\$197.85	\$196.15	\$195.20	\$198.85	\$205.26	\$206.99	\$209.76	\$209.66	\$198.24	\$190.11
Total benefits paid	\$10,233	\$7,039	\$6,691	\$6,695	\$6,349	\$8,596	....	....	....	....	....	....	....
Employment service: ⁵													
New applications and renewals	....	9,517	....	....	4,803	....	....	6,728	....	....	10,099	....	....
Nonfarm placements	....	1,810	....	....	1,182	....	....	1,577	....	....	2,238	....	....

¹ Initial claims and State insured unemployment include data under the program for Puerto Rican sugarcane workers.

² Excludes transition claims under State programs.

³ Excludes data on claims and payments made jointly with other programs.

⁴ Excludes data on claims and payments made jointly with State programs.

⁵ Cumulative total for fiscal year (October 1–September 30). Data computed quarterly.

r = revised.

p = preliminary.

NOTE: Data for Puerto Rico and the Virgin Islands included. Dashes indicate data not available.

PRICE DATA

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period (1967 = 100, unless otherwise noted).

Definitions

The Consumer Price Index is a monthly statistical measure of the average change in prices in a fixed market basket of goods and services. Effective with the January 1978 index, the Bureau of Labor Statistics began publishing CPI's for two groups of the population. It introduced a CPI for All Urban Consumers, covering 80 percent of the total noninstitutional population, and revised the CPI for Urban Wage Earners and Clerical Workers, covering about half the new index population. The All Urban Consumers index covers in addition to wage earners and clerical workers, professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items is kept essentially unchanged between major revisions so that only price changes will be measured. Data are collected from more than 24,000 retail establishments and 24,000 tenants in 85 urban areas across the country. All taxes directly associated with the purchase and use of items are included in the index. Because the CPI's are based on the expenditures of two population groups in 1972-73, they may not accurately reflect the experience of individual families and single persons with different buying habits.

Though the CPI is often called the "Cost-of-Living Index," it measures only price change, which is just one of several important factors affecting living costs. Area indexes do not measure differences in the level of prices among cities. They only measure the average change in prices for each area since the base period.

Producer Price Indexes measure average changes in prices received in primary markets of the United States by producers of commodities in all stages of processing. The sample used for calculating these indexes contains about 2,800 commodities and about 10,000 quotations per month selected to represent the movement of prices of all commodities produced in the manufacturing, agriculture, forestry, fishing, mining, gas and electricity, and public utilities sectors. The universe includes all commodities produced or imported for sale in commercial transactions in primary markets in the United States.

Producer Price Indexes can be organized by stage of processing or by commodity. The stage of processing structure organizes products by degree of fabrication (that is, finished goods, intermediate or semifinished goods, and crude materials). The commodity structure organizes products by similarity of end-use or material composition.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States, from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

In calculating Producer Price Indexes, price changes for the various commodities are averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1972. The detailed data are aggregated to obtain indexes for stage of processing groupings, commodity groupings, durability of product groupings, and a number of special composite groupings.

Price indexes for the output of selected SIC industries measure average price changes in commodities produced by particular industries, as defined in the *Standard Industrial Classification Manual 1972* (Washington, U.S. Office of Management and Budget, 1972). These indexes are derived from several price series, combined to match the economic activity of the specified industry and weighted by the value of shipments in the industry. They use data from comprehensive industrial censuses conducted by the U.S. Bureau of the Census and the U.S. Department of Agriculture.

Notes on the data

Regional CPI's cross classified by population size were introduced in the May 1978 *Review*. These indexes enable users in local areas for which an index is not published to get a better approximation of the CPI for their area by using the appropriate population size class measure for their region. The cross-classified indexes are published bimonthly. (See table 20.)

For details concerning the 1978 revision of the CPI, see *The Consumer Price Index: Concepts and Content Over the Years*, Report 517, revised edition (Bureau of Labor Statistics, May 1978).

As of January 1976, the Producer Price Index incorporated a revised weighting structure reflecting 1972 values of shipments.

Additional data and analyses of price changes are provided in the *CPI Detailed Report* and *Producer Prices and Price Indexes*, both monthly publications of the Bureau.

For a discussion of the general method of computing producer, and industry price indexes, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 7. For consumer prices, see *BLS Handbook of Methods for Surveys and Studies* (1976), chapter 13. See also John F. Early, "Improving the measurement of producer price change," *Monthly Labor Review*, April 1978. For industry prices, see also Bennett R. Moss, "Industry and Sector Price Indexes," *Monthly Labor Review*, August 1965.

22. Consumer Price Index—U.S. city average, and selected areas

[1967 = 100 unless otherwise specified]

Area ¹	All Urban Consumers							Urban Wage Earners and Clerical Workers						
	1984		1985					1984		1985				
	May	Dec.	Jan.	Feb.	Mar.	Apr.	May	May	Dec.	Jan.	Feb.	Mar.	Apr.	May
U.S. city average ²	309.7	315.5	316.1	317.4	318.8	320.1	321.3	305.4	312.2	312.6	313.9	315.3	316.7	317.8
Anchorage, Alaska (10/67 = 100)	275.3	...	278.3	...	280.0	...	278.8	265.1	...	271.7	...	273.1	...	271.9
Atlanta, Ga.	...	318.2	...	322.6	...	324.6	...	...	316.0	...	320.3	...	322.3	...
Baltimore, Md.	311.3	...	315.2	...	320.7	...	323.1	309.4	...	315.1	...	320.2	...	322.3
Boston, Mass.	303.1	...	309.4	...	314.4	...	315.2	300.8	...	307.8	...	312.3	...	313.2
Buffalo, N.Y.	...	303.4	...	301.3	...	305.4	...	...	289.8	...	288.1	...	291.9	...
Chicago, Ill.—Northwestern Ind.	307.0	314.0	315.1	316.7	317.4	319.1	319.8	296.5	301.7	302.5	304.0	304.7	306.2	306.9
Cincinnati, Ohio—Ky.—Ind.	321.9	...	325.1	...	328.4	...	330.4	312.3	...	318.9	...	322.2	...	324.0
Cleveland, Ohio	...	339.7	...	340.4	...	342.4	...	...	318.6	...	319.8	...	321.8	...
Dallas—Ft. Worth, Tex.	...	330.7	...	333.2	...	335.6	...	...	325.0	...	...	329.9	329.6	...
Denver—Boulder, Colo.	346.6	...	350.6	...	355.1	...	356.3	341.0	...	346.2	...	350.7	...	351.9
Detroit, Mich.	305.7	309.1	310.9	313.7	315.5	315.8	316.7	298.3	300.0	301.2	304.0	306.0	306.3	306.6
Honolulu, Hawaii	...	289.8	...	292.6	...	292.7	...	...	297.6	...	300.3	...	300.1	...
Houston, Tex.	...	333.4	...	333.6	...	335.3	...	...	330.9	...	331.1	...	332.8	...
Kansas City, Mo.—Kansas	...	313.7	...	314.6	...	319.8	...	...	304.0	...	304.4	...	309.7	...
Los Angeles—Long Beach, Anaheim, Calif.	305.4	311.1	313.0	314.1	314.7	315.9	319.1	303.1	306.5	308.1	309.1	309.8	311.2	314.1
Miami, Fla. (11/77 = 100)	166.4	...	168.6	...	170.1	...	171.0	167.2	...	169.8	...	171.3	...	172.2
Milwaukee, Wis.	320.5	...	324.6	...	327.8	...	330.9	338.2	...	343.4	...	346.9	...	350.2
Minneapolis—St. Paul, Minn.—Wis.	...	327.9	...	330.4	...	333.6	...	...	323.8	...	306.0	...	329.2	...
New York, N.Y.—Northeastern N.J.	300.8	308.0	308.4	310.2	310.9	311.8	312.6	291.6	301.6	302.0	303.6	304.2	305.1	305.8
Northeast, Pa. (Scranton)	294.7	...	301.5	...	304.9	...	306.0	295.5	...	301.0	...	304.2	...	305.2
Philadelphia, Pa.—N.J.	298.7	305.1	306.3	309.2	310.4	312.4	314.2	300.5	307.9	309.4	312.4	313.5	315.3	317.2
Pittsburgh, Pa.	...	322.1	...	323.8	...	324.3	...	...	304.6	...	306.0	...	306.8	...
Portland, Oreg.—Wash.	301.9	...	306.8	...	309.0	...	310.4	297.5	...	297.4	...	299.8	...	301.2
St. Louis, Mo.—Ill.	305.4	...	313.3	...	314.3	...	315.9	297.3	...	310.4	...	311.0	...	313.0
San Diego, Calif.	353.0	...	364.1	...	369.2	...	372.1	327.8	...	329.1	...	333.7	...	336.5
San Francisco—Oakland, Calif.	...	325.8	...	328.7	...	330.4	...	...	321.5	...	324.2	...	326.1	...
Seattle—Everett, Wash.	313.0	...	319.5	...	321.4	...	321.0	302.7	...	306.7	...	309.0	...	308.4
Washington, D.C.—Md.—Va.	305.7	...	314.6	...	319.2	...	319.8	308.9	...	317.7	...	322.3	...	323.0

¹The areas listed include not only the central city but the entire portion of the Standard Metropolitan Statistical Area, as defined for the 1970 Census of Population, except that the Standard Consolidated Area is used for New York and Chicago.

²Average of 85 cities.

27. Producer Price Indexes for the output of selected SIC industries

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1984	1984								1985						
			May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ¹	Mar.	Apr.	May	June	
MINING																	
1092	Mercury ores (12/75 = 100)	264.3	273.7	271.6	264.6	249.1	257.1	271.6	276.6	267.9	264.1	262.1	262.1	260.0	243.7	256.6	
1311	Crude petroleum and natural gas	913.7	914.1	918.4	921.6	928.3	918.2	916.2	906.2	901.6	880.3	r878.0	866.8	868.6	891.6	873.5	
MANUFACTURING																	
2074	Cottonseed oil mills	209.2	245.3	243.1	223.2	210.2	205.0	172.9	166.9	177.7	166.4	r169.3	163.2	164.8	165.0	171.1	
2083	Malt	240.4	241.6	241.6	241.6	241.6	241.6	241.6	234.5	234.5	226.5	226.5	226.5	226.5	226.5	218.5	
2098	Macaroni and spaghetti	261.6	261.9	261.9	261.9	261.9	261.9	261.9	261.9	261.9	258.6	258.6	261.9	258.6	258.6	258.6	
2298	Cordage and twine (12/77 = 100)	138.9	139.4	139.4	138.6	138.5	138.5	138.5	138.5	138.5	138.5	138.5	138.5	138.5	138.5	138.5	
2381	Fabric dress and work gloves	310.5	315.6	315.6	315.6	315.6	315.6	315.6	315.6	315.6	313.5	314.9	314.9	314.9	314.9	317.6	
2394	Canvas and related products (12/77 = 100)	151.1	150.6	150.6	150.6	150.6	152.1	152.1	152.1	152.1	152.1	r152.1	152.9	152.5	152.5	152.5	
2448	Wood pallets and skids (12/75 = 100)	164.2	165.1	165.4	168.6	168.6	168.7	168.3	168.2	168.5	169.0	r169.4	169.4	170.1	170.1	170.7	
2521	Wood office furniture	290.4	289.2	289.2	289.1	289.2	291.1	291.2	295.1	298.6	299.8	r299.8	301.0	303.1	303.2	304.5	
2654	Sanitary food containers	279.1	280.6	280.7	280.6	280.7	281.3	281.4	281.5	281.4	283.9	r286.5	289.7	289.8	288.6	288.8	
2655	Fiber cans, drums, and similar products (12/75 = 100)	193.7	193.1	193.1	194.7	194.7	194.7	194.8	197.8	197.8	199.1	200.0	200.0	200.0	199.9	200.0	
2911	Petroleum refining (6/76 = 100)	244.2	248.1	248.8	246.5	240.1	237.5	240.9	242.7	239.4	233.2	r225.2	226.7	232.7	240.9	240.5	
3253	Ceramic wall and floor tile (12/75 = 100)	151.2	149.6	149.6	149.6	153.4	153.4	153.4	153.4	153.4	153.4	r153.4	150.5	150.5	150.5	160.6	
3255	Clay refractories	371.9	371.5	371.7	371.6	371.4	371.4	371.4	378.8	378.8	379.4	r379.4	383.3	387.3	391.7	391.7	
3259	Structural clay products, n.e.c.	232.6	232.4	232.4	232.4	232.3	232.4	232.4	232.4	232.5	237.1	r237.0	237.5	237.6	237.7	237.8	
3261	Vitreous plumbing fixtures	292.7	290.8	292.5	293.1	293.9	295.6	297.7	297.6	298.1	297.9	298.8	298.1	299.3	302.7	303.3	
3263	Fine earthenware food utensils	377.5	376.5	372.1	373.3	374.0	374.8	375.9	378.2	379.4	382.3	r383.9	385.5	369.5	373.7	374.7	
3269	Pottery products, n.e.c. (12/75 = 100)	192.1	192.2	186.3	187.6	187.6	197.7	195.2	195.3	195.3	198.8	r199.0	199.4	198.9	199.0	199.0	
3274	Lime (12/75 = 100)	183.0	184.1	183.3	180.3	179.6	187.2	180.5	182.1	183.0	187.4	r185.1	185.2	182.3	182.5	185.6	
3297	Nonclay refractories (12/74 = 100)	219.2	220.1	220.1	219.9	219.9	220.3	219.9	220.2	220.2	220.5	r220.3	220.4	220.4	220.5	220.6	
3482	Small arms ammunition (12/75 = 100)	190.3	190.3	190.3	190.3	190.3	190.3	190.3	190.3	190.3	195.9	r198.8	205.5	205.5	205.5	205.5	
3648	Lighting equipment, n.e.c. (12/75 = 100)	186.6	185.6	185.7	186.3	188.1	188.2	194.4	196.9	196.9	196.9	197.4	197.4	196.1	195.5	195.7	197.7
3671	Electron tubes, receiving type	497.2	490.9	491.3	491.6	491.6	491.8	492.0	527.2	527.2	546.9	r547.1	547.0	547.0	547.1	547.1	
3942	Dolls (12/75 = 100)	134.4	133.4	133.6	133.6	133.6	133.6	133.6	133.6	133.6	134.6	r134.7	134.5	134.5	134.5	134.5	
3944	Games, toys, and children's vehicles	239.5	239.1	239.2	239.2	239.1	239.3	239.4	239.4	239.4	240.9	r246.1	243.1	242.9	242.9	242.9	
3955	Carbon paper and inked ribbons (12/75 = 100)	145.7	149.1	149.1	146.7	146.7	146.7	139.7	139.7	139.7	139.7	139.4	129.5	128.6	126.3	126.3	
3996	Hard surface floor coverings (12/75 = 100)	167.5	166.4	166.4	168.7	168.8	168.8	169.7	169.7	169.7	172.1	r172.1	172.1	172.1	172.1	173.5	

¹Data for February 1985 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

r = revised.

PRODUCTIVITY DATA

PRODUCTIVITY DATA are compiled by the Bureau of Labor Statistics from establishment data and from measures of compensation and output supplied by the U.S. Department of Commerce and the Federal Reserve Board.

Definitions

Output is the constant dollar gross product produced by the particular sector. **Output per hour of all persons** (labor productivity) measures the value of goods and services in constant prices produced per hour of labor. **Output per unit of capital services** (capital productivity) measures the value of goods and services in constant dollars per unit of capital services input.

Multifactor productivity measures the output per unit of combined labor and capital input. The traditional measure of output per hour reflects changes in capital per hour and a combination of other factors—such as, changes in technology, shifts in the composition of the labor force, changes in capacity utilization, research and development, skill and efforts of the work force, management, and so forth. The multifactor productivity measure differs from the familiar BLS measure of output per hour of all persons in that it excludes the effects of the substitution of capital for labor.

Compensation per hour includes wages and salaries of employees plus employers' contributions for social insurance and private benefit plans. The data also include an estimate of wages, salaries, and supplementary payments for the self-employed, except for nonfinancial corporations, in which there are no self-employed. **Real compensation per hour** is compensation per hour adjusted by the Consumer Price Index for All Urban Consumers.

Unit labor costs measure the labor compensation costs required to produce a unit of output and is derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current dollar gross product and dividing by output. **Unit nonlabor costs** contain all the components of unit nonlabor payments except unit profits. **Unit profits** include corporate profits and the value of inventory adjustments per unit of output.

The **implicit price deflator** is the price index for the gross product of the sector reported. It is derived by dividing the current dollar gross product by the constant dollar figures.

Hours of all persons measures the labor input of payroll workers, self-employed persons, and unpaid family workers. **Output per all employee**

hour describes labor productivity in nonfinancial corporations where there are no self-employed. The **capital services** input index used in the multifactor productivity computation is developed by BLS from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset. **Combined units of labor and capital input** are computed by combining changes in labor and capital inputs with weights which represent each component's share of total output. The indexes for capital services and combined units of labor and capital are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

Notes on the data

In the business sector and the nonfarm business sector, the output measure employed in the computation of output per hour is constructed from Gross Domestic Product rather than Gross National Product. Multifactor productivity measures (table 28) for the *private* business and *private* nonfarm business sectors differ from the business and nonfarm business sector measures used in the traditional labor productivity indexes (tables 29–32) in that they exclude the activities of government enterprises. There is no difference in the sector definition for manufacturing.

Output measures for the business sectors are derived from data supplied by the Bureau of Economic Analysis, U.S. Department of Commerce, and the Federal Reserve Board. Quarterly manufacturing output indexes are adjusted by the Bureau of Labor Statistics to annual estimates of output (gross product originating) from the Bureau of Economic Analysis. Compensation and hours data are from the Bureau of Labor Statistics and the Bureau of Economic Analysis.

The productivity and associated cost measures in the tables describe the relationship between output in real terms and the labor time and capital services involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input. Although these measures relate output to hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and materials; the organization of production; managerial skill; and the characteristics and efforts of the work force. For a more complete description of the methodology underlying the multifactor productivity measures, see Bulletin 2178, "Trends in Multifactor Productivity, 1948–81" (September 1983).

32. Percent change from preceding quarter and year in productivity, hourly compensation, unit costs, and prices, seasonally adjusted at annual rate

Item	Quarterly percent change at annual rate						Percent change from same quarter a year ago					
	III 1983 to IV 1983	IV 1983 to I 1984	I 1984 to II 1984	II 1984 to III 1984	III 1984 to IV 1984	IV 1984 to I 1985	IV 1982 to IV 1983	I 1983 to I 1984	II 1983 to II 1984	III 1983 to III 1984	IV 1983 to IV 1984	I 1984 to I 1985
Business sector:												
Output per hour of all persons	1.4	4.0	4.9	0.6	3.1	r -3.5	3.1	3.5	3.3	2.7	3.2	1.2
Compensation per hour	6.1	6.2	1.9	4.4	4.4	r 5.2	3.7	4.1	4.0	4.6	4.2	3.9
Real compensation per hour	1.9	0.8	-1.8	0.7	0.8	r 1.8	0.4	-0.4	-0.3	0.4	0.1	0.4
Unit labor costs	4.6	2.1	-2.9	3.7	1.2	r 9.0	0.6	0.6	0.7	1.9	1.0	2.7
Unit nonlabor payments	3.1	7.0	15.4	3.4	4.3	r -1.6	9.2	8.4	8.7	7.1	7.4	5.2
Implicit price deflator	4.1	3.7	2.9	3.6	2.2	r 5.3	3.3	3.0	3.3	3.6	3.1	3.5
Nonfarm business sector:												
Output per hour of all persons	1.0	2.9	5.5	-1.1	2.2	r -2.5	3.9	3.5	2.9	2.1	2.4	1.0
Compensation per hour	4.1	6.1	3.7	3.6	3.7	r 5.4	3.9	4.0	4.0	4.4	4.3	4.1
Real compensation per hour	-0.0	0.7	0.0	0.1	0.1	r 2.1	0.6	-0.5	-0.3	0.2	0.2	0.5
Unit labor costs	3.0	3.1	-1.7	4.7	1.4	r 8.1	0.0	0.4	1.1	2.3	1.9	3.1
Unit nonlabor payments	5.3	2.3	12.5	3.1	5.9	r 1.6	10.9	8.3	7.1	5.7	5.9	5.7
Implicit price deflator	3.7	2.8	2.8	4.2	2.9	r 5.9	3.3	2.9	3.0	3.4	3.2	3.9
Nonfinancial corporations:												
Output per hour of all employees	-0.2	3.6	2.8	-2.5	2.5	-2.8	3.9	4.0	2.9	0.9	1.6	0.0
Compensation per hour	2.0	5.7	2.4	3.2	3.7	4.0	3.1	3.6	3.3	3.3	3.8	3.3
Real compensation per hour	-2.1	0.4	-1.3	-0.4	0.2	0.7	-0.1	-0.9	-1.0	-0.9	-0.3	0.2
Total units costs	0.8	0.6	0.2	6.5	1.2	6.6	-1.5	-1.1	-0.1	2.0	2.1	3.6
Unit labor costs	2.1	2.0	-0.4	5.9	1.2	7.0	-0.8	-0.4	0.4	2.4	2.2	3.4
Unit nonlabor costs	-2.6	-3.2	2.0	8.0	1.1	5.5	-3.2	-3.0	-1.4	0.9	1.9	4.1
Unit profits	32.6	23.4	23.8	-14.5	16.0	-1.3	79.8	54.8	35.2	14.7	10.9	4.9
Implicit price deflator	3.6	2.7	2.6	3.9	2.7	5.7	3.3	2.8	2.9	3.2	3.0	3.7
Manufacturing:												
Output per hour of all persons	-1.4	3.5	3.6	7.1	-2.2	0.6	4.8	4.4	3.7	3.1	2.9	2.2
Compensation per hour	2.9	6.2	2.9	3.7	5.2	5.8	2.2	2.7	3.3	3.9	4.5	4.4
Real compensation per hour	-1.2	0.8	-0.8	0.1	1.6	2.4	-1.0	-1.7	-1.0	-0.3	0.4	0.8
Unit labor costs	4.3	2.6	-0.6	-3.1	7.6	5.1	-2.4	-1.6	-0.4	0.8	1.5	2.1

r = revised.

WAGE AND COMPENSATION DATA

DATA FOR THE EMPLOYMENT COST INDEX are reported to the Bureau of Labor Statistics by a sample of 2,000 private nonfarm establishments and 750 State and local government units selected to represent total employment in those sectors. On average, each reporting unit provides wage and compensation information on five well-specified occupations.

Data on negotiated wage and benefit changes are obtained from contracts on file at the Bureau, direct contact with the parties, and secondary sources.

Definitions

The **Employment Cost Index** (ECI) is a quarterly measure of the average change in the cost of employing labor. The rate of total compensation, which comprises wages, salaries, and employer costs for employee benefits, is collected for workers performing specified tasks. Employment in each occupation is held constant over time for all series produced in the ECI, except those by region, bargaining status, and area. As a consequence, only changes in compensation are measured. Industry and occupational employment data from the 1970 Census of Population are used in deriving constant weights for the ECI. While holding total industry and occupational employment fixed, in the estimation of indexes by region, bargaining status, and area, the employment in those measures is allowed to vary over time in accord with changes in the sample. The rate of change (in percent) is available for wages and salaries, as well as for total compensation. Data are collected for the pay period including the 12th day of the survey months of March, June, September, and December. The statistics are neither annualized nor adjusted for seasonal influence.

Wages and salaries consist of earnings before payroll deductions, excluding premium pay for overtime, work on weekends and holidays, and shift differentials. Production bonuses, incentive earnings, commissions, and cost-of-living adjustments are included; nonproduction bonuses are included with other supplemental pay items in the benefits category; and payments-in-kind, free room and board, and tips are excluded. *Benefits* include supplemental pay, insurance, retirement and savings plans, and hours-related and legally required benefits.

Data on negotiated wage changes apply to private nonfarm industry collective bargaining agreements covering 1,000 workers or more. Data on compensation changes apply only to those agreements covering 5,000 workers or more. *First-year* wage or compensation changes refer to average negotiated changes for workers covered by settlements reached in the period

and implemented within the first 12 months after the effective date of the agreement. *Changes over the life of the agreement* refer to all adjustments specified in the contract, expressed as an average annual rate. These measures exclude wage changes that may occur under cost-of-living adjustment clauses, that are triggered by movements in the Consumer Price Index. *Wage-rate changes* are expressed as a percent of straight-time hourly earnings; *compensation changes* are expressed as a percent of total wages and benefits.

Effective wage adjustments reflect all negotiated changes implemented in the reference period, regardless of the settlement date. They include changes from settlements reached during the period, changes deferred from contracts negotiated in an earlier period, and cost-of-living adjustments. The data also reflect contracts providing for no wage adjustment in the period. Effective adjustments and each of their components are prorated over all workers in bargaining units with at least 1,000 workers.

Notes on the data

The Employment Cost Index data series began in the fourth quarter of 1975, with the quarterly percent change in wages and salaries in the private nonfarm sector. Data on employer costs for employee benefits were included in 1980, to produce a measure of the percent change in employers' cost for employees' total compensation. State and local government units were added to the ECI coverage in 1981, providing a measure of total compensation change in the civilian nonfarm economy.

Data for the broad white-collar, blue-collar, and service worker groups, and the manufacturing, nonmanufacturing, and service industry groups are presented in the ECI. Additional occupation and industry detail are provided for the wages and salaries component of total compensation in the private nonfarm sector. For State and local government units, additional industry detail is shown for both total compensation and its wages and salaries component.

Historical indexes (June 1981 = 100) of the quarterly rates of changes presented in the ECI are also available.

For a more detailed discussion of the ECI, see chapter 11, "The Employment Cost Index," of the *BLS Handbook of Methods* (Bulletin 2134-1), and the *Monthly Labor Review* articles: "Employment Cost Index: a measure of change in the 'price of labor,'" July 1975; "How benefits will be incorporated into the Employment Cost Index," January 1978; and "The Employment Cost Index: recent trends and expansion," May 1982.

Additional data for the ECI and other measures of wage and compensation changes appear in *Current Wage Developments*, a monthly publication of the Bureau.

33. Employment Cost Index, by occupation and industry group

[June 1981 = 100]

Series	1983				1984				1985	Percent change	
	March	June	Sept.	Dec.	March	June	Sept.	Dec.		March	3 months ended	12 months ended
									March 1985		
Civilian workers¹	113.2	114.5	116.5	117.8	119.8	120.8	122.4	123.9	125.5	1.3	4.8
Workers, by occupational group											
White-collar workers	113.7	114.9	117.6	118.9	120.9	122.1	124.0	125.5	127.3	1.4	5.3
Blue-collar workers	112.3	113.6	114.8	115.8	117.7	118.6	119.6	120.9	122.2	1.1	3.8
Service workers	114.3	115.1	116.7	119.1	122.0	122.1	124.6	126.8	127.8	0.8	4.8
Workers, by industry division											
Manufacturing	112.5	113.5	115.0	116.0	117.9	119.1	120.4	122.0	123.9	1.6	5.1
Nonmanufacturing	113.5	114.9	117.2	118.6	120.7	121.6	123.3	124.8	126.2	1.1	4.6
Services	116.6	117.1	121.1	122.6	125.0	125.5	128.8	130.9	131.9	.8	5.5
Public administration ²	116.2	117.0	119.8	121.4	122.9	123.7	126.9	128.6	130.1	1.2	5.9
Private industry workers	112.6	113.9	115.6	117.0	119.0	120.1	121.1	122.7	124.2	1.2	4.4
Workers, by occupational group											
White-collar workers	112.8	114.2	116.5	117.9	119.9	121.4	122.4	123.9	125.8	1.5	4.9
Blue-collar workers	112.1	113.5	114.6	115.7	117.5	118.4	119.3	120.6	121.9	1.1	3.7
Service workers	113.8	114.6	115.1	117.9	121.5	121.2	123.2	125.7	126.3	.5	4.0
Workers, by industry division											
Manufacturing	112.5	113.5	115.0	116.0	117.9	119.1	120.4	122.0	123.9	1.6	5.1
Nonmanufacturing	112.6	114.2	116.0	117.5	119.6	120.7	121.6	123.1	124.4	1.1	4.0
State and local government workers	116.5	117.1	120.8	122.0	123.9	124.4	128.8	130.1	131.7	1.2	6.3
Workers, by occupational group											
White-collar workers	117.0	117.5	121.5	122.6	124.5	125.0	129.7	131.1	132.5	1.1	6.4
Blue-collar workers	114.9	115.8	118.0	119.2	121.9	122.3	125.0	125.9	128.1	1.7	5.1
Workers, by industry division											
Services	116.8	117.4	121.7	122.6	124.5	125.0	129.9	131.3	132.8	1.1	6.7
Schools	116.6	116.9	121.9	122.6	124.5	124.7	130.6	132.0	133.4	1.1	7.1
Elementary and secondary	117.2	117.4	123.3	123.9	125.4	125.7	132.1	133.5	134.4	.7	7.2
Hospitals and other services ³	117.5	118.8	121.1	122.6	124.4	125.7	127.9	129.2	131.1	1.5	5.4
Public administration ²	116.2	117.0	119.8	121.4	122.9	123.7	126.9	128.6	130.1	1.2	5.9

¹Excludes farm, household, and Federal workers.

²Consists of legislative, judicial, administrative, and regulatory activities.

³Includes, for example, library, social, and health services.

34. Employment Cost Index, wages and salaries, by occupation and industry group

(June 1981 = 100)

Series	1983				1984				1985	Percent change	
	March	June	Sept.	Dec.	March	June	Sept.	Dec.	March	3 months ended	12 months ended
										March 1985	
Civilian workers¹	112.2	113.4	115.3	116.5	117.9	118.8	120.3	121.7	123.1	1.2	4.4
Workers, by occupational group											
White-collar workers	113.0	114.2	116.7	117.9	119.3	120.4	122.2	123.5	125.2	1.4	4.9
Blue-collar workers	110.8	112.0	113.1	114.0	115.3	116.1	117.0	118.2	119.3	0.9	3.5
Service workers	113.2	113.9	115.1	117.4	120.0	119.8	122.3	124.3	124.8	.4	4.0
Workers, by industry division											
Manufacturing	111.0	112.0	113.3	114.5	115.7	116.8	118.0	119.5	121.0	1.3	4.6
Nonmanufacturing	112.7	114.0	116.1	117.4	118.9	119.7	121.3	122.6	123.9	1.1	4.2
Services	115.8	116.3	120.1	121.3	123.3	123.8	127.2	128.9	129.7	.6	5.2
Public administration ²	114.6	115.4	118.2	119.4	120.4	121.3	124.4	125.7	127.0	1.0	5.5
Private industry workers	111.6	112.9	114.5	115.8	117.2	118.2	119.2	120.6	122.0	1.2	4.1
Workers, by occupational group											
White-collar workers	112.2	113.6	115.9	117.2	118.5	119.9	120.9	122.3	124.0	1.4	4.6
Professional and technical workers	114.8	115.9	119.9	120.4	122.2	123.8	125.2	127.3	127.7	.3	4.5
Managers and administrators	112.0	114.0	114.8	115.7	118.0	119.2	121.0	122.2	123.8	1.3	4.9
Salesworkers	105.7	107.1	108.4	111.2	110.2	111.9	110.5	111.6	116.3	4.2	5.5
Clerical workers	113.4	114.6	116.7	118.3	119.8	120.7	122.0	122.9	124.7	1.5	4.1
Blue-collar workers	110.7	111.9	112.9	113.9	115.1	115.9	116.7	118.0	119.1	.9	3.5
Craft and kindred workers	112.2	113.4	114.3	115.4	116.5	117.3	118.0	119.4	120.8	1.2	3.7
Operatives, except transport	110.0	111.1	112.3	113.6	114.9	115.8	116.6	117.9	118.9	.8	3.5
Transport equipment operatives	108.0	110.3	110.7	110.2	111.7	112.7	113.4	114.0	114.5	.4	2.5
Nonfarm laborers	109.0	109.8	110.8	112.1	112.9	114.1	114.7	115.9	116.7	.7	3.4
Service workers	112.9	113.5	113.7	116.5	119.8	119.3	121.2	123.7	123.8	.1	3.3
Workers, by industry division											
Manufacturing	111.0	112.0	113.3	114.5	115.7	116.8	118.0	119.5	121.0	1.3	4.6
Durables	111.1	111.8	112.9	114.4	115.7	116.6	117.7	119.1	120.6	1.3	4.2
Nondurables	110.9	112.3	113.9	114.6	115.8	117.1	118.6	120.2	121.6	1.2	5.0
Nonmanufacturing	112.0	113.4	115.2	116.5	118.0	119.0	119.9	121.2	122.6	1.2	3.9
Construction	110.4	112.1	112.2	112.9	113.3	114.0	114.3	114.4	115.5	1.0	1.9
Transportation and public utilities	112.9	114.7	115.7	116.8	118.5	119.3	119.9	120.7	121.7	.8	2.7
Wholesale and retail trade	108.5	110.8	111.5	112.3	114.3	116.0	116.5	118.1	118.8	.6	3.9
Wholesale trade	111.8	114.1	115.7	116.5	118.2	120.0	120.7	122.9	123.7	.7	4.7
Retail trade	107.2	109.4	109.9	110.6	112.8	114.4	114.9	116.2	116.9	.6	3.6
Finance, insurance, and real estate	110.6	111.1	113.5	116.9	116.1	116.9	115.3	115.8	122.0	5.4	5.1
Services	116.0	116.6	120.4	121.9	124.2	124.7	127.1	129.5	129.9	.3	4.6
State and local government workers	115.1	115.7	119.2	120.0	121.6	122.0	126.1	127.1	128.4	1.0	5.6
Workers, by occupational group											
White-collar workers	115.6	116.1	119.8	120.6	122.2	122.5	127.1	128.0	129.3	1.0	5.8
Blue-collar workers	113.3	114.3	116.4	116.9	119.1	119.6	121.9	122.5	124.2	1.4	4.3
Workers, by industry division											
Services	115.5	115.9	119.8	120.6	122.2	122.5	127.2	128.1	129.4	1.0	5.9
Schools	115.2	115.4	119.9	120.6	122.2	122.3	127.8	128.7	129.9	.9	6.3
Elementary and secondary	115.6	115.8	121.1	121.7	122.9	123.0	129.3	130.2	130.8	.5	6.4
Hospitals and other services ³	116.5	117.7	119.7	120.6	121.9	123.1	125.1	125.9	127.7	1.4	4.8
Public administration ²	114.6	115.4	118.2	119.4	120.4	121.3	124.4	125.7	127.0	1.0	5.5

¹Excludes farm, household, and Federal workers.

²Consists of legislative, judicial, administrative, and regulatory activities.

³Includes, for example, library, social, and health services.

35. Employment Cost Index, private industry workers, by bargaining status, region, and area size

[June 1981 = 100]

Series	1983				1984				1985	Percent change	
	March	June	Sept.	Dec.	March	June	Sept.	Dec.		3 months ended	12 months ended
									March 1985		
COMPENSATION											
Workers, by bargaining status ¹											
Union	114.5	116.0	117.8	118.8	120.6	121.7	122.6	123.9	124.8	0.7	3.5
Manufacturing	114.0	114.8	116.3	117.2	119.3	120.5	121.6	123.2	124.2	.8	4.1
Nonmanufacturing	114.9	117.1	119.2	120.4	121.9	122.8	123.6	124.5	125.3	.6	2.8
Nonunion	111.5	112.8	114.4	115.9	118.0	119.2	120.3	121.9	123.8	1.6	4.9
Manufacturing	111.2	112.3	113.8	114.9	116.6	117.9	119.3	120.8	123.6	2.3	6.0
Nonmanufacturing	111.6	113.0	114.7	116.4	118.6	119.8	120.7	122.4	123.9	1.2	4.5
Workers, by region ¹											
Northeast	112.6	114.3	116.0	117.5	118.9	120.7	122.4	123.8	125.1	1.1	5.2
South	112.5	113.5	115.6	117.1	119.7	120.7	120.7	122.2	124.2	1.6	3.8
North Central	110.9	112.5	113.9	114.7	117.2	117.9	119.7	120.8	122.0	1.0	4.1
West	115.4	116.6	118.0	120.0	121.0	122.2	122.5	124.9	126.8	1.5	4.8
Workers, by area size ¹											
Metropolitan areas	112.9	114.2	116.0	117.4	119.4	120.6	121.5	123.2	124.7	1.2	4.4
Other areas	110.8	112.3	113.4	114.5	116.7	117.4	119.0	119.8	121.4	1.3	4.0
WAGES AND SALARIES											
Workers, by bargaining status ¹											
Union	112.9	114.2	116.0	116.9	118.1	119.0	119.8	120.9	121.7	.7	3.0
Manufacturing	111.4	112.3	113.7	114.8	116.1	117.1	118.1	119.5	120.4	.8	3.7
Nonmanufacturing	114.3	116.0	118.3	118.9	120.1	120.7	121.3	122.1	122.8	.6	2.2
Nonunion	110.9	112.2	113.7	115.2	116.7	117.8	118.8	120.4	122.1	1.4	4.6
Manufacturing	110.7	111.8	113.0	114.2	115.4	116.5	117.9	119.5	121.5	1.7	5.3
Nonmanufacturing	111.0	112.4	114.0	115.6	117.2	118.3	119.2	120.7	122.3	1.3	4.4
Workers, by region ¹											
Northeast	112.0	113.6	115.3	116.6	117.4	118.9	120.5	121.9	123.0	.9	4.8
South	111.4	112.5	114.3	115.7	117.9	119.0	119.0	120.2	122.3	1.7	3.7
Midwest (formerly North Central)	110.1	111.5	112.8	113.6	115.5	116.0	117.8	118.7	119.6	.8	3.5
West	114.1	114.9	116.5	118.5	118.8	119.6	120.0	122.5	124.0	1.2	4.4
Workers, by area size ¹											
Metropolitan areas	111.9	113.2	114.9	116.2	117.6	118.6	119.5	121.0	122.4	1.2	4.1
Other areas	110.1	111.4	112.3	113.4	115.1	116.0	117.5	118.3	119.6	1.1	3.9

¹The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see *BLS Handbook of Methods, Bulletin 1910*.

36. Wage and compensation change, major collective bargaining settlements, 1980 to date

[In percent]

Measure	Annual average					Quarterly average									
	1980	1981	1982	1983	1984	1983			1984				1985 ^P		
						II	III	IV	I	II	III	IV	I	II	
Total compensation changes, covering 5,000 workers or more, all industries:															
First year of contract	10.4	10.2	3.2	3.4	3.6	4.4	5.0	4.9	5.1	3.5	2.7	3.7	3.6	3.8	
Annual rate over life of contract	7.1	8.3	2.8	3.0	2.8	3.6	4.3	3.1	4.7	3.2	3.1	2.0	3.1	3.5	
Wage rate changes covering at least 1,000 workers, all industries:															
First year of contract	9.5	9.8	3.8	2.6	2.4	2.7	3.7	4.2	2.8	2.6	2.1	2.3	2.8	2.8	
Annual rate over life of contract	7.1	7.9	3.6	2.8	2.4	2.8	3.6	2.8	3.3	2.7	2.6	1.5	3.0	2.9	
Manufacturing:															
First year of contract	7.4	7.2	2.8	0.4	2.3	1.3	3.4	2.9	2.5	2.6	2.3	2.2	0.6	1.7	
Annual rate over life of contract	5.4	6.1	2.6	2.1	1.5	.9	3.5	3.1	2.5	2.8	2.5	1.0	1.5	2.2	
Nonmanufacturing (excluding construction):															
First year of contract	9.5	9.8	4.3	5.0	3.4	5.9	5.8	4.8	4.2	4.3	2.0	3.9	5.0	3.8	
Annual rate over life of contract	6.6	7.3	4.1	3.7	3.8	5.2	4.3	2.7	4.8	4.2	2.8	3.8	4.5	3.5	
Construction:															
First year of contract	13.6	13.5	6.5	1.5	.5	1.7	1.5	1.1	-3.6	1.1	2.0	-2.8	-1.1	1.5	
Annual rate over life of contract	11.5	11.3	6.3	2.4	1.0	2.1	2.9	2.6	-2.8	1.4	2.1	-.8	.7	2.1	

p = preliminary.

37. Effective wage adjustments in collective bargaining units covering 1,000 workers or more, 1980 to date

Measure	Year					Year and quarter									
	1980	1981	1982	1983	1984	1983			1984				1985 ^P		
						II	III	IV	I	II	III	IV	I	II	
Average percent adjustment (including no change):															
All industries	9.9	9.5	6.8	4.0	3.7	1.3	1.2	1.1	0.9	0.9	1.2	0.7	0.7	0.8	
Manufacturing	10.2	9.4	5.2	2.7	4.3	1.1	1.2	.9	1.2	1.0	1.0	1.1	.9	.6	
Nonmanufacturing	9.7	9.5	7.9	4.8	3.3	1.5	1.2	1.2	.7	.9	1.3	.4	.6	1.0	
From settlements reached in period	3.6	2.5	1.7	.8	.8	.3	.2	.6	.1	.1	.2	.3	.1	.2	
Deferred from settlements reached in earlier period	3.5	3.8	3.6	2.5	2.0	1.0	.8	.3	.4	.7	.7	.2	.6	.5	
From cost-of-living clauses	2.8	3.2	1.4	.6	.9	.1	.2	.2	.3	.2	.3	.2	.1	.1	
Total number of workers receiving wage change (in thousands) ¹	—	8,648	7,852	6,530	6,195	3,061	3,025	2,887	2,694	2,482	2,386	1,850	2,024	2,258	
From settlements reached in period	—	2,270	1,907	2,327	1,851	561	599	996	295	355	406	911	139	479	
Deferred from settlements reached in earlier period	—	6,267	4,846	3,260	3,668	1,405	1,317	669	984	1,148	1,581	443	993	863	
From cost-of-living clauses	—	4,593	3,830	2,327	2,518	1,299	1,218	1,290	1,459	1,151	1,215	1,070	1,018	947	
Number of workers receiving no adjustments (in thousands)	—	145	483	1,187	1,123	4,656	4,693	4,830	4,624	4,835	4,932	5,467	5,061	4,827	

¹ The total number of workers who received adjustments does not equal the sum of workers that received each type of adjustment, because some workers received more than one type of adjustment during the period.

p = preliminary.

WORK STOPPAGE DATA

WORK STOPPAGES include all known strikes or lockouts involving 1,000 workers or more and lasting a full shift or longer. Data are based largely on newspaper accounts and cover all workers idle one shift or more in establishments directly involved in a stoppage. They do not measure the indirect or secondary effect on other establishments whose employees are idle owing to material or service shortages.

Estimates of days idle as a percent of estimated working time measure only the impact of larger strikes (1,000 workers or more). Formerly, these estimates measured the impact of strikes involving 6 workers or more; that is, the impact of virtually *all* strikes. Due to budget stringencies, collection of data on strikes involving fewer than 1,000 workers was discontinued with the December 1981 data.

38. Work stoppages involving 1,000 workers or more, 1947 to date

Month and year	Number of stoppages		Workers involved		Days idle	
	Beginning in month or year	In effect during month	Beginning in month or year (in thousands)	In effect during month (in thousands)	Number (in thousands)	Percent of estimated working time
1947	270		1,629		25,720	—
1948	245		1,435		26,127	.22
1949	262		2,537		43,420	.38
1950	424		1,698		30,390	.26
1951	415		1,462		15,070	.12
1952	470		2,746		48,820	.38
1953	437		1,623		18,130	.14
1954	265		1,075		16,630	.13
1955	363		2,055		21,180	.16
1956	287		1,370		26,840	.20
1957	279		887		10,340	.07
1958	332		1,587		17,900	.13
1959	245		1,381		60,850	.43
1960	222		896		13,260	.09
1961	195		1,031		10,140	.07
1962	211		793		11,760	.08
1963	181		512		10,020	.07
1964	246		1,183		16,220	.11
1965	268		999		15,140	.10
1966	321		1,300		16,000	.10
1967	381		2,192		31,320	.18
1968	392		1,855		35,567	.20
1969	412		1,576		29,397	.16
1970	381		2,468		52,761	.29
1971	298		2,516		35,538	.19
1972	250		975		16,764	.09
1973	317		1,400		16,260	.08
1974	424		1,796		31,809	.16
1975	235		965		17,563	.09
1976	231		1,519		23,962	.12
1977	298		1,212		21,258	.10
1978	219		1,006		23,774	.11
1979	235		1,021		20,409	.09
1980	187		795		20,844	.09
1981	145		729		16,908	.07
1982	96		656		9,061	.04
1983	81		909		17,461	.08
1984	62		376		8,499	.04
1984	January	6	28.0	42.9	505.3	.03
	February	3	9.4	42.4	379.5	.02
	March	2	3.0	16.5	296.3	.01
	April	7	28.5	38.4	657.3	.03
	May	5	8.1	39.2	587.6	.03
	June	5	23.7	45.9	761.1	.04
	July	8	70.8	106.4	1,228.0	.06
	August	5	24.2	103.9	1,634.5	.07
	September	10	107.9	122.9	731.0	.04
	October	4	18.0	39.6	562.1	.03
	November	4	12.0	32.3	500.1	.03
	December	3	42.5	59.0	655.8	.04
1985 ^P	January	2	4.7	16.0	278.3	.01
	February	4	29.3	43.9	259.3	.01
	March	4	15.2	48.2	698.5	.03
	April	3	6.2	14.1	229.5	.01
	May	2	6.9	14.8	203.3	.01
	June	2	15.7	28.5	454.3	.02

p = preliminary.

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