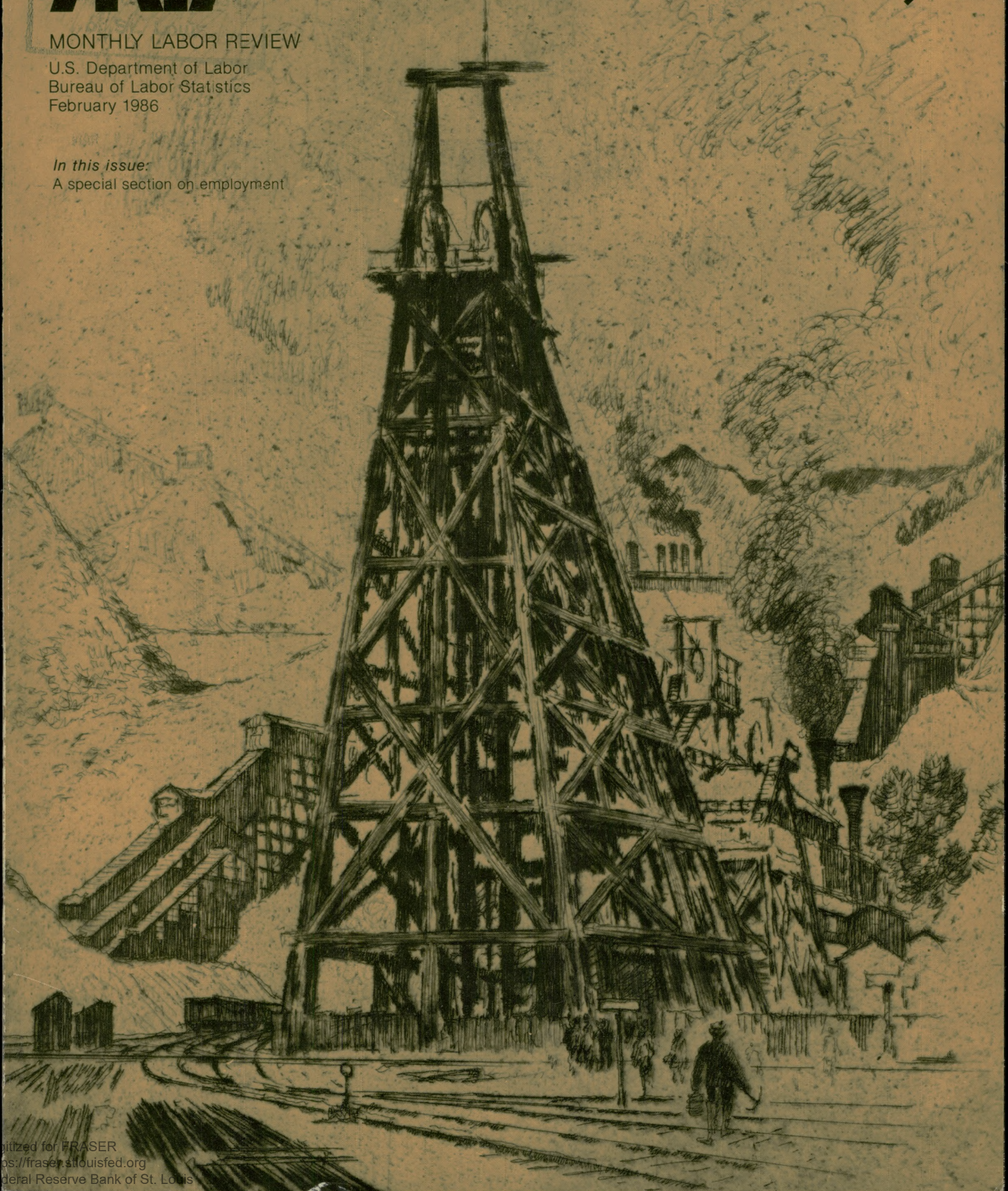




MONTHLY LABOR REVIEW

U.S. Department of Labor
Bureau of Labor Statistics
February 1986

In this issue:
A special section on employment





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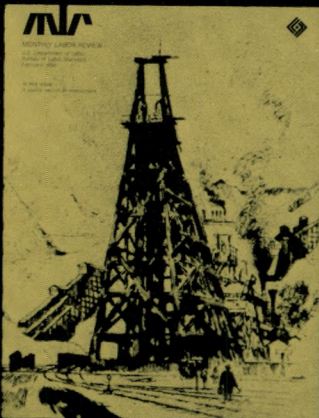
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The Monthly Labor Review is published by the Bureau of Labor Statistics of the U.S. Department of Labor. Communications on editorial matters should be addressed to the Editor-in-Chief, Monthly Labor Review, Bureau of Labor Statistics, Washington, D.C. 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.



February cover:

The Shaft, a 1909 lithograph
by Joseph Pennell

Cover design by Richard L. Mathews

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MONTHLY LABOR REVIEW

FEBRUARY 1986
VOLUME 109, NUMBER 2

Henry Lowenstern, Editor-in-Chief
Robert W. Fisher, Executive Editor

A SPECIAL SECTION ON EMPLOYMENT

- S. E. Shank, P. M. Getz 3 **Employment and unemployment: developments in 1985**
Last year, the economy completed its third year of strong postrecession growth, but the expansion has not dropped most jobless rates to the lows of late 1970's
- Thomas J. Nardone 13 **Part-time workers: who are they?**
A new definition of part-timers, utilizing data from the Current Population Survey, yields a more accurate estimate of the number of these workers in the labor force
- E. F. Mellor, S. E. Haugen 20 **Hourly paid workers: who they are and what they earn**
More than half of the wage and salary workers were paid hourly in 1984; their median earnings were \$5.95, but varied among groups of workers
- J. A. Alic, M. C. Harris 27 **Employment lessons from the electronics industry**
The industry's less skilled workers are the group most likely to lose jobs because of technology, imports, or the offshore manufacture of products

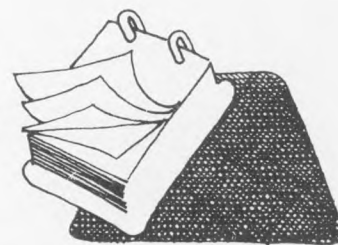
REPORTS

- Shirley J. Smith 37 **Work experience profile, 1984: the effects of recovery continue**
Howard Hayghe 43 **Rise in mothers' labor force activity includes those with infants**
C. J. Hobson, J. B. Dworkin 46 **West German labor unrest: are unions losing out to worker councils?**

DEPARTMENTS

- 2 Labor month in review
37 Research summaries
46 Foreign labor developments
49 Major agreements expiring next month
51 Developments in industrial relations
53 Book reviews
57 Current labor statistics

Labor Month In Review



SEX SEGREGATION. The National Academy of Sciences published a study examining the cause, the extent, and the future direction of sex segregation in the workplace. The study, sponsored by the U.S. Departments of Labor and Education and the Carnegie Corporation, was conducted for the Academy by a 14-member committee of academic and business experts, chaired by Alice S. Ilchman, president of Sarah Lawrence College. Excerpts:

Measuring sex segregation. During the past decade, women's occupational options have unquestionably expanded. Their participation has increased sharply in several occupations previously predominantly male by tradition or policy: for example, lawyers, bank managers, insurance adjusters, postal clerks, bus drivers, and janitors, among others. In other occupations, women's representation is small but increasing rapidly, for example: coal miners, police officers, and engineers. The overall index of occupational sex segregation declined by nearly 10 percent between 1972 and 1981, more than it had during any previous decade in this century. Much of this decline was due to women's increased participation in many occupations that were 20 to 60 percent female in 1970 as well as to the decline in the size of some female-dominated occupations, rather than to the entry of women (or men) into the most atypical jobs for their sex.

Nevertheless, sex segregation continues to characterize the American workplace, despite the changes that have occurred in some occupations. Millions of women continue to work in a small number of almost totally female clerical and service occupations, and men continue to make up the majority of workers in the majority of occupations.

Explaining sex segregation. Several explanations have been proposed to account for the persistence of sex segregation in the workplace; they emphasize

different factors and differ strongly in the interventions they imply. Not surprisingly, the evidence neither provides full confirmation nor warrants full rejection of any single explanation. However, reviewed scientific evidence fails to support the argument that women's occupational outcomes result primarily from free choices that they make in an open market. It suggests rather that women face discrimination and institutional barriers in their education, training, and employment. Often the opportunities that women encounter in the labor market and in premarket training and education constrain their choices to a narrow set of alternatives.

The weight of scientific evidence indicates that discrimination has played a significant role in maintaining a sex-segregated work force. That women believe they face discrimination is evidenced by the thousands of sex discrimination complaints filed under Title VII of the 1964 Civil Rights Act (which prohibits sex discrimination in many employment practices). A number of statistical studies of large employers show, that equally qualified men and women are often assigned different jobs, with long-term effects on their subsequent careers. Case studies of some employers against which complaints have been filed and of certain industries provide corroborative evidence of the occurrence of sex discrimination in employment practices.

Responsibility for the daily care of family members, which women bear more than men, also undoubtedly affects labor market outcomes in many ways, but its link specifically to sex-segregated occupations is less clear. One hypothesis, based on human capital theory, is that women choose female-dominated occupations because those occupations are more compatible with child-rearing (by penalizing work interruptions less than male-dominated occupations); this hypothesis has found equivocal empirical support. Further research is warranted on connections

between employment opportunities and family responsibilities for both sexes.

Reducing sex segregation. Laws and regulations of the 1960's and 1970's prohibit sex discrimination in employment and apprenticeship programs and mandate sex equity in federally funded job training programs and vocational and general education. Women have made substantial progress in entering some predominantly male occupations and training and educational programs.

Definitively establishing that women's gains were caused directly by interventions is quite difficult, however. On one hand, the very existence of anti-discrimination laws or regulations may contribute to change. According to one theory underlying law enforcement, most change occurs through voluntary compliance by establishments against which no action has been taken, either out of the desire to avoid sanctions or because laws help to reshape employers' opinions about acceptable behavior. At the same time, laws encourage women to believe that they will not face discrimination and hence to train for and pursue sex-atypical occupations. On the other hand, important changes—including women's heightened consciousness of their rights and possibilities, prompted by the feminist movement—occurred during the period in which most interventions were implemented and were an important force for their enactment. Obviously, disentangling such cultural changes is difficult. Some of the studies that attempt to demonstrate the impact of specific laws or regulations are imperfect. Taken together, however, the case studies and statistical research present a compelling case for the long-term effectiveness of legislative remedies.

The 173-page report, *Women's Work, Men's Work: Sex Segregation on the Job*, is available (\$15.50) from National Academy Press, 2101 Constitution Ave., N.W., Washington, DC 20418. □

Employment and unemployment: developments in 1985

Last year, the economy completed its third year of strong postrecession growth; however, the expansion has not been sufficient to return factory employment to its prerecession level or to drop most jobless rates to the lows of the late 1970's

SUSAN E. SHANK AND PATRICIA M. GETZ

Employment continued to increase in 1985, as the economy completed its third year of recovery from the 1981–82 recession. However, job growth slowed from the rapid pace recorded in the previous 2 years—a moderation that is typical in the third year after a business cycle trough.¹ Construction, as well as most industries in the service-producing sector, showed robust job gains throughout the year. In contrast, manufacturing employment, which had rebounded during 1983 and most of 1984, decreased in 1985—especially in the durable goods industries.

The civilian unemployment rate edged down in the second half of the year to 7.0 percent in the fourth quarter. The jobless rate had declined sharply in the first year and a half of recovery, then leveled off at about 7.3 percent from mid-1984 to mid-1985. By the fourth quarter of 1985, jobless rates for most worker groups had fallen to or below those of the July 1981 prerecession peak but remained above those in 1979—the last year that the unemployment rate had averaged less than 6 percent. All of the decline in unemployment during 1985 took place among adult workers.

This article describes labor market developments in 1985 for major age-sex, race-ethnic, industrial, and occupational groups. It also examines the performance of key employment and unemployment indicators in cyclical terms and evaluates selected developments from a secular perspective. Data discussed in this article come from two sources: house-

hold interviews and reports from employers.² Unless otherwise noted, over-the-year changes are based on fourth quarter-to-fourth quarter movements, and all data are seasonally adjusted.

Total employment

Civilian employment rose by 2.0 million in 1985 to 108 million at yearend. The increase took place entirely among adults—about 1.4 million women and 700,000 men. (See table 1.) The number of persons employed in agriculture decreased to approximately 3.1 million in the second half of 1985, after holding in the 3.3 to 3.4 million range over the previous decade. High levels of production worldwide contributed to sharply lower prices for U.S. farm products in 1985.³ The unexpected deflation put many farmers in a severe credit squeeze and led to a large number of foreclosures on farm properties. Employment fell by similar amounts (about 100,000 persons) for both hired farmworkers and self-employed farmers.

Over the entire 3-year expansion (fourth-quarter 1982 to fourth-quarter 1985), civilian employment rose by almost 9 million, or 8.9 percent. The increase for adult men (about 8 percent) was the largest recorded in any 3-year recovery period since World War II; this reflected both the severity of the 1979–82 employment drop and the strength of the subsequent rebound. Employment rose even more rapidly for women (11 percent) during the 3 years of expansion. However, in contrast to the pattern for men, employment among women had continued to rise throughout the early 1980's,

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Table 1. Selected labor force indicators by sex, age, race, and Hispanic origin, seasonally adjusted quarterly averages, 1982–85

[Numbers in thousands]

Characteristic	1982	1983	1984	1985			
	IV	IV	IV	I	II	III	IV
Total							
Civilian labor force	110,926	112,142	114,235	115,024	115,206	115,468	116,158
Percent of population	64.1	64.1	64.5	64.8	64.7	64.7	64.9
Employed	99,135	102,600	105,959	106,618	106,804	107,200	107,996
Agriculture	3,475	3,308	3,325	3,319	3,259	3,077	3,093
Nonagriculture	95,660	99,292	102,634	103,298	103,545	104,123	104,903
Employment-population ratio	57.3	58.6	59.8	60.1	60.0	60.1	60.4
Unemployed	11,791	9,541	8,276	8,406	8,402	8,268	8,162
Unemployment rate	10.6	8.5	7.2	7.3	7.3	7.2	7.0
Men, 20 years and over							
Civilian labor force	58,340	59,026	59,981	60,063	60,217	60,278	60,542
Percent of population	78.7	78.4	78.2	78.2	78.1	78.0	78.0
Employed	52,552	54,427	56,234	56,305	56,439	56,597	56,909
Employment-population ratio	70.9	72.3	73.4	73.3	73.2	73.2	73.4
Unemployed	5,788	4,599	3,747	3,757	3,778	3,681	3,633
Unemployment rate	9.9	7.8	6.2	6.3	6.3	6.1	6.0
Women, 20 years and over							
Civilian labor force	44,115	45,057	46,366	46,900	47,123	47,363	47,749
Percent of population	52.9	53.3	54.0	54.5	54.6	54.7	54.9
Employed	40,139	41,761	43,280	43,744	43,947	44,210	44,716
Employment-population ratio	48.2	49.4	50.4	50.8	50.9	51.0	51.5
Unemployed	3,976	3,296	3,086	3,156	3,176	3,153	3,033
Unemployment rate	9.0	7.3	6.7	6.7	6.7	6.7	6.4
Both sexes, 16 to 19 years							
Civilian labor force	8,471	8,059	7,888	8,061	7,866	7,828	7,867
Percent of population	54.3	53.5	54.1	55.2	54.2	54.2	54.4
Employed	6,445	6,412	6,445	6,568	6,418	6,393	6,371
Employment-population ratio	41.3	42.5	44.2	45.0	44.2	44.2	44.0
Unemployed	2,027	1,647	1,443	1,493	1,448	1,434	1,496
Unemployment rate	23.9	20.4	18.3	18.5	18.4	18.3	19.0
White							
Civilian labor force	96,604	97,662	98,798	99,611	99,672	99,900	100,515
Percent of population	64.4	64.5	64.7	65.0	64.9	64.9	65.2
Employed	87,466	90,471	92,622	93,357	93,392	93,706	94,487
Employment-population ratio	58.3	59.8	60.7	60.9	60.8	60.9	61.3
Unemployed	9,138	7,192	6,175	6,254	6,280	6,195	6,028
Unemployment rate	9.5	7.4	6.3	6.3	6.3	6.2	6.0
Black							
Civilian labor force	11,500	11,617	12,242	12,299	12,351	12,340	12,464
Percent of population	61.4	61.0	62.8	62.9	63.0	62.6	63.0
Employed	9,150	9,550	10,393	10,402	10,498	10,520	10,580
Employment-population ratio	48.9	50.1	53.3	53.2	53.5	53.4	53.5
Unemployed	2,350	2,067	1,849	1,897	1,853	1,821	1,883
Unemployment rate	20.4	17.8	15.1	15.4	15.0	14.8	15.1
Hispanic origin							
Civilian labor force	6,723	6,982	7,392	7,341	7,383	7,525	7,538
Percent of population	63.6	63.9	65.4	64.4	64.3	65.0	64.6
Employed	5,693	6,142	6,619	6,587	6,603	6,729	6,730
Employment-population ratio	53.9	56.2	58.6	57.8	57.5	58.1	57.7
Unemployed	1,030	839	772	755	779	796	808
Unemployment rate	15.3	12.0	10.4	10.3	10.6	10.6	10.7

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.

despite the occurrence of back-to-back recessions in 1980 and 1981–82.

Employment-population ratios. The proportions of the civilian noninstitutional population that are employed have moved differently for men, women, and teenagers in the first half of the 1980's. As the tabulation below shows, the long-term decline in the ratio for men accelerated during the recessions of the early 1980's. The ratio only partially rebounded in 1983 and 1984, and then showed little change in 1985.

	Men	Women	Teenagers
1979 annual average . . .	76.5	47.7	48.5
Fourth-quarter:			
1982	70.9	48.2	41.3
1983	72.3	49.4	42.5
1984	73.4	50.4	44.2
1985	73.4	51.5	44.0

In contrast, the employment-population ratio for women continued the steady increase that has been evident since the mid-1950's. The increases slowed somewhat during recessions—as was the case in the early 1980's—and then resumed a strong uptrend in recoveries. The ratio for teenagers followed a pattern similar to that for men in the 1980's, but has not shown a consistent long-term trend.

Employment-population ratios for whites, blacks, and persons of Hispanic origin all declined during the recessions of the early 1980's and then rebounded in the 1983–85 period. However, as the following tabulation shows, only the ratio for whites stood above its 1979 level by late 1985.

	White	Black	Hispanic
1979 annual average	60.6	53.8	58.3
Fourth-quarter:			
1982	58.3	48.9	53.9
1983	59.8	50.1	56.2
1984	60.7	53.3	58.6
1985	61.3	53.5	57.7

The ratio for whites reached an all-time high in the fourth quarter of 1985, while that for blacks was slightly below the 1979 high. The stonger performance of the ratio for white women in the 1980's was a major factor in the overall difference; it also reversed the long-term pattern of higher ratios for black than for white women. In 1979, the ratio for black women (49 percent) exceeded that for their white counterparts (47 percent), but by the 1981–82 recession trough, the black ratio had declined to 47 percent, while that for whites had edged up to 48 percent. Both ratios increased to about 51 percent by late 1985. In contrast, the wide gap between the employment-population ratios of black and white teenagers narrowed very little in the 1980's. Only 1 out of 4 blacks aged 16 to 19 was employed in 1985, compared to about 1 out of 2 white teenagers.

The employment-population ratio for persons of Hispanic origin has remained between those of whites and blacks over the last decade. As the above tabulation shows, the Hispanic ratio, like that for blacks, fell sharply during the recession years of the early 1980's. The greater drop and

subsequent rebound for minorities reflects, among other things, their heavier concentration in cyclically sensitive manual occupations.

Occupational changes. Employment growth between 1984 and 1985 was greatest for office workers, particularly highly skilled executives, administrators, and managers. The service occupations and technical, sales, and administrative support positions grew at a slightly faster pace than total employment. However, as the tabulation below shows, there was an over-the-year decrease for operators, fabricators, and laborers, as well as a sharp drop in farming, forestry, and fishing occupations.

	Percent change	
	Fourth quarter 1983-84	Fourth quarter 1984-85
Total	3.3	2.0
Managerial and professional	5.1	4.3
Technical, sales, and administrative	3.2	2.7
Service occupations .....	.9	2.6
Precision production, craft, and repair	3.5	1.4
Operators, fabricators, and laborers	3.1	-1.0
Farming, forestry, and fishing .....	.8	-7.9

While slower employment growth was evident in most major occupational groups from 1984 to 1985, the change was especially marked for nonfarm manual workers at all skill levels. In 1984, when construction and manufacturing rebounded strongly, job gains for skilled craft workers and for medium and low-skilled manual workers equaled the rise in total employment; in 1985, however, the increase slowed sharply for the former group and turned to a decrease for the latter. In fact, employment fell by about 3 percent over the year for machine operators, assemblers, and inspectors, most of whom are employed in manufacturing. Only managerial and professional occupations registered above-average employment increases in both 1984 and 1985.

Nonfarm payroll employment

Total nonagricultural payroll employment, as measured by the Bureau of Labor Statistics business survey, also continued to post substantial gains throughout 1985. This marked the third straight year of strong growth, which has resulted in an increase of 10 million jobs during the current recovery.⁴ At 98.8 million in the fourth quarter of 1985, nonfarm employment had increased by about 3 million over the year. (See table 2.)

However, even a quick look beyond the total figure reveals marked differences among industries. All of the major divisions which make up the service-producing sector posted employment increases, with the largest gains coming in retail trade and services. Among the goods-producing industries, only construction produced a gain in employment. Significant and pervasive declines in employment characterized both mining and manufacturing. (See chart 1.) The widespread declines in manufacturing, which were con-

centrated in the first three quarters of 1985, reversed the strong growth trend of the previous 2 years.

Chart 2 illustrates the relative strength of the service-producing versus the goods-producing sector over the long term. Employment in the service-producing sector has been on an almost continuous upward climb for the past 40 years. Even during recessionary periods, growth slowed only temporarily, and there were no significant or prolonged declines in service-related employment during the postwar years. In marked contrast, the goods-producing sector showed only moderate overall employment growth throughout the postwar period, and each of the industries within the sector was substantially affected by recessions. Over the entire 1945-85 period, the service-producing sector gained approximately 51 million jobs, compared to 7½ million jobs in the goods-producing sector. As a result, service-producing employment grew from 57 to 75 percent of total payroll employment.

Viewed from a cyclical perspective, employment gains during the past 3 years were among the strongest in any comparable postwar period. The current expansion has already lasted longer than 3 of the 7 previous recoveries, and the growth in total nonfarm employment has outpaced that in 2 of the other 4 recoveries. (See table 3.) This has been the strongest recovery in the postwar period for construction and for most industries in the service-producing sector. For manufacturing, however, the recovery has been relatively modest, much of its earlier strength having dissipated in 1985.

Service-producing industries. In 1985, service-producing industries continued to add jobs at about the same rapid pace as during the first 2 years of the recovery, with employment in the sector increasing by 2.8 million.

The *services* division showed the largest increase, gaining well over a million jobs in 1985, with business services leading the way. Within business services, the "temporary help supply services" industry has been the strongest gainer, although there has been some moderation from the phenomenal growth rates evidenced earlier in the recovery. Health services employment continued its strong secular growth trend in 1985, and large increases were also registered in personal services and in amusement and recreation.

Retail trade also showed marked growth in 1985, as retail sales remained strong. Eating and drinking places and food stores continued their long-term uptrends, with sizable gains in each quarter. Auto dealers and service stations, which have had a strong cyclical recovery, also grew throughout 1985. Although small in terms of employment level, "radio, television, and music stores" posted the largest percentage increase—about 15 percent. This is linked to the rapidly increasing demand for video cassette recorders and the services of video clubs.

Wholesale trade employment continued to grow during 1985, particularly among wholesalers of machinery, equip-

ment, and supplies. Employment in this industry grew despite declines in machinery and electrical equipment manufacturing jobs. Some of this strength can be attributed to the industry's strong ties to the construction industry and to large volumes of imports.

Finance, insurance, and real estate continued the healthy growth pace shown throughout the recovery. While the increases were not as spectacular as in retail trade and ser-

VICES, they have been very steady—between 40,000 and 80,000 jobs each quarter. One of the fastest-growing industries within this division has been “credit agencies other than banks,” that is, savings and loan institutions, credit unions, and the like. This growth is tied to recent banking deregulation which has lowered barriers to entry and encouraged growth and competition in the savings and lending industry.

Transportation and public utilities employment increased

Table 2. Employees on nonagricultural payrolls by industry, seasonally adjusted quarterly averages, 1982–85

[In thousands]

Industry	1982	1983	1984	1985			
	IV	IV	IV	I	II	III	IV ¹
Total	88,721	91,804	95,849	96,640	97,338	97,933	98,786
Total private	72,891	75,932	79,745	80,522	81,143	81,578	82,295
Goods-producing	22,982	23,938	24,973	25,077	25,055	24,983	25,088
Mining	1,029	955	977	976	979	965	955
Oil and gas extraction	651	596	624	620	622	616	606
Construction	3,836	4,098	4,432	4,537	4,646	4,690	4,755
General building contractors	959	1,084	1,180	1,219	1,230	1,241	1,267
Manufacturing	18,117	18,885	19,564	19,564	19,430	19,328	19,378
Durable goods	10,485	11,082	11,673	11,676	11,585	11,491	11,508
Lumber and wood products	596	692	709	705	695	700	712
Furniture and fixtures	425	469	494	499	495	496	497
Stone, clay, and glass products	558	584	599	601	599	599	602
Primary metal industries	825	860	848	839	819	799	801
Blast furnaces and basic steel products	344	350	318	313	305	294	296
Fabricated metal products	1,349	1,410	1,486	1,483	1,476	1,465	1,464
Machinery, except electrical	2,050	2,088	2,232	2,224	2,200	2,161	2,140
Electrical and electronic equipment	1,954	2,089	2,250	2,248	2,215	2,186	2,182
Transportation equipment	1,663	1,815	1,947	1,972	1,984	1,987	2,013
Motor vehicles and equipment	660	815	877	878	875	865	869
Instruments and related products	699	698	722	725	725	724	724
Miscellaneous manufacturing	367	377	386	382	377	373	373
Nondurable goods	7,631	7,803	7,891	7,888	7,846	7,838	7,869
Food and kindred products	1,627	1,615	1,622	1,635	1,636	1,634	1,640
Tobacco manufactures	68	65	66	66	66	65	64
Textile mill products	729	757	726	713	702	696	699
Apparel and other textile products	1,140	1,191	1,182	1,175	1,153	1,156	1,163
Paper and allied products	654	670	683	682	682	683	686
Printing and publishing	1,271	1,324	1,395	1,405	1,415	1,427	1,438
Chemicals and allied products	1,055	1,041	1,052	1,052	1,045	1,039	1,034
Petroleum and coal products	200	192	187	184	181	175	170
Rubber and miscellaneous plastics products	679	743	796	798	792	790	800
Leather and leather products	209	204	182	177	174	175	174
Service-producing	65,740	67,866	70,876	71,563	72,283	72,950	73,698
Transportation and public utilities	5,023	5,040	5,233	5,267	5,291	5,301	5,342
Transportation	2,736	2,782	2,995	3,024	3,049	3,059	3,104
Communications and public utilities	2,288	2,258	2,238	2,243	2,243	2,242	2,238
Wholesale trade	5,214	5,362	5,649	5,699	5,750	5,789	5,840
Durable goods	3,034	3,142	3,334	3,367	3,401	3,433	3,464
Nondurable goods	2,179	2,220	2,315	2,332	2,348	2,355	2,376
Retail trade	15,183	15,942	16,960	17,166	17,366	17,501	17,626
General merchandise stores	2,140	2,195	2,330	2,344	2,360	2,353	2,344
Food stores	2,509	2,581	2,726	2,772	2,816	2,847	2,869
Automotive dealers and service stations	1,633	1,718	1,846	1,864	1,890	1,901	1,917
Eating and drinking places	4,870	5,169	5,513	5,587	5,665	5,731	5,778
Finance, insurance, and real estate	5,356	5,554	5,756	5,811	5,884	5,959	6,041
Finance	2,664	2,792	2,892	2,921	2,955	2,998	3,039
Insurance	1,715	1,724	1,775	1,788	1,807	1,825	1,845
Real estate	978	1,038	1,089	1,103	1,122	1,136	1,157
Services	19,133	20,096	21,174	21,502	21,797	22,045	22,358
Business services	3,289	3,755	4,233	4,332	4,422	4,479	4,578
Health services	5,891	6,044	6,139	6,186	6,234	6,285	6,362
Government	15,831	15,872	16,104	16,118	16,195	16,355	16,491
Federal	2,745	2,781	2,830	2,840	2,868	2,886	2,894
State	3,642	3,674	3,727	3,736	3,758	3,792	3,834
Local	9,444	9,417	9,547	9,542	9,569	9,677	9,763

¹ Data are preliminary.

in 1985, though at a considerably slower pace than in the year before. Within transportation, railroads continued their long-term secular decline, while airlines and trucking continued to post gains. Employment in communications and other public utilities was about unchanged over the year, as declines in communications were offset by slight growth in the other public utilities. Increased competition in the telephone industry drove companies to streamline operations, in part by reducing labor costs through job cuts.

Government employment also rose in 1985, as Federal, State, and local governments each showed increases. Some of the growth in local government may be related to increases in employment in public education resulting from moves to improve the quality of education, and legislation mandating education of handicapped children.

Goods-producing industries. Employment trends for 1985 were mixed in the goods-producing sector; construction continued to advance sharply but mining and manufacturing lost jobs.

Construction employment rose by about 300,000 or 7 percent during the year, matching the growth rate in each of the 2 previous years. The greatest strength was among special trade contractors, which have increased their share of total construction employment from approximately 50 to 57 percent over the past 5 years. This category spans the entire spectrum of construction trades, from painting and taping to plumbing, electrical work, stone masonry, and roofing. Special trade contractors may be employed in new construction, renovation, or maintenance and in both residential and nonresidential construction.

Residential construction employment rose moderately, helped by relatively low mortgage interest rates in 1985. Demographic trends continued to be favorable for the industry, as the last of the baby-boom generation entered the prime age group for first-time home buying. Nonresidential construction remained strong in 1985. Despite increasing office vacancy rates, incentives such as tax shelters and the perceived security of real estate investment continued to make nonresidential construction investment attractive.

Mining is the only major division in which employment at the end of 1985 was below the 1982 recession trough level. The last strong period for mining employment was 1981 through the first quarter of 1982, when increases in oil and gas extraction associated with energy shortages fueled job growth. Since then, a worldwide oil glut and resultant price declines have had dampening effects on employment.

The year brought a reversal in employment trends in *manufacturing*. What had been a relatively strong cyclical recovery collapsed in the face of increasing import competition and a slump in the computer-related industries. In the fourth quarter, factory jobs stood at 19.4 million, 190,000 below the year-earlier level. Employment had increased by 1.4 million in the first 2 years of the recovery, but the 1985 weakness was pervasive, particularly during the first three

quarters. By the fourth quarter, most of the declines had flattened out and total manufacturing employment showed a small increase.

A sharp turnaround in the nonelectrical machinery and electrical and electronic equipment industries contributed the most to manufacturing's over-the-year decline. These two industries showed considerable strength during the first 2 years of the recovery, gaining 185,000 and 300,000 jobs, respectively. During 1985, however, nonelectrical machinery lost 90,000 jobs and electrical and electronic equipment, 70,000. The biggest reductions were registered in computer-related industries, particularly electronic computing equipment and electronic components including semiconductors. The computer industry has recently begun to face serious import competition, particularly in the semiconductor market. In addition, earlier overprojections of product demand, particularly in the personal computer market, were reflected in production and employment cutbacks. Two other industries, fabricated metals and miscellaneous manufacturing, also had gained jobs earlier in the recovery but suffered declines in 1985.

Six other industries had job losses in 1985—primary metals, textiles, apparel, chemicals, petroleum, and leather. With the exception of apparel, these industries had fewer jobs at the end of 1985 than at the trough of the 1981–82 recession. Their continuing weakness is largely a reflection of long-term structural adjustment problems, aggravated in recent years by increased import competition. These six industries had a combined loss of 140,000 jobs over the year.

Three manufacturing industries showed job gains over the year—transportation equipment (70,000), printing and publishing (40,000), and food processing (20,000). The growth in transportation equipment was due mainly to increases in aircraft, guided missiles, and spacecraft manufacturing. Automobile employment, which advanced very strongly in 1983 and 1984, held about steady during 1985. Job levels in the remaining manufacturing industries were also little changed over the year.

Other economic indicators reflect the 1985 slump in manufacturing. Following growth during the first 1½ years of the recovery, the index of industrial production has essentially been at a standstill since mid-1984. Capacity utilization also peaked in mid-1984 after steady increases during the first 2 years of recovery, and has since declined.

Hours of work

The workweek of production or nonsupervisory workers on private nonagricultural payrolls remained in the narrow range of 35.0–35.2 hours throughout 1985. Following a modest decline during the recession, hours had peaked at 35.4 in early 1984, but declined slightly later that year before stabilizing in 1985. Average weekly hours have shown a long-term secular downtrend over the entire post-war period, declining nearly 5 hours between 1945 and

1985. This has largely been due to increasing percentages of employment concentrated in retail trade and services, industries which have large—and growing—numbers of part-time employees.

Average weekly hours in manufacturing declined slightly in the first half of 1985. That trend was reversed in the second half, and the factory workweek rose to a very high 40.8 hours by yearend. Factory overtime followed the same general pattern and reached 3.5 hours in the fourth quarter.

In 1985, the index of aggregate weekly hours, a more comprehensive measure which takes into account both the number of production workers and their average hours, rose for the third straight year. Spurred by the strong employment growth, it stood at 117.7 (1977 = 100) in the last quarter, its highest level ever recorded. The aggregate hours index for manufacturing fell slightly between the fourth quarters of 1984 and 1985, reflecting the decline in employment.

Unemployment

The number of unemployed persons declined in the second half of 1985 to about 8 million in December. Similarly, the jobless rate, which had remained little changed from late 1984 through the first half of 1985, dipped to 7.0 percent in the fourth quarter, down sharply from the recession high of 10.6 percent in late 1982. During the past 3 years of economic expansion, jobless rates for all civilians and for most major labor force groups fell back to or below prerecession peak (July 1981) levels. Despite these declines, jobless rates for virtually all worker groups at year's end were still above those prevailing just before the onset of the 1980 recession. As the tabulation below shows, the unemployment rate increase over the period was sharpest for men—especially those in the 25–54 age group.

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	Fourth-quarter		
	1979	1982	1985
Total, 16 years and over	5.9	10.6	7.0
Men:			
16–24 years	11.6	20.3	14.0
25–54 years	3.6	9.1	5.4
55 years and over	2.8	5.8	4.0
Women:			
16–24 years	12.5	17.0	13.1
25–54 years	5.1	8.5	5.8
55 years and over	3.1	5.0	3.7

The back-to-back recessions in 1980 and 1981–82 hit the goods-producing industries extremely hard. In effect, the sector experienced one deep and prolonged downturn, as employment fell by about 3½ million between the fourth quarters of 1979 and 1982. Despite 3 full years of expansion, goods-related employment had recovered only about 80 percent of the jobs lost by the end of 1985. Weak em-

Chart 1. Employment changes by major industry division, fourth-quarter 1984–1985

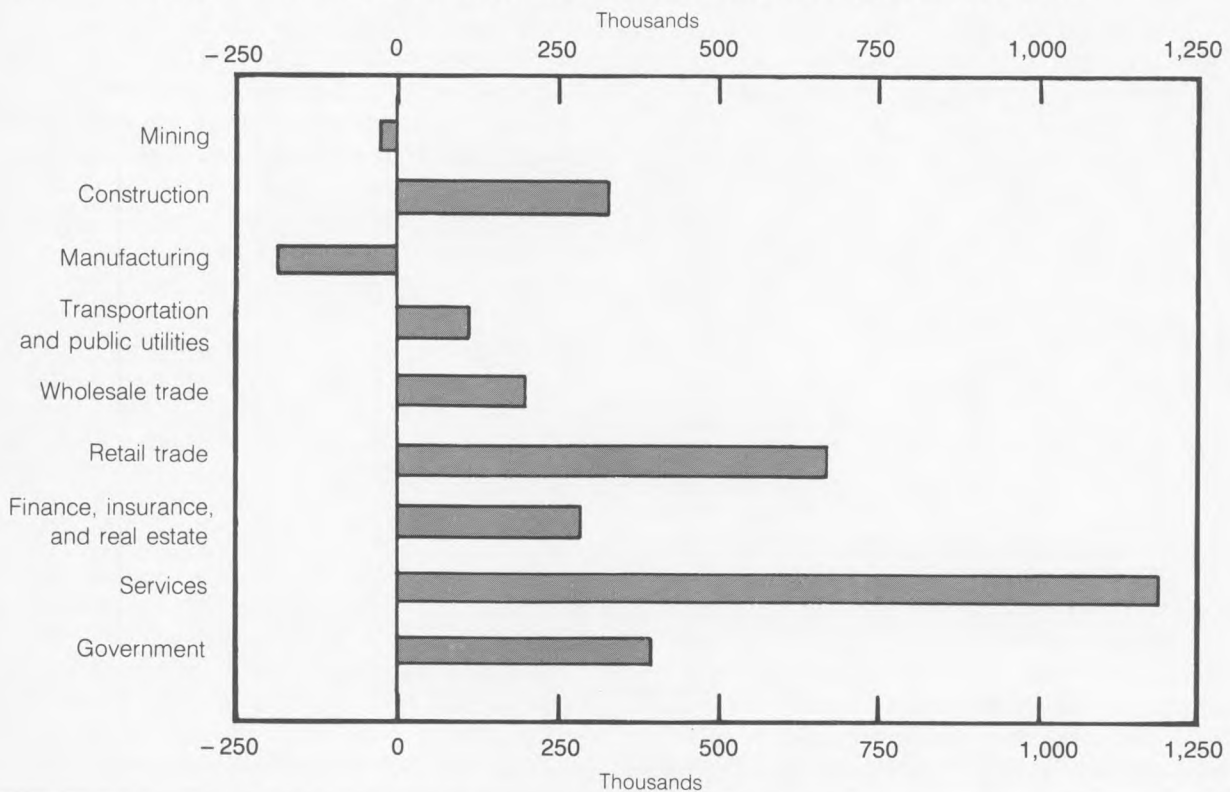
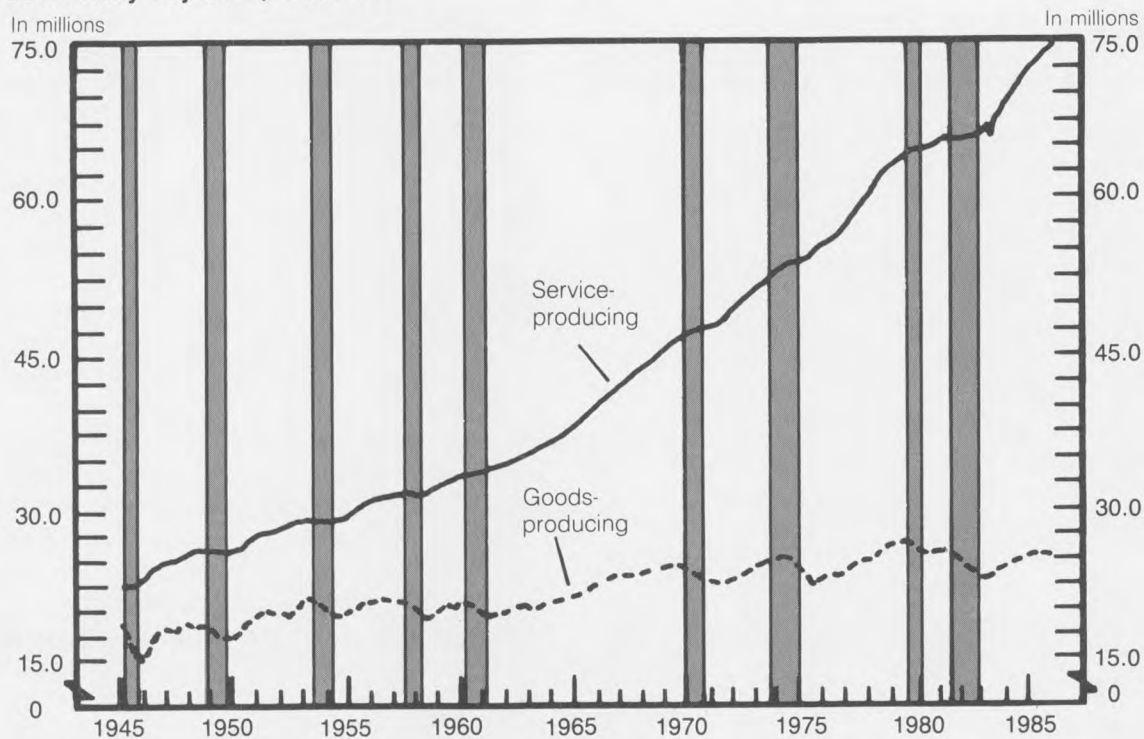


Chart 2. Employment in the service-producing and goods-producing sectors, seasonally adjusted, 1945-85



NOTE: Shaded areas indicate recessions as designated by the National Bureau of Economic Research.

employment demand in this sector thus far in the 1980's has had its most adverse effect on men of prime working age. As the above tabulation shows, their jobless rate jumped from 3.6 percent in 1979 to 9.1 percent in 1982 before it began to recover. However, with an incomplete recovery in goods-producing employment, their rate was about 1½ times higher in 1985 than in 1979.

At the same time that employment weakened in goods-producing industries, the supply of 25- to 44-year-old workers (both men and women) expanded rapidly. As the baby-boom generation moved into adulthood in the 1980's, the work force aged 25 to 44 jumped by 12 million. In contrast, the labor force of younger workers declined and that of persons aged 45 and over was little changed between 1979 and 1985. The decrease (approximately 2 million over the period) in the number of 16- to 24-year-olds in the labor force helped to moderate unemployment problems for these younger workers.

Women of prime working age were much less affected by the cyclical swings of the 1980's than were men, because women's employment is concentrated in the steadily expanding service-producing sector. The low proportion of females employed in the goods-producing sector (20 percent versus 43 percent for men) is a major reason that jobless rates for 25- to 54-year-old women increased much less than

those of their male counterparts in the early 1980's. By 1985, the jobless rate for these women had decreased to a level only moderately above the 1979 level.

Whites, blacks, and Hispanics. The longstanding disparity between white and black labor market success did not change appreciably during the recessions of the early 1980's or the subsequent strong recovery. The black jobless rate was about 15 percent at the end of 1985; the rate for whites was 6 percent. Although both rates in 1985 were substantially below their 1982 highs, neither was back to its 1979 level—about 12 percent for black workers and 5 percent for whites.

Adult men of both races accounted for most of the unemployment rate increases in the early 1980's. Their 1985 rates were still more than one-third higher than in 1979. In contrast, jobless rates for black and white women in 1985 were less than one-fourth above those of 1979. The rate for black teenagers, which had been as high as 50 percent during much of 1982 and 1983, declined to approximately 40 percent in 1985—marginally above that in 1979. For white teenagers, the 1985 rate (16 percent) was also slightly above the 1979 level.

The labor market experience for persons of Hispanic origin essentially followed the business cycle swings during

the 1980's. Their unemployment rate rose from about 9 percent in 1979 to more than 15 percent in 1982 and then decreased to the 10.5- to 11-percent range in 1984 and 1985. The Hispanic population grew substantially in 1985 (more than 3 percent on an annual basis), and their employment also showed a large gain.

Industry and occupation. Between 1983 and 1984, unemployment rates for workers in all major industry groups had declined, with the goods-producing sector showing the sharpest drop.⁵ However, while moderate declines continued in most service-producing industries during 1985, the jobless rate for workers in the goods-producing industries was unchanged. The rate for factory workers, which had fallen from 8.9 to 7.3 percent between 1983 and 1984, edged up to 7.5 percent by the end of 1985—with all of the increase occurring in durable goods industries. For wage and salary workers in the service-producing sector, jobless rate declines were most notable in services and government.

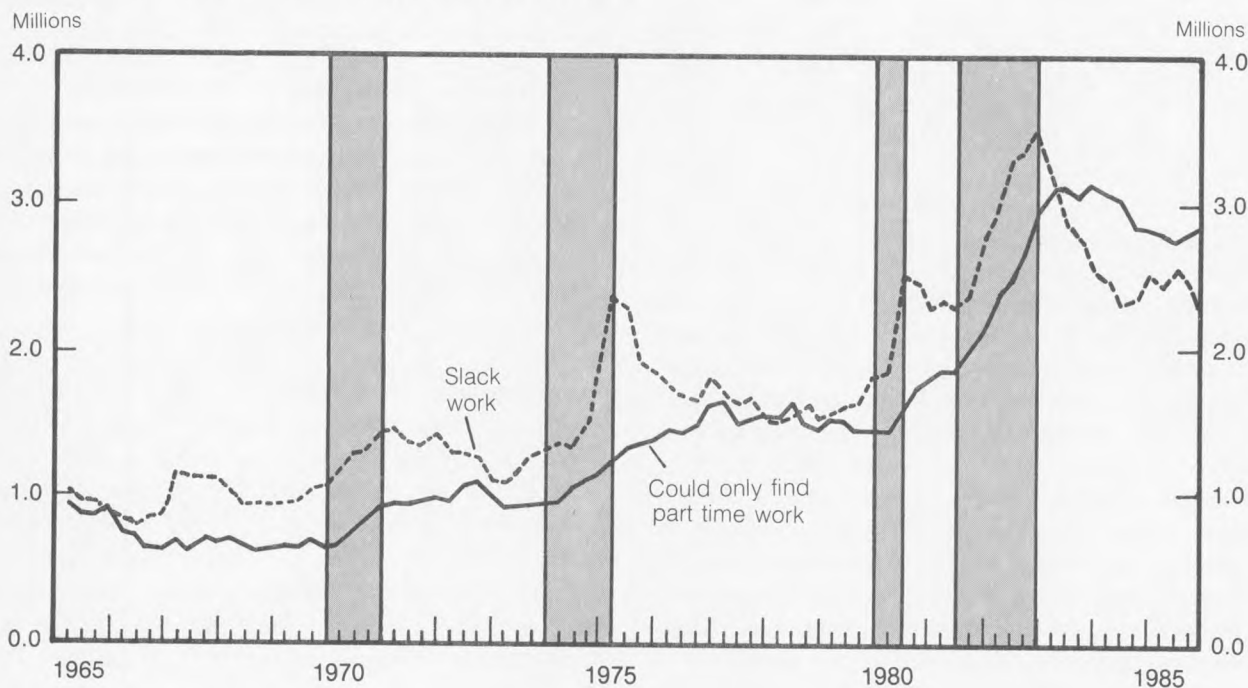
Unemployment rates for all major occupational groups had dropped between 1983 and 1984, but showed little further improvement in 1985.⁶ Among managerial and professional workers, where employment growth was strong, the jobless rate declined from 2.4 to 2.2 percent between 1984 and 1985. Small declines also took place for administrative support workers and skilled craft workers in the construction trades. However, the unemployment rate was vir-

tually unchanged for machine operators, assemblers, and inspectors, most of whom work in manufacturing.

Duration and reasons. Total unemployment declined only slightly in 1985, but the average duration of unemployment dropped from about 17 to 15½ weeks. Despite considerable improvement over the recession high of 21 weeks, the average length of an ongoing unemployment spell was still 5 weeks longer than in 1979. Long-term (15 weeks or more) and very long-term unemployment (27 weeks or more), which tend to lag cyclical changes, continued to fall during 1985, while the number of persons jobless for less than 5 weeks rose slightly. However, in spite of sharp decreases since 1983, the numbers of long-term and very long-term unemployed in late 1985, at 2.2 and 1.2 million, respectively, remained very high by historical standards.

Changes in the number of persons unemployed for different reasons were also comparatively small between 1984 and 1985. The most highly cyclical group—persons seeking work because they had lost their last jobs—continued to decline, although much more moderately than earlier in the recovery. Their proportion of total unemployment dropped from 61 percent at the 1982 recession trough to just below 50 percent at the end of 1985. There were small increases in the number of persons unemployed because they had left their last jobs or had reentered the labor market after a period of absence.

Chart 3. Number of persons working part time involuntarily by major reason, seasonally adjusted quarterly averages, 1965–85



NOTE: Shaded areas indicate recessions as designated by the National Bureau of Economic Research.

Table 3. Percent change in nonagricultural payroll employment from trough to 37 months after trough, five postwar recessions

Industry	1949 trough	1954 trough	1961 trough	1975 trough	1982 trough
Total nonagricultural	16.1	8.4	8.1	12.6	11.7
Mining	49.8	5.7	-6.7	17.9	-7.4
Construction	21.3	13.4	9.0	19.8	24.0
Manufacturing	23.3	5.9	6.6	11.8	7.4
Transportation and public utilities	11.5	4.0	0.4	7.2	6.7
Wholesale trade	8.5	6.2	5.7	11.9	12.3
Retail trade	10.3	6.7	7.0	15.1	16.5
Finance, insurance, and real estate	11.9	11.2	8.6	12.8	13.2
Services	8.8	13.1	13.7	17.1	17.4
Government	14.4	13.2	12.0	7.1	4.4

NOTE: Data are seasonally adjusted.

Short workweeks and discouragement

About 5½ million persons worked part time but wanted full-time work in 1985, down slightly from 1984. However, the number of these economic (or involuntary) part-time workers in 1985 was still 1 million above the prerecession low and 2 million above the 1979 level. (See chart 3.)

The two major components of part-time employment for economic reasons—slack work and inability to find full-time work—have behaved differently over the last several years. Slack work, which refers to an employer-initiated curtailment of hours, is highly cyclical and generally leads changes in overall economic activity because employers tend to reduce hours before laying off employees. Similarly, as the economy recovers, employers tend to restore hours before rehiring laid-off workers.⁷ As the chart shows, the number on short workweeks because of slack work began to rise before the start of the last three recessions. It also led the recovery from the 1981–82 recession, falling from 3.7 million in September 1982 to 2.3 million by mid-1984. However, since the second quarter of 1984, it has fluctuated between 2.3 and 2.6 million.

Economic part-time employment stemming from an inability to find full-time work is less cyclical than slack work. In addition to the general state of the economy, this “failure to find work” series also reflects the experience, skills, and training of jobseekers and the availability of work schedules desired by workers. The number of persons who could only find part-time employment rose from early 1980 through mid-1983 and declined only slightly over the next 2½ years. At 2.9 million in 1985, the failure-to-find component of involuntary part-time employment was double the 1979 level and four times as high as in the late 1960’s.

Despite 3 years of strong economic expansion, the number of discouraged workers—persons who report that they want to work but are not looking for a job because they believe they could not find one—has remained about unchanged since mid-1984. The number of discouraged workers rose from about 800,000 in 1979 to 1.8 million at the recession trough in fourth-quarter 1982. However, after dropping to 1.2 million by the third quarter of 1984, it has

shown no further sustained improvement. As was true for economic part-timers, the number of discouraged workers in 1985 exceeded the 1981 prerecession peak and was substantially above the 1979 level.

Most discouraged workers cite job market factors—rather than personal factors, such as age or lack of skills, education, or training—as their reason for not seeking work. The number of persons citing job market factors, which tracks closely with business cycle swings, dropped from 1.4 million in late 1982 and early 1983 to just below 900,000 in the third quarter of 1984, and declined to 800,000 by the fourth quarter of 1985. The smaller group citing personal factors has fluctuated between 325,000 and 425,000 for the past 3 years.

Labor force

The civilian labor force rose by about 2 million, or 1.7 percent, in both 1984 and 1985. These increases, while larger than those which had occurred during the recession years between 1980 and 1983, were well below the 2.7-percent annual average gain during the 1970’s. The slower pace of labor force growth thus far in the 1980’s reflects both demographic changes and cyclical effects.

The civilian noninstitutional population aged 16 and over had jumped by 3 million per year during the 1970’s, as most of the baby-boom generation reached working age. However, during the 1980’s, the population increase eased to an average of 2.2 million, a slowdown that reflects the sharp decline in birth rates beginning in the mid-1960’s. This falloff in the potential labor supply in the early 1980’s, of course, coincided with a period of very weak employment demand. And as indicated earlier, the impact of 3 consecutive bad years was greatest in the cyclically sensitive goods-producing industries, in which men are more likely to be employed.

During the recessions of the early 1980’s, male labor force participation rates decreased, after holding steady during the late 1970’s. Table 4 shows that annual average participation rates for men and women moved differently in the 1980’s, as had been the case throughout the postwar period. The long-term decline in labor force participation

Table 4. Annual average labor force participation rates by sex, selected years, 1950–85

Year	Men	Women
1950	86.4	33.9
1960	83.3	37.7
1970	79.7	43.3
1976	77.5	47.3
1977	77.7	48.4
1978	77.9	50.0
1979	77.8	50.9
1980	77.4	51.5
1981	77.0	52.1
1982	76.6	52.6
1983	76.4	52.9
1984	76.4	53.6
1985	76.3	54.5

for men has been concentrated in the older age groups, reflecting a movement toward early retirement. However, this trend was interrupted in the late 1970's, then resumed during the 1980-82 downturn, and there was no rebound at all during the 1983-85 expansion. The participation rate for women continued its secular uptrend into the 1980's, although the rate of growth moderated somewhat during the recession years. As the economic recovery continued into its second and third years, female participation accelerated, reaching 54.5 percent by 1985.

THE LABOR MARKET EXPERIENCE in the 1980's can be viewed in terms of two sharply distinct periods. The first

3 years of the decade were characterized by severe and protracted labor market problems—especially in the goods-producing industries and for adult men. The 1983-85 recovery and expansion has been strong and widespread: Employment recorded very large gains over these 3 years, and unemployment fell more than in any 3-year recovery period since the mid-1950's. However, despite sustained improvements in overall labor market measures, certain areas, such as manufacturing, remain weak. Factory employment in late 1985 was about 1 million below its 1981 prerecession peak and 2 million below its 1979 high. Moreover, while jobless rates for most worker groups fell substantially over the 1983-85 period, they had not yet returned to the lows that prevailed in the late 1970's. □

— FOOTNOTES —

¹ Business cycle peaks and troughs are designated by the National Bureau of Economic Research. The three most recent recessions extended from the following peak-to-trough dates: November 1973-March 1975, January 1980-July 1980, and July 1981-November 1982.

² The Current Population Survey gathers data monthly from 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 approximately 280,000 nonagricultural establishments and provides information on the number of persons on business payrolls, as well as on average hours and earnings.

³ The Producer Price Index for crude foodstuffs and feedstuffs dropped an average of 2 percent per month in the first 9 months of 1985.

⁴ The long-term movements of employment from the Current Population Survey and the Current Employment Statistics survey are very similar. Differences in short-run changes, especially over the course of a business cycle, are not unusual. The Current Employment Statistics survey has

shown more employment growth during the current recovery period, particularly between 1984 and 1985. Although the precise reasons for this divergence are unclear, there are several factors which can contribute to different survey results, including differences in definitions and coverage.

⁵ Unemployed persons are classified according to the industry and occupation of their last full-time job lasting 2 weeks or more.

⁶ Comparisons are based on unadjusted data averaged for the fourth quarters. Beginning 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 at least 5 years of data are available. For further information on the change in occupational classification, see "Revisions in the Current Population Survey Beginning in January 1983," *Employment and Earnings*, February 1983, pp. 7-15.

⁷ See Robert W. Bednarzik, "Short workweeks during economic downturns," *Monthly Labor Review*, June 1983, pp. 3-11.

Part-time workers: who are they?

*A new definition of part-timers,
utilizing existing data
from the Current Population Survey,
gives a more accurate estimate of the
number of part-time workers*

THOMAS J. NARDONE

Although typically pictured as working 40 hours a week, the American work force includes a substantial number of persons who put in far fewer hours. Young people working while attending school, parents juggling childrearing and career responsibilities, those in retirement wishing to remain partly active in the work force, and workers whose hours have been reduced because of economic conditions are examples of persons who either choose or have to settle for part-time employment.

Because of the variety of situations found in the workplace, labor market analysts who study part-time employment have sometimes found it a difficult concept to define. Although the official government definition of part-time work is clear, estimating the number of part-time workers is more complex. It depends on exactly what is being measured—the total number of persons who worked part-time hours during the survey reference week, the number who choose to work part-time hours, or the number who typically work part time.

Each month the Bureau of Labor Statistics publishes data on the number of hours worked by persons during the survey reference week and considerable detail about persons who work less than 35 hours a week—the official boundary between full- and part-time employment.¹ The data collected include both the reasons people work less than 35 hours as well as their usual full- or part-time status.

To reflect the diversity of the workplace, BLS disaggregates the data about people at work less than 35 hours into three subgroups: (1) those voluntarily at work part time, (2) those working part time for economic reasons, and (3) those who usually work full time but worked less than 35 hours during the reference week because of holiday, illness, vacation, or similar reasons. These data are combined with information on several other groupings—persons at work more than 35 hours (full-time workers), employed persons who were not at work during the survey reference week, and unemployed persons—to yield estimates of the full- and part-time labor forces. These categories are useful for a variety of analyses. The number of persons at work part time for economic reasons, for example, is of interest as a measure of underutilization of human resources and also is an important indicator of the cyclical movements in the labor market.² Data about the full- and part-time labor forces are used for unemployment rate calculations and to develop several of the alternative measures of unemployment that enhance our understanding of the labor market.³

Despite their usefulness, none of these groupings actually provides an estimate of the number of people who usually work part time. For example, the concept of voluntary part-time employment excludes persons who want full-time work but settle for a part-time job. The “at work” concept excludes the people who have part-time jobs but were away from their jobs during the survey reference week because of vacation, illness, or other reasons. The labor force categories classify some people according to the type of job they

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want, not necessarily the type they have.

This article discusses available BLS data about part-time workers, describing what information is published, and suggests a new combination of the data—all persons who usually work part time—which would provide a more accurate estimate of part-time employment. The data are based on the Current Population Survey (CPS), a monthly sample survey of about 60,000 households nationwide, which provides information on the employment and unemployment status and related characteristics of the civilian population 16 years of age and over.

Defining full and part time

When defining the full- and part-time status of workers, the first consideration is the number of hours worked during the survey reference week. As mentioned previously, 35 hours is the boundary between full- and part-time employment. Part-time work is defined as less than 35 hours a week. Working less than 35 hours during the survey week, however, is not a sufficient condition for classifying a person as a part-time worker. The worker's usual schedule and reason for working less than 35 hours a week also must be considered.⁴ In addition to workers' preference, reasons for part-time hours can be economic—slack work, material shortages, beginning or ending a job, or because only a part-time job could be found—or noneconomic—holiday, vacation, illness, or bad weather. Based on their usual schedule and their reason for working a part-time schedule, persons at work less than 35 hours a week are allocated according to the pattern shown in table 1.

Those who usually work full time but during the survey reference week worked less than 35 hours for noneconomic reasons—5.6 million in 1985—are combined with those who worked more than 35 hours during the survey week under the label “full-time schedules.” In terms of “labor force” classification, persons at work on “full-time sched-

ules” are combined with persons who are not at work during the reference week but usually work more than 35 hours, those working “part time for economic reasons,” and unemployed workers seeking full-time jobs to form the “full-time labor force.” (See box.)

Components of the full- and part-time labor forces

Full-time labor force:

- Employed persons on full-time schedules
- Employed persons working part time for economic reasons
- Employed persons not at work, who usually work full time
- Unemployed persons seeking full-time work

Part-time labor force:

- Employed persons working part time voluntarily
- Employed persons not at work, who usually work part time
- Unemployed persons seeking part-time work

The workers who usually work part time for noneconomic reasons—13.5 million in 1985—are classified as the “voluntary part-time employed,” a group that has been the focus of several studies in recent years.⁵ They clearly are part-timers. The vast majority of these workers do not work or are unavailable for jobs which call for 35 hours or more of work per week. The voluntary part-time group plus those employed persons not at work during the reference week who usually work less than 35 hours a week and unemployed workers who are seeking part-time jobs form the “part-time labor force.” (See box.)

As stated above, workers who put in less than 35 hours a week because of slack work, the inability to find full-time work, or similar reasons—the 5.6 million workers on part time for economic reasons in 1985—are included in the full-time labor force. However, by treating them as a single group, the usual full-time/part-time work status of such workers is not readily identified. And, the two main components of the group—persons on slack work and persons who could only find part-time jobs—are quite dissimilar in terms of their usual work status.

Most of the workers on “part time for economic reasons” due to “slack work” usually work full time, while all who “could only find part-time work” usually work part time. Persons who worked less than 35 hours during the reference week because of slack work, but who usually work full time, are workers who have full-time jobs but are on a reduced work schedule temporarily because of low demand. This group expects to return to a full-time schedule when economic conditions improve, and thus it seems reasonable to view such persons as full-time workers. Those who worked less than 35 hours because they “could only find part-time work,” however, present a somewhat different

Table 1. Persons at work 1 to 34 hours by reason for working less than 35 hours, and usual status, 1985 annual averages

[In thousands]

Reason for working less than 35 hours	Total	Usually work full time	Usually work part time
Total, 16 years and older	24,682	7,342	17,340
Economic reasons	5,590	1,739	3,851
Slack work	2,430	1,398	1,032
Material shortages or repairs to plant and equipment	62	62	—
New job started during week	190	190	—
Job terminated during week	90	90	—
Could find only part-time work	2,819	—	2,819
Other reasons	19,092	5,603	13,489
Does not want, or unavailable for, full-time work	11,217	—	11,217
Vacation	1,360	1,360	—
Illness	1,539	1,395	144
Bad weather	674	674	—
Industrial dispute	8	8	—
Legal or religious holiday	682	682	—
Full time for this job	1,545	—	1,545
All other reasons	2,066	1,484	582

situation. Despite their desire for full-time work, these persons only have part-time jobs. Their part-time status may or may not change as economic conditions improve, because they would have to find another job in order to become full-time workers. Therefore, to arrive at a more accurate estimate of the number of persons who typically work part time, it is necessary to disaggregate those working part time for economic reasons into two groups according to their usual full- or part-time schedule.

Several characteristics of those working part time for economic reasons illustrate the differences between the usual full-time and usual part-time workers. The data suggest that those who normally work full time resemble workers on "full-time schedules," whereas persons who normally work part time are more like voluntary part-time workers. One example is the number of hours worked. The following tabulation shows the percent of workers on part-time schedules for economic reasons and those on voluntary part time by the number of hours worked, 1985:

	<i>Part time for economic reasons</i>		<i>Voluntary part time</i>
	<i>Usually full time</i>	<i>Usually part time</i>	
Total	100.0	100.0	100.0
1 to 4 hours	1.3	3.5	4.4
5 to 14 hours	10.9	17.2	22.8
15 to 29 hours	42.9	54.8	54.2
30 to 34 hours	44.9	24.5	18.6

While close to half (45 percent) of the usual full-timers worked 30 to 34 hours a week, only a quarter of the usual part-timers did. More than half of the usual part-timers worked the number of hours—15 to 29 a week—typical for the "voluntary part time."

Another characteristic by which the two groups differ is the distribution by sex. As is true for people on full-time schedules, the majority of persons working part time involuntarily who usually work full time are men. In contrast, the majority of those who usually work part time—voluntarily or involuntarily—are women.

Persons who usually work part time are also like voluntary part-timers in their industrial and occupational distribution. The services and retail trade industries account for the vast majority of workers in both groups. The following tabulation shows the distribution, by industry, of nonagricultural wage and salary workers on part time for economic reasons and those on voluntary part time, 1985:

	<i>Part time for economic reasons</i>		<i>Voluntary part time</i>
	<i>Usually full time</i>	<i>Usually part time</i>	
Total	100.0	100.0	100.0
Retail trade	19.0	40.3	37.0
Services	22.4	35.4	42.6
Other industries	58.6	24.3	20.4

Among those part time for economic reasons who usually

work full time, a sizable proportion are in the manufacturing and construction industries. The occupational distributions reflect these industry differences. "Sales" and "service" occupations accounted for the largest part of both voluntary and involuntary usual part-timers. In contrast, "precision production, craft, and repair" and "operator, fabricator, and laborer" occupations accounted for about half the economic part-timers who usually are full time.

The inclusion of all persons usually working part time for voluntary and economic reasons in the count of persons employed part time also helps reconcile recent trends in part-time employment and industry growth, and highlights the importance of part-time workers in the labor market. Between 1979 and 1985, employment in retail trade and services increased by 7 million. Because firms in those industries make extensive use of part-time workers, a significant rise in part-time employment also should have occurred during that period. Voluntary part-time employment—the traditional measure of part-time employment—increased by only 596,000. If all persons who usually work part time are tallied, however, the increase for the period would have been 2.4 million. This is more in line with the growth in retail trade and service employment. Further, the part-time employed measure shows that during the 1970's and early 1980's, part-time employment grew more rapidly than full-time employment. (See chart 1.) The rapid growth of part-time employment has led to some restructuring of the work force. Between 1968 and 1980, the proportion of employed persons who work part time edged up from 14 to 17 percent. The proportion reached 18 percent in 1982 as the recession forced more workers to settle for part-time employment. However, as the economy recovered during the 1983-85 period, the percentage returned to 17 percent.

Based on the findings presented above, it would seem that the most simple, straightforward answer to the question "How many part-time workers are there?" is a tally of the number of workers who usually work part time, regardless of the reason for their short hours. It would more accurately estimate the number of part-time workers according to the kinds of jobs they typically have.⁶ Beginning with data for January 1986, the Bureau is revising table A-9 in its monthly periodical *Employment and Earnings*, to show employment by usual full- and part-time status in line with the concepts discussed in this article. Table 2 presents 1985 annual average data displayed by the format for the revised monthly table. Historical data are presented in table 3. Monthly and quarterly seasonally adjusted data series will be available in April 1986.

Characteristics of part-time workers

Younger (ages 16 to 24) and older (65 and over) workers account for a much higher proportion of the part- than full-time employed. (See table 4.) A part-time schedule allows young people to attend school while working. The connection between part-time work and school attendance is shown

in the new BLS series on employment status by school enrollment. In October 1985, 6.3 million people between the ages of 16 and 24 were in school and employed. About four-fifths of these worked part time. By comparison, of the 13.8 million in that age group who worked but were not enrolled in school, fewer than 15 percent were part-timers.⁷ Part-time schedules are attractive to older workers, who use them to ease the transition into retirement. These jobs also provide supplementary retirement income.

While age differences between part- and full-time workers occur among both sexes, differences are more pronounced among men. Nearly two-thirds of male part-timers are 16 to 24 years old or 65 years and older, compared with only one-third of their female counterparts.

Women make up the majority of the part-time employed—two-thirds of the total in 1985. (See table 4.) While full-time employment is the norm for both sexes, about 27 percent of the women are employed part time, compared with 10 percent of the men. This difference probably reflects the higher proportion of women who also handle household and childrearing responsibilities and therefore need flexibility in their work schedules.

About 6 of 10 women employed part time are married with their spouse present, about the same proportion as women who are employed full time. About 3 of 10 have never been married, a higher ratio than among women em-

ployed full time. This reflects the fact that female teenagers are more likely to be part-timers.

While most women who are employed part time are married, most men are single. Men who work part time are three times as likely as those employed full time to be single. This difference results from the high proportion of very young men working part time.

As shown in the tabulation below, a slightly higher proportion of whites than blacks were employed part time in 1985—18 versus 16 percent. This difference was greater among women than men. Women accounted for about two-thirds of those usually employed part time among each racial group. (Also see table 4.)

	Percent of employed persons usually working:	
	Full time	Part time
White	82.4	17.6
Men	90.2	9.8
Women	72.4	27.6
Black	84.0	16.0
Men	88.1	11.9
Women	79.9	20.1

Industry and occupational distribution

Part-time workers are more apt than their full-time counterparts to hold jobs in retail trade and services industries.

Chart 1. Index of full- and part-time employment and part-time employment as a proportion of total employment, 1968-85

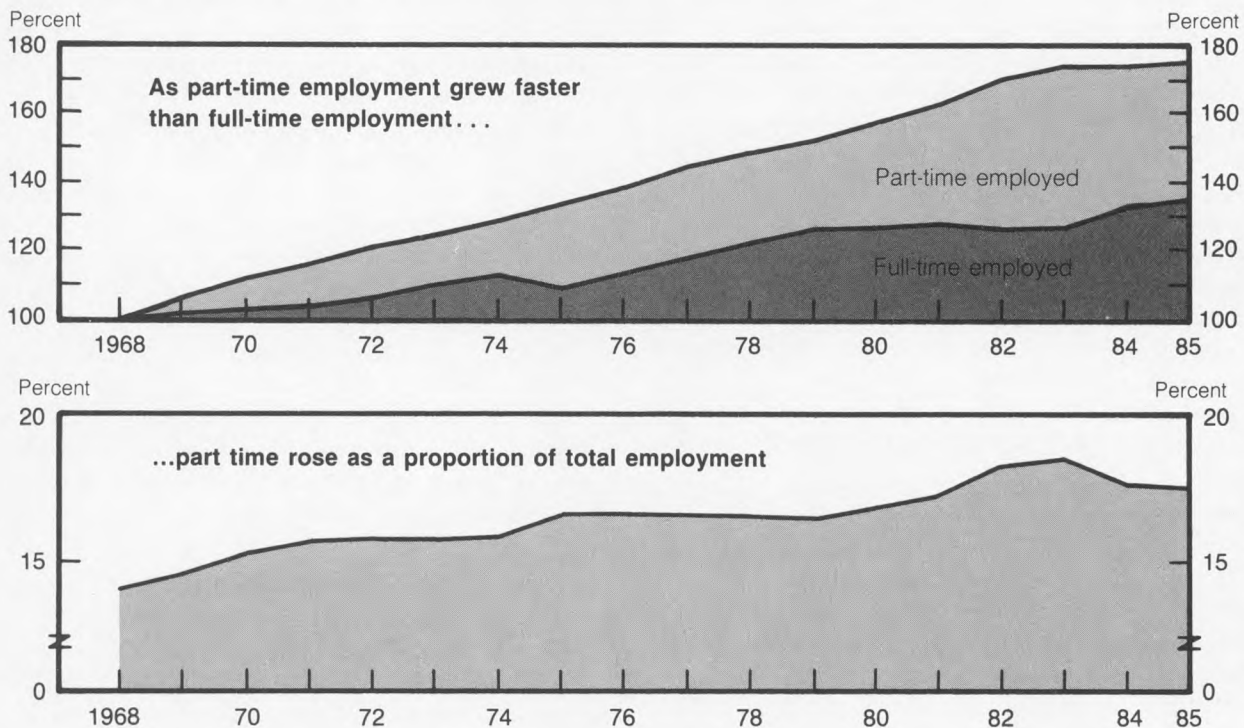


Table 2. Employed and unemployed full- and part-time workers by sex, age, and race, 1985 annual averages

[In thousands]

Sex, age, and race	Employed						Unemployed	
	Full time			Part time			Looking for full-time work	Looking for part-time work
	Total	Full-time schedules ¹	Part time for economic reasons, usually work full time	Total	Voluntary ¹	Part time for economic reasons, usually work part time		
Total								
Total, 16 years and over	88,535	86,795	1,740	18,615	14,740	3,851	6,793	1,519
16 to 19 years	2,507	2,375	132	3,927	3,278	649	777	690
16 to 17 years	440	412	28	2,053	1,830	223	198	463
18 to 19 years	2,066	1,962	104	1,875	1,449	426	579	227
20 years and over	86,029	84,421	1,608	14,688	11,486	3,202	6,015	829
20 to 24 years	10,981	10,683	298	2,999	2,163	836	1,493	245
25 years and over	75,047	73,737	1,310	11,689	9,323	2,366	4,522	584
25 to 54 years	64,044	62,931	1,113	8,405	6,447	1,958	4,056	439
55 years and over	11,003	10,806	197	3,284	2,876	408	466	145
Men, 16 years and over	53,862	52,832	1,030	6,028	4,486	1,542	3,925	596
16 to 19 years	1,437	1,357	80	1,891	1,574	317	446	360
20 years and over	52,425	51,475	950	4,137	2,912	1,225	3,479	236
20 to 24 years	6,078	5,895	183	1,261	872	389	857	87
25 years and over	46,346	45,580	766	2,876	2,040	836	2,622	149
25 to 54 years	39,207	38,557	650	1,568	878	690	2,329	79
55 years and over	7,139	7,032	116	1,308	1,162	146	292	70
Women, 16 years and over	34,672	33,963	709	12,587	10,278	2,309	2,868	923
16 to 19 years	1,069	1,017	52	2,036	1,704	332	331	330
20 years and over	33,604	32,946	658	10,550	8,574	1,976	2,536	593
20 to 24 years	4,903	4,788	115	1,738	1,291	447	636	158
25 years and over	28,701	28,158	543	8,812	7,283	1,529	1,900	434
25 to 54 years	24,838	24,375	463	6,837	5,569	1,268	1,727	359
55 years and over	3,862	3,782	80	1,976	1,715	261	173	75
White								
Men, 16 years and over	47,824	46,953	871	5,222	4,009	1,213	2,961	465
16 to 19 years	1,298	1,229	69	1,686	1,421	265	318	274
20 years and over	46,526	45,724	802	3,536	2,588	948	2,642	192
20 to 24 years	5,371	5,213	158	1,057	759	298	624	70
25 years and over	41,155	40,511	644	2,480	1,829	651	2,019	122
25 to 54 years	34,682	34,137	545	1,283	752	531	1,778	63
55 years and over	6,473	6,374	99	1,197	1,077	120	241	59
Women, 16 years and over	29,441	28,859	582	11,249	9,383	1,866	2,027	738
16 to 19 years	953	907	46	1,831	1,548	283	230	252
20 years and over	28,488	27,952	536	9,418	7,835	1,583	1,797	486
20 to 24 years	4,290	4,198	92	1,517	1,153	364	420	121
25 years and over	24,197	23,753	444	7,901	6,682	1,219	1,377	365
25 to 54 years	20,811	20,438	373	6,182	5,168	1,014	1,235	301
55 years and over	3,386	3,315	71	1,719	1,514	205	142	65
Black								
Men, 16 years and over	4,641	4,506	135	629	341	288	839	112
16 to 19 years	118	108	10	161	115	46	119	74
20 years and over	4,524	4,399	125	468	226	242	719	38
20 to 24 years	567	546	21	159	75	84	209	15
25 years and over	3,957	3,853	104	310	152	158	510	23
25 to 54 years	3,429	3,341	88	221	85	136	465	14
55 years and over	528	512	16	89	67	22	45	9
Women, 16 years and over	4,180	4,073	107	1,051	665	386	757	156
16 to 19 years	92	87	5	161	117	44	95	69
20 years and over	4,086	3,985	101	890	548	342	662	87
20 to 24 years	501	481	20	171	95	76	199	32
25 years and over	3,585	3,504	81	720	453	267	445	55
25 to 54 years	3,200	3,125	75	499	281	218	435	45
55 years and over	385	379	6	221	172	49	10	10

¹ Employed persons with a job but not at work are distributed according to whether they usually work full or part time.

NOTE: Detail may not add to totals because of rounding.

Together, these industries accounted for 79 percent of the part-time nonagricultural wage and salary workers. This concentration is mirrored in the occupational distribution; nearly half of all part-timers are in sales or service jobs.

The high concentration of part-time workers in retail trade and services reflects their importance in these industries. A third of the wage and salary workers in retail trade and a fifth

of those in services are employed part time. The extensive use of part-time workers in these industries results from the need of such businesses to offer services to customers during evenings and other times that are not readily staffed by full-timers. In goods-producing industries where operations generally are conducted in one 8-hour shift or more, the usefulness of part-time workers is limited. As a result, these

Table 3. Employed full- and part-time workers by sex and age, 1968-85 annual averages

[In thousands]

Year	Total			Men, 20 years and over			Women, 20 years and over			Both sexes, 16 to 19 years		
	Total	Full time	Part time	Total	Full time	Part time	Total	Full time	Part time	Total	Full time	Part time
1968	75,920	65,276	10,643	44,859	42,720	2,139	25,281	19,600	5,681	5,781	2,956	2,823
1969	77,902	66,596	11,306	45,388	43,100	2,288	26,397	20,454	5,944	6,117	3,042	3,074
1970	78,678	66,752	11,924	45,581	43,138	2,444	26,952	20,654	6,297	6,144	2,960	3,183
1971	79,367	66,973	12,394	45,912	43,322	2,591	27,246	20,769	6,477	6,208	2,882	3,326
1972	82,153	69,213	12,938	47,130	44,475	2,654	28,276	21,536	6,741	6,746	3,202	3,543
1973	85,064	71,803	13,262	48,310	45,637	2,673	29,484	22,494	6,990	7,271	3,672	3,599
1974	86,794	73,091	13,702	48,922	46,157	2,764	30,424	23,181	7,243	7,448	3,753	3,695
1975	85,846	71,585	14,260	48,018	45,051	2,966	30,726	23,242	7,484	7,104	3,292	3,810
1976	88,752	73,965	14,788	49,190	46,175	3,016	32,226	24,406	7,819	7,336	3,384	3,953
1977	92,017	76,626	15,393	50,555	47,403	3,152	33,775	25,587	8,187	7,688	3,636	4,054
1978	96,048	80,195	15,855	52,143	49,007	3,136	35,836	27,326	8,511	8,070	3,862	4,208
1979	98,824	82,654	16,171	53,308	50,174	3,134	37,434	28,622	8,812	8,083	3,858	4,225
1980	99,303	82,564	16,742	53,101	49,699	3,403	38,492	29,391	9,102	7,710	3,474	4,237
1981	100,397	83,242	17,154	53,582	50,092	3,490	39,590	30,040	9,549	7,225	3,110	4,115
1982	99,526	81,419	18,106	52,891	48,895	3,996	40,086	30,007	10,079	6,549	2,517	4,031
1983	100,834	82,322	18,511	53,487	49,264	4,223	41,004	30,680	10,324	6,342	2,378	3,964
1984	105,005	86,544	18,461	55,769	51,624	4,145	42,793	32,404	10,388	6,444	2,516	3,928
1985	107,150	88,535	18,615	56,562	52,425	4,137	44,154	33,604	10,550	6,434	2,507	3,927

NOTE: Detail may not add to totals because of rounding.

Table 4. Employed persons by usual status and age, sex, and race, 1985

[In percent]

Characteristic	Employed	
	Usually full time	Usually part time
Age		
16 years and over (in thousands)	88,535	18,615
16 to 19	2.8	21.1
16 and 17	0.5	11.0
18 and 19	2.3	10.1
20 and over	97.2	78.9
20 to 24	12.4	16.1
25 to 34	31.1	19.8
35 to 44	24.7	15.5
45 to 54	16.6	9.8
55 to 64	10.9	9.9
55 to 59	6.8	4.9
60 to 64	4.1	5.0
65 and over	1.5	7.8
Sex and race		
Total (in thousands)	88,535	18,615
Men	60.8	32.4
Women	39.2	67.6
White	100.0	100.0
Men	61.9	31.7
Women	38.1	68.3
Black	100.0	100.0
Men	52.6	37.4
Women	47.4	62.6

industries have very low percentages of part-time workers. And, the occupations that are concentrated in those industries such as precision production, craft, and repair and operators, fabricators, and laborers have a very low percentage of part-time workers. As expected, another occupational group that typically has a low percentage of part-timers is executive, administrative, and managerial.⁸

AN ALTERNATIVE WAY of combining existing data to estimate the number of part-time workers has been presented in this article. Counting as "part-time employed" all persons who usually work less than 35 hours a week appears to reflect existing labor market conditions. However, there are limitations to this estimate. To the extent that some workers hold a full-time as well as a part-time job or combine two separate part-time jobs in order to work more than 35 hours a week, the suggested "part-time employed" figure underestimates the number of part-time jobs. This problem occurs because, in the CPS, multiple job-holders are counted only once. Nevertheless, the CPS data are the only source of current information about workers on part-time schedules, and defining the part-time employed as suggested in this article appears to be an accurate way to answer the often-asked question: How many part-time workers are there? □

FOOTNOTES

¹ This definition has been in effect since 1947. Over the years some labor market analysts have suggested this cutoff be revised, arguing that overall hours of work have declined over the long run, and thus the 40-hour standard workweek, upon which the definition of the full-time workweek is based, may no longer be the norm. The National Commission on Employment and Unemployment Statistics addressed the issue in their report, *Counting the Labor Force*. They found no evidence of a significant change from the 40-hour standard and thus recommended that 35 hours continue to be used as the dividing line between part- and full-time work. See *Counting the Labor Force*, National Commission on Employment and Unemployment Statistics (Washington, Government Printing Office, 1979), pp. 54-55.

² For a discussion of the cyclical sensitivity of this measure and its component parts, see Robert W. Bednarzik, "Short workweeks during economic downturns," *Monthly Labor Review*, June 1983, pp. 3-11.

³ Each month in the news release, "The Employment Situation," BLS publishes a set of alternative measures of unemployment. These measures, labeled U-1 through U-7, are designed to reflect a wide range of assumptions about unemployment. Three of the alternatives involve the full-time/part-time concepts. U-4 is defined as unemployed full-time jobseekers as a percent of the full-time labor force. U-6 is defined as total full-time jobseekers plus half of the part-time jobseekers plus half of the total working part time for economic reasons as a percent of the civilian labor force less

half of the part-time labor force. U-7 is the same as U-6 with the number of discouraged workers added to the count of jobseekers and the civilian labor force.

⁴ Employed persons with a job but not at work during the survey reference week are classified as full- or part-time workers according to whether they usually work 35 hours or more. This group averaged 5.8 million in 1985, and ranged from a low of 3.9 million in November to a high of 11.8 million in July.

⁵ See Carol Leon and Robert W. Bednarzik, "A profile of women on part-time schedules," *Monthly Labor Review*, October 1978, pp. 3-12; and William V. Deutermann, Jr. and Scott Campbell Brown, "Voluntary part-

time workers: a growing part of the labor force," *Monthly Labor Review*, June 1978, pp. 3-10. The latter article dealt only with nonagricultural employment.

⁶ In terms of the existing classifications, a count of the part-time employed would include voluntary part-timers, the part-timers for economic reasons who usually work part time, and persons with a job but not at work who usually work less than 35 hours a week.

⁷ See Anne McDougall Young, "New monthly data series on school age youth," *Monthly Labor Review*, July 1985, pp. 49-50.

⁸ Janice Neipert Hedges, "Job commitment in America: is it waxing or waning?" *Monthly Labor Review*, July 1983, pp. 17-24.

Tenements house some hard numbers

During the winter of 1914-15 the Committee on Unemployment formed by Mayor John P. Mitchell called upon the Bureau of Labor Statistics for a series of field surveys of unemployment in New York City. The committee had collected data from employers on the number employed in a week of December 1914 and for the corresponding week of December 1913. At about the same time, the Metropolitan Life Insurance Company, in cooperation with the Mayor's Committee, had surveyed its industrial policyholders in Greater New York. At the request of the committee, with personnel borrowed from the U.S. Immigration Bureau and the New York City Tenement House Inspection Service, the Bureau covered over 100 city blocks and some 3,700 individual tenement houses in January and February 1915. It found an unemployment rate of 16.2 percent, which approximated the 18-percent rate reported by Metropolitan. The results were published by the Bureau in *Unemployment in New York City, New York*.

[BLS Commissioner] Meeker then contracted with Metropolitan for studies in 16 cities in the East and Middle West and in 12 Rocky Mountain and Pacific Coast cities. In August and September 1915, at the urging of the Mayor's Committee, both the Bureau and Metropolitan conducted surveys in New York City for a second time. The results of this work were presented in 1916 in a Bureau publication, *Unemployment in the United States*.

—JOSEPH P. GOLDBERG AND WILLIAM T. MOYE

*The First Hundred Years of the
Bureau of Labor Statistics
Bulletin 2235 (Bureau of Labor
Statistics, 1985).*

Hourly paid workers: who they are and what they earn

More than half of all wage and salary workers were paid by the hour during 1984; median earnings were \$5.95 per hour, but a closer look reveals many variations among groups

EARL F. MELLOR AND STEVEN E. HAUGEN

The Bureau of Labor Statistics publishes several different data series on the hourly earnings of workers, each highlighting different worker and job-related characteristics. All but one of these series are based on surveys of payroll and other records of business establishments. Data from these series contain considerable industrial detail. In contrast, the remaining earnings series is based on a nationwide sample survey of households, and provides detailed information on hourly earnings by the demographic and social characteristics of the wage earners.¹ (See the appendix on page 26.) Moreover, the earnings obtained in the Current Population Survey (CPS) of households represent *only* hourly wages paid to the employee—stripped of any effects of tips, premium pay for overtime, bonuses, and commissions. More than half of all wage and salary workers are in this category.

Who is paid by the hour

Altogether, 92 million American workers were paid wages or salaries in 1984, and 54 million of them were paid at hourly rates. The method of remuneration received by workers is closely linked to the nature of jobs held. For example, 80 percent of all part-time workers were paid by the hour, compared with 54 percent of the full-time workers. The fact that women were more likely than men to work part time is reflected in the larger proportion of women who were paid by the hour—62 percent versus 56 percent (table 1).

The same explanation applies to younger versus older workers. The proportion paid hourly rates was highest for teenagers—89 percent—and lowest for those in the central prime age groups, comprising the 35 to 49 population. Even for those aged 70 and over, the proportion was far below that for teenagers and young adults. The high proportion of young workers paid by the hour reflects their tendency to work both part time and part year, and in occupations less likely to be salaried even when they are employed all year in full-time jobs.

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Table 1. Employed wage and salary workers paid hourly rates by selected characteristics, 1984 annual averages

[Numbers in thousands]

Characteristic	All wage and salary workers			Workers paid hourly rates					
	Total	Men	Women	Number			As a percent of all workers		
				Total	Men	Women	Total	Men	Women
Race and Hispanic origin									
Total, 16 years and over	92,194	50,022	42,172	54,143	28,140	26,003	58.7	56.3	61.7
White	80,071	43,932	36,139	46,098	24,084	22,014	57.6	54.8	60.9
Black	9,699	4,819	4,880	6,623	3,346	3,277	68.3	69.4	67.2
Hispanic origin	5,271	3,067	2,204	3,643	2,165	1,479	69.1	70.6	67.1
Age									
16 to 19 years	6,243	3,171	3,072	5,552	2,787	2,765	88.9	87.9	90.0
20 to 24 years	13,661	7,189	6,472	10,092	5,442	4,650	73.9	75.7	71.8
25 to 29 years	14,559	8,021	6,539	8,667	4,756	3,911	59.5	59.3	59.8
30 to 34 years	12,917	7,164	5,754	6,898	3,744	3,154	53.4	52.3	54.8
35 to 39 years	11,222	6,107	5,115	5,658	2,838	2,820	50.4	46.5	55.1
40 to 44 years	8,917	4,811	4,107	4,535	2,214	2,321	50.9	46.0	56.5
45 to 49 years	7,097	3,887	3,211	3,586	1,766	1,820	50.5	45.4	56.7
50 to 54 years	6,391	3,561	2,832	3,302	1,687	1,615	51.7	47.4	57.0
55 to 59 years	5,694	3,176	2,517	2,954	1,506	1,448	51.9	47.4	57.5
60 to 64 years	3,599	1,947	1,652	1,894	935	959	52.6	48.0	58.1
65 to 69 years	1,148	591	557	606	267	340	52.8	45.2	61.0
70 years and over	743	398	345	398	198	200	53.6	49.7	58.0
Hours usually worked									
Part-time workers	17,282	5,368	11,914	13,880	4,243	9,637	80.3	79.0	80.9
Full-time workers	74,912	44,654	30,258	40,262	23,896	16,366	53.7	53.5	54.1
35 to 39 hours	6,961	2,132	4,829	3,784	1,185	2,599	54.4	55.6	53.8
40 hours	52,307	30,426	21,882	31,238	18,571	12,667	59.7	61.0	57.9
41 to 44 hours	1,517	992	525	829	550	279	54.6	55.4	53.1
45 to 48 hours	5,327	3,972	1,355	2,195	1,721	475	41.2	43.3	35.1
49 to 59 hours	6,076	4,838	1,238	1,678	1,409	270	27.6	29.1	21.8
60 hours or more	2,723	2,294	429	537	461	76	19.7	20.1	17.7
Occupation									
Managerial and professional specialty	20,817	11,412	9,404	4,641	1,636	3,005	22.3	14.3	32.0
Executive, administrative, and managerial	9,314	5,879	3,434	1,670	755	914	17.9	12.8	26.6
Professional specialty	11,504	5,533	5,970	2,972	881	2,091	25.8	15.9	35.0
Technical, sales, and administrative support	29,135	9,689	19,446	16,373	4,157	12,217	56.2	42.9	62.8
Technicians and related support	3,090	1,578	1,510	1,763	766	998	57.1	48.5	66.1
Sales occupations	9,916	4,806	5,111	5,220	1,439	3,781	52.6	29.9	74.0
Administrative support, including clerical	16,130	3,305	12,825	9,390	1,952	7,438	58.2	59.1	58.0
Service occupations	13,066	5,249	7,817	9,899	3,804	6,095	75.8	72.5	78.0
Private household	1,008	39	970	511	25	486	50.7	(1)	50.1
Protective service	1,659	1,438	220	892	756	137	53.8	52.6	62.3
Service, except private household and protective	10,398	3,772	6,626	8,496	3,023	5,473	81.7	80.1	82.6
Precision production, craft, and repair	11,188	10,224	964	8,521	7,742	778	76.2	75.7	80.7
Operators, fabricators, and laborers	16,213	11,908	4,305	13,667	9,921	3,746	84.3	83.3	87.0
Machine operators, assemblers, and inspectors	7,798	4,563	3,235	6,942	4,109	2,833	89.0	90.1	87.6
Transportation and material moving occupations	4,122	3,771	351	2,854	2,597	257	69.2	68.9	73.2
Handlers, equipment cleaners, helpers, and laborers	4,294	3,574	720	3,872	3,215	657	90.2	90.0	91.3
Farming, forestry, and fishing	1,776	1,540	236	1,041	879	162	58.6	57.1	68.6

¹Data not shown where base is less than 50,000.

data for the "other races" group are not presented and Hispanics are included in both the white and black population groups.

NOTE: Detail for the above race and Hispanic origin groups will not sum to totals because

Among white workers, women were more likely than men to be paid hourly rates, while the reverse was true—albeit to a lesser extent—for blacks and Hispanics. The following tabulation shows, however, that the situation is quite different when numbers are reported for full- and part-time workers.

	Percent paid hourly rates			
	Full time		Part time	
	Men	Women	Men	Women
White	52.0	52.5	79.1	81.2
Black	68.3	64.3	77.5	77.3
Hispanic origin	69.4	61.6	80.3	84.7

For full-time employees, the more hours people work, the more likely they are to be in a salaried rather than in an hourly paid position. About three-fifths of the men who usually worked exactly 40 hours a week were paid hourly, compared with just over two-fifths for those working 45 to 48 hours and one-fifth for those working 60 hours or more. This pattern was similar for women working full time.

The occupational distribution of hourly paid workers sheds further light on this relationship. As shown in table 1, fewer than one-fifth of workers in executive, administrative, and managerial occupations and about one-fourth of those in professional specialty occupations were paid hourly rates. A substantial number of employees in these occupations put in

long workweeks, with one-quarter of the two groups (combined) working 49 hours or more a week.² In contrast, about nine-tenths of workers employed as machine operators, assemblers, and inspectors, and as handlers, equipment clean-

ers, helpers, and laborers were paid hourly wages, but fewer than one-tenth put in 49 or more hours a week.

The data illustrate the inverse relationship between the number of hours usually worked and the likelihood of being paid at an hourly rate. It is beyond the scope of this article, however, to fully explain the nature of this relationship, because information is not collected in the CPS on several of the factors which may be involved. These include data on the overtime provisions of the Fair Labor Standards Act, the provisions of collective bargaining agreements, the extent of nonpecuniary compensation derived from a job, and productivity.

Median hourly earnings

Median hourly earnings for people who were *actually paid* hourly rates in 1984 were \$5.95—\$7.27 for men and \$5.08 for women. (See table 2.) It is important to understand the significance of what these data represent: Hourly earnings data are commonly calculated for *all* workers (wage and salary) based on information on their weekly or annual earnings. These figures will be typically higher than would be the case for those whose pay rate is hourly. For example, the median weekly earnings of all workers putting in *exactly* 40 hours a week—a majority of all workers—was \$312 in 1984; when divided by 40, this turns out to be \$7.80 an hour. The median hourly wage among workers actually paid by the hour and reported as usually working 40 hours a week was \$6.95. This difference is to be expected, because the weekly earnings data include components of earnings beyond straight-time wages and many higher-paying jobs are salaried.

The overall female-to-male earnings ratio for full-time workers paid hourly rates—70 percent—is 5 percentage points higher than that associated with the medians in the weekly earnings series for all full-time workers (65 percent). This finding may be explained by the more homogeneous universe for the hourly earnings data mentioned above; that is, male-dominated higher-paying occupations are more likely to be salaried.

Between 1979 and 1984, the female-to-male earnings ratio for hourly paid workers rose considerably for whites, blacks, and Hispanics, whereas the black-to-white and the Hispanic-to-white earnings ratios were virtually unchanged. (See table 3.) Regardless of race or ethnicity, the hourly earnings of men rose by about 25 percent over the period and those of women about 40 percent; the Consumer Price Index for All Urban Consumers rose 43 percent.

Among age groups, median hourly earnings ranged from \$3.64 for teenagers to highs in the \$7.17–\$7.37 range for age groups within the 30- to 54-year bracket in 1984. Men's wages peaked at about \$10 an hour for those between 40 and 54 years of age, while the peak for women—\$5.81—was not only much less, but also occurred at a younger age—among those in their thirties. The female-to-male earnings ratio, at about 90 percent for teenagers, declined with age to the 45-to-49 group, and rose thereafter. The higher ratios at

Table 2. Median hourly earnings of workers paid hourly rates by selected characteristics, 1984 annual averages

Characteristic	Median hourly earnings		
	Total	Men	Women
Race and Hispanic origin			
Total, 16 years and over	\$5.95	\$7.27	\$5.08
White	6.02	7.39	5.09
Black	5.43	6.28	4.99
Hispanic origin	5.39	6.17	4.73
Age			
16 to 19 years	3.64	3.80	3.50
20 to 24 years	4.94	5.31	4.43
25 to 29 years	6.52	7.50	5.52
30 to 34 years	7.23	8.63	5.81
35 to 39 years	7.37	9.48	5.81
40 to 44 years	7.17	9.75	5.51
45 to 49 years	7.23	9.96	5.46
50 to 54 years	7.20	9.65	5.63
55 to 59 years	6.85	9.15	5.40
60 to 64 years	6.45	8.68	5.30
65 to 69 years	4.95	5.23	4.71
70 years and over	4.38	4.82	4.21
Hours usually worked			
Part-time workers	4.04	3.92	4.10
Full-time workers	6.80	8.03	5.59
35 to 39 hours	5.20	6.04	5.04
40 hours	6.95	8.12	5.74
41 to 44 hours	7.35	8.32	5.94
45 to 48 hours	7.40	8.05	5.91
49 to 59 hours	7.45	7.84	5.91
60 hours or more	7.14	7.38	4.96
Occupation			
Managerial and professional specialty	8.62	9.64	8.25
Executive, administrative, and managerial	7.25	8.48	6.59
Professional specialty	9.42	10.34	9.16
Technical, sales, and administrative support	5.45	6.85	5.26
Technicians and related support	7.79	9.29	7.15
Sales occupations	4.18	4.99	4.01
Administrative support, including clerical	5.95	7.62	5.71
Service occupations	4.08	4.50	3.88
Private household	3.25	(1)	3.23
Protective service	6.20	6.52	4.98
Service, except private household and protective	4.01	4.25	3.91
Precision production, craft, and repair	8.84	9.23	5.75
Operators, fabricators, and laborers	6.38	7.20	5.15
Machine operators, assemblers, and inspectors	6.59	8.04	5.18
Transportation and material moving occupations	7.51	7.77	6.01
Handlers, equipment cleaners, helpers, and laborers	5.28	5.39	4.74
Farming, forestry, and fishing	4.35	4.40	4.07
Years of school completed			
Total, 25 years and over	6.96	8.67	5.51
Less than 4 years of high school	5.79	7.22	4.55
Elementary, 8 years or less	5.43	6.46	4.34
High school, 1 to 3 years	6.04	7.91	4.71
High school, 4 years or more	7.30	9.28	5.91
High school, 4 years	6.97	9.17	5.41
College, 1 to 3 years	7.80	9.52	6.47
College, 4 years or more	8.37	9.44	7.68
College, 4 years	8.18	9.34	7.38
College, 5 years or more	9.14	9.90	8.48

¹Data not shown where base is less than 50,000.

Note: Data refer to persons 16 years and over, except years of school completed, which refers to the population 25 years and over.

both ends of the age spectrum may stem from the fact that higher proportions of wage earners in these age groups are paid at or near the minimum wage.

Hourly pay is wide-ranging among occupational and industry groups. Median hourly pay ranged from \$4.08 for all service jobs to \$9.42 among the professional specialty jobs. In the latter group, the median for men was a little more than a dollar higher per hour than that for women, a gap much closer than the overall difference. Among the major industrial groups, median hourly wages of both men and women were highest in mining, construction, durable goods manufacturing, and the transportation and public utilities group. Wages were lowest in retail trade, private households, personal services, entertainment and recreation, social services, and agriculture.

Earnings distribution

Clearly, median earnings do not tell the whole story. The median for two different groups could be similar; yet the distribution of earnings of one group may be tightly clustered around the median, while that for another group may be dispersed. Therefore, it is useful to look at distributions as well. Table 4 shows the percent distribution of hourly wages for major demographic groups. Regardless of the median, each demographic group has some people with earnings of less than \$3 an hour and others with as much as \$15 or more. (It should be noted that for some population groups, the extremes of the distribution may contain only a small number of sample observations.) The following discussion focuses briefly on the likelihood of wage earners receiving \$12 an hour or more, the figure that is roughly twice the overall median of \$5.95, and on those earning at or below the prevailing minimum wage of \$3.35, which is a little more than half the median. Each of these high-paying and low-paying categories accounts for roughly one-tenth of all hourly paid workers.

Receiving \$12 or more per hour. The likelihood of earning at least \$12 an hour in 1984 was over 5 times as great for men (about 17 percent) as for women (3 percent). The proportion for white men was about half again as high as that for black men; among women, both whites and blacks were about equally as likely to earn this amount (each about 3 percent). Fewer than 2 percent of the workers under age 25 were in this higher paying category. Among workers 25 and over, the proportion rose from 6 percent for those with only an elementary school education to 23 percent for those completing 4 or more years of college. At each level of schooling completed, men were more likely than women to earn \$12 an hour or more. However, the disparity narrowed at successively higher educational levels, as men not completing high school were more than 10 times as likely as women to earn this amount. Among those with 4 years of high school or more, men were 5 times as likely as women to earn \$12 per hour or more (26 versus 5 percent). The ratio was 2 to 1 among college graduates (31 versus 16 percent).

Table 3. Median hourly earnings of workers paid hourly rates by sex, race, and Hispanic origin, 1979–84 annual averages

Characteristic	1979	1980	1981	1982	1983	1984
Median hourly earnings						
Total	\$4.48	\$4.91	\$5.27	\$5.46	\$5.66	\$5.95
Men	5.73	6.28	6.72	6.99	7.06	7.27
Women	3.66	4.01	4.35	4.65	4.89	5.08
White	4.55	4.97	5.30	5.51	5.74	6.02
Men	5.89	6.42	6.84	7.14	7.21	7.39
Women	3.66	4.02	4.36	4.66	4.89	5.09
Black	4.20	4.49	5.01	5.17	5.27	5.43
Men	5.03	5.30	5.93	6.11	6.09	6.28
Women	3.60	3.94	4.27	4.52	4.79	4.99
Hispanic origin	4.16	4.48	4.90	5.13	5.23	5.39
Men	4.88	5.14	5.45	5.80	5.92	6.17
Women	3.45	3.84	4.15	4.41	4.46	4.73
Earnings ratios (percent)						
Female-to-male	63.9	63.9	64.7	66.5	69.3	69.9
White	62.1	62.6	63.7	65.3	67.8	68.9
Black	71.6	74.3	72.0	74.0	78.7	79.5
Hispanic origin	70.7	74.7	76.1	76.0	75.3	76.7
Black-to-white	92.3	90.3	94.5	93.8	91.8	90.2
Men	85.4	82.6	86.7	85.6	84.5	85.0
Women	98.4	98.0	97.9	97.0	98.0	98.0
Hispanic origin-to-white	91.4	90.1	92.5	93.1	91.1	89.5
Men	82.9	80.1	79.7	81.2	82.1	83.5
Women	94.3	95.5	95.2	94.6	91.2	92.9

About 13 percent of full-time wage earners made at least \$12—19 percent of the men and 4 percent of the women—but fewer than 3 percent of part-time workers earned this amount. Among workers putting in more than 40 hours a week, the proportion was 15 percent—18 percent for men and 6 percent for women.

Among the major occupational groups, 25 percent of both professional specialty workers and those in the precision production, craft, and repair group earned \$12 an hour or more in 1984. At the lower extreme, 2 percent or fewer of those in sales; service (except protective service); and farming, forestry, and fishery jobs earned this much.

Minimum and subminimum wage workers. The prevailing minimum wage, which has been \$3.35 per hour since January 1981, was established by the 1977 revisions to the Fair Labor Standards Act (FLSA) of 1938. About 4.1 million workers were reported as earning exactly \$3.35 an hour in 1984, and 1.8 million were reported as earning less than this amount. Together, these workers constituted about 11 percent of all hourly paid workers.

It is important to note at the outset that the presence of a sizable group of hourly paid workers receiving less than the minimum wage does not necessarily indicate widespread violations of the FLSA, as there are a number of exemptions to its minimum wage provisions. These exemptions are wide-ranging and include employees in outside sales work, low volume retail trade and service firms, and seasonal amusement establishments.³

For the most part, those earning \$3.35 an hour or less tend to be young. About 60 percent of those with these low earnings were under age 25—one-third were teenagers.

Among teenagers alone, nearly 40 percent earned \$3.35 or less. Persons 65 and over—while representing only 3 percent of the total number of minimum wage earners—also had a relatively high probability of earning at or below \$3.35, as nearly 1 out of 5 hourly paid persons in this age group earned this amount. (See table 5.)

Nearly 15 percent of all women who were paid hourly rates earned the prevailing minimum wage or below, which was double the proportion for men. These percentages, however, differed greatly according to whether the employee usually worked full or part time, as shown in the following tabulation:

	Percent at or below \$3.35		
	Both sexes	Men	Women
Total	11.0	7.5	14.8
Part-time workers	28.0	30.2	27.0
Full-time workers	5.2	3.5	7.6
35 to 39 hours	12.1	10.5	12.8
40 hours	4.6	3.3	6.5
41 hours or more	3.7	2.4	8.5

The number of part-time workers earning \$3.35 or less, at 3.9 million, was nearly twice the number working full

time. Given the fact that women made up a disproportionate share of part-time workers paid hourly rates (69 percent), those working part time accounted for almost 45 percent of all low-wage workers in 1984; men working part time accounted for about 21 percent.

An examination of minimum wage workers by race and ethnicity shows that only a slightly higher proportion of blacks than whites and Hispanics earned \$3.35 or less. Nearly 14 percent of the black population were in this earnings group, compared with 11 percent of both Hispanics and whites.

Given the direct correlation of educational attainment and earnings, the likelihood that a person had hourly earnings at or below \$3.35 per hour diminished with increased schooling. Among hourly paid workers aged 25 years and over with less than 4 years of high school, 10 percent were low wage earners, compared with 6 percent who finished 4 years of high school, and less than 4 percent of those with 4 years or more of college.

Of the four major regions in the United States, the largest proportion of those at or below the minimum wage lived in the South (40 percent). Overall, 13 percent of all hourly paid

Table 4. Percent distribution of hourly earnings of workers paid hourly rates by selected characteristics, 1984 annual averages

Characteristic	Number of workers (in thousands)	Percent distribution											Median hourly earnings
		Total	Under \$3.00	\$3.00 to \$3.99	\$4.00 to \$4.99	\$5.00 to \$5.99	\$6.00 to \$6.99	\$7.00 to \$7.99	\$8.00 to \$8.99	\$9.00 to \$9.99	\$10.00 to \$11.99	\$12.00 to \$14.99		$15.00 or more
Sex and age													
Total, 16 years and over	54,143	100.0	2.2	18.9	15.3	14.1	10.2	8.2	11.7	9.4	7.0	3.2	\$5.95
16 to 24 years	15,644	100.0	4.4	37.2	21.6	14.9	8.1	5.1	4.9	2.3	1.1	.5	4.30
25 years and over	38,499	100.0	1.3	11.4	12.7	13.7	11.1	9.4	14.4	12.2	9.4	4.3	6.96
Men, 16 years and over	28,140	100.0	.8	13.5	11.3	11.8	9.5	8.7	14.4	13.2	11.3	5.3	7.27
16 to 24 years	8,228	100.0	1.8	32.1	21.0	16.3	9.5	6.9	6.6	3.3	1.7	.7	4.66
25 years and over	19,911	100.0	.4	5.8	7.3	10.0	9.5	9.5	17.7	17.3	15.3	7.2	8.67
Women, 16 years and over	26,003	100.0	3.7	24.7	19.6	16.5	10.9	7.5	8.7	5.2	2.4	.9	5.08
16 to 24 years	7,416	100.0	7.2	42.8	22.3	13.3	6.4	3.2	3.0	1.3	.3	.2	3.99
25 years and over	18,587	100.0	2.3	17.4	18.5	17.7	12.7	9.2	10.9	6.8	3.2	1.2	5.51
Race, Hispanic origin, and sex													
White	46,098	100.0	2.4	18.2	15.1	13.9	10.2	8.3	11.8	9.6	7.3	3.3	6.02
Men	24,084	100.0	.8	12.8	11.0	11.5	9.5	8.9	14.6	13.6	11.8	5.6	7.39
Women	22,014	100.0	4.0	24.1	19.6	16.5	10.9	7.6	8.8	5.3	2.3	.8	5.09
Black	6,623	100.0	1.2	23.5	16.2	15.2	10.1	7.6	11.0	8.2	5.2	1.9	5.43
Men	3,346	100.0	.7	18.4	13.0	14.2	9.5	8.3	13.9	11.2	8.0	2.7	6.28
Women	3,277	100.0	1.7	28.8	19.5	16.3	10.7	6.8	8.0	5.0	2.3	.9	4.99
Hispanic origin	3,643	100.0	1.3	21.6	18.5	15.6	11.0	8.0	9.7	6.3	5.7	2.4	5.39
Men	2,165	100.0	.6	16.2	16.1	14.5	11.0	8.9	12.1	8.4	8.6	3.6	6.17
Women	1,479	100.0	2.3	29.7	21.9	17.3	10.9	6.6	6.1	3.2	1.6	.5	4.73
Full- or part-time status and sex													
Full-time workers	40,262	100.0	.9	10.6	13.8	14.7	11.6	9.7	14.3	11.6	8.9	3.9	6.80
Men	23,896	100.0	.3	7.2	10.0	11.9	10.3	9.8	16.4	15.1	13.0	5.9	8.03
Women	16,366	100.0	1.8	15.6	19.4	18.6	13.4	9.6	11.3	6.4	2.9	.9	5.59
Part-time workers	13,880	100.0	6.0	42.8	19.5	12.3	6.2	3.6	3.9	3.0	1.6	1.1	4.04
Men	4,243	100.0	3.6	48.9	18.6	11.3	5.2	2.9	3.4	2.5	1.8	1.7	3.92
Women	9,637	100.0	7.0	40.1	19.9	12.8	6.6	3.9	4.1	3.2	1.5	.9	4.10

NOTE: Detail for the above 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.

Table 5. Workers paid hourly rates with earnings at or below the prevailing minimum wage by selected characteristics, 1984 annual averages

Characteristic	Number of workers (in thousands)				Percent distribution			Percent of all workers paid hourly rates			
	Total paid hourly rates	At or below \$3.35			Total paid hourly rates	At or below \$3.35			At or below \$3.35		
		Total	At \$3.35	Below \$3.35		Total	At \$3.35	Below \$3.35	Total	At \$3.35	Below \$3.35
Sex and age											
Total, 16 years and over	54,143	5,963	4,125	1,838	100.0	100.0	100.0	100.0	11.0	7.6	3.4
16 to 24 years	15,644	3,582	2,539	1,043	28.9	60.1	61.6	56.7	22.9	16.2	6.7
25 years and over	38,499	2,381	1,586	795	71.1	39.9	38.4	43.3	6.2	4.1	2.1
Men, 16 years and over	28,140	2,116	1,626	490	52.0	35.5	39.4	26.7	7.5	5.8	1.7
16 to 24 years	8,228	1,492	1,166	326	15.2	25.0	28.3	17.7	18.1	14.2	4.0
25 years and over	19,911	623	460	163	36.8	10.4	11.2	8.9	3.1	2.3	.8
Women, 16 years and over	26,003	3,847	2,499	1,348	48.0	64.5	60.6	73.3	14.8	9.6	5.2
16 to 24 years	7,416	2,089	1,373	716	13.7	35.0	33.3	39.0	28.2	18.5	9.7
25 years and over	18,587	1,758	1,126	632	34.3	29.5	27.3	34.4	9.5	6.1	3.4
Race, Hispanic origin, and sex											
White	46,098	4,923	3,293	1,630	85.1	82.6	79.8	88.7	10.7	7.1	3.5
Men	24,084	1,684	1,273	411	44.5	28.2	30.9	22.4	7.0	5.3	1.7
Women	22,014	3,239	2,020	1,219	40.7	54.3	49.0	66.3	14.7	9.2	5.5
Black	6,623	896	737	159	12.2	15.0	17.9	8.7	13.5	11.1	2.4
Men	3,346	375	315	60	6.2	6.3	7.6	3.3	11.2	9.4	1.8
Women	3,277	521	422	99	6.1	8.7	10.2	5.4	15.9	12.9	3.0
Hispanic origin	3,643	415	314	101	6.7	7.0	7.6	5.5	11.4	8.6	2.8
Men	2,165	179	143	36	4.0	3.0	3.5	2.0	8.3	6.6	1.7
Women	1,479	236	171	65	2.7	4.0	4.1	3.5	16.0	11.6	4.4
Full- or part-time status and sex											
Full-time workers	40,262	2,079	1,497	582	74.4	34.9	36.3	31.7	5.2	3.7	1.4
Men	23,896	835	657	178	44.1	14.0	15.9	9.7	3.5	2.7	.7
Women	16,366	1,244	840	404	30.2	20.9	20.4	22.0	7.6	5.1	2.5
Part-time workers	13,880	3,883	2,627	1,256	25.6	65.1	63.7	68.3	28.0	18.9	9.0
Men	4,243	1,280	969	311	7.8	21.5	23.5	16.9	30.2	22.8	7.3
Women	9,637	2,602	1,658	944	17.8	43.6	40.2	51.4	27.0	17.2	9.8

NOTE: Detail for the above 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.

workers in the South earned the minimum or less, compared with 12 percent in the North Central region, 9 percent in the Northeast, and 8 percent in the West.

Nearly half of all minimum wage workers held service-type jobs in 1984. Service occupations with the highest concentrations of low-paying jobs included private household work, food services, and cleaning and building services. It is notable that persons employed as food service workers accounted for 31 percent of all workers at or below the minimum wage; of that number, roughly half worked at the minimum of \$3.35 and half worked below this level. Another area in which there was a large proportion of persons working at or below \$3.35 was in sales occupations,

particularly in retail sales, in which nearly 1 out of every 4 employees earned the minimum or less. It should be remembered, however, that for many working in sales and food service occupations, tips and commissions supplement (to varying degrees) the hourly wages received.

THIS ARTICLE has focused on earnings as a pure wage paid to the employee—stripped of any effects of tips, premium pay for overtime, bonuses, and commissions. As the findings have suggested, the wealth of information available from the Current Population Survey helps provide a foundation for further studies which can shed more light on the conditions of workers paid hourly rates. □

— FOOTNOTES —

¹ See *BLS Measures of Compensation*, Bulletin 2239 (Bureau of Labor Statistics, 1986), for a complete description of all BLS earnings series. Among these are the Current Employment Statistics Survey, Area Wage Surveys, and Industry Wage Surveys.

² Data on workweeks by occupation refer to hours actually worked during each month's survey reference week rather than to the number of

hours usually worked. In the case of workers with two or more jobs, the data are tabulated according to the occupation at which the employee works the most hours.

³ See *Report of the Minimum Wage Study Commission*, Volume 1, p. 107, for a more complete list of full and partial exemptions.

APPENDIX: Hourly earnings data from the CPS

The Current Population Survey (CPS) is a monthly sample survey conducted by the U.S. Bureau of the Census for the Bureau of Labor Statistics, totaling about 59,500 households, in 50 States and the District of Columbia. Data on hourly earnings are collected from one-quarter of each month's CPS sample through questions 25B and 25C, which read:

25B. Is . . . paid by the hour on this job?

25C. How much does . . . earn per hour?

Although data are collected monthly, the numbers are aggregated into quarterly and annual averages to increase their statistical reliability. On a quarterly basis, the data are tabulated by sex, race, Hispanic origin, age, marital status, major occupation and industry groups, and usual full- or part-time status. Annual average data are also tabulated by region of residence, number of hours usually worked, years of school completed, and more occupational and industrial detail. While both the quarterly and annual average tabulations provide distributional data (for example, the number of workers earning between \$5 and \$5.99 per hour), the latter show more wage categories, as well as data for minimum wage workers.

Between 1973 and 1978, hourly earnings data were collected only once a year as part of a supplement to each May's CPS. Comparability between these and more recent data is affected by changes in questionnaire design, the coverage of the wage and salary worker universe, and the handling of survey nonresponses. As a result, whereas estimates of the proportion of all workers paid hourly rates between 1973 and 1978 ranged between 49 and 51 percent, changes introduced in 1979 caused the proportion to jump to

59 percent, where it has remained. In 1983, there were changes to the entire occupational classification system which preclude occupational comparisons with previous years. In addition, a change in the method of estimating medians introduced the same year affects the comparability of any medians under \$3.00 or over \$5.99 per hour.

As is the case with estimates from any sample survey, the results can vary by chance because a sample, rather than the entire population, is surveyed. A measure of this variation is called the standard error. If samples are repeatedly drawn and estimates are computed from each sample, in approximately 68 out of 100 samples the actual population value will differ from the sample estimate by less than one standard error. In approximately 90 out of 100 samples, the population value will differ from the sample estimate by less than 1.6 times the standard error. All statements of comparison appearing in this article are significant at the 90-percent level or higher. Users are cautioned against drawing conclusions from small differences among numbers for small population groups because of the relatively large sampling errors associated with estimates based on small sample sizes. In addition, results are subject to errors of response and nonreporting—errors possible even in a complete census. These can result from differences in the interpretation of questions, the inability or unwillingness of respondents to provide correct answers, the rounding of figures, errors of processing, and errors made in estimating values for missing data. For more information regarding the collection, processing, merits, and limitations of CPS data on earnings, see Earl F. Mellor, *Technical Description of the Quarterly Data on Weekly Earnings from the Current Population Survey*, Bulletin 2113 (Bureau of Labor Statistics, 1982).

Employment lessons from the electronics industry

Semiskilled and 'unskilled' workers in semiconductors, computer manufacturing, and consumer electronics industries are more likely than other workers to lose jobs because of technology, imports, and offshore production; advances in technology create jobs for skilled workers

JOHN A. ALIC AND MARTHA CALDWELL HARRIS

In the U.S. electronics industry, competition—domestic as well as international—has led to increases in labor productivity through changes in product design and automation and to transfers of manufacturing operations to low-wage developing countries. For example, in the consumer electronics industry, annual output of color television sets per production worker in the United States increased from 150 in 1971 to 560 in 1981. Total output nearly doubled, from 5.4 million sets to 10.5 million. At the same time, domestic employment in color television manufacture dropped by half—a result of greater foreign value-added, redesigned televisions with fewer parts and less need for assembly labor, and automation. The example is not atypical, the implications are clear: new technology can cut into job opportunities even though output rises substantially.

In two other sectors of the electronics industry—microelectronics (which includes semiconductors) and computers—employment has grown rapidly. (The 1985 layoffs will, as in earlier business slumps, prove temporary.) Microelectronics technology made redesigned color television sets possible, and far more Americans now work for semiconductor manufacturers than were ever employed in consumer electronics. Skilled and professional jobs predominate in microelectronics, accounting for nearly 60 percent of employment, compared with about 30 percent in consumer

electronics. Similar patterns exist elsewhere in high technology electronics: continuing advances in both products and processes leave relatively fewer openings for unskilled and semiskilled workers. Indeed, jobs for production workers in U.S. computer firms declined slightly during 1984, although overall employment in the computer sector rose.

American consumer electronics firms have faced stiff foreign competition since the latter part of the 1960's. But only in the last few years have U.S.-based microelectronics and computer manufacturers found competitors from Japan able to match their product offerings. Given declining advantages in product technology, and Japan's proven capabilities in process technology, American manufacturing companies have been forced to change their priorities. Within any manufacturing organization, quality and productivity, hence costs and competitiveness, depend on the integration of workers and machines into an efficient and effective production system. Highly automated plants will demand new ways of using skills, resolving conflicts, and making decisions. The emphasis on shared responsibility and decision-making in Japanese organizations appears to give them a head start in integrated production systems. Japan's manufacturers are more adept at utilizing the skills and capabilities of their work force, and are further along at integrating workers and machines—an important source of competitive advantage.

In a given industry, job opportunities change with demand for the industry's products, with shifting patterns of international competition, and with increases in labor

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productivity. The latter stem not only from automation and work reorganization, but from products redesigned for easier, cheaper manufacture. Rising worldwide demand for the output of a given industry will create new jobs only if demand rises more rapidly than productivity. From the perspective of a national economy, net job creation also depends on trends in imports and exports and on foreign and domestic investments. Imports may displace domestic production; overseas investment by domestic companies may do the same.

In any economy, new jobs are continually being created, old jobs eliminated. At the level of the firms, jobs are created as companies are established or expand, and jobs disappear as companies atrophy and die or move production overseas. Over time, automation, work redesign, and organizational change help fewer workers produce more. If a firm cannot sell enough of the additional output, it may have to reduce its labor force. Even if it can increase sales, improvements in efficiency necessarily cut into future job opportunities. Aggregate economic growth provides the gross context for job creation and job destruction; the organization of work within the enterprise creates the fine structure.

This article discusses factors which affect employment in two components of the U.S. electronics industry¹—consumer electronics (SIC 3651) and microelectronics (SIC 3674), touching briefly on computer manufacturing (SIC 3573).²

Employment trends in electronics

Employment in U.S. manufacturing has been essentially static since the late 1960's, but declined relatively over the 1974–84 period from 26 to 21 percent of the nonagricultural work force. However, in electronics, employment expanded rapidly over the period—although not in all parts of the industry. Employment has nearly doubled in microelectronics and has increased even faster in computers, while the consumer electronics category (which includes many types of products other than television sets) has shrunk. The following tabulation shows the number of employees and the percent of production workers in consumer electronics, microelectronics, and computer and peripherals industries, 1974, 1984, and the first 6 months of 1985:

Industry	Number of employees		
	1974	1984	1985, first half
Consumer electronics	113,600	71,800	68,400
Microelectronics	148,300	273,000	283,300
Computers and peripherals . . .	217,000	460,900	456,900
Industry	Percent production workers		
	1974	1984	1985, first half
Consumer electronics	74	68	66
Microelectronics	51	43	41
Computers and peripherals . . .	39	37	35

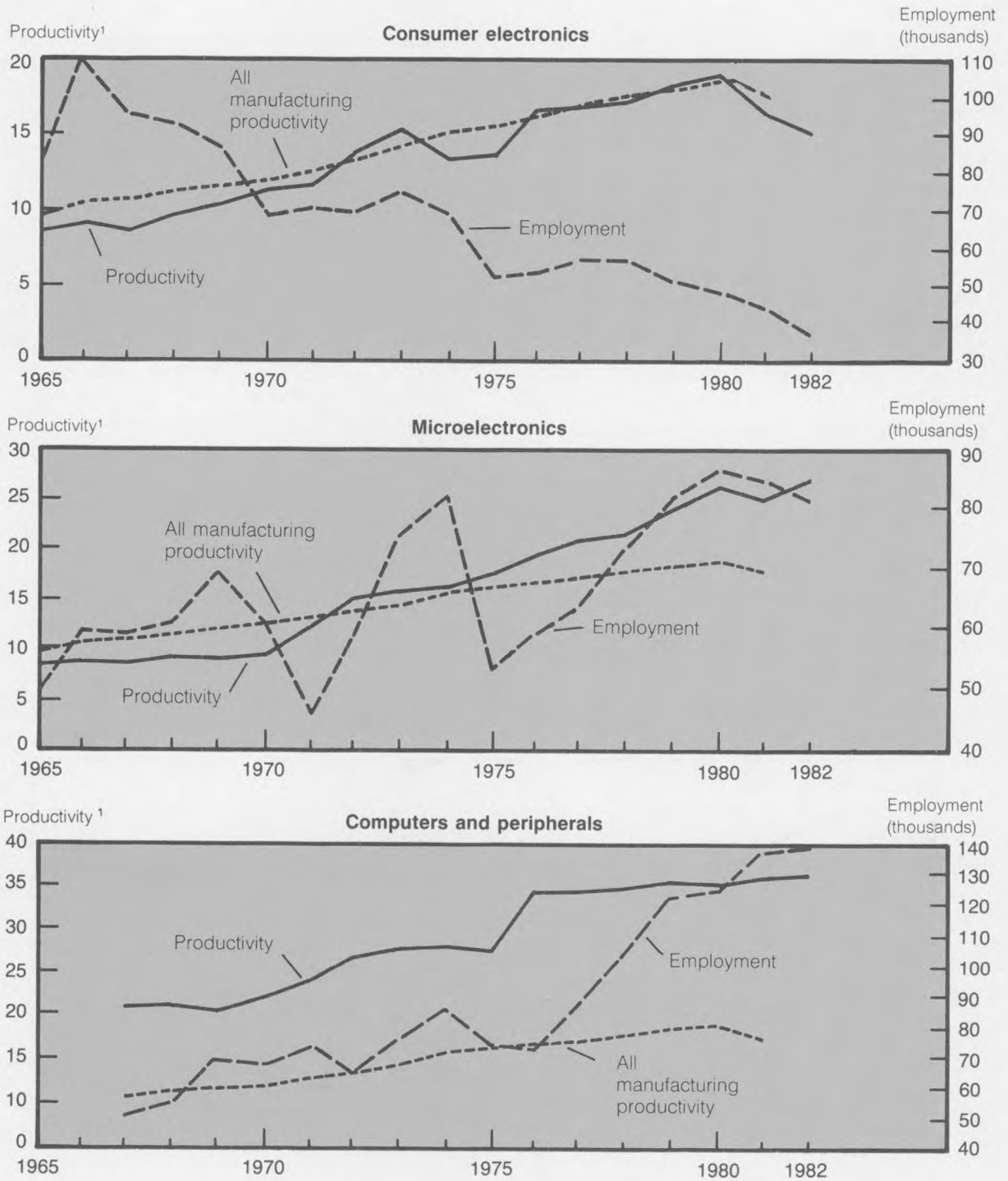
By mid-1985, the 808,600 workers in consumer electronics, microelectronics, and computer firms accounted for more than 4 percent of the U.S. manufacturing labor force. Although these firms make up only a portion of the electronics industry, they employ more than twice as many workers as the steel industry.³

Chart 1 compares trends in labor productivity and production employment over the past decade for each of the three categories discussed in this article. (Productivity is plotted as value-added per production worker hour in inflation-adjusted terms.) Value-added productivity growth in consumer electronics—where employment declined—has roughly paralleled the all-manufacturing average. In contrast, computer manufacture shows a rapid rise in employment, with productivity rising almost as fast until the mid-1970's. Many jobs have also been created in microelectronics, where productivity gains were again substantially above the all-manufacturing average. With both computers and microelectronics suffering from business slowdowns during 1985, layoffs have been common and total employment has dropped.⁴ No doubt these declines will prove temporary, with employment levels rebounding once the slump has passed, as occurred twice during the 1970's for both the microelectronics and computer sectors. Over the long term, however, employment prospects in the U.S. computer industry appear far better than those in microelectronics.

Productivity trends are seldom unambiguous. Their significance can be questioned when technological change is as rapid as it has been in computers and peripherals and in microelectronics. In these sectors, product performance has advanced rapidly; today's dollar buys far more capability than it did a few years ago.⁵ In color television manufacture, technical change has been much slower, with intense price competition depressing value-added productivity measures compared with other U.S. industries over the 1965–82 period; the retail price index for color television sets increased by less than 5 percent, while that for all consumer durables more than doubled. Productivity on a unit output basis for color television manufacture has, however, risen far more rapidly than on a value-added basis.

As chart 1 demonstrates, the portions of the electronics industry with the highest rates of value-added productivity growth (microelectronics and computers) also experienced the highest rates of employment growth. Rapid increases in productivity were associated with the creation of jobs, not their elimination. The reasons are straightforward: spurred by technological changes opening vast new markets, export as well as domestic, output in microelectronics and computers has for many years grown at rates in the vicinity of 15 percent annually, far higher than the rate for all manufacturing. In contrast, the domestic market for consumer electronics grew less than half as fast, exports were small, and import penetration was severe; the value-added productivity measures for consumer electronics reflect the plight of an

Chart 1. Trends in productivity and production worker employment in consumer electronics, microelectronics, and computers, 1965-82



¹Value-added productivity per production worker hour (in 1972 dollars).

SOURCE: 1977 and 1982 Census of Manufactures.

industry hard pressed by foreign competition and striving to make relatively standard products more cheaply.

The examples of microelectronics and computers show that when technological change is rapid, rates of productivity increase may be high while employment nonetheless rises. Similar correlations sometimes follow at the aggregate level; rates of unemployment may drop nationwide while productivity climbs, particularly if coupled with high investment and the introduction of new technology.

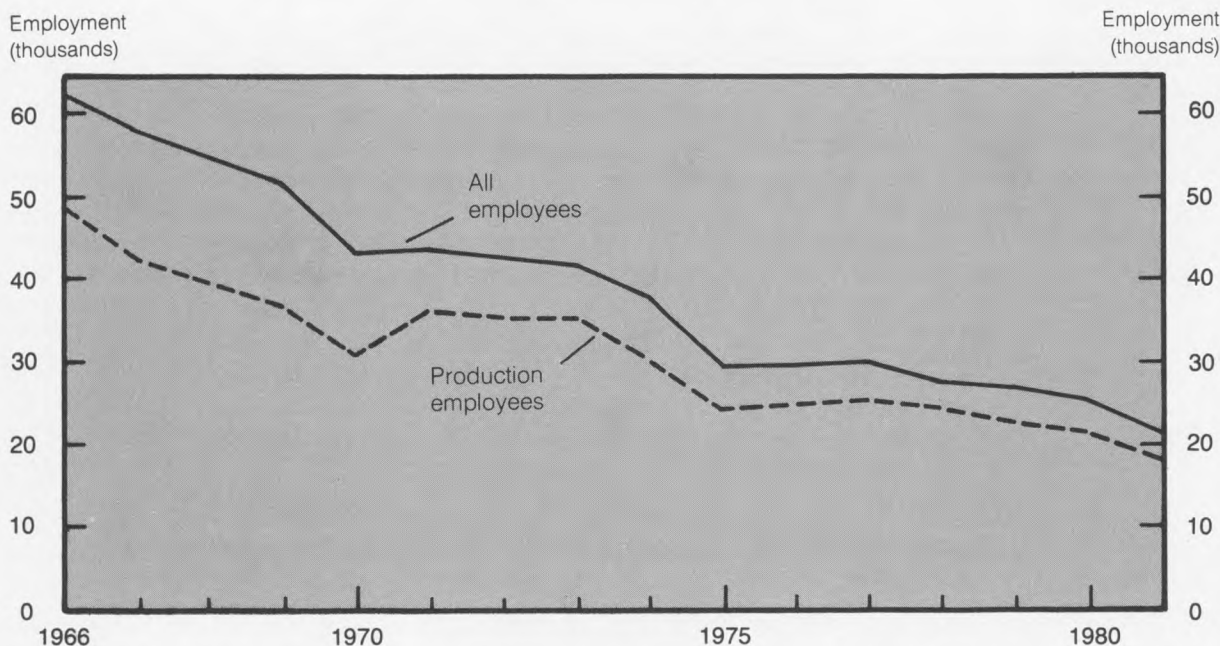
Consumer electronics

In many respects, the manufacture of television sets, accounting for about half of U.S. consumer electronics employment, can stand for the sector as a whole. Domestic employment in television manufacturing has been falling since the mid-1960's. (See chart 2.) Jobs for production workers dropped by half between 1971 and 1981, despite a near doubling of output, from 5.4 million to 10.5 million television sets. During this period, a dozen U.S. manufacturers either merged with Japanese or European producers or left the business; General Electric's departure, announced late in 1985, will leave only two major U.S. firms. The U.S. industry now includes more than 10 foreign-owned companies. While contributing to the employment totals in the chart, U.S. production by foreign-owned companies such as Sony or Gold Star tends to reflect higher fractions of foreign

value-added than the output of American-owned firms such as Zenith or RCA.

As television sales grew, apparent productivity on a unit output basis (measured as annual output divided by the number of production workers) jumped from 150 sets per worker in 1971 to 560 in 1981. In terms of value-added per production worker, productivity was up by about 40 percent—a trend similar to that for consumer electronics as a whole.⁶ The productivity improvements came from multiple sources. As color television sets replaced black-and-white receivers, manufacturers introduced more highly automated production processes. Somewhat later, reductions in the number of parts—resulting from solid-state chassis designs—meant reduced labor content. Only 6 percent of the color television sets made in the United States were solid-state models in 1970, but by 1976 essentially all had been redesigned around transistors. The number of parts dropped by half or more—for example, from 1,023 components for a Panasonic color model in 1972 to 488 in 1976.⁷ Often, component insertion was mechanized at the same time. A good deal of the productivity growth during the 1970's resulted from these interrelated changes in chassis design and manufacturing methods. Clearly, the causes of the employment declines in television manufacturing extend well beyond import penetration or offshore assembly; the spread

Chart 2. U.S. employment in television manufacturing, 1966-81



NOTE: Data for the 1966-75 period are for all television employment; data for 1976-81 are for color television only.

SOURCE: *International Competitiveness in Electronics* (Washington, DC, Office of Technology Assessment, November 1983), p. 354.

of solid-state chassis designs and automated manufacturing dramatically reduced labor requirements in this sector of the electronics industry. Import competition did have the effect of speeding the changes.

Over the same period, American consumer electronics firms relocated many of their manufacturing operations to low-wage developing countries. While there are no precise numbers on foreign workers employed in these plants, the U.S. Department of Labor believes there may be more than 30,000—a greater number than now employed in domestic television manufacture. As a result, the proportion of domestic value-added dropped during the 1970's; more parts and subassemblies were produced overseas for final assembly in the United States, whether by American- or foreign-owned companies. Given these trends, simply dividing the total output of television sets by the number of employees overstates productivity gains (although value-added productivity adjusts for this). By 1980, the United States imported more than \$1 billion worth of circuit boards and picture tubes for color television sets, about one-third of the total value of domestic output. Two basic causes, then, account for the employment decline in television manufacture: greater labor productivity, achieved through product redesigns as well as automation; and transfers of labor-intensive operations overseas. Intense competitive pressures, centered on manufacturing costs, drove both trends.

Improvements in productivity and manufacturing efficiency may eliminate jobs in the short term, but help to slow down job losses over the longer term. In 1974, for example, Matsushita, a Japanese company, bought Motorola's money-losing Quasar television operations. Matsushita invested heavily in automated manufacturing (some of it in Mexico); redesigned Quasar's product line; and reorganized shopfloor operations, with particular emphasis on quality control and employee participation programs. Greater labor productivity and higher quality—stemming from new capital equipment and redesigned products as well as work reorganization—helped save the jobs of several thousand American workers. At the same time, the production process was more automated, cutting into job opportunities. Quasar's investments in Mexico also came at the expense of job opportunities for Americans. But without these steps, Quasar's U.S. plants might have closed—at the cost of many more jobs.

In the Quasar example, impacts on manufacturing efficiency had many sources; it is impossible to isolate and account with any precision for each. As chart 2 and the Quasar example illustrate, rationalization of production may improve manufacturing efficiency and keep some people at work while making others redundant. Prospects for avoiding displacement are far better in U.S. industries that are more technologically dynamic and are expanding more rapidly than consumer electronics. But nowhere can the tradeoffs between productivity and job opportunities be avoided. In general, productivity must rise to improve competitiveness.

Unless output expands at least as fast, some jobs will vanish.

Import and offshore production: How important? The U.S. consumer electronics industry has faced strong external competition since the late 1960's, largely from producers in the Far East. Half the U.S. consumer electronics market has been taken by imports; most products still assembled in the United States contain many imported components. Penetration of consumer electronics markets coincided with employment decline. For example, imports of black-and-white television sets rose from one-quarter to three-quarters of U.S. sales over the 1967-77 period. Imports of color television sets peaked in 1976 at a level nearly 10 times greater than in 1967, then dropped because of quotas termed Orderly Marketing Agreements negotiated with Japan, South Korea, and Taiwan.⁸ The quotas cut imports roughly in half.

To what extent have imports cost U.S. jobs? First, we must determine the causes of import penetration. Imports may rise because demand exceeds domestic capacity or because consumer preference shifts to foreign-made goods (perhaps they are judged better values). In the first case—exemplified by video cassette recorders, where U.S. capacity is zero—jobs may not be lost directly but the rate of increase in job opportunities may slow. In the second case, typified by imports of Japanese cars and to a lesser extent by sales of television sets, immediate decreases in employment are likely.

Nor are the consequences of offshore production straightforward. Today, the remaining American-owned television manufacturers all operate overseas production facilities. In addition to the attraction of low-wage labor, the U.S. tariff schedules serve to encourage offshore assembly. (Items 806.30 and 807 permit re-imports with duties computed only on foreign value-added.) All wages and salaries paid overseas could be viewed as a loss to American labor and the U.S. gross domestic product. But what if American firms can only lower their costs and maintain or expand their markets by moving abroad? In some cases, American firms may seek offshore production to take advantage of low-cost labor. In other cases (computer plants in Western Europe, for example), U.S. manufacturers may wish to manufacture near their overseas customers.

It is oversimple to argue that the total number of foreign workers engaged in production for shipment to the United States—whether employed by U.S. or foreign firms—represents domestic employment loss. In most cases, U.S. consumer electronics firms had little choice concerning offshore production. Movement abroad was a defensive reaction, not a strategy aimed at expanding markets and improving profitability. To assume that jobs overseas substitute directly for U.S. employment is tantamount to assuming a stable competitive environment—not at all the case. Rather, employment declines followed losses in competitiveness. American firms had higher costs than their rivals. They pursued the

obvious route: increases in automation to raise productivity at home, combined with transfers of labor-intensive operations offshore. Only some companies survived; the others left the industry or were purchased by more successful manufacturers. In this complex chain of events, then, import competition must be counted as the primary cause of job losses in the U.S. consumer electronics industry.

Microelectronics

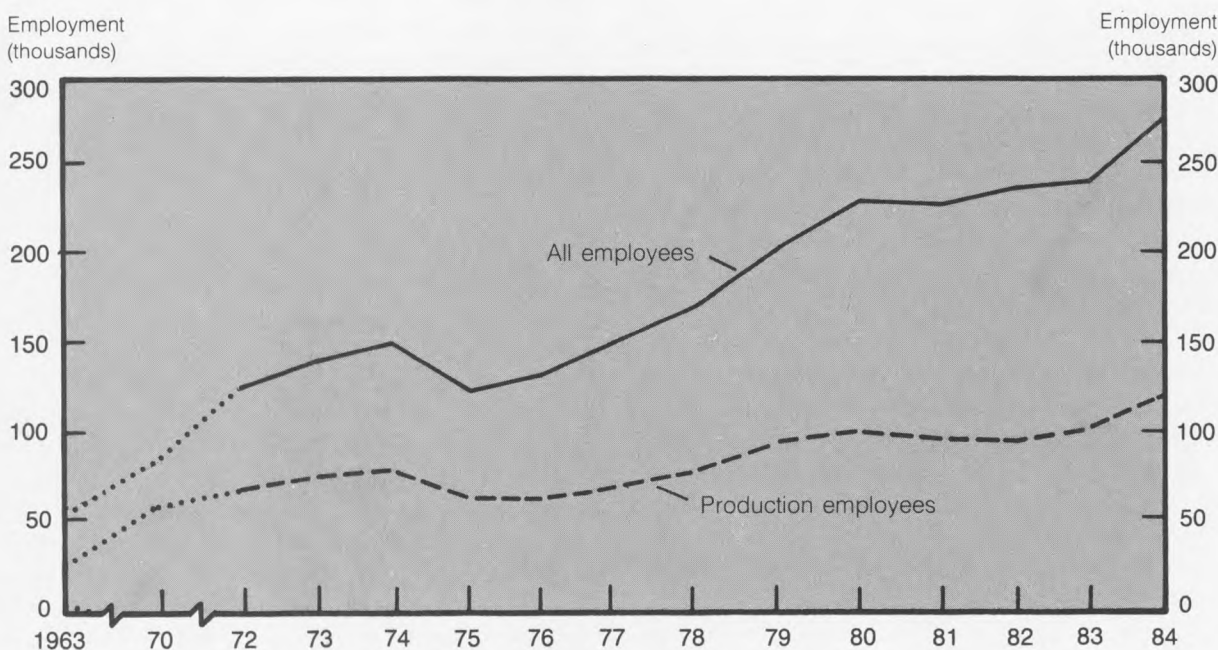
Since the mid-1950's, U.S. employment in semiconductor manufacture has increased rapidly, from a few thousand when production of transistors was just beginning, to more than 280,000 by the first half of 1985. (See chart 3.) In addition to merchant firms selling on the open market, the totals in the chart include captive production by vertically integrated manufacturers such as IBM and AT&T. During two periods, 1969-71 and 1974-75, employment dropped sharply as a result of recession. Since late 1984, total employment in semiconductors has again been dropping, with the number of production workers falling more sharply. These recent declines come when the economy is not in recession; given the new strength of Japanese competition, it appears that the microelectronics sector has entered a new phase in its evolution.

The proportion of production workers in the U.S. microelectronics industry dropped from 66 percent of the total

work force in 1963 to slightly more than 40 percent in 1985. American semiconductor manufacturers, particularly the merchant firms, have been moving labor-intensive assembly operations offshore for years; technological advance has contributed to the shift toward skilled and professional jobs in the United States. Demand for technicians and other nonproduction workers has risen with each succeeding generation of more sophisticated (and expensive) fabrication equipment. With movement through large-scale and now very large-scale integration, design and development of new circuits has become far more complex and time consuming; the ranks of engineering and R&D personnel have grown much faster than those of unskilled and semiskilled production employees.

Imports and offshore manufacturing. In comparing current layoffs, particularly for production workers, with those in previous downturns, one major difference is this: Japanese competition was not a factor during the 1970's. Today, Japanese firms account for substantial fractions of world market share for some types of devices, holding 85-90 percent of the burgeoning worldwide merchant market for 256K RAM memory chips. (Note, however, that this percentage excludes devices produced by such companies as AT&T for internal use.) Furthermore, huge investments by Japanese semiconductor manufacturers over the last few years have created a great deal of overcapacity. This excess

Chart 3. U.S. employment in semiconductors and related devices, 1963-84



SOURCES: *International Competitiveness in Electronics* (Washington, DC, Office of Technology Assessment, November 1983), p. 356; Bureau of Labor Statistics.

capacity, as much as 30 or 40 percent for some types of chips, aggravated the price cutting that has been endemic in the industry. After informal complaints against the Japanese going back a number of years, U.S. semiconductor manufacturers filed three major trade-related complaints with the Federal Government over a 4-month period in 1985. Partly in consequence, Japanese firms have been cutting back on shipments to the United States, while also accelerating their investments here—paralleling their earlier investments in consumer electronics.

Imports are not new to this sector. In 1971, the United States exported twice as many semiconductors as it imported, but by 1982 imports exceeded exports. Do the trends now visible portend job losses? Will employment suffer here as in consumer electronics? The answer is no, at least not over the next decade. There are two reasons. First, despite the current sales slump, worldwide demand for microelectronic devices will continue to grow over the longer term. Although the Japanese have made substantial inroads, American firms retain more than half of worldwide sales, and are still in a position of technical leadership in some if not all varieties of integrated circuits. Second, U.S. semiconductor firms have exported much more aggressively than consumer electronics manufacturers. Moreover, about three-quarters of all U.S. imports of microelectronic devices consist of intra-corporate transfers by American-owned firms—that is, re-imports after offshore processing. Offshore employment may continue to rise, and perhaps continue to increase faster than domestic employment, but U.S. jobs in microelectronics should rise as well. Nonetheless, total employment in the sector could continue to grow while the number of production jobs declines.

American semiconductor firms transferred labor-intensive “back-end” operations overseas—primarily assembly steps such as wire bonding and encapsulation—at a rapid pace beginning in the 1960’s. During that decade alone, U.S. companies established more than 50 foreign manufacturing plants.⁹ Wafers, fabricated domestically, were shipped to low-wage sites, mostly in Asia, for the final stages in processing, then returned to the United States or sent on to other markets. In recent years, U.S. merchant manufacturers have carried out perhaps 90 percent of all assembly work overseas.¹⁰

The reason is simple. Typical estimates for the 1970’s indicated that production costs could be cut in half through offshore assembly.¹¹ Given these potential savings, cost/price competition became the primary motive for such investments; American semiconductor firms moved offshore to reduce costs and expand markets. Once the first U.S. manufacturer invested in low-wage countries, others followed. With questionable prospects for automation during the 1960’s and early 1970’s, and a rate of technological advance that threatened to render investments in automated equipment obsolete, the choice was plain: move offshore or be undersold. In contrast to consumer electronics, the com-

petitors in microelectronics were American firms almost exclusively; large-scale foreign investments by U.S. manufacturers predated Japanese thrusts in microelectronics by more than a decade. If in the case of consumer electronics, offshore manufacturing was a reaction to import competition, in microelectronics the motives were offensive.

Because most offshore jobs are filled by assembly workers, overseas manufacturing has contributed to the declining fraction of production employees in the United States. U.S. firms employ perhaps three-quarters as many people in their foreign operations as they do here; but, while only 40 percent of the domestic jobs are in production, the figure is more than 80 percent for offshore plants.¹² As a result, American companies employ many more production workers overseas than at home—roughly 150,000, compared with about 115,000. Although domestic jobs more than doubled during the 1970’s, offshore employment grew even faster.

To what extent do foreign workers employed in the overseas operations of U.S. firms, or the employees of foreign-owned companies which export to the United States, stand for job opportunities lost to Americans? In contrast to offshore facilities, most of which are in Asia, point-of-sale plants in industrialized countries have been established largely for strategic reasons: market access, customer liaison, and, sometimes, the avoidance of import barriers. While these point-of-sale plants have arguably small consequences for U.S. employment, offshore investments driven by lower wages directly displace American workers, just as in consumer electronics. Periodically, speculation arises that advances in automated production equipment will mean that American firms can return back-end processing to the United States. With more automation, the labor cost advantages of offshore sites diminish, although they may not vanish. But even when costs remain lower overseas, strategic advantages—similar to those for point-of-sale plants in other industrialized countries—may mean that American companies will bring some of their production back home.¹³ If they do (keeping in mind that it is automation that would make this possible), the result is not likely to be an increase in jobs for production workers. Employment is far more likely to increase for engineers, technicians, and supervisors.

The production system. The picture outlined above is not quite so simple as it might seem. Generalizations about the microelectronics industry conceal a good deal of diversity within. Low production costs are far more important for some firms than for others. Companies that depend on product leadership must develop manufacturing systems geared to device technologies pushing the state of the art. Those with broad product lines will place greater stress on costs and quality. Needless to say, no microelectronics manufacturer can neglect costs or quality; the question is one of priorities. Still, unique product designs—for example, a

microprocessor with capabilities outstripping those of the rest of the industry—will generate competitive advantages almost irrespective of manufacturing costs.

Nonetheless, in microelectronics as in any industry, unique products remain the exception; generally, manufacturing capabilities are critical for competitive success. Microelectronics, first of all, is an industry where product and process knowhow interact more closely than in perhaps any other. As an example, in mid-1984, Trilogy Systems abandoned its attempts to achieve wafer-scale integration, which would have increased scale and complexity by factors of 100 or more—companies must be able not only to design but to build new types of devices. More than this, quality has become, since the end of the 1970's, central to competitive dynamics. As in many other industries, Japanese manufacturers made quality and reliability a major element in their export strategies. This helped Japanese semiconductor firms penetrate U.S. markets. They concentrated on standard devices such as memory chips, meeting or undercutting the prices of American manufacturers while offering better quality, hence better value.

What does it take to achieve high quality in the production of integrated circuits? Certainly it takes good manufacturing equipment. Japanese semiconductor firms purchased most of their equipment from the same vendors that supplied the U.S. industry; hence they had no advantage on the factory floor as far as equipment was concerned. Integrated circuits from different manufacturers do differ in design, even when functionally identical. Design details influence costs and quality; Japanese firms made design choices aimed at quality and reliability, sometimes at the expense of cost or performance. But more than this, Japan's factory system as a whole—plant layout, integration of people into the production process, task allocations, management style, and internal training and retraining programs—leads to high quality as well as low costs. From a systems perspective, their production processes helped Japan's semiconductor manufacturers to penetrate world markets, competing successfully with American firms that had the lead—and still do—in many functional aspects of circuit design.

Do imports, technology cost U.S. jobs?

Import competition, automation, and offshore investment take place in a context of global shifts in market structure, with long-term consequences for jobs and job opportunities in a national economy, as well as immediate impacts on workers, firms, and industries. In expanding markets, a firm that can respond quickly to new opportunities anywhere in the world may be able to increase exports and consolidate its position. During the 1970's, for example, American semiconductor manufacturers capitalized on the shift toward metal-oxide-semiconductor integrated circuits ahead of their foreign rivals. In doing so, they created many new job opportunities for Americans, unskilled as well as skilled.

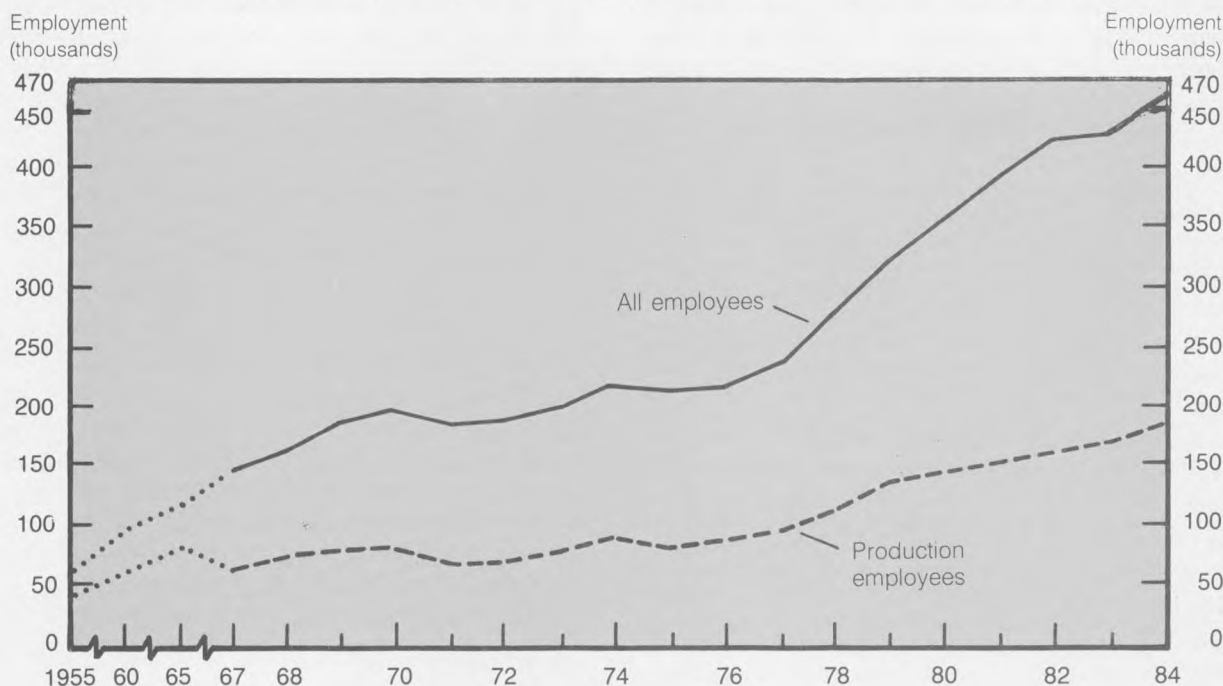
In consumer electronics, particularly television manufacture, the dynamic has been far different. Much of the technology is conventional, accessible to firms in many parts of the world. Markets grow more slowly. In the United States, competition at the retail level has been fierce, with prices declining relative to other consumer durables. As productivity increased, employment declined. Overall, then, while employment in the U.S. electronics industry has grown, the increases have been far from uniform. Few of the workers who once made vacuum tubes found work in microelectronics.

Of course, growth and technological change in electronics also exert influences far beyond this industry. Computer manufacturing, where U.S. competitiveness remains high, has seen rapid employment increase with simultaneous productivity improvements. At the same time, advances in computer systems have created and destroyed vast numbers of jobs in other industries.

Chart 4 illustrates employment growth in computer manufacture, including peripherals. Even more than in microelectronics, the trend has been away from production employees and toward more skilled workers and professionals. Unlike either semiconductors or consumer electronics, neither imports nor offshore production has as yet affected employment greatly. American computer firms have invested heavily overseas, but foreign plants generally serve foreign markets. As in microelectronics, some foreign production may substitute for exports from the United States. But in industrialized (and some developing) countries, American firms often must invest in manufacturing facilities if they expect to sell in volume, limiting the extent to which point-of-sale plants can be viewed as displacing domestic workers. Imports of peripherals and components have been more important; many disc drives and terminals now come from overseas.

In computers, competitive threats lie well in the future.¹⁴ But in consumer electronics, U.S. competitiveness began to slip 20 years ago. Employment typically falls when industries lose ground in either domestic or international markets. Even if aggregate economic growth brings greater demand, only the more efficient companies can take full advantage; firms seldom have any choice but to adopt new technologies, process as well as product, if they wish to remain competitive. Those that move quickly (but not too quickly) may be able to gain an edge over their rivals through efficiency improvements or differentiated product designs. Companies may be forced to automate or pursue alternative routes to lower costs and greater productivity simply to survive. Such strategies have enabled Zenith and RCA, the two largest American color television manufacturers, to maintain their approximate market shares, but to do so, they had to cut their payrolls. If modernizing production facilities and moving offshore costs U.S. jobs in the short term, such strategies may help maintain the total market for American-made products over the longer term.

Chart 4. U.S. employment in computer and peripheral equipment manufacturing, 1955-84



SOURCES: *International Competitiveness in Electronics* (Washington, DC, Office of Technology Assessment, November 1983), p. 359; Bureau of Labor Statistics.

Like all technical change, then, advances in electronics will continue to bring a mix of positive and negative outcomes. Firms manufacturing electronics products will, for some years, continue to create substantial numbers of new jobs. In U.S. manufacturing as a whole, however, jobs—at least for production workers—may go down in absolute terms. A major source of decline in employment opportunities will be redesigned production systems utilizing computers and computer networks along with other tools for improving organizational efficiency.

For firms determined to maintain their competitiveness in world markets while retaining a production base in high-wage economies, computer-assisted automation will be necessary but not, by itself, sufficient. To be successful, these companies will have to redesign their product lines with greater manufacturing efficiency as a primary goal. Product engineers will have to work more closely with manufacturing engineers. Technical staffs will have to work effectively with shopfloor employees—learning from them during the design stage and, at later stages, helping production employees operate the system in something approximating optimal fashion. In the recent past, Japanese companies have done a better job at this than American (or European) firms. Some Japanese firms have nearly erased the interface between design and manufacturing, while building corporate organizations that effectively utilize available human re-

sources, including the capabilities of “unskilled” workers. This has been a major source of Japanese competitiveness in consumer electronics and microelectronics.¹⁵ While we prefer to stress similarities rather than differences between Japanese and Western management styles, it seems clear that the Japanese are well ahead in introducing more highly integrated production systems. A major reason is decision-making processes that lend themselves to conflict resolution and the development of shared values, necessary attributes of integrated systems. Designing products for manufacturing efficiency will be one of the keys to competitive success for American firms over the next few decades. So will integration of workers—at all levels, but particularly on the shop floor—into the production process.

Only by using labor effectively and efficiently—which often means changes both in product design and in the production system—can firms in high-wage economies maintain their international competitiveness. Not all firms will be successful. Some workers, companies, industries, and regions will lose out. Unskilled and semiskilled manufacturing workers are in the greatest jeopardy.

How can the negative impacts be minimized, while capitalizing on the potentials of new technology? The relationships between technical change, employment, and international competition may be complex, but from the standpoint of public policy, many of the negative effects are quite

predictable. Adjustment problems cannot be avoided, but governments can prepare for them, both to ease the inevitable shifts and to help maintain the competitive ability of domestic industries. Because shifts in industrial structure bring new jobs with new skill requirements, it may be time

to rethink both public and private programs of training, retraining, and education. With jobs and job opportunities for production workers declining, it may be time to rethink the meaning of work in advanced industrial societies □

—FOOTNOTES—

¹ This article is based in part on *International Competitiveness in Electronics* (Washington, DC, Office of Technology Assessment, U.S. Congress, November 1983), Chapter 9. An earlier version was presented at the 2nd International Conference on Human Factors in Manufacturing, Stuttgart, Federal Republic of Germany, June 11–13, 1985. The authors thank Philip A. Mundo for assistance with the statistical data.

² These industries are categorized under the following Standard Industrial Classification (sic) codes as published in the Office of Management and Budget's *Standard Industrial Classification Manual, 1972*: consumer electronics—sic 3651, "Radio and Television Receiving Sets, Except Communication Types;" microelectronics—sic 3674, "Semiconductors and Related Devices;" and computer manufacturing—sic 3573, "Electronic Computing Equipment."

³ Including communications equipment and components other than semiconductors would double the total, to more than 1.7 million workers, while employment in the American steel industry fell to about 330,000 during 1984.

⁴ Both sectors' troubles have been widely reported. See, for example, "Those Vanishing High-Tech Jobs," *Business Week*, July 15, 1985, p. 30. Although the averages for 1984 and the first half of 1985 do not yet show the decline in microelectronics, employment fell each month during 1985 through June in both microelectronics and computers.

⁵ See *International Competitiveness in Electronics*, p. 89.

⁶ *1977 Census of Manufactures: Communication Equipment, Including Radio and TV, MC77-1-36D* (Department of Commerce, June 1980),

p. 36D-5; *1982 U.S. Industrial Outlook* (Department of Commerce, January 1982), p. 343.

⁷ *International Competitiveness in Electronics*, p. 223.

⁸ See *International Competitiveness in Electronics*, pp. 112–13 and 446–49.

⁹ *A Report on the U.S. Semiconductor Industry* (Department of Commerce, September 1979), p. 84.

¹⁰ J.R. Lineback, "Automation May Erase Offshore Edge," *Electronics*, Apr. 21, 1982, p. 94.

¹¹ W.F. Finan, "The International Transfer of Semiconductor Technology Through U.S.-Based Firms," Working Paper No. 118 (National Bureau of Economic Research, December 1975), p. 60.

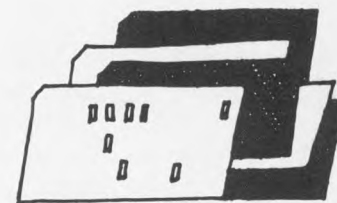
¹² *Summary of Trade and Tariff Information: Semiconductors* (U.S. International Trade Commission Publication 841, July 1982), p. 8.

¹³ See, for example, S.P. Galante, "U.S. Semiconductor Makers Automate, Cut Chip Production in Southeast Asia," *The Wall Street Journal*, Aug. 21, 1985, p. 28.

¹⁴ J.A. Alic and R.R. Miller, "Export Strategies in the Computer Industry: Japan and the United States," in P. Edwards and R. Gordon, eds., *Strategic Computing: Defense Research and Computer Technology* (forthcoming).

¹⁵ *International Competitiveness in Electronics*, Chapter 8.

Research Summaries



Work experience profile, 1984: the effects of recovery continue

SHIRLEY J. SMITH

The number of persons holding jobs during all or part of the year rose to 121.1 million during 1984, up 3.6 million from 1983. This was the largest single-year increase in 35 years. As the economy continued to improve in the wake of the recession of 1981–82, there were also indications that the work year of those employed had lengthened, the prevalence of unemployment had diminished, and its average duration had lessened.

These findings were derived from the work experience survey, conducted each March as a supplement to the Current Population Survey, the monthly nationwide household survey which measures the changes in the size of the labor force, employment, and unemployment. While the monthly measurements permit officials to closely monitor the pulse of the American economy, the March supplement provides a different perspective. Its retrospective questions covering the entire previous calendar year provide unique information on the labor force behavior of the population, on the extent to which each member, age 16 and over, worked or sought work during the year, and on income derived from employment and other sources.

The work experience profile is particularly informative in describing the labor force activity of groups whose work patterns are discontinuous or habitually irregular. Given the large movements in and out of the labor force each month, the March supplement normally identifies a much larger “economically active population” than does the monthly count. For example, 121.1 million adults were identified in the March 1985 survey as having worked for some period during 1984, while the average of the 12 monthly measurements was just 105.0 million. The total number of persons shown by the March supplement to have been unemployed for some portion of 1984 was 2.5 times as large as was the number encountering unemployment in the average month (that is, 21.5 million versus 8.5 million).

During 1984, the economic recovery took an irregular

path. The first half of the year was characterized by a strong surge of employment and corresponding declines in unemployment, both of which slowed during the summer months. During the final quarter, there was a modest upswing in employment, but it was not matched by proportionate declines in joblessness.¹ In light of these developments, it is particularly useful to examine the year’s work experience profile for the many persons who entered or left the economic arena.

Population and employment growth

Although by early 1984 the economy had already undergone a full year of recovery, it continued to grow rapidly. Workers appeared to be making up for lost time, both in terms of net entries into the job market and also through shifts to longer work hours. The continuing influx of women into the economic arena, and pressures of population growth, combined with the strong economic recovery to accelerate labor force growth.

The adult population (aged 16 and over) grew by about 1 percent during the year, the pace being roughly four times as great for Hispanics and about twice as fast for blacks as for whites. The following tabulation shows the 1983–84 percent increases in the population aged 16 and over, persons employed at all during the year, and those employed year round, full time, by selected characteristics:

	Civilian non-institutional population	Employment	
		Total	Full time, full year only
Total	1.0	3.0	5.5
Men	1.1	2.2	5.7
Women	0.9	4.0	5.2
White	0.8	2.5	5.1
Black	1.7	6.1	7.4
Hispanic	3.3	5.5	6.9

The character of population growth within each group differed, affecting its potential contribution to the work force. The growth of the white population was concentrated in the age range 25 and above, and was offset to a large degree by a contraction of the group 16–24 years of age. The number of black teenagers also declined, but of blacks aged 20 and above, the population increased. The population of Hispanic origin, whose expansion results as much from immigration of adults as from natural increase, registered gains at all ages 16 and over. Hence, the pool from which potential entrants were likely to be drawn was somewhat older for whites than

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for the other two groups. Each demographic group expanded most rapidly within the age range 25–44, where baby-boom cohorts and recent immigrants are concentrated. It is in this age range that life cycle pressures to obtain and hold employment are normally most acute.

As the health of the economy continued to improve, the share of the working-age population holding jobs during the year rose from less than 67 to more than 68 percent, with the pace of growth for women nearly twice that for men. (See table 1.) Nonetheless, because the labor force activity of men has been decreasing in the recent past, even the small increase shown in 1984 is noteworthy.

The number of black and Hispanic workers with full- or part-year jobs was sharply higher in 1984 than in the previous year, reflecting both the very rapid growth of their population and a greater potential for recovery from the recent recession.² Whereas the number of whites who were in the labor force at some time during the year grew by 2.5 percent, that of blacks increased by 6.1 percent and Hispanics, by 5.5 percent.

Looked at another way, the growth of the economically “active” population (persons working or looking for work

during the year) exceeded that of the total working-age population aged 16 and over, for all groups except men. (See table 2.) The size of the expansion of the year’s female work force was more than twice the increase of their entire working-age population. The number of persons who held no job at all during the year declined across the board. Only one group of “inactives,” men not looking for work (more than half of whom were retired), showed even minor growth.

Work schedules

A record number of men (43.8 million) and women (26.6 million) held year-round, full-time jobs (50 weeks or more per year, usually at 35 hours or more per week) during 1984. The growth rate of such employment was slightly more rapid for men than for women, and was considerably greater for blacks and Hispanics—with low initial representation in this category—than it was for whites.

Men accounted for about 54 percent of the growth in employment between the last quarter of 1983 and the last quarter of 1984. However, because the work patterns of women are less regular, and their role in the labor force has

Table 1. Work experience of the population during the year by extent of employment for men and women, 1983–84

[Numbers in thousands]

Extent of employment	Total		Men		Women	
	1983	1984	1983	1984	1983	1984
Civilian noninstitutional population	175,881	177,661	83,285	84,206	92,596	93,455
Total who worked or looked for work	121,503	124,117	66,350	67,234	55,153	56,883
Percent of the population	69.1	69.9	79.7	79.8	59.6	60.9
Total who worked during the year ¹	117,575	121,148	64,512	65,960	53,063	55,188
Percent of the population	66.8	68.2	77.5	78.3	57.3	59.1
Full time ²	90,606	94,312	55,132	56,928	35,474	37,384
50 to 52 weeks	66,744	70,419	41,469	43,833	25,275	26,585
48 to 49 weeks	2,278	2,451	1,361	1,408	916	1,043
40 to 47 weeks	5,133	5,502	2,999	3,046	2,134	2,456
27 to 39 weeks	5,633	5,617	3,285	3,095	2,349	2,522
14 to 26 weeks	5,901	5,635	3,290	3,081	2,611	2,554
1 to 13 weeks	4,918	4,689	2,728	2,464	2,190	2,224
Part time ³	26,969	26,836	9,380	9,032	17,588	17,804
50 to 52 weeks	10,297	9,832	3,210	3,099	7,087	6,734
48 to 49 weeks	762	861	231	272	531	589
40 to 47 weeks	2,339	2,380	738	793	1,602	1,587
27 to 39 weeks	3,103	3,129	1,049	1,000	2,055	2,129
14 to 26 weeks	4,513	4,733	1,759	1,704	2,754	3,029
1 to 13 weeks	5,953	5,900	2,394	2,164	3,559	3,736
Total who worked during the year ¹ (percent)	100.0	100.0	100.0	100.0	100.0	100.0
Full time ²	77.1	77.8	85.5	86.3	66.9	67.7
50 to 52 weeks	56.8	58.1	64.3	66.5	47.6	48.2
48 to 49 weeks	1.9	2.0	2.1	2.1	1.7	1.9
40 to 47 weeks	4.4	4.5	4.6	4.6	4.0	4.5
27 to 39 weeks	4.8	4.6	5.1	4.7	4.4	4.6
14 to 26 weeks	5.0	4.7	5.1	4.7	4.9	4.6
1 to 13 weeks	4.2	3.9	4.2	3.7	4.1	4.0
Part time ³	22.9	22.2	14.5	13.7	33.1	32.3
50 to 52 weeks	8.8	8.1	5.0	4.7	13.4	12.2
48 to 49 weeks	0.6	0.7	0.4	0.4	1.0	1.1
40 to 47 weeks	2.0	2.0	1.1	1.2	3.0	2.9
27 to 39 weeks	2.6	2.6	1.6	1.5	3.9	3.9
14 to 26 weeks	3.8	3.9	2.7	2.6	5.2	5.5
1 to 13 weeks	5.1	4.9	3.7	3.3	6.7	6.8

¹Time worked includes paid vacation and sick leave.

²Usually worked 35 hours or more per week.

³Usually worked 1 to 34 hours per week.

NOTE: These data reflect revised estimation procedures and are not comparable to data for prior years. Data for 1983 have been retabulated and differ from data previously published in the December 1984 issue.

Table 2. Net changes between 1983 and 1984 by work pattern, sex, race, and Hispanic origin

[Numbers in thousands]

Work pattern	Net change, 1983-84					
	Total	Men	Women	White	Black	Hispanic ¹
Population aged 16 years and over	1,780	921	859	1,242	259	368
Persons who worked or looked for work	2,614	884	1,730	1,879	434	-386
Total who worked during the year	3,573	1,448	2,125	2,575	690	390
Full year (50 to 52 weeks)	3,210	2,253	957	2,523	444	282
Full time	3,675	2,364	1,310	2,996	466	269
Part time	-465	-111	-353	-473	-22	13
Part year (1 to 49 weeks)	364	-805	1,169	53	246	108
Full time	31	-569	600	-141	137	65
Part time	333	-236	569	194	109	43
Total full-time workers	3,706	1,796	1,910	2,855	603	334
Total part-time workers	-133	-348	216	-279	87	56
Total nonworkers	-1,793	-527	-1,267	-1,334	-431	-22
Looked for work	-959	-564	-395	-697	-255	-4
Did not look for work	-834	37	-871	-637	-176	-18

¹ Persons of Hispanic origin include whites, blacks, and others (not shown). This ethnic classification is not mutually exclusive from the racial breakdown shown.

been changing more rapidly than that of men, the record of work experience during the year gives quite a different picture of their relative contributions to growth. Nearly 60 percent of the additional 3.6 million persons holding jobs at some time during the year were women. (See table 2.) The proportion of all women reporting jobs rose from 57 percent in 1983 to 59 percent in 1984. The reviving economy also drew an additional 1.4 million men into the work force, raising the proportion of men with jobs to 78 percent.

Most of the year's entrants are, by definition, classed as part-year workers, as few of them manage to work 50 weeks or more. Thus, in a year with large employment increases, one would expect a large increase in the number of part-year workers. The fact that this classification declined by 800,000 for men and grew by less than 1.2 million for women suggests that several million workers with part-year jobs in 1983 had moved on to full-year positions during 1984. Indeed, 2.4 million additional men and 1.3 million additional women reported full-year, full-time work in 1984.

Other evidence of the lengthening work year included a net decline in the representation of men in all less-intense work schedules, and a marked decline in the extent of year-round, part-time employment, especially for women. The modest increase in total part-time employment for women was more than offset by the withdrawal of men from this schedule, resulting in a contraction of the part-time work force. At the same time, full-time employment rose sharply, by more than 3.7 million persons, during the year. More than half (1.9 million) of this net increase was attributable to women.

During 1984, 6 of 10 net entrants to the work force and more than half of the net additions to the full-time work force were women. Yet women contributed only about a third to the increase in year-round employment.

Components of change in employment

The work experience survey adds additional perspective to our understanding of the components of change. It illustrates, for instance, which groups experience disproportionate gains within each work schedule category. For example, whites comprised 70 percent of the growth in the working age population between 1983 and 1984.³ They supplied 72 percent of the total net growth in employment and were responsible for 77 percent of the growth in full-time employment, 79 percent of the growth in year-round jobs, and 82 percent of the increase in year-round, full-time work. By contrast, blacks made up about 15 percent of the growth in the working age population but accounted for more than two-thirds of the growth in part-year work: a reflection of their continued high unemployment and labor force entry and exit rates, as well as their relatively youthful population. Hispanics (an ethnic group including blacks, whites, and others) accounted for 21 percent of the growth in population. They contributed just 11 percent to overall growth in employment during the year but 30 percent to the part-year work force.

The proportion of men holding jobs during part or all of 1984 was roughly 8 of 10 for both whites and Hispanics, but just 7 of 10 for blacks. Proportionately more white than black women held jobs during the year (59 versus 57 percent). However, black women were more likely than white women to hold year-round, full-time jobs if they did work (54 versus 47 percent). (See table 3.)

Given the secular trend toward early retirement, it was not clear how responsive the elderly workers would be to improvements in overall labor demand. As table 4 indicates, women aged 60 and over showed no greater inclination to hold jobs in 1984 than they had in 1983. There was a modest increase in employment among men aged 60 to 61, but job holding at older ages continued to drop. Yet among those older persons who continued to work, there appeared to be some lengthening of the average work year, with a rise in the proportion of "active" men 55 to 64 and of "active" women 60 to 64 holding year-round, full-time jobs.

Not surprisingly, younger workers—who had experienced the sharpest job cutbacks in the early 1980's—registered significant gains in work experience in 1984, as well as in full-year, full-time employment. Persons 35 to 59, the groups registering the least expansion in these areas in 1984, had experienced the least job loss during the recession.

The unemployment picture

About 21.5 million persons, or 17 percent of all who worked or looked for work during 1984, experienced some unemployment. (See table 5.) This was a marked decline from the peak figure (22 percent) registered in 1982, but still higher than that registered in the 1978-79 period (less than 16 percent). The proportions encountering some unemployment during the year were 18.1 percent for men and 16.5 percent for women. When the added effect of racial dispar-

ities is considered, the figures range from about 15 percent for white women to 29 percent for black men. (See table 6.) Values for the Hispanic community, which includes whites, blacks, and others, fell within this range.

Overall, about 16 percent of all whites, nearly 27 percent of all blacks, and about 23 percent of all Hispanics experienced one or more spells of joblessness during 1984. For each group, this was the lowest level recorded since 1979.

The incidence of unemployment during 1984 varied considerably by industry, as the figures below for wage and salary workers show:

Industry	Percent with unemployment
Total	15.9
Agriculture	28.8
Mining	23.6
Construction	35.1
Manufacturing	17.2
Durable goods	16.6
Nondurable goods	18.2
Transportation and public utilities	11.4
Wholesale and retail trade	17.9
Finance, insurance, and real estate	9.2
Services	12.6
Public administration	7.5

More than a third of all construction workers and nearly 3 of 10 persons in agriculture reported spells of joblessness, once again establishing these as the industries in which workers are most prone to encounter some unemployment. The decline in unemployment since the recession has been most notable in durable goods manufacturing, where 16.6 percent of the workers encountered some unemployment during 1984, down from 27.6 percent in 1982. The corresponding 2-year decline for construction workers was less than 6 percentage points, and for agriculture, less than 2. Agriculture was the only industry to register an absolute decline in employment between 1983 and 1984.

The extent of unemployment obviously affects the share of the total labor force able to work year round, and this is most apparent when one looks at the data by occupation. As table 7 illustrates, a low unemployment figure (such as was reported by executive, administrative, and managerial occupations, or by farm operators and managers) is likely to be associated with high proportions of year-round, full-time workers. However, the high unemployment occupations (such as the construction trades, operators, fabricators, and laborers) show a greater concentration of workers in part-year schedules.

At most, 4 of 5 workers in any occupational group shown held year-round, full-time jobs. In several occupations, including services (except for the protective services), construction trades, handlers, equipment cleaners and helpers, farmworkers and related occupations, and forestry and fishing occupations, fewer than half worked full time for the entire year. Most of these occupations were characterized by unusually high turnover and high unemployment.

Duration of unemployment. Of those experiencing some unemployment during the year, about 14 percent held no job whatsoever during that period. However, the figure for blacks was nearly 27 percent, reflecting the difficulties which blacks—especially the younger ones—face in finding jobs. (See table 6.)

For the most part, spells of unemployment during 1984 were somewhat shorter than those reported in 1983. The median length of time spent in search of a job (including multiple spells) dropped by 1.4 weeks, to 12.8 weeks. Whites and Hispanics each experienced a 1.6-week reduc-

Table 3. Work experience of the population during the year by race, Hispanic origin, and sex, 1983-84

[Numbers in thousands]

Extent of employment, race, and Hispanic origin	Total		Men		Women	
	1983	1984	1983	1984	1983	1984
White						
Civilian noninstitutional population	152,047	153,289	72,546	73,180	79,501	80,109
Total who worked or looked for work	105,870	107,749	58,520	59,144	47,351	48,605
Percent of the population	69.6	70.3	80.7	80.8	59.6	60.7
Total who worked during the year ¹	103,243	105,818	57,274	58,324	45,969	47,494
Percent of the population	67.9	69.0	78.9	79.7	57.8	59.3
Total who worked during the year ¹	100.0	100.0	100.0	100.0	100.0	100.0
Full time ²	77.0	77.8	85.8	86.8	66.0	66.8
50 to 52 weeks	56.8	58.3	64.9	67.3	46.8	47.3
27 to 49 weeks	11.2	11.2	12.0	11.4	10.2	10.9
1 to 26 weeks	8.9	8.3	8.9	8.1	9.0	8.6
Part time ³	23.0	22.2	14.2	13.2	34.0	33.2
50 to 52 weeks	8.9	8.2	5.0	4.6	13.7	12.6
27 to 49 weeks	5.4	5.4	3.1	3.1	8.3	8.1
1 to 26 weeks	8.8	8.6	6.1	5.5	12.0	12.5
Black						
Civilian noninstitutional population	19,290	19,549	8,612	8,727	10,678	10,822
Total who worked or looked for work	12,560	12,994	6,234	6,297	6,326	6,697
Percent of the population	65.1	66.5	72.4	72.2	59.2	61.9
Total who worked during the year ¹	11,383	12,073	5,705	5,893	5,678	6,179
Percent of the population	59.0	61.8	66.2	67.5	53.2	57.1
Total who worked during the year ¹	100.0	100.0	100.0	100.0	100.0	100.0
Full time ²	77.5	78.1	82.2	82.4	72.8	73.9
50 to 52 weeks	55.4	56.1	57.6	58.6	53.2	53.7
27 to 49 weeks	10.8	11.8	11.5	12.5	10.2	11.1
1 to 26 weeks	11.3	10.2	13.1	11.4	9.5	9.2
Part time ³	22.5	21.9	17.8	17.6	27.2	26.1
50 to 52 weeks	7.9	7.3	5.0	5.3	10.9	9.2
27 to 49 weeks	4.6	4.3	3.7	2.9	5.4	5.6
1 to 26 weeks	10.0	10.3	9.2	9.4	10.8	11.3
Hispanic origin						
Civilian noninstitutional population	11,061	11,429	5,403	5,605	5,657	5,823
Total who worked or looked for work	7,409	7,795	4,378	4,567	3,030	3,228
Percent of the population	67.0	68.2	81.0	81.5	53.6	55.4
Total who worked during the year ¹	7,153	7,543	4,246	4,436	2,907	3,106
Percent of the population	64.7	66.0	78.6	79.1	51.4	53.3
Total who worked during the year ¹	100.0	100.0	100.0	100.0	100.0	100.0
Full time ²	80.5	80.8	85.7	87.5	72.8	71.1
50 to 52 weeks	54.6	55.4	59.4	61.1	47.6	47.3
27 to 49 weeks	13.5	13.6	15.0	14.0	11.3	13.2
1 to 26 weeks	12.3	11.7	11.3	12.5	13.9	10.7
Part time ³	19.5	19.2	14.3	12.5	27.2	28.9
50 to 52 weeks	7.2	7.0	5.2	4.5	10.1	10.5
27 to 49 weeks	4.3	4.4	2.9	2.8	6.2	6.6
1 to 26 weeks	8.1	7.9	6.1	5.2	10.9	11.8

¹Time worked includes paid vacation and sick leave.

²Usually worked 35 hours or more per week.

³Usually worked 1 to 34 hours per week.

NOTE: These data reflect revised estimation procedures and are not comparable to data for prior years. Data for 1983 have been retabulated and differ from data previously published in the December 1984 issue. Detail for the above 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.

Table 4. Extent of employment by sex and age, 1983 and 1984

Age (in years)	Percent of population 16 and over who worked during the year				Percent of year's work force with year-round, full time jobs			
	Men		Women		Men		Women	
	1983	1984	1983	1984	1983	1984	1983	1984
Total	77.5	78.3	57.3	59.1	64.3	66.5	47.6	48.2
16 to 17	46.2	49.7	40.4	46.8	1.6	2.2	0.5	1.0
18 to 19	73.8	77.3	66.4	70.9	13.1	14.4	12.0	11.8
20 to 24	86.8	88.1	76.0	78.1	41.0	43.1	37.3	37.6
25 to 34	92.4	94.2	73.6	75.5	69.5	73.0	53.6	54.4
35 to 44	94.0	94.1	73.2	74.3	79.2	81.7	55.1	55.3
45 to 54	90.5	90.7	66.4	69.0	81.5	81.3	58.4	59.5
55 to 59	81.9	81.8	53.6	55.8	77.0	79.3	55.9	55.9
60 to 61	72.1	73.4	47.4	47.2	70.4	74.2	51.4	54.7
62 to 64	60.1	58.1	34.6	34.8	61.4	62.4	46.4	48.7
65 to 69	33.1	32.9	18.6	18.3	38.5	38.6	27.0	24.8
70 and over	15.6	15.1	6.4	6.7	26.9	26.6	18.9	14.6

tion in the median duration of unemployment. Blacks continued to report the longest spells, and the decline in their median length of unemployment amounted to just one-half week. This apparent stagnation masked the contradictory experiences among men and women. While the median spell for black women diminished by 3.4 weeks, and was the most impressive improvement registered, that for black men actually rose by 1.7 weeks, the only duration figure to rise during 1984.

Unemployment and family income. The following text tabulation shows the median income (exclusive of noncash transfers) for various types of families, by presence or absence of unemployment during the year:

Family structure	No member unemployed		At least one member with some unemployment	
	Median family income	Percent in poverty	Median family income	Percent in poverty
Married-couple families	\$33,960	4.1	\$25,713	12.0
Families maintained by:				
Women	17,225	17.8	10,427	41.6
Men	27,083	6.0	17,173	21.9
Persons not living in families	16,320	9.3	8,157	32.7

It should be noted that these groups are far from homogeneous: each has its own age and racial makeup. A disproportionate share of married-couple families are white, whereas families maintained by women are disproportionately black. In general, persons living alone are relatively young or old. And of course, unearned income (such as unemployment compensation, disability, military and Social Security benefits, and earnings on investments) affect each group's median differently.

Still, certain patterns are unmistakable. Within any given group, households are at least twice as likely to be classed as having income below the poverty line if some member experiences unemployment during the year. For example, in the absence of unemployment, less than 18 percent of the

households maintained by women were classified as being in poverty. Where some unemployment had occurred during the year more than half qualified as being "in poverty." Even among married-couple households, where the general incidence of poverty is relatively low, the families with some unemployment during the year were much more likely to be in poverty than those reporting no unemployment.

Nonworkers

To round out the picture of economic activity during 1984, it is interesting to consider the segment of the adult population which held no job at all during the year. There were 56.5 million such persons, of which slightly more than two-thirds (68 percent) were women. Only 5 percent of the nonworkers were reported as having made any attempt to find employment during the year. Overall, 3 of 10 nonworkers reported that they were retired, a figure which is proba-

Table 5. Extent of unemployment during the year by sex, 1983-84

Extent of unemployment	Total		Men		Women	
	1983	1984	1983	1984	1983	1984
Numbers (in thousands)						
Total who worked or looked for work	121,503	124,117	66,350	67,234	55,153	56,833
Percent with unemployment	19.6	17.4	21.0	18.1	17.8	16.5
Total with unemployment	23,762	21,535	13,919	12,174	9,842	9,361
Did not work but looked for work	3,928	2,969	1,838	1,274	2,091	1,696
1 to 14 weeks	1,643	1,355	508	375	1,135	979
15 weeks or more	2,285	1,615	1,330	898	956	716
Worked during the year	19,833	18,565	12,083	10,900	7,752	7,665
Median weeks of unemployment for all workers	14.2	12.8	15.2	14.1	12.6	10.7
Year-round workers ¹ with 1 or 2 weeks of unemployment ..	917	898	611	539	307	359
Part-year workers ² with unemployment	18,916	17,668	11,471	10,362	7,445	7,306
1 to 4 weeks	3,356	3,702	1,709	1,750	1,647	1,952
5 to 10 weeks	3,594	3,628	2,063	2,033	1,530	1,594
11 to 14 weeks	2,544	2,351	1,581	1,443	963	907
15 to 26 weeks	4,965	4,377	3,232	2,759	1,733	1,618
27 weeks or more	4,457	3,610	2,885	2,376	1,572	1,234
With 2 spells or more of unemployment	6,428	6,147	4,255	4,027	2,173	2,120
2 spells	3,305	3,000	2,073	1,831	1,232	1,169
3 spells or more	3,123	3,147	2,182	2,196	941	952
Percent distribution						
Did not work but looked for work	100.0	100.0	100.0	100.0	100.0	100.0
1 to 14 weeks	41.8	45.6	27.6	29.5	54.3	57.8
15 weeks or more	58.2	54.4	72.4	70.5	45.7	42.2
Worked during the year	100.0	100.0	100.0	100.0	100.0	100.0
Year-round workers ¹ with 1 or 2 weeks of unemployment ..	4.6	4.8	5.1	4.9	4.0	4.7
Part-year workers ² with unemployment	95.4	95.2	94.9	95.1	96.0	95.3
1 to 4 weeks	16.9	19.9	14.1	16.1	21.2	25.5
5 to 10 weeks	18.1	19.5	17.1	18.7	19.7	20.8
11 to 14 weeks	12.8	12.7	13.1	13.2	12.4	11.8
15 to 26 weeks	25.0	23.6	26.7	25.3	22.4	21.1
27 weeks or more	22.5	19.4	23.9	21.8	20.3	16.1
With 2 spells or more of unemployment	32.4	33.1	35.2	36.9	28.0	27.7
2 spells	16.7	16.2	17.2	16.8	15.9	15.2
3 spells or more	15.7	17.0	18.1	20.1	12.1	12.4

¹Worked 50 or 51 weeks.

²Worked less than 50 weeks.

NOTE: These data reflect revised estimation procedures and are not comparable to data for prior years. Data for 1983 have been retabulated and differ from data previously published in the December 1984 issue.

in usual part-time schedules. Most demographic groups shared in the year's gains, but black men continued to report very serious unemployment problems. □

—FOOTNOTES—

¹See Richard M. Devens, Jr., Carol Boyd Leon, and Debbie L. Sprinkle, "Employment and unemployment in 1984: a second year of strong growth in jobs," *Monthly Labor Review*, February 1985, pp. 3-15.

²During 1984, the proportion of whites with some employment during the year rose to within half a percentage point of the level registered in 1979. The proportion of blacks with jobs during all or part of the year was a full percentage point below, and for Hispanics, 2.3 percentage points below the figure reported in 1979.

³In reality, the population weights and estimates, and age references from the March survey correspond with survivors to that month, rather than all persons alive during the previous year. Thus, year-to-year population growth is measured from March 1984 to March 1985.

Rise in mothers' labor force activity includes those with infants

HOWARD HAYGHE

The notion that mothers of preschool-aged children, especially infants, usually stay out of the labor force at least until their youngest child has entered elementary school has changed rapidly during the 1980's. At mid-decade, nearly half of the mothers are either entering or reentering the work force soon after giving birth. By the time their youngest child is 4 years of age, 60 percent are in the work force. This report introduces a newly expanded series of statistics that traces some of the profound changes that have occurred in the labor force participation rates of the mothers of young children.¹

Married mothers

In March 1985, nearly half of all wives (husband present) with infant children 1 year old or under were in the labor force, compared with only 31 percent in 1975. The proportion rises significantly until the youngest child reaches school age. Fifty-four percent of the mothers of 2-year-olds were working or looking for work in March, as were 62 percent of those with 5-year-olds. For mothers of school-age children the proportion ranged between 64 and 71 percent.² (See table 1.)

Altogether, about 25 million children—over half in married-couple families—are in families where the mother is absent from the home for part of the workday on a regular basis; almost all of these children have a working father (91 percent).³ This latter fact, when linked to information on the

full- or part-time employment status of wives, helps provide some insight into the extent and nature of the demand for child care. In 1985, 65 percent of the employed mothers with children under age 3 worked full time, as did 67 percent of those with children 3 to 5 years old (none younger) and 70 percent of those whose youngest child was 6 to 17.⁴

Race. The labor force participation rates of black married mothers were considerably higher than those of white married mothers, especially when the youngest child was a preschooler. At 64 percent, the participation rate for black mothers with infant children (1 year or under) was 15 percentage points higher than the rate for whites. For the most part, this difference showed few signs of narrowing until the youngest child was 7 years or older. Even among mothers of older children, blacks maintained higher labor force participation rates.

Reasons underlying the higher participation rates of black mothers with very young children are both historical and economic. Black wives have a long history of participating in the labor market to a much greater extent than their white counterparts, impelled in part by the relatively greater labor force difficulties of black than white husbands. In March 1985, for instance, the unemployment rate for black fathers with preschool children was 10.2 percent, compared with 5 percent for the white fathers; for those whose youngest child was of school age, the unemployment rates were 6.3 percent for black fathers and 4.2 percent for white fathers. In addition, median usual weekly earnings of black husbands who were full-time wage and salary earners in the third quarter of 1985 were \$353, or 77 percent of the \$459 for white husbands.⁵

Along with their generally higher labor force participation rates, employed black mothers usually work more weeks each year than white mothers, and a substantially larger proportion work all year at full-time jobs. This is true for mothers of preschoolers as well as school-age children; among those with children under age 3, 47 percent of the blacks worked year round, full time in 1984, compared with 31 percent of the whites. The proportions were 65 percent (for blacks) and 35 percent (for whites) for those with 3- to 5-year-olds. As a consequence of these marked differences, median earnings of black wives with preschoolers were \$10,480 overall in 1984, compared with \$7,020 for whites; for wives with school-age children, the earnings were \$12,010 (for blacks) and \$8,800 (for whites).⁶

However, the higher earnings of black mothers do not translate into higher total *family* income because of the significant difference between the earnings of black husbands and white husbands. The 1984 median income of black married-couple families with preschool children was \$22,480, compared with \$27,800 for whites.⁷

Single-parent mothers

Because single-parent mothers are often the sole support of themselves and their children, they are far more likely to

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ferences begin to widen when the youngest child is 5 years old, and for the most part, remain large among mothers of older children.

In addition to having higher labor force participation rates than married mothers, single-parent mothers are also more likely to be full-time workers. About 82 percent of employed single-parent mothers worked 35 hours or more a week in March 1985, compared with 68 percent of married mothers. Proportions of single-parent mothers working full time ranged from 79 percent of those with children under 3 years, to 84 percent of those whose youngest child was age 6 to 17.

The relationship between the participation rates of whites and blacks among single-parent mothers is the reverse of that among married mothers. That is, white single parents are somewhat more likely than their black counterparts to be working or looking for work. However, until the youngest child enters his or her teens, the difference between participation rates for white single parents and black single parents is not nearly as great as among married mothers.

Trends since 1970

As table 3 shows, labor force participation rates of all wives by single year of age of youngest child increased between 1970 and 1985 whatever the child's age, though to differing degrees. Overall, labor force participation rates of married mothers grew faster during 1975 to 1980 than in either the 1970-75 or 1980-85 periods.

The most rapid increase from 1970 to 1985 was among mothers of very young children. Participation rates of mothers of infants age 1 year or under about doubled, followed

by a 77-percent jump for those with 2-year-olds and a 60-percent rise for mothers of 3-year-olds. In contrast, the already high participation rates of mothers of older children grew less rapidly. For instance, the rates for mothers of 6- to 13-year-olds rose by 45 percent with the more rapid growth (increases in the 50-percent-plus range) occurring among mothers of 6-, 7-, and 8-year-olds. Mothers of 14- to 17-year-olds showed the least gain in participation rates—about one-fifth.

The result of these differing rates of change has been a convergence of participation rates and a blurring of the correlation between mothers' labor force activity and age of youngest child. For instance, in 1970, the highest participation rate (57 percent for mothers of 14-year-olds) was more than twice the lowest rate (24 percent for those with infants). By 1985, the highest rate (71 percent for mothers of 12-year-olds) was less than half again larger than the lowest rate (49 percent for mothers of infants).

THESE STATISTICS point to some of the striking changes in the economic role of mothers over the last decade and a half. Families have increasingly become solely or partly dependent on a mother's earnings. Using this newly expanded data series by single year of age of children, researchers will be better able to monitor changing labor force trends and thus provide important insights regarding family economic structure and the demand for family services such as child care. □

FOOTNOTES

¹ Labor force participation rates were previously disaggregated by the age group of the youngest child of the working mother; however, now they are also disaggregated by the single year of age of the youngest child.

The data in this research summary are derived from information collected each March in the Current Population Survey (CPS). The CPS is a monthly household survey (presently including 59,500 households) conducted for the Bureau of Labor Statistics by the Bureau of the Census. Information obtained from this survey relates to the employment status of the noninstitutional population 16 years old and over.

Because it is a sample survey, estimates derived from the CPS may differ from the actual counts that could be obtained from a complete census. Therefore, small estimates or small differences between estimates should be interpreted with caution. For a more detailed explanation, see the Explanatory Note in *Families at Work: The Jobs and the Pay*, Bulletin 2209 (Bureau of Labor Statistics, 1984), pp. 30-34.

² Labor force statistics on mothers of school-age children may partly reflect the fact that they are collected in March when school is in session. However, participation rates based on March data are not substantially higher than those based on information collected in the summer. For example, the June to August 1985 average participation rate for married mothers with school-age children was 65 percent; in March 1985, the rate was 68 percent. Thus, the opening of school does not appear to provide a major incentive for mothers to participate in the labor force.

³ See News Release, U.S. Department of Labor, Bureau of Labor Statistics, USDL 85-38, "Labor force activity of mothers of young children continues at record pace," table 3.

⁴ *Ibid.*, table 1.

⁵ For further discussion of black-white male differences in labor force participation see Howard Hayghe, "Married couples: work and income patterns," *Monthly Labor Review*, December 1983, pp. 11 and 12.

⁶ Unpublished data, Bureau of Labor Statistics.

⁷ *Ibid.*

Table 3. Labor force participation rates of wives, husband present, by age of youngest child, March of selected years, 1970-85

Presence and age of child	1970	1975	1980	1985
Wives, total	40.8	44.5	50.2	54.3
No children under 18	42.2	44.0	46.0	48.2
With children under 18	39.8	44.9	54.3	61.0
Under 6 years, total	30.3	36.8	45.3	53.7
Under 3 years, total	25.8	32.6	41.5	50.7
1 year or under	24.0	30.8	39.0	49.4
2 years	30.5	37.1	48.1	54.0
3 to 5 years, total	36.9	42.2	51.7	58.6
3 years	34.5	41.2	51.5	55.1
4 years	39.4	41.2	51.4	59.7
5 years	36.9	44.4	52.4	62.1
6 to 17 years, total	49.2	52.4	62.0	67.8
6 to 13 years, total	47.0	51.8	62.6	68.1
6 years	44.0	46.7	58.5	64.5
7 years	44.7	51.1	61.7	67.3
8 years	44.6	51.5	62.3	69.2
9 years	48.5	52.4	60.8	66.2
10 years	48.7	56.6	65.1	68.2
11 years	47.6	52.8	65.1	69.2
12 years	51.8	50.0	65.7	71.4
13 years	51.8	54.0	64.6	69.5
14 to 17 years, total	54.8	53.8	60.5	67.0
14 years	56.9	52.4	62.6	70.3
15 years	52.8	54.7	60.8	67.9
16 years	54.3	55.0	62.3	64.2
17 years	55.1	52.7	55.6	64.9

NOTE: Children are defined as "own" children of householder and include never-married sons, daughters, stepchildren, and adopted children. Excluded are other related children such as nieces, nephews, or grandchildren, and unrelated children.

Foreign Labor Developments



West German labor unrest: are unions losing ground to worker councils?

CHARLES J. HOBSON AND JAMES B. DWORKIN

In the years following World War II, West Germany has emerged as one of the world's strongest industrial powers. Traditionally, the German economy has enjoyed a strong rate of economic growth and high levels of productivity, coupled with low inflation and unemployment.

A great deal of the credit for this "economic miracle" has often been attributed to the cooperative labor relations system in West Germany. Rejecting the adversarial industrial relations framework which has evolved in the United States, the Germans have relied on a cooperative partnership between government, labor unions, and employers to foster a strong shared commitment to economic growth. Labor conflicts have been minimized and days lost to strike activity are among the lowest in the world.

Components of the system

By law, industrial relations in West Germany is practiced within the framework of two separate sub-systems. On the one hand, national legislation has provided for a comprehensive and participatory structure for representing worker interests at the company or plant level, which is specifically referred to as codetermination and uniquely characterizes the German approach. At the industry level, on the other hand, a system of collective bargaining exists which is similar yet reduced in scope to that found in the United States.¹

The legislated codetermination structure provides for representation of worker interest at three distinct levels: worker councils, labor directors, and worker-elected members on the board of directors. In practice, the German system functions as follows. Worker councils are required in all plants having five employees or more, with the size of the council based upon the number of employees. These councils have rather broad, far-reaching powers, which include an equal say with management in (1) job evaluation, (2) overtime, breaks, and holiday schedules, (3) recruitment, selection, and dismissal, and (4) training and safety. Strikes over

these matters are prohibited by law, and disputes are usually resolved through binding arbitration.

The second level of the codetermination structure involves the labor director who, as a member of the company's management team, is in charge of day-to-day operations. As a representative of the interests of the workers, the labor director is responsible for the personnel and social policies and practices of the company.

Finally, the third level of representation in the codetermination structure consists of worker-elected members of the company's board of directors. In many instances, boards are made up of an equal number of worker and stockholder representatives. Boards are charged with electing a chairperson who, in the event of a tie, votes twice. If the board is deadlocked on the choice of a chairperson, a simple majority of the stockholders' representatives is sufficient for election. Thus, while parity board representation is often championed as an important feature of the German system, the provisions for electing a chairperson and breaking ties effectively ensure that stockholders' interests will prevail even when the board as a whole is deadlocked.

The second major component of the German industrial relations framework is the collective bargaining system, which takes place primarily at the state and national or industry-wide level. Labor-management negotiations are concerned exclusively with two issues, wage levels and a rather nebulous area called "general conditions of employment." Only for disputes relating directly to these two negotiable issues can strikes legally be called. While relatively influential at the national level, German unions are by comparison very weak at the plant level. In fact, unions have no legal right to represent workers locally and thus defer power and control over plant issues to worker councils.

In summary, in terms of formal structure, industrial relations in West Germany is conducted in two seemingly separate spheres, with unions playing a far less influential role than they do in the United States. However, in practice, there is substantial overlap and coordination between the codetermination components and the collective bargaining system. For instance, more than 80 percent of all worker council representatives are union members. Therefore, unions tend to play a more important role in the industrial relations framework than is evident on the basis of the formal structure of the system.

Recent developments. The strong economy and relative labor peace experienced in West Germany have been

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seriously threatened by the recent worldwide recession. The economy has been confronted with a dramatic decrease in the growth of gross national product, higher inflation, and an unsettling increase in unemployment.

Labor unions were forced to accept minimal wage increases and modest programs to guarantee job security to senior workers. The general conciliatory stance of German labor changed dramatically in the summer of 1984, when I G Metall, the country's largest union with more than 2.5 million members, staged a bitter and protracted 8-week strike in an effort to win a 35-hour workweek with no decrease in pay. The stated union objective was to reduce national unemployment by 1 percentage point to 8 percent of the labor force.

The strike was resolved with a reduction of 1.5 hours in the workweek and no corresponding reduction in pay. However, the long strike had a devastating impact on the German economy. Involving more than 350,000 workers, the strike cost German auto companies more than \$75 million per day in lost production and reduced gross national product by an estimated 2 percent. A number of firms laid off other workers in an effort to cut costs and make up for sagging productivity rates. Finally, the union's action generated a great deal of adverse public opinion.

Why had I G Metall broken with past tradition and bargained in an uncharacteristically antagonistic and unyielding manner? Surely, the projected economic costs of the impending strike were known to union leaders prior to their action. Why then did they risk upsetting the fledgling German economic recovery from the recent recession?

A glimpse into the possible dynamics of this scenario can be obtained by addressing the perceptions of German workers as to the relative usefulness and necessity of the union and codetermination components in representing labor interests. A comparison of the perceptions of these institutions could shed light on the secondary position occupied by German unions as they begin to lose their influence among German workers.

Scope of the study

The present study is part of a larger research effort which involved three major components: (1) questionnaire development, (2) questionnaire administration, and (3) questionnaire analysis.² The development of the questionnaire was a collaborative, cross-cultural effort involving both the German and American members of the research team. It was designed to collect the following information from German workers: (1) basic biographical data, (2) job satisfaction indices, and (3) attitudinal/perceptual measures concerning the various components or participants in the codetermination system—unions, management, worker councils, labor directors, and worker representatives on corporate boards.

Questionnaire administration was a coordinated effort involving the German labor unions, company managements, worker council representatives, and the German member of

the research team. Questionnaires were distributed to five large firms in the automobile and metal industries in the Munich area of West Germany. Responses were entirely voluntary and a total of 135 completed questionnaires were collected, for a response rate of 40 percent.

The questionnaire responses were analyzed from the perspective of implications for German unions in particular and the national labor relations system in general. Specifically, mean responses to the items comprising the union scale were computed and compared with similar items on the three scales representing the codetermination structure—worker councils, labor directors, and worker representatives on corporate boards. In this manner, the psychological perceptions of employees as to the relative usefulness and merits of the various components representing worker interests in the German industrial relations system can be examined.

The findings

The results of this study are summarized in tables 1 and 2. In table 1, the individual items on the four scales measuring worker attitudes towards the union, worker council, supervisory board members, and the labor director are presented. All items were measured on a 1 to 5 scale, from "strongly disagree" to "strongly agree." Item means and standard deviations are also provided in table 1.

The data in table 1 indicate that German workers place relatively little value on the labor director component of

Table 1. Attitudinal measures of German workers toward unions and three codetermination components

Item	Response rating ¹	Standard deviation
Union:		
The union is essential in representing worker interests . . .	4.25	1.13
The union is concerned with the worker's welfare	3.91	1.12
The union has done a lot to help workers in this company . .	3.91	1.22
I participated often in union activities	2.59	1.49
To better promote worker interests, it would be a good idea to increase the power of the union	3.72	1.39
Worker council:		
Worker councils are essential in representing worker interests	4.47	0.93
Worker councils have done a lot to help workers in this company	4.13	1.08
To better promote worker interests, it would be a good idea to increase the power of worker councils	4.18	1.13
Supervisory board members:		
The worker members on the supervisory board are essential in representing worker interests	4.11	1.09
The worker members on the supervisory board have done a lot to help workers in this company	3.16	1.20
To better promote worker interests, it would be a good idea to increase the power of the worker members on the supervisory board	4.00	1.21
Labor director:		
The labor director is essential in representing worker interests	3.40	1.43
The labor director has done a lot to help workers in this company	2.40	1.95
To better promote worker interests, it would be a good idea to increase the power of the labor director	2.70	1.49

¹The response format for all items was: "1" = Strongly disagree
"2" = Disagree somewhat
"3" = Neither agree nor disagree
"4" = Agree somewhat
"5" = Strongly agree

Table 2. Means differences and *t*-tests of worker perceptions by issue

Issue ¹	Union mean	Worker councils mean	Degrees of freedom	<i>t</i> value	Probability
This institution is essential in representing worker interests	4.25	4.47	133	2.93	p. < .01
This institution has done a lot to help workers in my company	3.91	4.13	129	2.12	p. < .05
To better promote worker interests, it would be a good idea to increase the power of this institution	3.72	4.18	133	4.95	p. < .01

¹ For the exact wording of these issues on the union and worker councils subscales, see table 1. The issues were measured using a 1-5 scale in which:
 "1" = Strongly disagree
 "2" = Disagree somewhat
 "3" = Neither agree nor disagree
 "4" = Agree somewhat
 "5" = Strongly agree

their industrial relations system. In contrast, a higher positive value is associated with unions, worker councils, and supervisory board members. Interestingly, however, in terms of best representing and promoting worker interests, worker councils are perceived as more valuable and effective than unions.

Table 2 provides a direct comparison of means on three similar issues from the union and worker council scales. Correlated *t*-tests of the differences between these means are also provided, along with the associated degrees of freedom and probability levels. The data indicate that in each of the three cases, the worker council is viewed as significantly more essential and useful than the union.

The results of this study are suggestive of a hypothesis which warrants further investigation—namely, the assertion that German labor unions are responding to an erosion of support among rank and file members by bargaining more aggressively and antagonistically in an effort to justify their existence. From the perspective of German workers surveyed in this study, the worker council emerges as the most important institution representing worker interests, with unions occupying a secondary position.

Ironically, the situation which has developed in Germany is not unlike that which has evolved in the United States over the last few years. During the 1980-82 recessionary period, the trend towards union "givebacks" and concessionary contracts led to increasing disillusionment among union members. This in turn has significantly contributed to an increase in the number of decertification elections and the percentage won by management.

In West Germany, no formal legal procedures exist to certify or decertify a union. However, the right to organize is guaranteed in the constitution, and it is assumed that company management will negotiate with an existing employees' union over the mandatory bargaining issues.

Individual workers are free to join or not join a company union and thus an "open shop" is required throughout the country. In addition, all company workers, including both union and nonunion employees, are covered by the terms of an existing labor contract. Given these conditions and the standard union dues rates of 2 percent of total wages, it is not surprising to find that total union membership in West Germany is declining.

It should be noted that this study is cross-sectional in nature and is further limited by the relatively small sample size of 135. Thus, generalizations based upon the obtained results should be made cautiously. Furthermore, in the notable absence of comparable, scientifically collected historical data,³ it is not possible to delineate a trend towards growing disillusionment with labor unions in West Germany. Future research should focus on the collection of longitudinal data which would allow for the identification and charting of general trends in worker perceptions and attitudes. □

—FOOTNOTES—

¹ For an overview of the German system, see J. Schregle, "Codetermination in the Federal Republic of Germany: A Comparative View," *International Labor Review*, Vol. 117, 1978, pp. 81-98.

² For a more complete description of the methodology, see J.B. Dworkin and others, "How German Workers View Their Jobs," *The Columbia Journal of World Business*, Vol. XVIII(2), 1983, pp. 48-54.

³ B. Wilpert, "Research on Industrial Democracy: The German Case," *Industrial Relations Journal*, June 1975, pp. 53-64.

Major Agreements Expiring Next Month



This list of selected collective bargaining agreements expiring in March 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
Associated General Contractors, South Florida Chapter (Miami, FL) . . .	Construction	Operating Engineers	1,500
Associated General Contractors, Houston Chapter and Construction Employers' Association of Texas (Texas)	Construction	Iron Workers	2,700
Builders Association of Missouri (Kansas City, MO)	Construction	Laborers	1,300
Associated Building Contractors of Northwestern Ohio (Ohio)	Construction	Carpenters	1,200
Associated General Contractors and others (Houston, TX)	Construction	Bricklayers	1,200
Builders Association of Missouri (Central and Eastern Missouri)	Construction	Laborers	1,200
Associated Contractors of Westchester, Inc. (New York)	Construction	Operating Engineers	1,300
Heavy Constructors Association of the Greater Kansas City Area (Missouri)	Construction	Laborers	3,100
Heavy Constructors Association of the Greater Kansas City Area (Missouri)	Construction	Operating Engineers	1,750
Heavy Contractors Association, Inc. (Omaha, NE)	Construction	Laborers	1,500
Michigan Distribution Contractors Association (Michigan)	Construction	Laborers	2,500
Gulf Coast Contractors and others (Beaumont, TX)	Construction	Plumbers	4,000
Houston Mechanical Contractors Association (Texas)	Construction	Sheet Metal Workers	1,500
Mechanical Contractors Association (Albuquerque, NM)	Construction	Plumbers	1,100
H.J. Heinz Co. (Interstate)	Food products	Food and Commercial Workers	2,800
Dairy Industry Industrial Relations Association (Southern California)	Food products	Teamsters (Ind.)	3,500
Loew's Theatres, Inc., Lorillard division (North Carolina)	Tobacco	Bakery, Confectionery and Tobacco Workers	2,050
Printing Industry of Metropolitan New York, Printers League section (New York)	Printing and publishing	Graphic Communications	3,000
Printing Industry of Metropolitan New York (New York)	Printing and publishing	Graphic Communications	2,000
North American Rayon Corp. (Tennessee)	Chemicals	Textile Workers	1,000
Rockwell International Corp. (Richland, WA)	Chemicals	Hanford Atomic Metal Trades Council	1,650
Exxon Co., USA division Exxon Corp. (Baton Rouge, LA)	Petroleum	Baton Rouge Oil and Chemical Workers (Ind.)	2,000
Owens-Illinois Inc. (Interstate)	Stone, clay, and glass products	Glass, Pottery and Plastics	8,600
Anchor Hocking Corp. (Interstate)	Stone, clay, and glass products	Glass, Pottery and Plastics	3,800
Thatcher Glass Co. (Interstate)	Stone, clay, and glass products	Glass, Pottery and Plastics	4,000
Brockway Glass Co. (Interstate)	Stone, clay, and glass products	Glass, Pottery and Plastics	7,000
Chattanooga Glass Manufacturing Co. (Interstate)	Stone, clay, and glass products	Glass, Pottery and Plastics	1,700
Indian Head Glass Co. (Interstate)	Stone, clay, and glass products	Glass, Pottery and Plastics	3,000
Glass Containers Corp. (Interstate)	Stone, clay, and glass products	Glass, Pottery and Plastics	3,600
American Can Co. (Interstate)	Fabricated metal products	Machinists	1,800
Continental Can Corp. (Interstate)	Fabricated metal products	Machinists	1,800
Wyman-Gordon Co. Inc. (Worcester, MA)	Fabricated metal products	Steelworkers	1,000
Rockwell International Corp., Collins Radio Group (Richardson, TX)	Electrical products	Electrical Workers (IUE)	2,100
Rockwell International Corp., Collins Radio Group (Cedar Rapids, IA)	Electrical products	Electrical Workers (IBEW)	3,600
Rockwell International Corp., Collins Radio Group (Newport Beach, CA)	Electrical products	Electrical Workers (IBEW)	1,400
Magic Chef Inc., Admiral division (Galesburg, IL)	Electrical products	Machinists	1,700
Volkswagen of America, Inc. (Pennsylvania)	Transportation equipment	Auto Workers	3,500
Xerox Corp. (Rochester, NY)	Instruments	Clothing and Textile Workers	3,250
Moving and storage industry of New York (New York, NY)	Trucking	Teamsters (Ind.)	1,100
General Telephone Co. of California (California)	Communications	Communications Workers	21,000
Virginia Electric and Power Co. (Virginia, West Virginia, North Carolina)	Utilities	Electrical Workers (IBEW)	4,600

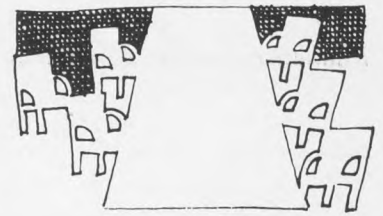
See footnote at end of table.

Continued—Major Agreements Expiring Next Month

Employer and location	Private industry	Labor organization ¹	Number of workers
Cincinnati Gas and Electric Co. (Ohio)	Utilities	Independent Utilities Union (Ind.)	1,200
Southern California Gas Co. (California)	Utilities	Utility Workers	7,100
Retail Joint Council, Philadelphia area (Interstate)	Retail trade	Food and Commercial Workers	1,800
Chain and independent food stores (Minneapolis, MN)	Retail trade	Food and Commercial Workers	7,500
Chain and independent food stores (St. Paul, MN)	Retail trade	Food and Commercial Workers	2,600
Hyatt Hotels (California)	Restaurants	Hotel Employees and Restaurant Employees	1,000
Bronx Realty Advisory Board (New York, NY)	Real estate	Service Employees	3,300
Yosemite Park and Curry Co. (Yosemite, CA)	Hotels	Service Employees	1,200
Greater New York Health Care Facilities Association, Inc. (New York, NY)	Hospitals	Service Employees	15,000
Health Employers Inc., service and maintenance	Hospitals	Service Employees	4,400
Appalachian Regional Hospitals, Inc. (Interstate)	Hospitals	Steelworkers	2,000
	Government activity	Labor organization ¹	Number of workers
Massachusetts: Commonwealth units 2, 4, 8, 10	Multidepartments	State, County and Municipal Employees, Service Employees	28,000
Wrentham State Mental and Physical Handicap School, professionals	Education	State, County and Municipal Employees	1,950
Michigan: Michigan State University, graduate student teachers	Education	Teachers	1,600
Pennsylvania: Southeastern Pennsylvania Transportation Authority	Transportation	Transport Workers	5,000
Wisconsin: Milwaukee City School District	Education	State, County and Municipal Employees	1,950

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

Developments in Industrial Relations



General Dynamics workers end 2-month strike

Production of armored vehicles resumed at General Dynamics Corp. plants in three States after members of the United Auto Workers union narrowly approved a 31-month agreement, ending a 2-month strike. The low margin of approval (53.4 to 46.6 percent) was attributed to employee dissatisfaction because the accord did not bring them to wage parity with employees of Chrysler Corp., which had owned the plants until 1982. Reportedly, they will remain about \$1.50 an hour behind the Chrysler workers and could fall farther behind because their cost-of-living pay adjustment formula is less liberal than that at Chrysler. According to a union official, the General Dynamics workers averaged about \$11.92 an hour under the old contract.

Wage terms included a \$2,000 lump-sum payment; a 2.25-percent wage increase effective immediately; a lump-sum payment in June 1986 equal to 2.25 percent of earnings during the previous 12 months; and a 3-percent wage increase in June 1987. Quarterly cost-of-living adjustments will continue, calculated at 1 cent an hour for each 0.3-point movement in the CPI-W (1967=100), compared with 1 cent for each 0.26-point at Chrysler. In another difference, newly hired workers at General Dynamics will receive only the adjustments in the cost-of-living allowance that occur after they start work.

The new hires will continue to start at 60 percent of the standard rate for their job, and then receive 8-percent progression increases every 6 months until they attain the standard rate after 2½ years of service. Previously, new employees received 6.5-percent step increases each 6 months, attaining the standard rate after 3 years.

The agreement, scheduled to expire on June 15, 1988, also provided for a \$2.25 increase, to \$19.75, in the monthly pension rate for each year of credited service; and for continuation of the health insurance plan without any increases in co-insurance and deductible payments by employees.

Carrier contract features cost-reduction changes

Carrier Corp. of Syracuse, NY, and the Sheet Metal Workers negotiated a number of cuts in labor costs because

of the "very competitive market" in the heating, air conditioning, and ventilating industry, according to company vice president Joseph P. Maturro. Although Carrier was operating at a profit prior to the cuts, Local 27 president Richard Burke said the employees accepted the reductions "to save our jobs." At the time, 2,000 members of the local were employed and 800 were on layoff.

Pay, which reportedly averaged about \$13 an hour, was cut by \$1.88 to \$2.88, varying by job classification. The 3-year contract did not provide for any specified wage increases, but the employees will receive a \$3,500 lump-sum payment in January 1986. Carrier guaranteed that if any plant shutdowns occur, affected employees will receive a payment equal to the earnings they gave up, less the \$3,500.

The cost-of-living provision was revised to provide that quarterly adjustments will be paid only if the CPI rises more than 3 percent, and each adjustment will be limited to 8 cents an hour.

The other cost reduction changes included 6 percent (maximum 85 cents an hour) shift differential pay, instead of the previous 10 percent with no hourly limit; about 125 job classifications, instead of more than 400; 22 company-paid union representatives, instead of 75; a shortened grievance procedure, involving fewer people; authority for the company to operate on a 7-day-a-week schedule, with no premium pay for weekend work and to require employees to work up to 18 Saturdays a year; and a health care cost containment plan including increased deductible payments by employees.

Other terms included a \$2 increase (to \$19) in the monthly pension rate for each year of credited service; a plan that will give employees 50 percent of cost savings resulting from productivity improvements; an employee savings plan with Carrier matching half of employee contributions of \$2 to \$10 a week; an \$1,800 tuition allowance for retraining laid-off workers with at least 5 years of service; and a \$1,100 relocation allowance for laid-off workers with 2 years of service.

Pennsylvania mine workers settle

After 3½ months of difficult negotiations and selective strikes, members of District 25 of the United Mine Workers settled with the Anthracite Coal Operators Association for mines located in Northeastern Pennsylvania. About 1,000 workers were involved. Separate bargaining continued for

"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.

350 employees of Bethlehem Mines Corp., who had been on strike since mid-July.

The 4-year accord with the Association, which followed the employees' rejection of two earlier offers, provided for a 30-cent-an-hour specified wage increase retroactive to September 20, and 20-cent increases in September of 1986, 1987, 1988, and for a cost-of-living adjustment of up to 5 cents in September 1988. Prior to the settlement, pay rates ranged from \$10.10 to \$12 an hour. One of the major issues in the talks was resolved when the parties agreed to continue a 7-hour workday (excluding lunch time). The operators had been seeking to add an hour at straight-time pay.

Benefit changes included adoption of a dental plan, with no deductibles; \$180 a week sickness and accident pay (formerly, \$150); \$75,000 major medical coverage (formerly, \$50,000); \$10,000 life insurance (formerly, \$7,500); and \$750 pay for the miner's annual 2-week vacation (formerly, \$685).

Boston hotel and restaurant workers settle

A scheduled strike by 4,000 employees was averted when the Greater Boston Hotel Association and the Hotel Employees and Restaurant Employees settled on a 3-year contract. Pay, which reportedly averaged \$3.10 an hour for tipped employees and \$5.10 for nontipped employees, was raised by 6 percent at the beginning of each contract year. Other changes included a 25-percent increase in the hotels' contribution to the health and welfare trust fund to permit continuation of current benefits without an increase in the employee contribution; adoption of legal services and eye care plans; an additional paid holiday; a fourth day of sick leave per year; a \$20 a week increase, to \$120, in long-term disability benefits; a 2-cent-an-hour increase, to 18 cents, in the employees' contribution to the pension plan; and a revision of the paid vacation schedule to provide 3 weeks after 7 years of service (was 10), 4 weeks after 17 years (was 20), and a fifth week after 25 years.

The agreement also provides for a stronger antidiscrimination policy, changes to assure more promotions from within the bargaining unit, and for employers to hold annual seminars for supervisors and employees on sexual harassment.

The settlement covered the nine hotels comprising the Association but, based on past practice, five other hotels were expected to agree on similar terms.

Textile workers give company 2-year 'loan'

The expected closing of the Nation's largest rayon mill was averted when Local 371T of the Clothing and Textile Workers and Avtex Fibers agreed on a 2-year contract calling for a cut in labor costs. Avtex contended that the cut was necessary to enable it to compete more effectively

against lower cost foreign producers. A company official said the concessions by the 1,500 employees make the Front Royal, VA, plant, "very, very competitive in cost."

The 2-year agreement provided for an immediate wage reduction of \$1 an hour and reductions in cost-of-living payments and paid vacations. According to the union, the average worker, who earned \$8.14 an hour prior to the settlement, will give up about \$4,000 over the contract's term. In a departure from the usual practice when pay is cut, the concession is in the form of a loan. Avtex guarantees to repay the money, plus 8 percent interest, within 2 years after the contract expires, even if the plant is sold or closed.

At the time of the settlement, the plant was operating at about 70 percent of capacity. At its peak, in the 1940's and early 1950's, the plant employed more than 4,500 people.

Earlier in 1985, Avtex had closed a rayon plant in Meadville, PA, that had 600 employees. The company maintained that the plant was modern and efficient but that "imports absolutely chewed us up."

Philadelphia newspaper strike ends

In Philadelphia, a 6½-week strike by 4,500 workers against the *Daily News* and *Inquirer* newspapers ended when the last of nine unions ratified their 4-year agreements. The major issues in the dispute were the size of the economic package and management's desire to introduce automated machines for inserting extra sections into the paper, replacing the hand insertion process performed by mailers.

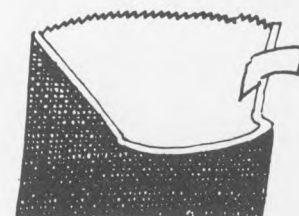
The accord provides for economic improvements averaging \$150 a week over the term, with the allocation between wages and benefits varying by union. Prior to the settlement, weekly pay rates for experienced employees were \$671 for reporters, \$510 for press operators, \$494 for mailers, \$470 for delivery drivers, and \$283 for messengers.

On the automation issue, management and the Mailers union agreed to study the staffing needs of the new equipment for 17 months while it is being installed. Management will then submit a staffing plan. If the union is not satisfied with the plan, it can force the issue into binding arbitration.

Employees accept pay cut for company stock

Financial difficulties continued at some trucking companies, as 85 percent of the 11,000 employees of Ryder/PIE Nationwide Inc. agreed to a 15-percent pay cut to last for 5 years. In exchange for the cut, which is expected to save the company about \$255 million, the workers will receive shares of company stock that could rise to 49 percent of the total shares if all employees decide to participate. Before making the offer to the individual workers the company discussed it with the Teamsters and other unions that represent the employees. □

Book Reviews



Bringing East and West together

Partners in Prosperity. By Julian Gresser. New York, McGraw-Hill Book Co., 1984. 379 pp. \$15.95.

In this book, Julian Gresser, an attorney with experience in Japan and the United States, attempts to do several things. He argues that the United States needs an industrial policy, because future economic growth will depend extensively on the development of strategic industries. He suggests that industrial policy played an instrumental role in Japanese growth during the period of rapid expansion, and that it provides a model for U.S. policy. He proposes a "trigger" method, based on his own consulting work, for the identification of strategic industries and their cooperative encouragement by public and private authorities. Although he sees the Japanese and U.S. relationship caught up in a zero-sum mentality, he believes it should be converted to one of cooperation—hence the book's title.

The key to understanding the book is found in the author's views on national industrial policy. Gresser believes that the key to economic growth is not found in mundane areas of increased capital and labor resources. Rather, he believes that it lies in technological innovations which give rise to leading or strategic industries, which in turn become the engines of future growth. In his opinion, this is the essential explanation for Japan's rapid growth in the postwar years. Yet, he argues, industrial policies designed to do for the United States what the Ministry of International Trade and Industry did for Japan cannot be expected to work because of bureaucracy and a failure to develop the cooperation of the essential parties. What is needed is an approach derived from the trigger method.

The trigger method identifies strategic industries in terms of their boundaries in time and space. They are industries with high rates of growth in exports, employment, and product gains. They have substantial commitments to research, capital investment, and innovation, and can be expected to have sharply increasing economies of scale. They significantly affect in a positive way the output levels of other industries, for example, English coal in the early days of the Industrial Revolution. The trigger method also forms the basis for planning without planning, essentially a process of negotiating with the various interested parties an investment strategy for new strategic sectors.

Two chapters deal with issues of Japanese-American conflict and the possibility for cooperation. The United States is described as having a policy of cooperation and equality at high national levels and a much less generous approach when it comes to specific issues. The author reasons that Japanese policy is based on a refusal to view the needs of others as genuine, and on a mercantilist approach to gaining power. The attitudes of the two countries, he believes, lead to a zero-sum game whose results can only be unfortunate for both countries. Because the author believes that cooperation will result in greater growth and wealth for both countries, he suggests ways that this result might be achieved.

How should the book be evaluated? There are three central questions. Are strategic industries the key to growth? Can one identify and nurture the new ones along? Would joint nurturing by Japan and the United States be a wise policy?

My difficulty with the emphasis on strategic industries and the trigger method is that these concepts seem to be more effective in looking backward than forward. The automobile industry is listed as a strategic industry. But when did it become one? Was it in the mid-19th century or not until the 20th century? Clearly later, but when? At that time, would there have been agreement that automobiles had achieved the status of a strategic industry? Even the Japanese Ministry of International Trade and Industry did not recognize automobiles as a strategic industry. Although the Ministry of International Trade and Industry played an important role in Japanese growth, the author, along with others, gives too much credit to the Ministry. In addition, he does not adequately count the costs of errors by the Ministry. (See Kozo Yamamura, ed., *Policy and Trade of the Japanese Economy: American and Japanese Perspectives.*)

Chapter 9 on "planning without planning," in which the emphasis is on trying to bring competing industries with potential for conflict together to find a basis for cooperation, contains an interesting discussion and can be recommended independently of the book as a whole. Similarly, the chapter in which cooperation rather than conflict is proposed for future Japanese and American relations can be commended both for its spirit and for some of its ideas.

On balance, the book contains many interesting facts on specific industries and practices. The interpretation of events seems too much patterned by the idea of a lawyer's

brief which tries to make a case, while too little attention is given to alternative and competing explanations. The range of facts is interesting, though at times there is a jumbled quality about them. For example, two pages contain major paragraphs discussing microprocessor designs, the ratio of debt to equity in the financing of Japanese corporations, and the role of city banks in the Japanese banking system.

This book is recommended to those interested in the economic relationship between Japan and the United States. Undue reliance, however, should not be placed on its explanations and interpretations of events. Lastly, there are some useful suggestions for the development of U.S. economic policy, though the central message in favor of a form of planning based on strategic industries leaves me unconvinced.

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A mix of encyclopedia and commentary

The Population of the United States: Historical Trends and Future Projections. By Donald J. Bogue. New York, The Free Press, 1985. 728 pp. \$70.

This is a well written but expensive reference book on the population of the United States. Donald J. Bogue provides historical perspective, covering the U.S. population over the past two centuries, but he concentrates his analyses on the past two decades, with particular emphasis on the early 1980's. He also discusses future populations trends.

The book is divided into five sections: (1) an overview of the U.S. population; (2) dynamics of population change, such as marital status and migration; (3) social characteristics, for example, ethnicity and educational attainment; (4) economic characteristics, for example, labor force participation, income, occupation, and industry; and (5) special topics, specifically, chapters on poverty, housing, religion, politics, and the population of Puerto Rico. Each chapter of the volume includes a bibliography, and, where appropriate, definitions of terms and technical appendices.

Bogue notes in his preface that work of this type "should select the most cogent information from all available sources, summarize it in easy-to-use statistical tables, and provide a comprehensive exposition of the fundamental details." Overall, Bogue's volume does that. However, there are some inaccuracies in the book. Following are a few examples:

In the chapter on internal and international migration, Bogue states, "World War II caused many millions of people to be 'transferred' from one nation to another. For example, millions of Jews fled from Germany before the war . . ." (p. 356). In fact, there were 550,000 Jews in Germany in the years prior to World War II. (About one-third were later killed by the Nazis.)

There are some discrepancies between the text and the tabulations. For example, the figures do *not* show that the proportion of families in Puerto Rico headed by a female householder with no husband present is nearly identical to that of the U.S. white population (p. 699); that the labor force participation rates of Cuban men and women in the United States are about average for all men and women (p. 493); or that married women with no children have slightly higher labor force participation rates than mothers with children under age 6 (p. 499). (Actually, some of these statements reflect the situation in earlier years.)

It is disappointing that this beautifully produced volume is marred by such inaccuracies.

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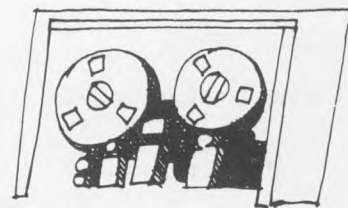
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A note on communications

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.

Current Labor Statistics



Notes on Current Labor Statistics	59
Schedule of release dates for major BLS statistical series	58
Comparative indicators	
1. Labor market indicators	68
2. Annual and quarterly percent changes in wages, prices, and productivity	69
3. Alternative measures of wage and compensation changes	69
Labor force data	
4. Employment status of the total population, data seasonally adjusted	70
5. Employment status of the civilian population, data seasonally adjusted	71
6. Selected employment indicators, data seasonally adjusted	72
7. Selected unemployment indicators, data seasonally adjusted	73
8. Unemployment rates by sex and age, data seasonally adjusted	74
9. Unemployed persons by reason for unemployment, data seasonally adjusted	74
10. Duration of unemployment, data seasonally adjusted	74
11. Unemployment rates of civilian workers, by State	75
12. Employment of workers by State	75
13. Employment of workers by industry, data seasonally adjusted	76
14. Average weekly hours by industry, data seasonally adjusted	77
15. Average hourly earnings by industry	78
16. Average weekly earnings by industry	79
17. Hourly Earnings Index by industry	79
18. Indexes of diffusion: proportion of industries in which employment increased, seasonally adjusted	80
19. Annual data: Employment status of the noninstitutional population	80
20. Annual data: Employment levels by industry	80
21. Annual data: Average hours and earnings levels by industry	81
Labor compensation and collective bargaining data	
22. Employment Cost Index, compensation, by occupation and industry group	82
23. Employment Cost Index, wages and salaries, by occupation and industry group	83
24. Employment Cost Index, private nonfarm workers, by bargaining status, region, and area size	84
25. Specified compensation and wage adjustments from contract settlements, and effective wage adjustments, situations covering 1,000 workers or more	84
26. Average specified compensation and wage adjustments, bargaining situation covering 1,000 workers or more	85
27. Average effective wage adjustments, bargaining situations covering 1,000 workers or more	85
28. Specified compensation and wage adjustments, State and local government bargaining situations covering 1,000 workers or more	86
29. Work stoppages involving 1,000 workers or more	86
Price data	
30. Consumer Price Index: U.S. City average, by expenditure category and commodity and service groups	87
31. Consumer Price Index: U.S. City average and local data, all items	90
32. Annual data: Consumer Price Index, all items and major groups	91
33. Producer Price Indexes by stage of processing	92
34. Producer Price Indexes, by durability of product	93
35. Annual data: Producer Price Indexes by stage of processing	93
36. U.S. export price indexes by Standard International Trade Classification	94
37. U.S. import price indexes by Standard International Trade Classification	95
38. U.S. export price indexes by end use category	96
39. U.S. import price indexes by end use category	96
40. U.S. export price indexes by Standard Industrial Classification	96
41. U.S. import price indexes by Standard Industrial Classification	97

Contents—Continued

Productivity data

42. Indexes of productivity, hourly compensation, unit costs, data seasonally adjusted	97
43. Annual indexes of multifactor productivity	98
44. Annual indexes of productivity, hourly compensation, unit costs, and prices	99

International comparisons

45. Unemployment rates in nine countries, data seasonally adjusted	99
46. Annual data: Employment status of civilian working-age population, ten countries	100
47. Annual indexes of productivity and related measures, twelve countries	101

Injury and illness data

48. Annual data: occupational injury illness incidence rates	102
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Schedule of release dates for BLS statistical series							
Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	February 7	January	March 7	February	April 4	March	1; 4-21
Producer Price Index	February 14	January	March 14	February	April 11	March	2; 33-35
Consumer Price Index	February 25	January	March 25	February	April 22	March	2; 30-32
Real earnings	February 25	January	March 25	February	April 22	March	14-17
Productivity and costs:							
Nonfinancial corporations	February 27	4th qtr.	.....	.....	.....	.....	2; 42-44
Nonfarm business and manufacturing . . . . .	.....	.....	.....	.....	April 24	1st qtr.	2; 42-44
Major collective bargaining settlements . . . . .	.....	.....	.....	.....	April 25	1st qtr.	3; 25-28
Employment Cost Index . . . . .	.....	.....	.....	.....	April 29	1st qtr.	1-3; 22-24

NOTES ON CURRENT LABOR STATISTICS

This section of the Review presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force, employment, unemployment, collective bargaining settlements, consumer, producer, and international prices, productivity, international comparisons, and injury and illness statistics. In the notes that follow, the data in each group of tables is briefly described, key definitions are given, notes on the data are set forth, and sources of additional information are cited.

General notes

The following notes apply to several tables in this section:

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not 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 data appear in tables 1-3, 4-10, 13, 14, and 18.) 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 previously used by BLS. A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method* by Estla 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. However, revisions of historical data continue to be made only at the end of each calendar year.

Seasonally adjusted labor force data in tables 1 and 4-10 were revised in the February 1986 issue of the *Review* to reflect experience through 1985.

Annual revisions of the seasonally adjusted payroll data shown in tables 13, 14, and 18 were made in July 1985 using the X-11 ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in table 42 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—such as the Hourly Earnings Index in table 17—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 \$2 (or any other resulting values) are described as "real," "constant," or "1967" dollars.

Additional information

Data that supplement the tables in this section are published by the Bureau 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 preceding these general notes. More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in *Employment and Earnings*, a monthly publication of the Bureau. More data from the household survey is published in the two-volume data book—*Labor Force Statistics Derived From the Current Population Survey*, Bulletin 2096. More data from the establishment survey appear in two data books—*Employment, Hours, and Earnings, United States*, and *Employment, Hours, and Earnings, States and Areas*, and the annual supplements to these data books. More detailed information on employee compensation and collective bargaining settlements is published in the monthly periodical, *Current Wage Developments*. More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report*, and *Producer Prices and Price Indexes*. Detailed data on all of the series in this section are provided in the *Handbook of Labor Statistics*, which is published biennially by the Bureau. BLS bulletins are issued covering productivity, injury and illness, and other data in this section. Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

p = preliminary. To increase 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.

n.e.s. = not elsewhere specified.

COMPARATIVE INDICATORS

(Tables 1-3)

Comparative indicators tables provide an overview and comparison of major BLS statistical series. Consequently, although many of the included series are available monthly, all measures in these comparative tables are presented quarterly and annually.

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household")

Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonagricultural payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation, prices, and productivity** are presented in table 2. Measures of rates of change of compensation and wages

from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in consumer prices for all urban consumers; producer prices by stage of processing; and the overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

EMPLOYMENT DATA

(Tables 1; 4-21)

Household Survey Data

Description of the series

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 **civilian unemployment rate** 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 household, 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

Notes on the data

Definitions of each series and notes on the data are contained in later sections of these notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Volumes I and II, Bulletins 2134-1 and 2134-2 (Bureau of Labor Statistics, 1982 and 1984, respectively), as well as the additional bulletins, articles, and other publications noted in the separate sections of the *Review's* "Current Labor Statistics Notes." Historical data for many series are provided in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985). Users may also wish to consult *Major Programs, Bureau of Labor Statistics*, Report 718 (Bureau of Labor Statistics, 1985).

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. 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 4-10 are seasonally adjusted, based on the seasonal experience through December 1985.

Additional sources of information

For detailed explanations of the data, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982) and for additional data, *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985). A detailed description of the Current Population Survey as well as additional data are available in the monthly Bureau of Labor Statistics periodical, *Employment and Earnings*. Historical data from 1948 to 1982 are available in *Labor Force Statistics Derived from the Current Population Survey: A Databook*, Vols. I and II, Bulletin 2096 (Bureau of Labor Statistics, 1982).

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.

Establishment Survey Data

Description of the series

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 more than 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

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is engaged in one type of economic activity.

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 for nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. 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 Earner and Clerical Workers (CPI-W). The **Hourly Earning 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 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are 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. These revisions were published in the *Supplement to Employment and Earnings* (Bureau of Labor Statistics, 1985). Unadjusted data from April 1984 forward, and seasonally adjusted data from January 1981 forward are subject to revision in future benchmarks.

COMPENSATION AND WAGE DATA (Tables 22-29)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

Employment Cost Index

Description of the series

The **Employment Cost Index** (ECI) is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of

Additional sources of information

Detailed data from the establishment survey are published monthly in the BLS periodical, *Employment and Earnings*. Earlier comparable unadjusted and seasonally adjusted data are published in *Employment, Hours, and Earnings, United States, 1909-84*, Bulletin 1312-12 and its annual supplement (Bureau of Labor Statistics, 1985). For a detailed discussion of the methodology of the survey, see *BLS Handbook of Methods*, Bulletin 2143-1 (Bureau of Labor Statistics, 1982). For additional data, see *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

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.

Unemployment Data By State

Description of the series

Data presented in this section are obtained from two major sources—the Current Population Survey (CPS) and the Local Area Unemployment Statistics (LAUS) program, which is conducted in cooperation with State employment security agencies.

Monthly estimates of the labor force, employment, and unemployment for States and sub-State areas are a key indicator of local economic conditions and form the basis for determining the eligibility of an area for benefits under Federal economic assistance programs such as the Job Training Partnership Act and the Public Works and Economic Development Act. Insofar as possible, the concepts and definitions underlying these data are those used in the national estimates obtained from the CPS.

Notes on the data

Data refer to State of residence. Monthly data for 11 States—California, Florida, Illinois, Massachusetts, Michigan, New York, New Jersey, North Carolina, Ohio, Pennsylvania, and Texas—are obtained directly from the CPS because the size of the sample is large enough to meet BLS standards of reliability. Data for the remaining 39 States and the District of Columbia are derived using standardized procedures established by BLS. Once a year, estimates for the 11 States are revised to new population controls. For the remaining States and the District of Columbia, data are benchmarked to annual average CPS levels.

Additional sources of information

Information on the concepts, definitions, and technical procedures used to develop labor force data for States and sub-State areas as well as additional data on sub-States are provided in the monthly Bureau of Labor Statistics periodical, *Employment and Earnings*, and the annual report, *Geographic Profile of Employment and Unemployment* (Bureau of Labor Statistics). See also *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982).

labor—similar in concept to the Consumer Price Index's fixed market basket of goods and services—to measure change over time in employer costs of employing labor. The index is not seasonally adjusted.

Statistical series on total compensation costs and on wages and salaries are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. Both series are also available for State and local government workers and for the civilian nonfarm economy, which consists of private industry and State and local government workers combined. Federal workers are excluded.

The Employment Cost Index probability sample consists of about 2,200 private nonfarm establishments providing about 12,000 occupational observations and 700 State and local government establishments providing

3,500 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Fixed employment weights from the 1970 Census of Population are used each quarter to calculate the indexes for civilian, private, and State and local governments. These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensation, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1970 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

Definitions

Total compensation costs include wages, salaries, and the employer costs for employee benefits.

Wages and salaries consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

Benefits include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as social security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

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, when combined with the wages and salaries series, a measure of the percent change in employer costs for employee 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 (excluding Federal employees). Historical indexes (June 1981=100) of the quarterly rates of change are presented in the May issue of the BLS monthly periodical, *Current Wage Developments*.

Additional sources of information

For a more detailed discussion of the Employment Cost Index, see Chapter 11, "The Employment Cost Index," in the *Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), and the following *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; "Estimation procedures for the Employment Cost Index," May 1982; and "Introducing new weights for the Employment Cost Index," June 1985.

Data on the ECI are also available in BLS quarterly press releases issued in the month following the reference months of March, June, September, and December; and from the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

Collective bargaining settlements

Description of the series

Collective bargaining settlements data provide statistical measures of negotiated adjustments (increases, decreases, and freezes) in compensation

(wages and benefits costs) and wages alone, quarterly for private industry and semiannually for State and local government. Compensation measures cover all collective bargaining situations involving 5,000 workers or more and wage measures cover all situations involving 1,000 workers or more. These data, covering private nonagricultural industries and State and local governments, are calculated using information obtained from bargaining agreements on file with the Bureau, parties to the agreements, and secondary sources, such as newspaper accounts. The data are not seasonally adjusted.

Settlement data are measured in terms of future specified adjustments: those that will occur within 12 months after contract ratification—first year—and all adjustments that will occur over the life of the contract expressed as an average annual rate. Adjustments are worker weighted. Both first-year and over-the-life measures exclude wage changes that may occur under cost-of-living clauses that are triggered by future movements in the Consumer Price Index.

Effective wage adjustments measure all adjustments occurring in the reference period, regardless of the settlement date. Included are changes from settlements reached during the period, changes deferred from contracts negotiated in earlier periods, and changes under cost-of-living adjustment clauses. Each wage change is worker weighted. The changes are prorated over all workers under agreements during the reference period yielding the average adjustment.

Definitions

Wage rate changes are calculated by dividing newly negotiated wages by the average hourly earnings, excluding overtime, at the time the agreement is reached. Compensation changes are calculated by dividing the change in the value of the newly negotiated wage and benefit package by existing average hourly compensation, which includes the cost of previously negotiated benefits, legally required social insurance programs, and average hourly earnings.

Compensation changes are calculated by placing a value on the benefit portion of the settlements at the time they are reached. The cost estimates are based on the assumption that conditions existing at the time of settlement (for example, methods of financing pensions or composition of labor force) will remain constant. The data, therefore, are measures of negotiated changes and not of total changes in employer cost.

Contract duration runs from the effective date of the agreement to the expiration date or first wage reopening date, if applicable. Average annual percent changes over the contract term take account of the compounding of successive changes.

Notes on the data

Care should be exercised in comparing the size and nature of the settlements in State and local government with those in the private sector because of differences in bargaining practices and settlement characteristics. A principal difference is the incidence of cost-of-living adjustment (COLA) clauses which cover only about 2 percent of workers under a few local government settlements but cover 50 percent of workers under private sector settlements. Agreements without COLA's tend to provide larger specified wage increases than those with COLA's. Another difference is that State and local government bargaining frequently excludes pension benefits which are often prescribed by law. In the private sector, in contrast, pensions are typically a bargaining issue.

Additional sources of information

For a more detailed discussion on the series, see chapter 10, "Negotiated Wage and Benefit Changes," of the *BLS Handbook of Methods*, Bulletin 2134-1. Comprehensive data are published in press releases issued quarterly (in January, April, July, and October) for private industry, and semi-

annually (in February and August) for State and local government. Historical data and additional detailed tabulations for the prior calendar year appear in the April issue of the BLS monthly periodical, *Current Wage Developments*.

Work stoppages

Description of the series

Data on **work stoppages** measure the number and duration of major strikes or lockouts (involving 1,000 workers or more) occurring during the month (or year), the number of workers involved, and the amount of time lost because of stoppage.

Data are largely from newspaper accounts and cover only establishments directly involved in a stoppage. They do not measure the indirect or secondary effect of stoppages on other establishments whose employees are idle owing to material shortages or lack of service.

Definitions

Number of stoppages: The number of strikes and lockouts involving 1,000 workers or more and lasting a full shift or longer.

Workers involved: The number of workers directly involved in the stoppage.

Number of days idle: The aggregate number of work days lost by workers involved in the stoppages.

Days of idleness as a percent of estimated working time: Aggregate work days lost as a percent of the aggregate number of standard work days in the period multiplied by total employment in the period.

Notes on the data

This series is not comparable with the one terminated in 1981 that covered strikes involving six workers or more.

Additional sources of information

Data for each calendar year are reported in a BLS press release issued in the first quarter of the following year. Monthly data appear in the BLS

monthly periodical, *Current Wage Developments*. Historical data appear in the *BLS Handbook of Labor Statistics*.

Other compensation data

Other BLS data on pay and benefits, not included in the Current Labor Statistics section of the *Monthly Labor Review*, appear in and consist of the following:

Industry Wage Surveys provide data for specific occupations selected to represent an industry's wage structure and the types of activities performed by its workers. The Bureau collects information on weekly work schedules, shift operations and pay differentials, paid holiday and vacation practices, and information on incidence of health, insurance, and retirement plans. Reports are issued throughout the year as the surveys are completed. Summaries of the data and special analyses also appear in the *Monthly Labor Review*.

Area Wage Surveys annually provide data for selected office, clerical, professional, technical, maintenance, toolroom, powerplant, material movement, and custodial occupations common to a wide variety of industries in the areas (labor markets) surveyed. Reports are issued throughout the year as the surveys are completed. Summaries of the data and special analyses also appear in the *Review*.

The National Survey of Professional, Administrative, Technical, and Clerical Pay provides detailed information annually on salary levels and distributions for the types of jobs mentioned in the survey's title in private employment. Although the definitions of the jobs surveyed reflect the duties and responsibilities in private industry, they are designed to match specific pay grades of Federal white-collar employees under the General Schedule pay system. Accordingly, this survey provides the legally required information for comparing the pay of salaried employees in the Federal civil service with pay in private industry. (See Federal Pay Comparability Act of 1970, 5 U.S.C. 5305.) Data are published in a BLS news release issued in the summer and in a bulletin each fall; summaries and analytical articles also appear in the *Review*.

Employee Benefits Survey provides nationwide information on the incidence and characteristics of employee benefit plans in medium and large establishments in the United States, excluding Alaska and Hawaii. Data are published in an annual BLS news release and bulletin, as well as in special articles appearing in the *Review*.

PRICE DATA

(Tables 30-41)

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).

Consumer Price Indexes

Description of the series

The **Consumer Price Index** (CPI) is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all urban consumer index (CPI-U) introduced in 1978 is representative of the 1972-73 buying habits of about 80 percent of the noninstitutional population of the United States at that time, compared with 40 percent represented in the CPI-W. In addition to wage earners and clerical

workers, the CPI-U covers 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. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 24,000 retail establishments and 24,000 tenants in 85 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 28 major urban centers are presented in table 31. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are measured for the CPI-U. A rental equivalence method replaced the

asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI-w. The central purpose of the change was to separate shelter costs from the investment component of homeownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes.

Additional sources of information

For a discussion of the general method for computing the CPI, see *BLS Handbook of Methods, Volume II, The Consumer Price Index*, Bulletin 2134-2 (Bureau of Labor Statistics, April 1984). The recent change in the measurement of homeownership costs is discussed in Robert Gillingham and Walter Lane, "Changing the treatment of shelter costs for homeowners in the CPI," *Monthly Labor Review*, June 1982, pp. 9-14.

Additional detailed CPI data and regular analyses of consumer price changes are provided in the *CPI Detailed Report*, a monthly publication of the Bureau. Historical data for the overall CPI and for selected groupings may be found in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, June 1985).

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) 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 currently contains about 3,200 commodities and about 60,000 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 stage of processing structure of Producer Price Indexes organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI 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.

Since January 1976, price changes for the various commodities have been 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 groups. All Producer Price Index data are subject to revision 4 months after original publication.

Notes on the data

Beginning with the January 1986 issue, the *Review* is no longer presenting tables of Producer Price Indexes for commodity groupings, special composite groups, or SIC industries. However, these data will continue to be presented in the Bureau's monthly publication *Producer Price Indexes*. Series on the net output of major mining and manufacturing industry groups will appear in the *Review* starting with data for July 1986.

The Bureau has completed the first major stage of its comprehensive overhaul of the theory, methods, and procedures used to construct the Producer Price Indexes. Changes include the replacement of judgment sampling with probability sampling techniques; expansion to systematic coverage of the net output of virtually all industries in the mining and

manufacturing sectors; a shift from a commodity to an industry orientation; the exclusion of imports from, and the inclusion of exports in, the survey universe; and the respecification of commodities priced to conform to Bureau of the Census definitions. These and other changes have been phased in gradually since 1978. The result is a system of indexes that is easier to use in conjunction with data on wages, productivity, and employment and other series that are organized in terms of the Standard Industrial Classification and the Census product class designations.

Additional sources of information

For a discussion of the methodology for computing Producer Price Indexes, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 7.

Additional detailed data and analyses of price changes are provided monthly in *Producer Price Indexes*. Selected historical data may be found in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, June 1985).

International Price Indexes

Description of the series

The BLS **International Price Program** produces quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts: it includes corporations, businesses, and individuals but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents. With publication of an all-import index in February 1983 and an all-export index in February 1984, all U.S. merchandise imports and exports now are represented in these indexes. The reference period for the indexes is 1977 = 100, unless otherwise indicated.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected quarterly by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered refer to prices at the U.S. border for exports and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first 2 weeks of the third month of each calendar quarter—March, June, September, and December. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined by the 4- and 5-digit level of detail of the Standard Industrial Trade Classification System (SITC). The calculation of indexes by SITC category facilitates the comparison of U.S. price trends and sector production with similar data for other countries. Detailed indexes are also computed and published on a Standard Industrial Classification (SIC-based) basis, as well as by end-use class.

Notes on the data

The export and import price indexes are weighted indexes of the Laspeyeres type. Price relatives are assigned equal importance within each weight category and are then aggregated to the SITC level. The values assigned to each weight category are based on trade value figures compiled

by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1980.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's quarterly questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing basis is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation.

An attempt is made to collect two prices for imports. The first is the import price f.o.b. at the foreign port of exportation, which is consistent with the basis for valuation of imports in the national accounts. The second is the import price c.i.f. (cost, insurance, and freight) at the U.S. port of importation, which also includes the other costs associated with bringing the product to the U.S. border. It does not, however, include duty charges.

Additional sources of information

For a discussion of the general method of computing International Price Indexes, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 8.

Additional detailed data and analyses of international price developments are presented in the Bureau's quarterly publication *U.S. Import and Export Price Indexes* and in occasional *Monthly Labor Review* articles prepared by BLS analysts. Selected historical data may be found in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, June 1985).

PRODUCTIVITY DATA

(Tables 42-47)

U. S. productivity and related data

Description of the series

The productivity measures relate real physical output to real input. As such they encompass a family of measures which include single factor input measures, such as output per unit of labor input (output per hour) or output per unit of capital input, as well as measures of multifactor productivity (output per unit of labor and capital inputs combined). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

Corresponding indexes of hourly compensation, unit labor costs, unit nonlabor payments, and prices are also provided.

Definitions

Output per hour of all persons (labor productivity) is the value of goods and services in constant prices produced per hour of labor input. **Output per unit of capital services** (capital productivity) is the value of goods and services in constant dollars produced per unit of capital services input.

Multifactor productivity is the ratio output per unit of labor and capital inputs combined. Changes in this measure reflect changes in a number of factors which affect the production process 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. Changes in the output per hour measures reflect the impact of these factors as well as the substitution of capital for labor.

Compensation per hour is the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, and the wages, salaries, and supplementary payments for the self-employed (except for nonfinancial corporations in which there are no self-employed)—the sum divided by hours paid for. **Real compensation per hour** is compensation per hour deflated by the change in the Consumer Price Index for All Urban Consumers.

Unit labor costs is the labor compensation costs expended in the production of 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 value of output 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.

Hours of all persons are the total hours paid of payroll workers, self-employed persons, and unpaid family workers.

Capital services is the flow of services from the capital stock used in production. It is developed from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset.

Labor and capital inputs combined are derived 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

Output measures for the business sector and the nonfarm business sector exclude the constant dollar value of owner-occupied housing, rest of world, households and institutions, and general government output from the constant dollar value of gross national product. The measures 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 developed from data of the Bureau of Labor Statistics and the Bureau of Economic Analysis.

The productivity and associated cost measures in tables 42-44 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.

Additional sources of information

Descriptions of methodology underlying the measurement of output per hour and multifactor productivity are found in the *BLS Handbook of Methods*, Bulletin 2134, Vol. 1, Chapter 13 (Bureau of Labor Statistics, 1982). Historical data for selected industries are provided in the Bureau's *Handbook of Labor Statistics*, Bulletin 2217, 1985.

International comparisons

Description of the series

Comparative measures of labor force, employment, and unemployment (tables 45 and 46) are prepared regularly for the United States, Canada, Australia, Japan, France, Germany, Great Britain, Italy, the Netherlands, and Sweden. Unemployment rates, approximating U.S. concepts, are prepared monthly for most of the countries; the other measures, annually.

The Bureau of Labor Statistics also prepares international comparisons of manufacturing labor productivity and labor costs (table 47) that cover the United States and 11 foreign countries—those listed above plus Belgium and Norway. These measures are limited to trend comparisons; that is, intercountry series of changes over time, rather than level comparisons because reliable international comparisons of the levels of manufacturing are unavailable. The U.S. measures are described in the notes on U.S. productivity measurement; the measures for foreign countries are compiled from various national and international data sources.

Definitions

Output measures are constant value output (value added) from the national accounts of each country, except for those for Japan prior to 1970 and for the Netherlands for 1969 forward, which are indexes of industrial production. The national accounting methods for measuring real output differ considerably among the 12 countries, but the use of different procedures does not, in itself, connote lack of comparability—rather, it reflects differences among countries in the availability and reliability of underlying data series.

Hours and compensation measures refer to all employed persons including the self-employed in the United States and Canada, and to all wage and salary employees in the other countries. *Hours* refer to hours *paid* in the United States, hours *worked* in the other countries. *Compensation (labor costs)* includes not only all payments made directly to employees and employer expenditures for social insurance and private benefit plans, but changes in significant employment or payroll taxes that are not compensation to employees but are labor costs to employers (France, Sweden, and

the United Kingdom). Self-employed workers are included in the U.S. and Canadian figures by assuming that their hourly compensation is equal to the average for wage and salary employees.

Notes on the data

The data for the foreign countries in tables 45 and 46 have been adjusted, where necessary, for greater comparability with U.S. definitions of employment and unemployment. The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country. Therefore, the adjusted statistics relate to the civilian population age 16 and over in the United States, France, and Sweden, and from 1973 onward, Great Britain; 15 and over in Canada, Australia, Japan, Germany, and the Netherlands; and 14 and over in Italy. Prior to 1973, the data for Great Britain related to persons age 15 and over. The institutional population is included in the denominator of the labor force participation rates and employment-population rates for Japan and Germany.

For most of the countries in table 47, the measures refer to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France (beginning 1959), Italy (beginning 1970), and the United Kingdom (beginning 1976) refer to manufacturing and mining less energy-related products. For all countries, manufacturing includes the activities of government enterprises.

In addition, for all countries, preliminary estimates for recent years are generally based on current indicators of manufacturing output, employment and hours, and hourly compensation until national accounts and other statistics used for the long-term measures become available.

Additional sources of information

For further information, see *International Comparisons of Unemployment*, Bulletin 1979 (Bureau of Labor Statistics, 1978), Appendix B and Supplements to Appendix B. Additional detail is also found in the *BLS Handbook of Methods*, Bulletin 2134, Vol. 1, Chapter 16. Additional international comparison statistics are available in the *Handbook of Labor Statistics* (BLS Bulletin 2217, 1985). The most recent statistics are presented and analyzed annually in the *Monthly Labor Review*, typically in the December issue (for the previous year) and in February.

OCCUPATIONAL INJURY AND ILLNESS DATA

(Table 48)

Description of the series

The Annual Survey of Occupational Injuries and Illnesses is designed to collect data on injuries and illnesses based on records which employers in the following industries maintain under the Occupational Safety and Health Act of 1970: agriculture, forestry, and fishing; oil and gas extraction; construction; manufacturing; transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. Excluded from the survey are self-employed individuals, farmers with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies.

Because the survey is a Federal-State cooperative program and the data must meet the needs of participating State agencies, an independent sample is selected for each State. The sample is selected to represent all private industries in the States and territories. The sample size for the survey is dependent upon (1) the characteristics for which estimates are needed; (2) the industries for which estimates are desired; (3) the characteristics of the population being sampled; (4) the target reliability of the estimates; and (5) the survey design employed.

While there are many characteristics upon which the sample design could be based, the total recorded case incidence rate is used because it is one of the most important characteristics and the least variable; therefore, it requires the smallest sample size.

The survey is based on stratified random sampling with a Neyman

allocation and a ratio estimator. The characteristics used to stratify the establishments are the Standard Industrial Classification (SIC) code and size of employment.

Definitions

Recordable occupational injuries and illnesses are: (1) occupational deaths, regardless of the time between injury and death, or the length of the illness; or (2) nonfatal occupational illnesses; or (3) nonfatal occupational injuries which involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment (other than first aid).

Occupational injury is any injury such as a cut, fracture, sprain, amputation, etc., which results from a work accident or from exposure involving a single incident in the work environment.

Occupational illness is an abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

Lost workday cases are cases which involve days away from work, or days of restricted work activity, or both.

Lost workday cases involving restricted work activity are those cases which result in restricted work activity only.

Lost workdays away from work are the number of workdays (consecutive or not) on which the employee would have worked but could not

because of occupational injury or illness.

Lost workdays—restricted work activity are the number of workdays (consecutive or not) on which, because of injury or illness: (1) the employee was assigned to another job on a temporary basis; or (2) the employee worked at a permanent job less than full time; or (3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

The number of days away from work or days of restricted work activity does not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.

Incidence rates represent the number of injuries and/or illnesses or lost workdays per 100 full-time workers.

Notes on the data

Estimates are made for industries and employment-size classes and for severity classification: fatalities, lost workday cases, and nonfatal cases without lost workdays. Lost workday cases are separated into those where the employee would have worked but could not and those in which work activity was restricted. Estimates of the number of cases and the number of days lost are made for both categories.

Most of the estimates are in the form of incidence rates, defined as the number of injuries and illnesses, or lost workdays, per 100 full-time employees. For this purpose, 200,000 employee hours represent 100 employee years (2,000 hours per employee). Only a few of the available measures are included in the *Handbook of Labor Statistics*. Full detail is presented in the annual bulletin, *Occupational Injuries and Illnesses in the United States, by Industry*.

Comparable data for individual States are available from the BLS Office

of Occupational Safety and Health Statistics.

Mining and railroad data are furnished to BLS by the Mine Safety and Health Administration and the Federal Railroad Administration, respectively. Data from these organizations are included in BLS and State publications. Federal employee experience is compiled and published by the Occupational Safety and Health Administration. Data on State and local government employees are collected by about half of the States and territories; these data are not compiled nationally.

Additional sources of information

The Supplementary Data System provides detailed information describing various factors associated with work-related injuries and illnesses. These data are obtained from information reported by employers to State workers' compensation agencies. The Work Injury Report program examines selected types of accidents through an employee survey which focuses on the circumstances surrounding the injury. These data are not included in the *Handbook of Labor Statistics* but are available from the BLS Office of Occupational Safety and Health Statistics.

The definitions of occupational injuries and illnesses and lost workdays are from *Recordkeeping Requirements under the Occupational Safety and Health Act of 1970*. For additional data, see *Occupational Injuries and Illnesses in the United States, by Industry*, annual Bureau of Labor Statistics bulletin; BLS *Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), ch. 17; *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985), pp. 411-14; annual reports in the *Monthly Labor Review*; and annual U.S. Department of Labor press releases.

1. Labor market indicators

Selected indicators	1983	1984	1983	1984				1985		
			IV	I	II	III	IV	I	II	III
Employment data										
Employment status of the civilian noninstitutionalized population (household survey) ¹										
Labor Force participation rate	64.0	64.4	64.1	64.1	64.5	64.4	64.5	64.8	64.7	64.7
Employment-population ratio	-	-	-	-	-	-	-	-	-	-
Unemployment rate	9.6	7.5	8.5	7.9	7.5	7.4	7.2	7.3	7.3	7.2
Men	9.9	7.4	8.7	7.9	7.4	7.3	7.1	7.1	7.1	7.0
16 to 24 years	18.4	14.4	19.6	15.5	14.6	14.7	15.1	13.9	14.3	13.9
25 years and over	7.8	5.7	6.8	6.1	5.7	5.5	5.4	5.4	5.4	5.3
Women	9.2	7.6	8.3	7.9	7.6	7.6	7.5	7.6	7.5	7.4
16 to 24 years	15.8	13.3	16.4	13.9	13.8	14.0	14.0	13.2	13.0	13.1
25 years and over	7.2	6.0	6.4	6.1	5.9	6.0	5.9	6.0	6.0	5.9
Unemployment rate, 15 weeks and over	3.8	2.4	3.1	2.7	2.5	2.3	2.1	2.0	2.0	2.0
Employment, nonagricultural (payroll data): ¹										
Total	90,196	94,461	91,804	93,035	94,013	94,915	95,849	96,640	97,338	97,967
Private sector	74,330	78,477	75,932	77,153	78,082	78,898	79,745	80,522	81,143	81,588
Goods-producing	23,334	24,730	23,938	24,402	24,680	24,861	24,973	25,077	25,055	24,986
Manufacturing	18,434	19,412	18,885	19,182	19,394	19,509	19,564	19,564	19,430	19,331
Service-producing	66,862	69,731	67,866	68,633	69,333	70,055	70,876	71,563	72,283	72,981
Average hours	35.0	35.3	35.2	35.3	35.3	35.3	35.2	35.1	35.1	35.1
Private sector	35.0	35.3	35.2	35.3	35.3	35.3	35.2	35.1	35.1	35.1
Manufacturing	40.1	40.7	40.6	40.9	40.8	40.5	40.5	40.4	40.3	40.5
Overtime	3.0	3.4	3.3	3.5	3.5	3.3	3.4	3.3	3.2	3.3
Employment Cost Index										
Percent change in the ECI, compensation: ²										
All workers (excluding farm, household, and Federal workers)	-	-	1.1	1.7	.8	1.3	1.2	1.3	.7	1.6
Private industry workers	-	-	1.2	1.7	.9	.8	1.3	1.2	-.8	1.3
Goods-producing ³	-	-	.9	1.6	.9	.9	1.1	1.5	.7	.6
Servicing-producing ³	-	-	1.5	1.9	1.0	.7	1.4	1.0	1.0	1.8
State and local government workers	-	-	1.0	1.6	.4	3.5	1.0	1.2	.2	3.4
Workers by bargaining status (private industry)										
Union	-	-	.8	1.5	.9	.7	1.1	.7	.6	.8
Nonunion	-	-	1.3	1.8	1.0	.9	1.3	1.6	1.0	1.4

¹ Quarterly data seasonally adjusted.

² Annual changes are December-to-December change. Quarterly changes calculated using the last month of each quarter.

³ Goods-producing industries include mining, construction, and manufacturing. Service-

producing industries include all other private sector industries.

- Data not available.

Note: Quarterly household employment data have been revised to reflect the seasonal experience through December 1985.

2. Annual and quarterly percent changes in compensation, prices, and productivity

Selected measures	1983	1984	1983	1984				1985			
			IV	I	II	III	IV	I	II	III	
Compensation data: ^{1, 2}											
Employment Cost Index-Compensation (wages, salaries, benefits)											
Civilian nonfarm	-	-	1.1	1.7	0.8	1.3	1.2	1.3	0.7	1.6	
Private nonfarm	-	-	1.2	1.7	.9	.8	1.3	1.2	.8	1.3	
Employment Cost Index-Wages and Salaries											
Civilian nonfarm	-	-	1.0	1.2	.8	1.3	1.2	1.2	.9	1.7	
Private nonfarm	-	-	1.1	1.2	.9	.8	1.2	1.2	1.1	1.3	
Price data ¹											
Consumer Price Index (All urban consumers): All items	298.4	311.1	295.5	305.2	306.6	307.3	308.8	316.1	317.4	318.8	
Producer Price Index											
Finished goods	285.2	291.1	283.1	289.5	290.6	291.4	291.2	292.1	292.6	292.1	
Finished consumer goods	284.6	290.3	282.3	288.9	290.1	291.1	290.3	290.6	290.7	290.1	
Capital equipment	287.2	294.0	286.2	291.6	292.3	292.3	294.5	297.4	299.2	299.3	
Intermediate materials, supplies, components	312.3	320.0	308.7	316.3	317.6	319.7	320.3	319.5	318.7	318.6	
Crude materials	252.2	259.5	256.8	264.0	260.5	269.9	269.7	250.7	250.0	242.9	
U.S. Export Price Index	-	-	-	100.0	101.9	102.5	105.2	108.1	107.7	105.8	
U.S. Import Price Index	-	-	86.7	86.4	86.7	86.2	84.0	82.1	82.0	80.3	
Productivity data											
Output per hour of all persons:											
Business Sector	2.7	3.2	3.1	3.5	3.3	2.7	3.2	1.1	.3	1.1	
Nonfarm business sector	3.5	2.7	3.9	3.5	2.9	2.1	2.4	.8	-2	.6	
Nonfinancial corporations ³	3.3	2.3	3.9	4.0	2.9	.9	1.6	-	-7	1.0	

¹ Annual changes are December-to-December change. Quarterly changes are calculated using the last month of each quarter.

² Excludes Federal and private household workers.

³ Output per hour of all employees.
- Data not available.

3. Alternative measures of wage and compensation changes

Components	Quarterly average--						Four quarters ended in--					
	1984			1985			1984			1985		
	II	III	IV	I	II	III	II	III	IV	I	II	III
Average hourly compensation: ¹												
All persons, business sector	-	-	-	-	-	-	-	-	-	-	-	-
All employees, nonfarm business sector	-	-	-	-	-	-	-	-	-	-	-	-
Hourly earnings index: ²												
All private nonfarm	-	-	-	-	-	-	-	-	-	-	-	-
Employment Cost Index-compensation:												
Civilian nonfarm ³	0.8	1.3	1.2	1.3	0.7	1.6	5.5	5.1	5.2	4.8	4.6	4.9
Private nonfarm .....	.9	.8	1.3	1.2	.8	1.3	5.4	4.8	4.9	4.4	4.2	4.7
Union .....	.9	.7	1.1	.7	.6	.8	4.9	4.1	4.3	3.5	3.1	3.2
Nonunion	1.0	.9	1.3	1.6	1.0	1.4	5.7	5.2	5.2	4.9	4.9	5.4
State and local governments .....	.4	3.5	1.0	1.2	.2	3.4	6.2	6.6	6.6	6.3	6.1	6.0
Employment cost index-wages and salaries:												
Civilian nonfarm ³ .....	.8	1.3	1.2	1.2	.9	1.7	4.8	4.3	4.5	4.4	4.5	5.0
Private nonfarm .....	.9	.8	1.2	1.2	1.1	1.3	4.7	4.1	4.1	4.1	4.3	4.8
Union .....	.8	.7	.9	.7	1.1	.9	4.2	3.3	3.4	3.0	3.4	3.6
Nonunion .....	.9	.8	1.3	1.4	1.1	1.5	5.0	4.5	4.5	4.6	4.8	5.4
State and local governments .....	.3	3.4	.8	1.0	.2	3.5	5.4	5.8	5.9	5.6	5.5	5.6
Total effective wage adjustments ⁴	.9	1.2	.7	.8	.8	1.2	4.3	4.2	3.7	3.6	3.5	3.5
From current settlements .....	.1	.2	.3	.1	.2	.2	1.0	1.0	.8	.7	.9	.9
From prior settlements .....	.7	.7	.2	.6	.5	.6	2.2	2.1	2.0	2.2	1.9	1.8
From cost-of-living provision .....	.2	.3	.2	.1	.1	.4	1.1	1.2	.9	.7	.7	.8
Negotiated wage adjustments from settlements ⁴												
First-year adjustments	2.6	2.1	2.3	3.3	2.5	2.0	3.5	3.2	2.4	2.4	2.4	2.4
Annual rate over life of contract	2.7	2.6	1.5	3.2	2.8	3.1	3.1	2.8	2.4	2.3	2.4	2.5
Negotiated wage and benefit adjustments from settlements: ⁵												
First-year adjustment	3.5	2.7	3.7	3.6	3.5	2.0	4.7	4.2	3.6	3.4	3.5	3.1
Annual rate over life of contract	3.2	3.1	2.0	2.7	3.4	3.0	3.5	3.2	2.8	2.6	2.7	2.7

¹ Seasonally adjusted.

² Production or nonsupervisory workers.

³ Excludes Federal and household workers.

⁴ Limited to major collective bargaining units of 1,000 or more workers. The

most recent data are preliminary.

⁵ Limited to major collective bargaining units of 5,000 or more workers. The most recent data are preliminary.

- Data not available.

11. Unemployment rates of civilian workers by State, data not seasonally adjusted

State	Oct. 1984	Oct. 1985	State	Oct. 1984	Oct. 1985
Alabama	10.5	7.9	Montana	6.1	6.8
Alaska	9.0	9.2	Nebraska	3.8	5.0
Arizona	4.4	6.4	Nevada	7.2	7.5
Arkansas	8.3	8.7	New Hampshire	3.2	2.6
California	7.0	7.2	New Jersey	5.1	5.5
Colorado	5.3	5.5	New Mexico	7.1	8.6
Connecticut	4.0	4.6	New York	7.1	6.6
Delaware	4.9	4.3	North Carolina	6.4	4.6
District of Columbia	8.7	8.7	North Dakota	4.1	5.1
Florida	7.0	5.3	Ohio	9.1	9.0
Georgia	5.8	6.7	Oklahoma	6.6	6.8
Hawaii	6.0	5.5	Oregon	8.3	6.7
Idaho	5.4	6.2	Pennsylvania	8.2	7.1
Illinois	8.8	9.2	Rhode Island	4.2	3.8
Indiana	7.8	6.8	South Carolina	6.9	7.2
Iowa	6.0	6.5	South Dakota	4.2	4.5
Kansas	5.0	4.6	Tennessee	7.9	7.0
Kentucky	8.5	9.2	Texas	5.3	7.6
Louisiana	9.5	10.9	Utah	6.0	5.3
Maine	5.0	3.9	Vermont	4.1	3.9
Maryland	5.0	4.4	Virginia	4.8	5.3
Massachusetts	3.4	3.3	Washington	8.6	7.4
Michigan	10.1	9.6	West Virginia	15.4	12.5
Minnesota	5.1	5.3	Wisconsin	6.4	6.2
Mississippi	9.9	9.4	Wyoming	5.0	6.1
Missouri	6.4	5.8			

12. Employment of workers on nonagricultural payrolls by State, data not seasonally adjusted

(In thousands)

State	Nov., 1984	Oct., 1985	Nov., 1985 ^P	State	Nov., 1984	Oct., 1985	Nov., 1985 ^P
Alabama	1,400.4	1,405.6	1,409.8	Nebraska	645.7	653.1	652.6
Alaska	224.2	234.5	227.4	Nevada	440.7	450.8	450.0
Arizona	1,234.2	1,280.2	1,288.6	New Hampshire	453.0	484.0	483.5
Arkansas	796.8	806.3	803.6	New Jersey	3,397.8	3,490.5	3,493.8
California	10,743.9	10,978.1	10,991.0	New Mexico	514.1	522.2	522.7
Colorado	1,409.8	1,431.0	1,431.9	New York	7,687.5	7,793.5	7,832.9
Connecticut	1,564.2	1,583.5	1,590.8	North Carolina	2,621.5	2,665.0	2,673.3
Delaware	288.9	295.2	296.7	North Dakota	256.6	255.4	254.0
District of Columbia	615.4	626.9	630.2	Ohio	4,330.2	4,436.6	4,452.8
Florida	4,328.8	4,490.4	4,534.0	Oklahoma	1,192.2	1,185.5	1,182.0
Georgia	2,548.9	2,633.3	2,643.4	Oregon	1,020.5	1,050.5	1,042.9
Hawaii	415.1	420.1	424.0	Pennsylvania	4,737.9	4,788.1	4,798.8
Idaho	330.2	343.1	340.6	Rhode Island	418.9	422.0	422.4
Illinois	4,710.1	4,715.2	4,714.2	South Carolina	1,301.1	1,349.7	1,349.4
Indiana	2,173.0	2,258.5	2,259.1	South Dakota	247.6	245.5	243.0
Iowa	1,077.8	1,072.1	1,069.0	Tennessee	1,842.0	1,896.8	1,902.0
Kansas	980.9	991.8	994.9	Texas	6,514.9	6,642.3	6,649.9
Kentucky	1,231.2	1,259.7	1,246.0	Utah	620.6	635.0	637.1
Louisiana	1,610.9	1,598.7	1,594.5	Vermont	218.7	230.4	226.9
Maine	450.4	464.3	459.1	Virginia	2,374.6	2,466.1	2,473.9
Maryland	1,848.9	1,904.9	1,919.3	Washington	1,670.2	1,721.6	1,713.3
Massachusetts	2,924.5	3,013.7	3,016.3	West Virginia	599.3	594.4	593.3
Michigan	3,400.6	3,506.6	3,504.8	Wisconsin	1,991.2	2,020.2	2,015.7
Minnesota	1,881.3	1,911.5	1,905.6	Wyoming	195.8	201.7	197.4
Mississippi	840.5	856.1	857.9	Puerto Rico	692.3	676.3	685.7
Missouri	2,041.8	2,051.0	2,044.1	Virgin Islands	35.8	34.9	35.5
Montana	285.9	282.3	280.6				

^P = preliminary

21. Annual data: Average hours and earnings of production or nonsupervisory workers on nonagricultural payrolls, by industry

Industry	1977	1978	1979	1980	1981	1982	1983	1984	1985 ^p
Private sector									
Average weekly hours	36.0	35.8	35.7	35.3	35.2	34.8	35.0	35.3	35.1
Average hourly earnings	5.25	5.69	6.16	6.66	7.25	7.68	8.02	8.33	8.58
Average weekly earnings	189.00	203.70	219.91	235.10	255.20	267.26	280.70	294.05	301.16
Mining									
Average weekly hours	43.4	43.4	43.0	43.3	43.7	42.7	42.5	43.3	43.4
Average hourly earnings	6.94	7.67	8.49	9.17	10.04	10.77	11.28	11.63	11.95
Average weekly earnings	301.20	332.88	365.07	397.06	438.75	459.88	479.40	503.58	518.63
Construction									
Average weekly hours	36.5	36.8	37.0	37.0	36.9	36.7	37.1	37.7	37.7
Average hourly earnings	8.10	8.66	9.27	9.94	10.82	11.63	11.94	12.12	12.26
Average weekly earnings	295.65	318.69	342.99	367.78	399.26	426.82	442.97	456.92	462.20
Manufacturing									
Average weekly hours	40.3	40.4	40.2	39.7	39.8	38.9	40.1	40.7	40.5
Average hourly earnings	5.68	6.17	6.70	7.27	7.99	8.49	8.83	9.18	9.52
Average weekly earnings	228.90	249.27	269.34	288.62	318.00	330.26	354.08	373.63	385.56
Transportation and public utilities									
Average weekly hours	39.9	40.0	39.9	39.6	39.4	39.0	39.0	39.4	39.5
Average hourly earnings	6.99	7.57	8.16	8.87	9.70	10.32	10.79	11.11	11.38
Average weekly earnings	278.90	302.80	325.58	351.25	382.18	402.48	420.81	437.73	449.51
Wholesale trade									
Average weekly hours	38.8	38.8	38.8	38.5	38.5	38.3	38.5	38.6	38.7
Average hourly earnings	5.39	5.88	6.39	6.96	7.56	8.09	8.55	8.96	9.27
Average weekly earnings	209.13	228.14	247.93	267.96	291.06	309.85	329.18	345.86	358.75
Retail trade									
Average weekly hours	31.6	31.0	30.6	30.2	30.1	29.9	29.8	30.0	29.7
Average hourly earnings	3.85	4.20	4.53	4.88	5.25	5.48	5.74	5.88	5.97
Average weekly earnings	121.66	130.20	138.62	147.38	158.03	163.85	171.05	176.40	177.31
Finance, insurance, and real estate									
Average weekly hours	36.4	36.4	36.2	36.2	36.3	36.2	36.2	36.5	36.4
Average hourly earnings	4.54	4.89	5.27	5.79	6.31	6.78	7.29	7.62	7.94
Average weekly earnings	165.26	178.00	190.77	209.60	229.05	245.44	263.90	278.13	289.02
Services									
Average weekly hours	33.0	32.8	32.7	32.6	32.6	32.6	32.7	32.8	32.8
Average hourly earnings	4.65	4.99	5.36	5.85	6.41	6.92	7.31	7.64	7.95
Average weekly earnings	153.45	163.67	175.27	190.71	208.97	225.59	239.04	250.59	260.76

p = preliminary.

22. Employment Cost Index, compensation,¹ by occupation and industry group

(June 1981 = 100)

Series	1983		1984				1985			Percent change	
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	3 months ended	12 months ended
										Sept., 1985	
Civilian workers²	116.5	117.8	119.8	120.8	122.4	123.9	125.5	126.4	128.4	1.6	4.9
Workers, by occupational group:											
White-collar workers	117.6	118.9	120.9	122.1	124.0	125.5	127.3	128.3	130.7	1.9	5.4
Blue-collar workers	114.8	115.8	117.7	118.6	119.6	120.9	122.2	123.1	124.4	1.1	4.0
Service workers	116.7	119.1	122.0	122.1	124.6	126.8	127.8	128.0	130.9	2.3	5.1
Workers, by industry division:											
Manufacturing	115.0	116.0	117.9	119.1	120.4	122.0	123.9	124.6	125.5	.7	4.2
Nonmanufacturing	117.2	118.6	120.7	121.6	123.3	124.8	126.2	127.2	129.7	2.0	5.2
Services	121.1	122.6	125.0	125.5	128.8	130.9	131.9	132.6	136.4	2.9	5.9
Public administration ³	119.8	121.4	122.9	123.7	126.9	128.6	130.1	130.3	134.2	3.0	5.8
Private industry workers	115.6	117.0	119.0	120.1	121.1	122.7	124.2	125.2	126.8	1.3	4.7
Workers, by occupational group:											
White-collar workers	116.5	117.9	119.9	121.4	122.4	123.9	125.8	127.1	128.8	1.3	5.2
Blue-collar workers	114.6	115.7	117.5	118.4	119.3	120.6	121.9	122.8	124.0	1.0	3.9
Service workers	115.1	117.9	121.5	121.2	123.2	125.7	126.3	126.5	128.8	1.8	4.5
Workers, by industry division:											
Manufacturing	115.0	116.0	117.9	119.1	120.4	122.0	123.9	124.6	125.5	.7	4.2
Nonmanufacturing	116.0	117.5	119.6	120.7	121.6	123.1	124.4	125.6	127.6	1.6	4.9
State and local government workers	120.8	122.0	123.9	124.4	128.8	130.1	131.7	132.0	136.5	3.4	6.0
Workers, by occupational group:											
White-collar workers	121.5	122.6	124.5	125.0	129.7	131.1	132.5	132.9	137.6	3.5	6.1
Blue-collar workers	118.0	119.2	121.9	122.3	125.0	125.9	128.1	128.5	131.9	2.6	5.5
Workers, by industry division:											
Services	121.7	122.6	124.5	125.0	129.9	131.3	132.8	133.2	137.9	3.5	6.2
Schools	121.9	122.6	124.5	124.7	130.6	132.0	133.4	133.7	139.1	4.0	6.5
Elementary and secondary	123.3	123.9	125.4	125.7	132.1	133.5	134.4	134.6	140.9	4.7	6.7
Hospitals and other services ⁴	121.1	122.6	124.4	125.7	127.9	129.2	131.1	131.5	134.1	2.0	4.8
Public administration ³	119.8	121.4	122.9	123.7	126.9	128.6	130.1	130.3	134.2	3.0	5.8

¹ Cost (cents-per-hour worked) measured in the Employment Cost Index consists of wages, salaries and employer cost of employee benefits.

² Consist of private industry workers (excluding farm and household workers)

and State and local government (excluding Federal Government) workers.

³ Consists of legislative, judicial, administrative, and regulatory activities.

⁴ Includes, for example, library, social, and health services.

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

(June 1981 = 100)

Series	1983		1984				1985			Percent change	
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	3 months ended	12 months ended
										Sept., 1985	
Civilian workers ¹	115.3	116.5	117.9	118.8	120.3	121.7	123.1	124.2	126.3	1.7	5.0
Workers, by occupational group:											
White-collar workers	116.7	117.9	119.3	120.4	122.2	123.5	125.2	126.4	128.8	1.9	5.4
Blue-collar workers	113.1	114.0	115.3	116.1	117.0	118.2	119.3	120.5	122.0	1.2	4.3
Service workers	115.1	117.4	120.0	119.8	122.3	124.3	124.8	125.3	128.0	2.2	4.7
Workers, by industry division											
Manufacturing	113.3	114.5	115.7	116.8	118.0	119.5	121.0	122.3	123.2	.7	4.4
Nonmanufacturing	116.1	117.4	118.9	119.7	121.3	122.6	123.9	125.0	127.6	2.1	5.2
Services	120.1	121.3	123.3	123.8	127.2	128.9	129.7	130.5	134.2	2.8	5.5
Public administration ²	118.2	119.4	120.4	121.3	124.4	125.7	127.0	127.2	131.4	3.3	5.6
Private industry workers	114.5	115.8	117.2	118.2	119.2	120.6	122.0	123.3	124.9	1.3	4.8
Workers, by occupational group:											
White-collar workers	115.9	117.2	118.5	119.9	120.9	122.3	124.0	125.5	127.3	1.4	5.3
Professional and technical	119.9	120.4	122.2	123.8	125.2	127.3	127.7	128.7	131.2	1.9	4.8
Managers and administrators	114.8	115.7	118.0	119.2	121.0	122.2	123.8	126.5	127.7	.9	5.5
Salesworkers	108.4	111.2	110.2	111.9	110.5	111.6	116.3	117.4	119.3	1.6	8.0
Clerical workers	116.7	118.3	119.8	120.7	122.0	122.9	124.7	125.6	127.1	1.2	4.2
Blue-collar workers	112.9	113.9	115.1	115.9	116.7	118.0	119.1	120.3	121.7	1.2	4.3
Craft and kindred workers	114.3	115.4	116.5	117.3	118.0	119.4	120.8	122.0	123.7	1.4	4.8
Operatives, except transport	112.3	113.6	114.9	115.8	116.6	117.9	118.9	120.1	121.1	.8	3.9
Transport equipment operatives	110.7	110.2	111.7	112.7	113.4	114.0	114.5	115.7	117.7	1.7	3.8
Nonfarm laborers	110.8	112.1	112.9	114.1	114.7	115.9	116.7	118.5	118.6	.1	3.4
Service workers	113.7	116.5	119.8	119.3	121.2	123.7	123.8	124.4	126.3	1.5	4.2
Workers, by industry division:											
Manufacturing	113.3	114.5	115.7	116.8	118.0	119.5	121.0	122.3	123.2	.7	4.4
Durables	112.9	114.4	115.7	116.6	117.7	119.1	120.6	122.0	122.7	.6	4.2
Nondurables	113.9	114.6	115.8	117.1	118.6	120.2	121.6	122.6	124.0	1.1	4.6
Nonmanufacturing	115.2	116.5	118.0	119.0	119.9	121.2	122.6	123.9	125.9	1.6	5.0
Construction	112.2	112.9	113.3	114.0	114.3	114.4	115.5	116.6	117.3	.6	2.6
Transportation and public utilities	115.7	116.8	118.5	119.3	119.9	120.7	121.7	122.8	124.8	1.6	4.1
Wholesale and retail trade	111.5	112.3	114.3	116.0	116.5	118.1	118.8	121.1	122.7	1.3	5.3
Wholesale trade	115.7	116.5	118.2	120.0	120.7	122.9	123.7	126.8	127.7	.7	5.8
Retail trade	109.9	110.6	112.8	114.4	114.9	116.2	116.9	118.9	120.8	1.6	5.1
Finance, insurance, and real estate	113.5	116.9	116.1	116.9	115.3	115.8	122.0	121.7	124.1	2.0	7.6
Services	120.4	121.9	124.2	124.7	127.1	129.5	129.9	131.0	133.9	2.2	5.4
State and local government workers	119.2	120.0	121.6	122.0	126.1	127.1	128.4	128.7	133.2	3.5	5.6
Workers, by occupational group											
White-collar workers	119.8	120.6	122.2	122.5	127.2	128.1	129.4	129.7	134.5	3.7	5.7
Blue-collar workers	116.4	116.9	119.1	119.6	121.9	122.5	124.2	124.5	127.9	2.7	4.9
Workers, by industry division											
Services	119.8	120.6	122.2	122.5	127.2	128.1	129.4	129.7	134.5	3.7	5.7
Schools	119.9	120.6	122.2	122.3	127.8	128.7	129.9	130.2	135.8	4.3	6.3
Elementary and secondary	121.1	121.7	122.9	123.0	129.3	130.2	130.8	131.1	137.5	4.9	6.3
Hospitals and other services ³	119.7	120.6	121.9	123.1	125.1	125.9	127.7	128.0	130.2	1.7	4.1
Public administration ²	118.2	119.4	120.4	121.3	124.4	125.7	127.0	127.2	131.4	3.3	5.6

¹ Consist of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

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

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

24. Employment Cost Index, private nonfarm workers, by bargaining status, region, and area size

(June 1981 = 100)

Series	1983		1984				1985			Percent change	
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	3 months ended	12 months ended
										Sept., 1985	
COMPENSATION											
Workers, by bargaining status¹											
Union	117.8	118.8	120.6	121.7	122.6	123.9	124.8	125.5	126.5	0.8	3.2
Manufacturing	116.3	117.2	119.3	120.5	121.6	123.2	124.2	124.2	125.0	.6	2.8
Nonmanufacturing	119.2	120.4	121.9	122.8	123.6	124.5	125.3	126.6	127.8	.9	3.4
Nonunion	114.4	115.9	118.0	119.2	120.3	121.9	123.8	125.0	126.8	1.4	5.4
Manufacturing	113.8	114.9	116.6	117.9	119.3	120.8	123.6	124.8	125.7	.7	5.4
Nonmanufacturing	114.7	116.4	118.6	119.8	120.7	122.4	123.9	125.1	127.3	1.8	5.5
Workers, by region¹											
Northeast	116.0	117.5	118.9	120.7	122.4	123.8	125.1	126.4	128.8	1.9	5.2
South	115.6	117.1	119.7	120.7	120.7	122.2	124.2	125.2	126.5	1.0	4.8
Midwest (formerly North Central)	113.9	114.7	117.2	117.9	119.7	120.8	122.0	122.7	124.2	1.2	3.8
West	118.0	120.0	121.0	122.2	122.5	124.9	126.8	127.9	129.1	.9	5.4
Workers, by area size¹											
Metropolitan areas	116.0	117.4	119.4	120.6	121.5	123.2	124.7	125.7	127.3	1.3	4.8
Other areas	113.4	114.5	116.7	117.4	119.0	119.8	121.4	122.5	123.9	1.1	4.1
WAGES AND SALARIES											
Workers, by bargaining status¹											
Union	116.0	116.9	118.1	119.0	119.8	120.9	121.7	123.0	124.1	.9	3.6
Manufacturing	113.7	114.8	116.1	117.1	118.1	119.5	120.4	121.7	122.8	.9	4.0
Nonmanufacturing	118.3	118.9	120.1	120.7	121.3	122.1	122.8	124.1	125.3	1.0	3.3
Nonunion	113.7	115.2	116.7	117.8	118.8	120.4	122.1	123.4	125.2	1.5	5.4
Manufacturing	113.0	114.2	115.4	116.5	117.9	119.5	121.5	122.8	123.7	.7	4.9
Nonmanufacturing	114.0	115.6	117.2	118.3	119.2	120.7	122.3	123.6	125.9	1.9	5.6
Workers, by region¹											
Northeast	115.3	116.6	117.4	118.9	120.5	121.9	123.0	124.6	126.8	1.8	5.2
South	114.3	115.7	117.9	119.0	119.0	120.2	122.3	123.4	124.8	1.1	4.9
Midwest (formerly North Central)	112.8	113.6	115.5	116.0	117.8	118.7	119.6	121.1	122.5	1.2	4.0
West	116.5	118.5	118.8	119.6	120.0	122.5	124.0	125.1	126.6	1.2	5.5
Workers, by area size¹											
Metropolitan areas	114.9	116.2	117.6	118.6	119.5	121.0	122.4	123.8	125.5	1.4	5.0
Other areas	112.3	113.4	115.1	116.0	117.5	118.3	119.6	120.6	121.9	1.1	3.7

¹ The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the Monthly Labor Review Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.

25. Specified compensation and wage adjustments from contract settlements, and effective wage adjustments, private industry collective bargaining situations covering 1,000 workers or more (in percent)

Measure	Annual average		Quarterly average							
	1983	1984	1983	1984				1985		
			IV	I	II	III	IV	IP	IIP	IIIP
Specified adjustments:										
Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:										
First year of contract	3.4	3.6	4.9	5.1	3.5	2.7	3.7	4.4	3.5	1.7
Annual rate over life of contract	3.0	2.8	3.1	4.7	3.2	3.1	2.0	4.0	3.5	2.9
Wage adjustments, settlements covering 1,000 workers or more:										
First year of contract	2.6	2.4	4.2	2.8	2.6	2.1	2.3	3.4	2.5	1.7
Annual rate over life of contract	2.8	2.4	2.8	3.3	2.7	2.6	1.5	3.2	2.9	2.9
Effective adjustments:										
Total effective wage adjustment ³										
From settlements reached in period .....	.8	.8	.6	.1	.1	.2	.3	.1	.2	.2
Deferred from settlements reached in earlier periods	2.5	2.0	.3	.4	.7	.7	.2	.6	.5	.6
From cost-of-living-adjustments clauses .....	.6	.9	.2	.3	.2	.3	.2	.1	.1	.4

¹ Compensation includes wages, salaries, and employers' cost of employee benefits when contract is negotiated.

compensation or wages.

³ Because of rounding total may not equal sum of parts.

² Adjustments are the net result of increases, decreases and no changes in

P = preliminary.

26. Average specified compensation and wage adjustments, major collective bargaining settlements in private industry situations covering 1,000 workers or more during 4-quarter periods (in percent)

Measure	Average for four quarters ending--							
	1983	1984				1985		
	IV	I	II	III	IV	IP	IIP	IIIP
Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:								
First year of contract	3.4	4.8	4.7	4.2	3.6	3.4	3.5	3.1
Annual rate over life of contract	3.0	3.6	3.5	3.2	2.8	2.7	2.8	2.8
Specified wage adjustments, settlements covering 1,000 workers or more:								
All industries								
First year of contract	2.6	3.5	3.5	3.2	2.4	2.4	2.4	2.3
Contracts with COLA clauses	1.9	4.0	4.6	4.5	2.9	2.5	2.3	2.0
Contracts without COLA clauses	3.3	3.0	2.7	2.3	2.1	2.4	2.4	2.6
Annual rate over life of contract	2.8	3.0	3.1	2.8	2.4	2.3	2.4	2.4
Contracts with COLA clauses	2.0	2.6	2.9	2.8	1.8	1.3	1.6	1.8
Contracts without COLA clauses	3.7	3.4	3.2	2.8	2.7	2.8	2.8	2.9
Manufacturing								
First year of contract .....	.4	2.6	3.0	2.6	2.3	2.1	2.0	1.5
Contracts with COLA clauses	-.7	2.4	3.2	1.5	2.1	2.0	1.9	1.5
Contracts without COLA clauses	3.2	2.9	2.8	3.7	2.9	2.5	2.2	1.4
Annual rate over life of contract	2.1	2.8	3.1	2.8	1.5	1.4	1.4	1.6
Contracts with COLA clauses	1.4	2.2	2.8	1.8	1.0	.9	1.0	1.4
Contracts without COLA clauses	3.9	3.7	3.6	3.8	3.3	3.2	3.0	2.4
Nonmanufacturing								
First year of contract	3.8	3.8	3.7	3.3	2.5	2.6	2.7	3.1
Contracts with COLA clauses	4.4	4.9	5.2	5.4	5.5	5.1	4.3	4.0
Contracts without COLA clauses	3.3	3.0	2.6	2.1	2.0	2.4	2.5	2.9
Annual rate over life of contract	3.2	3.1	3.0	2.8	2.9	2.8	2.9	3.2
Contracts with COLA clauses	2.6	2.9	3.0	3.1	4.8	4.0	3.8	3.9
Contracts without COLA clauses	3.7	3.3	3.0	2.6	2.6	2.7	2.8	3.1
Construction								
First year of contract	1.5	1.2	.8	.9	.5	.9	1.1	1.0
Contracts with COLA clauses	-.6	.1	-.4	4.0	4.0	4.6	9.2	(¹)
Contracts without COLA clauses	1.9	1.4	.9	.9	.4	.8	1.0	(¹)
Annual rate over life of contract	2.4	2.0	1.7	1.4	1.0	1.4	1.8	1.7
Contracts with COLA clauses .....	.9	.7	.0	1.4	1.4	1.7	4.6	(¹)
Contracts without COLA clauses	2.6	2.2	1.8	1.4	1.0	1.4	1.7	(¹)

¹ Data do not meet publication standards.

P = preliminary.

27. Average effective wage adjustments, private industry collective bargaining situations covering 1,000 workers or more during 4-quarter periods (in percent)

Effective wage adjustment	Average for four quarters ending--						
	1984				1985		
	I	II	III	IV	IP	IIP	IIIP
For all workers:¹							
Total	4.7	4.3	4.2	3.7	3.6	3.5	3.4
From settlements reached in period	1.2	1.0	1.0	.8	.7	.9	.8
Deferred from settlements reached in earlier period	2.5	2.2	2.1	2.0	2.2	1.9	1.8
From cost-of-living-adjustments clauses	1.0	1.1	1.2	.9	.7	.7	.8
For workers receiving changes:							
Total	5.5	5.3	5.0	4.4	4.5	4.2	4.3
From settlements reached in period	4.2	3.6	3.7	3.0	2.9	2.9	2.8
Deferred from settlements reached in earlier period	5.5	4.9	4.2	4.0	4.2	3.9	3.7
From cost-of-living-adjustments clauses	3.6	4.0	3.2	2.7	2.3	2.3	2.8

¹ Because of rounding total may not equal sum of parts.

P = preliminary.

28. Specified compensation and wage adjustments from contract settlements, and effective wage adjustments, State and local government collective bargaining situations covering 1,000 workers or more (in percent)

Measure	Annual average		First 6 months 1985 ^p
	1983	1984	
Specified adjustments:			
Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:			
First year of contract	4.6	5.2	4.7
Annual rate over life of contract	5.2	5.4	4.9
Wage adjustments, settlements covering 1,000 workers or more:			
First year of contract	-	4.8	4.9
Annual rate over life of contract	-	5.1	5.1
Effective adjustments:			
Total effective wage adjustment ³	-	5.0	1.6
From settlements reached in period	-	1.9	.9
Deferred from settlements reached in earlier periods	-	3.1	.8
From cost-of-living-adjustment clauses	-	.0	.0

¹ Compensation includes wages, salaries, and employers' cost of employee benefits when contract is negotiated.

² Adjustments are the net result of increases, decreases and no changes in compensation or wages.

³ Because of rounding total may not equal sum of parts.

- Data not available.

^p = preliminary.

29. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1984	1985											
	1984	1985	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July ^p	Aug. ^p	Sept. ^p	Oct. ^p	Nov. ^p	Dec. ^p
Number of stoppages:															
Beginning in period	62	-	3	2	4	4	3	2	2	9	6	11	4	2	2
In effect during period	68	-	13	9	13	12	8	8	8	13	18	20	18	11	8
Workers involved:															
Beginning in period (in thousands)	376.0	-	42.5	4.7	29.3	15.2	6.2	6.9	15.7	52.3	15.3	69.5	74.6	25.0	8.2
In effect during period (in thousands)	391.0	-	59.0	16.0	43.9	48.2	14.1	14.8	28.5	60.2	66.8	93.9	117.3	64.6	38.1
Days idle:															
Number (in thousands)	8,499.0	-	655.8	278.3	259.3	698.5	229.5	203.3	454.3	500.2	869.7	931.4	1,433.0	651.2	665.4
Percent of estimated working time ¹ .....	.04	-	.04	.01	.01	.03	.01	.01	.02	.02	.03	.04	.06	.03	.03

¹ Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found in "Total Economy Measure of Strike Idleness." Monthly Labor Review, October

1968, pp. 54-56.

- Data not available.

^p = preliminary.

31. Continued— Consumer Price Index: U.S. city average and available local area data: all items

(1967 = 100, unless otherwise indicated)

Area ¹	Pricing schedule ²	Other index base	All Urban Consumers						Urban Wage Earners							
			1984		1985				1984		1985					
			Dec.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	
Class C:																
Northeast	2	12/77	174.4	-	178.9	-	181.7	-	184.1	179.2	-	183.8	-	186.5	-	188.8
North Central	2	12/77	166.4	-	169.1	-	170.1	-	171.5	163.5	-	166.0	-	166.9	-	168.2
South	2	12/77	170.2	-	173.5	-	174.3	-	175.3	171.9	-	175.1	-	175.7	-	176.7
West	2	12/77	162.9	-	168.9	-	169.7	-	169.1	161.9	-	167.7	-	168.3	-	167.8
Class D:																
Northeast	2	12/77	169.7	-	173.7	-	175.6	-	178.1	169.9	-	173.6	-	175.3	-	177.7
North Central	2	12/77	167.6	-	170.7	-	171.6	-	172.6	169.9	-	172.7	-	173.1	-	174.2
South	2	12/77	170.4	-	172.8	-	174.8	-	174.5	172.2	-	174.5	-	176.2	-	176.1
West	2	12/77	170.1	-	173.3	-	174.5	-	176.2	171.6	-	174.8	-	176.0	-	177.7

¹ Area is generally the Standard Metropolitan Statistical Area (SMSA), exclusive of farms. L.A.-Long Beach, Anaheim, Calif. is a combination of two SMSA's, and N.Y., N.Y.-Northeastern N.J. and Chicago, Ill.-Northwestern Ind. are the more extensive Standard Consolidated Areas. Area definitions are those established by the Office of Management and Budget in 1973, except for Denver-Boulder, Colo. which does not include Douglas County. Definitions do not include revisions made since 1973.

² Foods, fuels, and several other items priced every month in all areas; most other goods and services priced as indicated:

M - Every month.

1 - January, March, May, July, September, and November.

2 - February, April, June, August, October, and December.

³ Regions are defined as the four Census regions.

The population size classes are aggregations of areas which have urban population as defined:

A-1 - More than 4,000,000.

A-2 - 1,250,000 to 4,000,000.

B - 385,000 to 1,250,000

C - 75,000 to 385,000.

D - Less than 75,000.

Population size class A is the aggregation of population size classes A-1 and A-2.

- Data not available.

NOTE: Local area CPI indexes are by-products of the national CPI program. Because each local index is a small subset of the national index, it has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error than the national index. As a result, local area indexes show greater volatility than the national index, although their long-term trends are quite similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in escalator clauses.

32. Annual data: Consumer Price Index All Items

Series	1977	1978	1979	1980	1981	1982	1983	1984	1985
Consumer Price Index for									
All Urban Consumers:									
All items:									
Index	181.5	195.4	217.4	246.8	272.4	289.1	298.4	311.1	322.2
Percent change	6.5	7.7	11.3	13.5	10.4	6.1	3.2	4.3	3.6
Food and beverages:									
Index	188.0	206.3	228.5	248.0	267.3	278.2	284.4	295.1	302.0
Percent change	6.0	9.7	10.8	8.5	7.8	4.1	2.2	3.8	2.3
Housing									
Index	186.5	202.8	227.6	263.3	293.5	314.7	323.1	336.5	349.9
Percent change	6.8	8.7	12.2	15.7	11.5	7.2	2.7	4.1	4.0
Apparel and upkeep:									
Index	154.2	159.6	166.6	178.4	186.9	191.8	196.5	200.2	206.0
Percent change	4.5	3.5	4.4	7.1	4.8	2.6	2.5	1.9	2.9
Transportation:									
Index	177.2	185.5	212.0	249.7	280.0	291.5	298.4	311.7	319.9
Percent change	7.1	4.7	14.3	17.8	12.1	4.1	2.4	4.5	2.6
Medical care:									
Index	202.4	219.4	239.7	265.9	294.5	328.7	357.3	379.5	403.1
Percent change	9.6	8.4	9.3	10.9	10.8	11.6	8.7	6.2	6.2
Entertainment:									
Index	167.7	176.6	188.5	205.3	221.4	235.8	246.0	255.1	265.0
Percent change	4.9	5.3	6.7	8.9	7.8	6.5	4.3	3.7	3.9
Other goods and services:									
Index	172.2	183.3	196.7	214.5	235.7	259.9	288.3	307.7	326.6
Percent change	5.8	6.4	7.3	9.0	9.9	10.3	10.9	6.7	6.1
Consumer Price Index for Urban Wage Earners and Clerical workers									
All items:									
Index	181.5	195.3	217.7	247.0	272.3	288.6	297.4	307.6	318.5
Percent change	6.5	7.6	11.5	13.5	10.2	6.0	3.0	3.4	3.5

33. Producer Price indexes, by stage of processing

(1967 = 100)

Grouping	Annual average		1985											
	1984	1985	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Finished goods	291.1	-	292.1	292.6	292.1	293.1	294.1	294.0	294.8	293.5	290.2	294.8	296.7	297.2
Finished consumer goods	290.3	-	290.6	290.7	290.1	291.2	292.4	292.2	293.1	291.4	288.5	292.4	294.7	295.4
Finished consumer foods	273.3	-	273.7	275.6	273.7	272.2	269.5	268.7	271.2	268.7	266.5	268.7	272.0	274.4
Finished consumer goods excluding foods	294.1	-	294.3	293.5	293.6	295.9	299.0	299.0	299.2	297.8	294.7	299.4	301.1	301.1
Nondurable goods less food	337.3	-	334.9	332.7	333.4	337.4	342.4	342.1	342.4	340.0	340.3	340.2	343.3	343.7
Durable goods	236.8	-	240.2	240.9	240.4	240.7	241.4	241.9	241.9	241.8	234.4	244.9	245.0	244.4
Capital equipment	294.0	-	297.4	299.2	299.3	299.9	300.3	300.5	300.8	301.0	296.4	303.7	303.8	303.5
Intermediate materials, supplies, and components	320.0	-	319.5	318.7	318.6	319.3	319.9	319.3	318.6	317.9	317.9	317.8	318.1	318.8
Materials and components for manufacturing	301.8	-	300.6	300.5	300.0	300.6	300.5	300.3	299.8	299.1	298.3	298.0	297.6	297.6
Materials for food manufacturing	271.1	-	265.2	265.3	263.9	263.9	261.9	262.0	260.3	253.0	250.2	252.3	253.6	253.0
Materials for nondurable manufacturing	290.5	-	288.9	288.0	287.3	287.1	286.7	286.4	285.8	285.8	284.8	283.6	282.6	282.5
Materials for durable manufacturing	325.1	-	320.6	320.7	319.9	322.1	323.0	322.3	320.9	320.3	319.2	318.6	317.4	317.6
Components for manufacturing	287.5	-	290.4	290.8	291.0	291.1	291.1	291.3	291.6	291.9	292.0	292.2	292.4	292.4
Materials and components for construction	310.3	-	313.4	313.3	313.5	314.0	315.9	317.3	316.9	316.5	315.5	315.4	315.1	315.4
Processed fuels and lubricants	566.2	-	556.3	546.3	547.9	552.3	558.0	549.1	544.0	539.8	546.3	544.9	550.7	557.3
Containers	302.3	-	311.1	311.8	313.1	312.4	311.7	312.0	311.4	310.3	309.9	310.4	309.8	310.7
Supplies	283.4	-	283.9	283.8	283.8	283.7	283.4	283.3	283.6	284.1	284.3	285.0	285.8	285.9
Crude materials for further processing	330.8	-	318.9	318.1	312.3	311.0	309.1	305.6	303.9	295.3	292.4	298.0	305.6	304.7
Foodstuffs and feedstuffs	259.5	-	250.7	250.0	242.9	239.9	236.3	233.7	231.6	221.0	215.9	224.5	236.7	236.8
Nonfood materials ¹	380.5	-	361.9	358.2	358.4	360.2	357.7	354.0	353.5	351.2	352.5	353.3	352.3	351.1
Special groupings														
Finished goods, excluding foods	294.8	-	296.0	295.9	296.0	297.8	300.1	300.2	300.5	299.5	296.0	301.4	302.7	302.5
Finished energy goods	750.3	-	711.7	692.0	693.2	714.9	746.1	741.4	733.8	719.9	718.9	716.1	732.9	736.1
Finished goods less energy	265.1	-	267.9	269.3	268.8	268.8	268.4	268.4	269.7	269.0	265.7	270.6	271.7	272.1
Finished consumer goods less energy	257.8	-	260.5	261.8	261.1	260.9	260.3	260.3	261.9	260.9	257.9	262.2	263.5	264.1
Finished goods less food and energy	262.3	-	266.0	267.2	267.2	267.7	268.2	268.6	269.4	269.4	265.6	271.6	271.8	271.4
Finished consumer goods less food and energy	245.9	-	249.6	250.5	250.5	251.1	251.5	252.0	252.9	252.9	249.5	254.9	255.1	254.7
Consumer nondurable goods less food and energy	239.0	-	242.8	243.9	244.4	245.0	245.2	245.6	247.4	247.3	247.8	248.2	248.6	248.5
Intermediate materials less food and feeds	325.0	-	325.4	324.5	324.7	325.5	326.4	325.7	325.0	324.5	324.6	324.3	324.5	325.2
Intermediate foods and feeds	253.1	-	240.7	239.2	236.7	235.4	232.6	232.2	231.7	227.1	225.5	228.5	231.0	231.7
Intermediate energy goods	545.0	-	535.7	526.0	527.5	531.5	536.7	528.6	523.8	519.8	526.0	524.4	529.5	536.3
Intermediate goods less energy	303.8	-	304.2	304.2	304.0	304.3	304.5	304.6	304.3	303.9	303.3	303.3	303.2	303.3
Intermediate materials less food and energy	303.6	-	305.1	305.3	305.2	305.6	305.9	306.0	305.6	305.5	304.9	304.6	304.2	304.2
Crude energy materials	785.2	-	757.5	754.1	746.4	749.1	760.7	754.5	752.6	742.9	745.4	743.4	742.9	739.5
Crude materials less energy	255.5	-	246.2	245.9	240.4	238.6	234.8	231.7	230.1	221.8	218.3	224.8	233.4	232.9
Crude nonfood materials less energy	266.1	-	254.4	255.3	255.4	257.3	252.3	247.4	247.2	245.8	246.9	247.2	244.9	242.6

¹ Crude nonfood materials except fuel.

- Data not available.

34. Producer Price indexes, by durability of product

(1967 = 100)

Grouping	Annual average		1985											
	1984	1985	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total durable goods	293.6	-	295.6	296.4	296.3	297.1	297.6	297.8	297.8	297.8	295.3	298.8	298.7	298.5
Total nondurable goods	323.3	-	320.1	319.0	317.7	318.4	318.9	317.5	317.3	314.1	313.4	314.6	317.9	318.7
Total manufactures	302.9	-	303.7	303.4	303.3	304.2	305.2	304.8	304.6	303.8	302.3	304.6	305.4	305.7
Durable	293.9	-	296.2	297.0	296.9	297.6	298.4	298.7	298.6	298.6	296.1	299.7	299.6	299.5
Nondurable	312.3	-	311.4	309.9	309.9	310.8	312.1	311.0	310.6	309.0	308.7	309.4	311.3	312.0
Total raw or slightly processed goods	346.6	-	336.7	336.8	332.2	332.1	329.8	327.3	327.5	320.2	318.5	320.9	327.7	328.8
Durable	266.7	-	256.0	259.2	261.2	262.1	255.4	247.3	247.6	249.7	249.7	248.8	245.9	243.8
Nondurable	351.4	-	341.5	341.4	336.4	336.2	334.3	332.1	332.3	324.4	322.5	325.2	332.7	334.0

- Data not available.

35. Annual data: Producer Price indexes, by stage of processing

(1967 = 100)

Index	1976	1977	1978	1979	1980	1981	1982	1983	1984
Finished goods:									
Total	170.6	181.7	195.9	217.7	247.0	269.8	280.7	285.2	291.1
Consumer goods	169.7	180.7	194.9	217.9	248.9	271.3	281.0	284.6	290.3
Capital equipment	173.4	184.6	199.2	216.5	239.8	264.3	279.4	287.2	294.0
Intermediate materials, supplies, and components:									
Total	189.1	201.5	215.6	243.2	280.3	306.0	310.4	312.3	320.0
Materials and components for manufacturing	185.4	195.4	208.7	234.4	265.7	286.1	289.8	293.4	301.8
Materials and components for construction	188.4	203.4	224.7	247.4	268.3	287.6	293.7	301.8	310.3
Processed fuels and lubricants	250.1	282.5	295.3	364.8	503.0	595.4	591.7	564.8	566.2
Containers	180.2	188.3	202.8	226.8	254.5	276.1	285.6	286.6	302.3
Supplies	179.0	188.7	198.5	218.2	244.5	263.8	272.1	277.1	283.4
Crude materials for further processing:									
Total	202.7	209.2	234.4	274.3	304.6	329.0	319.5	323.6	330.8
Foodstuffs and feedstuffs	190.2	192.1	216.2	247.9	259.2	257.4	247.8	252.2	259.5
Nonfood materials except fuel	206.7	212.2	233.1	284.5	346.1	413.7	376.8	372.2	380.5
Fuel	305.3	372.1	426.8	507.6	615.0	751.2	886.1	931.5	931.3

37. U.S. import price indexes by Standard International Trade Classification

(June 1977 = 100, unless otherwise indicated)

Category	1974 SITC	1983		1984				1985		
		Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
ALL COMMODITIES (9/82=100)		96.9	97.3	98.0	98.3	96.7	95.7	93.5	93.0	93.0
Food (9/77=100)	0	99.2	100.4	102.5	103.5	102.0	98.1	98.5	96.8	94.9
Meat	01	139.4	134.1	133.4	133.8	135.4	132.3	130.4	118.2	120.6
Dairy products and eggs (6/81=100)	02	99.9	99.6	100.8	99.8	98.9	98.4	98.3	97.9	99.1
Fish	03	135.2	136.0	132.7	134.2	134.2	133.9	132.9	129.4	129.7
Bakery goods, pasta products, grain and grain preparations (9/77=100)	04	132.3	132.7	136.5	134.8	132.9	132.8	131.8	132.3	136.3
Fruits and vegetables	05	132.3	125.0	136.1	135.8	135.4	117.2	127.1	129.4	120.2
Sugar, sugar preparations and honey (3/82=100)	06	118.9	117.9	117.1	120.3	119.0	118.5	118.4	122.6	123.1
Coffee, tea, cocoa	07	54.7	59.6	61.4	62.4	60.3	58.4	57.0	56.0	54.4
Beverages and tobacco	1	153.7	155.4	155.3	156.3	157.1	156.5	156.2	157.1	158.0
Beverages	11	153.5	152.7	152.6	153.6	153.5	152.8	154.2	154.3	156.0
Crude materials	2	100.0	98.6	103.2	102.6	100.6	98.9	94.0	93.6	91.5
Crude rubber (inc. synthetic & reclaimed) (3/84=100)	23	-	-	100.0	93.7	90.7	83.8	77.6	76.4	68.9
Wood (9/81=100)	24	110.0	107.2	114.8	103.2	99.6	104.0	100.7	106.9	101.6
Pulp and waste paper (12/81=100)	25	80.3	80.9	87.6	96.1	96.3	93.2	84.0	80.4	76.8
Crude fertilizers & crude minerals (12/83=100)	27	-	100.0	100.0	96.2	98.0	98.6	100.3	101.7	102.7
Metalliferous ores & metal scrap (3/84=100)	28	-	-	100.0	102.8	100.1	95.6	90.4	87.6	89.5
Crude vegetable and animal materials, n.e.s.	29	-	-	100.0	100.8	101.1	106.4	104.3	104.9	102.5
Fuels and related products (6/82=100)	3	87.7	87.6	88.3	88.0	86.9	85.2	82.9	80.9	80.0
Petroleum and petroleum products (6/82=100)	33	88.0	87.6	88.2	88.1	87.0	85.2	83.8	81.6	80.5
Fats and oils (9/83=100)	4	100.0	100.4	117.4	141.8	124.4	114.9	89.9	76.7	57.6
Vegetable oils (9/83=100)	42	100.0	100.5	118.1	143.1	125.3	115.3	89.5	75.9	56.2
Chemicals (9/82=100)	5	97.8	99.5	101.1	100.6	98.8	97.1	95.7	95.0	94.6
Medicinal & pharmaceutical products (3/84=100)	54	-	-	100.0	98.5	96.4	94.6	91.6	95.1	95.3
Manufactured fertilizers (3/84=100)	56	-	-	100.0	101.7	98.5	92.9	94.2	82.0	80.8
Chemical materials and products, n.e.s. (9/84=100)	59	-	-	-	-	100.0	97.5	96.1	95.6	96.9
Intermediate manufactured products (12/77=100)	6	137.3	137.3	137.6	139.6	137.2	136.8	133.1	132.4	133.6
Leather and furskins	61	136.6	137.6	141.6	145.3	144.0	140.4	135.3	133.3	137.0
Rubber manufactures, n.e.s.	62	141.0	141.1	141.8	140.8	139.6	140.5	139.5	138.6	137.3
Cork and wood manufactures	63	138.2	134.7	130.1	131.0	126.4	126.1	121.3	121.2	123.4
Paper and paperboard products	64	147.3	147.0	148.0	150.4	156.1	157.5	157.6	157.2	157.8
Textiles	65	127.6	128.5	130.8	130.1	131.6	132.9	130.4	127.5	126.5
Non-metallic mineral manufactures, n.e.s.	66	166.4	166.4	168.4	166.6	156.6	159.4	154.3	151.8	157.6
Iron and steel (9/78=100)	67	115.0	119.5	118.5	123.8	124.7	123.7	121.0	120.1	119.1
Non-ferrous metals (12/81=100)	68	99.3	94.8	95.0	96.3	90.2	87.3	81.9	82.3	83.7
Metal manufactures, n.e.s.	69	118.0	118.9	119.7	120.5	119.3	119.3	117.4	117.8	119.5
Machinery and transport equipment (6/81=100)	7	103.0	104.1	104.0	104.1	102.6	102.9	101.6	102.6	103.5
Machinery specialized for particular industries (9/78=100)	72	101.2	100.8	100.4	100.0	98.8	98.0	96.2	97.0	101.4
Metalworking machinery (3/80=100)	73	96.0	95.7	94.3	93.8	92.1	89.9	86.3	90.5	94.2
General industrial machinery and parts (6/81=100), n.e.s.	74	93.4	93.5	93.7	94.4	92.4	91.3	89.2	91.1	94.4
Office machines and automatic data processing equipment (3/80=100)	75	94.0	96.9	97.8	96.7	94.1	92.2	89.6	89.4	90.3
Telecommunications, sound recording and reproducing apparatus (3/80=100)	76	96.5	94.9	94.2	94.8	93.6	91.3	90.0	88.8	88.3
Electrical machinery and equipment (12/81=100)	77	96.4	95.9	94.2	91.2	87.0	86.4	82.1	83.9	81.4
Road vehicles and parts (6/81=100)	78	106.7	109.5	109.0	110.4	109.8	111.3	111.5	112.1	112.7
Misc. manufactured articles (3/80=100)	8	100.2	100.0	100.6	101.5	99.7	100.0	97.0	98.0	100.0
Plumbing, heating, and lighting fixtures (6/80=100)	81	107.9	108.2	109.5	112.0	110.7	111.6	113.9	114.1	117.8
Furniture and parts (6/80=100)	82	96.1	94.7	94.9	96.0	95.4	94.3	92.7	94.4	96.1
Clothing (9/77=100)	84	125.6	128.5	130.2	132.5	135.4	138.5	136.7	133.9	136.0
Footwear	85	96.1	94.7	94.9	96.0	95.4	94.3	92.7	94.4	96.1
Professional, scientific, and controlling instruments and apparatus (12/79=100)	87	96.8	97.6	98.7	97.8	95.6	92.9	89.2	92.3	98.8
Photographic apparatus and supplies, optical goods, watches, and clocks (3/80=100)	88	89.7	90.6	89.6	92.8	91.2	91.3	88.9	89.5	91.2
Misc. manufactured articles, n.e.s. (6/82=100)	89	107.5	104.9	105.2	104.0	98.3	96.3	91.2	95.2	96.4
Gold, non-monetary (6/82=100)	971	-	-	-	-	-	-	-	-	-

- Data not available.

38. U.S. export price indexes by end-use category

(September 1983 = 100 unless otherwise indicated)

Category	Percentage of 1980 Trade Value	1983		1984				1985		
		Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Foods, feeds, and beverages	16.294	100.0	95.0	92.8	98.5	88.8	83.0	81.5	80.9	76.2
Raw materials	30.696	100.0	100.7	102.2	102.5	100.5	99.1	97.6	97.2	96.5
Raw materials, nondurable	21.327	100.0	101.9	103.6	104.4	102.8	101.4	99.6	99.5	98.7
Raw materials, durable	9.368	100.0	97.7	98.8	97.7	95.0	93.3	92.6	91.6	91.1
Capital goods, (12/82=100)	30.186	101.1	102.0	103.2	103.9	104.6	105.6	106.2	106.6	106.6
Automotive vehicles parts, and engines (12/82=100)	7.483	102.5	103.9	104.5	105.3	105.3	105.7	106.7	108.0	108.1
Consumer goods	7.467	100.0	99.3	100.5	100.3	99.8	99.1	98.5	99.0	99.5
Durables	3.965	100.0	98.5	99.4	98.7	96.9	96.3	94.8	95.3	96.1
Nondurables	3.501	100.0	100.3	101.8	102.1	103.0	102.3	102.7	103.0	103.3

39. U.S. import price indexes by end-use category

(December 1982=100)

Category	Percentage of 1980 Trade Value	1983		1984				1985		
		Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Food, feeds, and beverages	7.477	103.1	104.0	106.0	107.2	105.6	101.8	102.1	100.4	99.0
Petroleum & products, excl. natural gas	31.108	88.5	87.8	88.3	88.1	87.1	85.1	83.9	82.3	80.9
Raw materials, excluding petroleum	19.205	-	-	-	-	-	-	-	-	-
Raw materials, nondurable	9.391	97.0	99.0	100.7	102.1	101.7	100.7	95.0	93.9	93.6
Raw materials, durable	9.814	106.4	104.7	106.5	106.7	103.3	101.6	97.7	97.8	97.4
Capital goods	13.164	101.2	101.3	100.8	99.8	98.0	97.8	94.8	96.3	97.6
Automotive vehicles parts and engines	11.750	101.3	103.8	103.6	104.9	104.0	105.2	105.4	105.9	106.4
Consumer goods	14.250	99.5	99.7	100.3	100.9	98.9	99.2	97.0	97.3	99.1
Durable	5.507	100.4	99.9	99.9	99.9	96.1	95.6	93.1	93.8	95.6
Nondurable	8.743	98.1	99.5	100.9	102.5	103.0	104.6	103.0	102.5	104.6

- Data not available.

40. U.S. export price indexes by Standard Industrial Classification ¹

Industry group	1983		1984				1985		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Manufacturing:									
Food and kindred products (6/83=100)	109.4	108.3	109.0	112.7	105.6	103.3	99.5	99.5	96.6
Tobacco manufactures	-	-	-	-	-	-	-	-	-
Textile mill products	-	-	-	-	-	-	-	-	-
Apparel and related products	-	-	-	-	-	-	-	-	-
Lumber and wood products, except furniture (6/83=100)	100.1	101.0	101.5	100.1	97.0	97.9	99.9	99.5	98.3
Furniture and fixtures (9/83=100)	100.0	100.9	101.8	103.1	103.5	104.9	105.2	106.5	107.1
Paper and allied products (3/81=100)	91.2	94.7	98.6	104.3	106.2	103.6	97.1	94.7	93.2
Printing, publishing, and allied products	-	-	-	-	-	-	-	-	-
Chemicals and allied products (12/84=100)	99.7	101.4	103.3	102.3	101.3	100.7	100.3	99.6	99.7
Petroleum and coal products (12/83=100)	-	100.0	101.6	102.1	100.7	100.4	101.3	102.7	102.0
Rubber and miscellaneous plastic products	-	-	-	-	-	-	-	-	-
Leather and leather products	-	-	-	-	-	-	-	-	-
Stone, clay, glass, and concrete products	-	-	-	-	-	-	-	-	-
Primary metal products (3/82=100)	110.1	105.0	105.1	104.0	100.0	95.8	91.2	92.7	93.6
Fabricated metal products	-	-	-	-	-	-	-	-	-
Machinery, except electrical (9/78=100)	135.1	135.8	137.4	137.9	138.0	139.9	140.4	140.5	140.6
Electrical machinery (12/80=100)	107.4	107.6	108.0	109.5	110.7	111.1	111.3	112.4	111.9
Transportation equipment (12/78=100)	150.8	153.6	155.7	157.2	157.8	158.9	160.5	162.0	162.9
Scientific instruments; optical goods; clocks (6/77=100)	150.9	152.8	153.1	153.2	156.0	153.0	154.9	156.6	156.0
Miscellaneous manufactured commodities	-	-	-	-	-	-	-	-	-

¹ SIC - based classification.

- Data not available.

41. U.S. import price indexes by Standard Industrial Classification ¹

Industry group	1983		1984				1985		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Manufacturing:									
Food and kindred products (6/77=100)	121.0	120.8	122.3	126.6	124.1	122.6	118.8	115.2	114.4
Tobacco manufactures	-	-	-	-	-	-	-	-	-
Textile mill products (9/82=100)	99.5	103.3	104.4	103.8	104.3	104.7	102.8	101.0	100.4
Apparel and related products (6/77=100)	123.2	126.5	128.1	129.6	133.9	138.2	135.6	133.0	135.9
Lumber and wood products, except furniture (6/77=100)	128.3	125.0	129.4	121.1	117.3	120.0	116.3	120.6	117.5
Furniture and fixtures (6/80=100)	97.1	95.5	95.7	96.9	96.2	95.6	93.9	96.1	97.7
Paper and allied products (6/77=100)	132.7	132.9	136.5	141.9	146.0	145.5	141.5	139.8	138.7
Printing, publishing, allied products	-	-	-	-	-	-	-	-	-
Chemicals and allied products (9/82=100)	99.2	99.5	101.8	101.8	99.8	98.2	95.3	93.9	93.3
Petroleum and coal products	-	-	-	-	-	-	-	-	-
Rubber and miscellaneous plastic products (12/80=100)	97.5	97.4	98.1	98.5	97.8	98.0	96.9	96.7	96.5
Leather and leather products	-	-	-	-	-	-	-	-	-
Stone, clay, glass, concrete products	-	-	-	-	-	-	-	-	-
Primary metal products (6/81=100)	91.3	90.5	90.1	91.9	88.3	86.6	82.2	83.0	83.4
Fabricated metal products (12/84=100)	-	-	-	-	-	100.0	99.0	99.1	101.1
Machinery, except electrical (3/80=100)	98.0	98.0	97.8	97.1	95.5	94.1	91.8	93.4	96.6
Electrical machinery (9/84=100)	-	-	-	-	100.0	98.6	95.1	95.8	94.5
Transportation equipment (6/81=100)	107.8	110.3	110.6	111.6	110.7	112.9	113.1	114.2	114.8
Scientific instruments optical goods; clocks (12/79=100)	93.5	94.3	94.0	95.5	94.4	93.2	90.7	91.7	94.7
Miscellaneous manufactured commodities (9/82=100)	100.6	99.7	99.8	99.1	95.8	96.4	95.1	95.1	96.6

¹ SIC - based classification.

- Data not available.

42. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

(1977=100)

Item	Annual average	Quarterly Indexes											
		1983	1983				1984				1985		
			I	II	III	IV	I	II	III	IV	I	II	III
Business:													
Output per hour of all persons	103.7	102.2	103.6	104.3	104.7	105.7	107.0	107.2	108.0	106.9	107.3	108.3	
Compensation per hour	161.7	160.2	161.0	161.8	164.2	166.7	167.5	169.3	171.1	173.1	174.5	176.8	
Real compensation per hour	98.4	99.0	98.5	97.9	98.4	98.6	98.2	98.3	98.5	99.9	98.6	99.4	
Unit labor costs	156.0	156.8	155.4	155.1	156.8	157.7	156.5	158.0	158.4	161.9	162.6	163.2	
Unit nonlabor payments	145.5	139.8	144.6	147.9	149.1	151.6	157.2	158.5	160.2	159.1	159.9	160.5	
Implicit price deflator	152.4	151.0	151.7	152.7	154.2	155.6	156.7	158.1	159.0	160.9	161.7	162.3	
Nonfarm business:													
Output per hour of all persons	103.4	101.6	103.6	104.1	104.4	105.2	106.6	106.3	106.9	106.0	106.3	106.9	
Compensation per hour	162.0	160.1	161.5	162.4	164.0	166.5	168.0	169.5	171.0	173.1	174.6	176.2	
Real compensation per hour	98.6	99.0	98.8	98.3	98.3	98.4	98.4	98.4	98.5	98.9	98.7	99.0	
Unit labor costs	156.6	157.6	155.9	155.9	157.1	158.3	157.6	159.5	160.0	163.3	164.1	164.8	
Unit nonlabor payments	147.0	140.6	146.4	149.4	151.4	152.2	156.8	158.0	160.3	160.3	161.8	163.0	
Implicit price deflator	153.4	151.9	152.7	153.8	155.2	156.3	157.3	159.0	160.1	162.3	163.4	164.2	
Nonfinancial corporations:													
Output per hour of all employees	106.1	104.0	105.8	107.2	107.2	108.1	108.9	108.2	108.8	108.1	108.1	109.2	
Compensation per hour	161.0	159.2	160.6	161.8	162.6	164.8	165.8	167.1	168.7	170.3	171.6	173.0	
Real compensation per hour	97.9	98.4	98.2	97.9	97.4	97.5	97.2	97.1	97.1	97.3	97.0	97.2	
Total unit costs	155.2	156.7	155.2	154.4	154.7	155.0	155.0	157.5	158.0	160.2	161.6	161.1	
Unit labor costs	151.8	153.1	151.7	150.9	151.7	152.5	152.3	154.5	155.0	157.5	158.8	158.3	
Unit nonlabor costs	164.9	167.0	165.1	164.4	163.3	162.0	162.8	165.9	166.4	168.1	169.8	168.8	
Unit profits	117.2	92.5	111.8	126.6	135.9	143.2	151.1	145.3	150.7	150.4	148.9	160.1	
Unit nonlabor payments	149.1	142.3	147.4	151.9	154.2	155.7	158.9	159.1	161.2	162.2	162.9	165.9	
Implicit price deflator	150.9	149.4	150.2	151.2	152.6	153.6	154.6	156.1	157.1	159.1	160.2	160.9	
Manufacturing:													
Output per hour of all persons	111.6	110.0	110.9	113.0	112.7	114.2	114.8	116.7	116.5	116.7	118.6	119.7	
Compensation per hour	163.4	162.7	163.0	163.5	164.6	167.1	168.3	169.9	172.1	174.4	176.5	177.8	
Real compensation per hour	99.4	100.6	99.6	98.9	98.6	98.8	98.6	98.7	99.1	99.6	99.7	99.9	
Unit labor costs	146.4	147.9	147.0	144.7	146.1	146.3	146.6	145.5	147.7	149.5	148.8	148.6	

43. Annual indexes of multifactor productivity and related measures selected years

(1977 = 100)

Item	1950	1960	1970	1973	1975	1976	1978	1979	1980	1981	1982	1983
Private business												
Productivity:												
Output per hour of all persons	49.7	64.8	86.1	94.8	94.5	97.6	100.5	99.3	98.7	100.6	100.8	103.7
Output per unit of capital services	98.5	98.4	98.5	103.0	92.0	96.1	101.8	100.3	95.6	94.1	89.5	92.3
Multifactor productivity	63.6	75.4	90.2	97.5	93.6	97.1	101.0	99.7	97.6	98.3	96.8	99.6
Output	39.5	53.3	78.3	91.8	88.0	93.7	105.5	107.9	106.4	109.2	106.3	111.1
Inputs:												
Hours of all persons	79.4	82.2	90.8	96.8	93.1	95.9	105.0	108.6	107.8	108.5	105.4	107.2
Capital services	40.1	54.1	79.4	89.1	95.7	97.5	103.6	107.5	111.4	116.0	118.8	120.4
Combined units of labor and capital input	62.1	70.7	86.7	94.1	94.0	96.5	104.5	108.2	109.0	111.0	109.9	111.6
Capital per hour of all persons	50.5	65.9	87.4	92.0	102.8	101.6	98.7	98.9	103.3	106.9	112.7	112.3
Private nonfarm business												
Productivity:												
Output per hour of all persons	55.6	68.0	86.8	95.3	94.8	97.8	100.6	99.0	98.2	99.6	99.9	103.5
Output per unit of capital services	98.1	98.4	98.6	103.2	91.7	96.1	101.9	100.1	95.2	93.2	88.7	91.9
Multifactor productivity	68.1	77.6	90.7	97.9	93.6	97.2	101.0	99.4	97.2	97.4	95.9	99.4
Output	38.3	52.3	77.8	91.7	87.6	93.6	105.7	108.0	106.4	108.7	105.9	111.3
Inputs:												
Hours of all persons	69.0	77.0	89.7	96.2	92.4	95.7	105.1	109.1	108.4	109.1	106.0	107.6
Capital services	39.1	53.2	78.9	88.8	95.6	97.4	103.7	107.9	111.7	116.6	119.4	121.1
Combined units of labor and capital input	56.3	67.4	85.9	93.6	93.5	96.3	104.6	108.7	109.5	111.6	110.4	112.0
Capital per hour of all persons	56.6	69.1	88.0	92.4	103.4	101.8	98.7	98.9	103.1	106.8	112.6	112.6
Manufacturing												
Productivity:												
Output per hour of all persons	49.4	60.0	79.2	93.0	93.4	97.6	100.9	101.6	101.7	104.9	107.1	111.6
Output per unit of capital services	94.2	87.9	91.8	108.2	89.4	96.1	101.5	99.5	90.7	89.9	82.9	87.6
Multifactor productivity	59.8	67.0	82.3	96.8	92.2	97.1	101.1	101.0	98.8	100.8	100.3	104.9
Output	38.6	50.7	77.0	95.9	85.4	93.6	105.3	108.2	103.5	106.1	99.3	104.4
Inputs:												
Hours of all persons	78.2	84.4	97.3	103.1	91.4	95.9	104.4	106.5	101.7	101.1	92.7	93.5
Capital services	41.0	57.6	83.9	88.6	95.5	97.4	103.8	108.8	114.1	118.0	119.8	119.2
Combined units of labor and capital inputs	64.6	75.6	93.5	99.0	92.6	96.3	104.2	107.1	104.8	105.2	99.0	99.5
Capital per hour of all persons	52.5	68.3	86.2	85.9	104.5	101.6	99.4	102.1	112.2	116.7	129.2	127.5

44. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

(1977 = 100)

Item	1950	1960	1970	1973	1975	1976	1978	1979	1980	1981	1982	1983	1984
Business:													
Output per hour of all persons	50.4	65.2	86.2	94.8	94.6	97.6	100.5	99.3	98.8	100.7	100.9	103.7	107.0
Compensation per hour	20.0	33.9	58.2	71.4	85.6	92.9	108.5	118.7	131.1	143.4	155.0	161.7	168.6
Real compensation per hour	50.5	69.5	90.8	97.3	96.4	98.9	100.8	99.1	96.4	95.5	97.3	98.4	98.4
Unit labor costs	39.8	52.1	67.5	75.3	90.5	95.1	108.0	119.5	132.6	142.4	153.6	156.0	157.6
Unit nonlabor payments	43.4	50.6	63.2	75.2	90.4	94.0	106.7	112.8	119.3	136.7	136.8	145.5	157.0
Implicit price deflator	41.0	51.6	66.0	75.3	90.4	94.7	107.5	117.2	128.1	140.4	147.9	152.4	157.4
Nonfarm business:													
Output per hour of all persons	56.3	68.3	86.8	95.3	94.8	97.8	100.6	99.0	98.3	99.8	100.0	103.4	106.2
Compensation per hour	21.9	35.7	58.7	71.8	86.1	93.0	108.6	118.4	130.6	143.1	154.5	162.0	168.7
Real compensation per hour	55.1	73.1	91.5	97.9	96.9	99.0	100.8	98.8	96.0	95.3	97.0	98.6	98.4
Unit labor costs	38.8	52.3	67.6	75.3	90.8	95.1	108.0	119.5	132.8	143.5	154.5	156.6	158.8
Unit nonlabor payments	42.7	50.4	63.8	71.6	88.5	93.5	105.3	110.4	118.6	135.0	136.9	147.0	156.9
Implicit price deflator	40.1	51.6	66.3	74.0	90.0	94.6	107.1	116.5	128.1	140.6	148.6	153.4	158.2
Nonfinancial corporations:													
Output per hour of all employees	-	68.0	87.4	96.4	95.5	98.2	100.8	100.6	99.7	101.6	102.6	106.1	108.5
Compensation per hour	-	37.0	59.4	71.9	86.1	92.9	108.4	118.6	130.8	143.1	154.6	161.0	166.6
Real compensation per hour	-	75.8	92.7	98.0	97.0	98.9	100.7	99.0	96.2	95.3	97.0	97.9	97.2
Unit labor costs	-	54.4	68.0	74.5	90.2	94.6	107.5	117.8	131.2	140.9	150.6	151.8	153.6
Unit nonlabor payments	-	54.6	63.1	70.6	90.8	95.0	104.2	106.9	117.4	135.1	138.1	149.1	158.8
Implicit price deflator	-	54.5	66.3	73.2	90.4	94.7	106.4	114.1	126.4	138.9	146.3	150.9	155.4
Manufacturing:													
Output per hour of all persons	49.4	60.0	79.2	93.0	93.4	97.6	100.9	101.6	101.7	104.9	107.1	111.6	115.6
Compensation per hour	21.5	36.7	57.6	69.0	85.5	92.3	108.3	118.8	132.7	145.2	158.0	163.4	169.4
Real compensation per hour	54.0	75.1	89.8	94.1	96.2	98.3	100.6	99.2	97.6	96.8	99.2	99.4	98.8
Unit labor costs	43.4	61.1	72.7	74.2	91.5	94.6	107.3	117.0	130.5	138.4	147.6	146.4	146.5
Unit nonlabor payments	54.3	61.1	65.1	70.7	87.3	93.9	102.7	99.9	97.9	111.6	110.5	128.8	140.3
Implicit price deflator	46.6	61.1	70.5	73.2	90.3	94.4	106.0	112.0	120.9	130.6	136.7	141.2	144.7

- Data not available.

45. Unemployment rates in nine countries, quarterly data seasonally adjusted

Country	Annual average		1984				1985		
	1983	1984	I	II	III	IV	I	II	III
Total labor force basis									
United States	-	-	-	-	-	-	-	-	-
Canada	-	-	11.4	11.3	11.2	11.1	11.1	10.5	10.2
Australia	-	-	9.3	9.1	8.8	8.5	8.5	8.4	8.1
Japan	-	-	2.7	2.7	2.8	2.7	2.6	2.6	2.5
France	-	-	9.4	9.8	10.0	10.2	10.3	10.2	10.2
Germany	-	-	7.6	7.7	7.8	7.7	7.8	7.8	7.8
Great Britain	-	-	12.7	12.8	13.1	12.9	13.0	13.1	13.3
Italy ^{1, 2}	-	-	5.9	5.9	5.7	5.7	5.8	5.8	6.0
Sweden	-	-	-	-	-	-	-	-	-
Civilian labor force basis									
United States	-	-	7.9	7.5	7.4	7.2	7.3	7.3	7.2
Canada	-	-	11.5	11.2	11.6	11.2	11.1	10.6	10.3
Australia	-	-	9.4	9.2	8.8	8.6	8.5	8.5	8.2
Japan	-	-	2.8	2.7	2.8	2.7	2.6	2.6	2.5
France	-	-	9.6	10.1	10.3	10.4	10.5	10.5	10.5
Germany	-	-	7.7	7.9	8.0	7.8	7.9	8.0	7.9
Great Britain	-	-	12.8	12.9	13.2	13.0	13.1	13.3	13.5
Italy	-	-	6.0	6.0	5.8	5.8	5.9	5.9	6.2
Sweden	-	-	-	-	-	-	-	-	-

¹ Quarterly rates are for the first month of the quarter.

² Major changes in the Italian labor force survey, introduced in 1977, resulted in a large increase in persons enumerated as unemployed. However, many persons reported that they had not actively sought work in the past 30 days, and they have been provisionally excluded for comparability with U.S. concepts. Inclusion of such persons would more than double the Italian unemployment rate

shown.

- Data not available.

NOTE: Quarterly and monthly figures for France, Germany, and Great Britain are calculated by applying annual adjustment factors to current published data and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures.

46. Annual data: Employment status of the civilian working-age population, ten countries

(Numbers in thousands)

Employment status and country	1975	1976	1977	1978	1979	1980	1981	1982	1983
Labor force									
United States	93,775	96,158	99,009	102,251	104,962	106,940	108,670	110,204	111,550
Canada	9,974	10,203	10,500	10,895	11,231	11,573	11,904	11,958	12,183
Australia	6,169	6,244	6,358	6,443	6,519	6,693	6,810	6,910	6,997
Japan	52,530	53,100	53,820	54,610	55,210	55,740	56,320	56,980	58,110
France	21,600	21,840	22,100	22,290	22,470	22,570	22,640	22,900	22,800
Germany	26,130	25,900	25,870	26,000	26,240	26,500	26,610	26,640	26,640
Great Britain	25,130	25,290	25,430	25,620	25,710	25,870	25,870	25,880	25,980
Italy	20,080	20,300	20,530	20,630	20,910	21,210	21,410	21,450	21,610
Netherlands	4,820	4,890	4,950	5,010	5,100	5,290	5,500	5,560	5,720
Sweden	4,123	4,149	4,168	4,203	4,262	4,312	4,326	4,350	4,369
Participation rate									
United States	61.2	61.6	62.3	63.2	63.7	63.8	63.9	64.0	64.0
Canada	61.1	61.1	61.6	62.7	63.4	64.1	64.8	64.1	64.4
Australia	63.2	62.7	62.7	62.0	61.7	62.2	62.0	61.8	61.5
Japan	62.4	62.4	62.5	62.8	62.7	62.6	62.6	62.7	63.1
France	56.7	56.9	57.0	57.1	57.0	56.7	56.5	56.7	56.1
Germany	54.4	53.8	53.4	53.3	53.3	53.2	52.9	52.5	52.8
Great Britain	63.1	63.2	63.2	63.3	63.2	63.2	62.2	61.9	62.2
Italy	47.5	47.8	48.0	47.7	47.8	48.0	48.0	47.4	47.2
Netherlands	49.2	49.1	49.0	48.8	49.0	50.0	51.3	51.2	52.4
Sweden	65.9	66.0	65.9	66.1	66.6	67.0	66.8	66.8	66.9
Employed									
United States	85,846	88,752	92,017	96,048	98,824	99,303	100,397	99,526	100,834
Canada	9,284	9,477	9,651	9,987	10,395	10,708	11,006	10,644	10,734
Australia	5,866	5,946	6,000	6,038	6,111	6,284	6,416	6,415	6,300
Japan	51,530	52,020	52,720	53,370	54,040	54,600	55,060	55,620	56,550
France	20,700	20,850	21,030	21,110	21,110	21,120	20,950	20,980	20,840
Germany	25,230	25,010	24,970	25,130	25,460	25,730	25,520	25,060	24,650
Great Britain	24,000	23,810	23,840	24,040	24,360	24,100	23,190	22,820	22,650
Italy	19,480	19,600	19,800	19,870	20,100	20,380	20,480	20,430	20,470
Netherlands	4,570	4,630	4,700	4,750	4,830	4,960	4,990	4,930	4,890
Sweden	4,056	4,083	4,093	4,109	4,174	4,226	4,218	4,213	4,218
Employment-population ratio									
United States	56.1	56.8	57.9	59.3	59.9	59.2	59.0	57.8	57.9
Canada	56.9	56.7	56.6	57.5	58.7	59.3	59.9	57.0	56.7
Australia	60.1	59.7	59.2	58.1	57.9	58.4	58.4	57.3	55.4
Japan	61.2	61.1	61.2	61.3	61.4	61.3	61.2	61.2	61.4
France	54.3	54.3	54.3	54.1	53.6	53.1	52.3	51.9	51.3
Germany	52.5	52.0	51.6	51.5	51.7	51.6	50.7	49.4	48.8
Great Britain	60.3	59.5	59.3	59.4	59.8	58.9	55.8	54.6	54.2
Italy	46.1	46.1	46.3	45.9	45.9	46.1	45.9	45.2	44.7
Netherlands	46.6	46.5	46.5	46.3	46.4	46.9	46.5	45.4	44.8
Sweden	64.8	64.9	64.8	64.6	65.3	65.6	65.1	64.7	64.4
Unemployed									
United States	7,929	7,406	6,991	6,202	6,137	7,637	8,273	10,678	10,717
Canada	690	726	849	908	836	865	898	1,314	1,448
Australia	302	298	358	405	408	409	394	495	697
Japan	1,000	1,080	1,100	1,240	1,170	1,140	1,260	1,360	1,560
France	900	890	1,070	1,180	1,360	1,450	1,690	1,920	1,960
Germany	890	890	900	870	780	770	1,090	1,580	1,990
Great Britain	1,130	1,480	1,590	1,580	1,350	1,770	2,680	3,060	3,330
Italy	610	700	740	760	810	830	920	1,020	1,140
Netherlands	250	260	250	260	270	330	510	630	830
Sweden	67	66	75	94	88	86	108	137	151
Unemployment rate									
United States	8.5	7.7	7.1	6.1	5.8	7.1	7.6	9.7	9.6
Canada	6.9	7.1	8.1	8.3	7.4	7.5	7.5	11.0	11.9
Australia	4.9	4.8	5.6	6.3	6.3	6.1	5.8	7.2	10.0
Japan	1.9	2.0	2.0	2.3	2.1	2.0	2.2	2.4	2.7
France	4.2	4.5	4.8	5.3	6.1	6.4	7.5	8.4	8.6
Germany	3.4	3.4	3.5	3.4	3.0	2.9	4.1	5.9	7.5
Great Britain	4.5	5.9	6.3	6.2	5.3	6.8	10.4	11.8	12.8
Italy	3.0	3.4	3.6	3.7	3.9	3.9	4.3	4.8	5.3
Netherlands	5.2	5.3	5.0	5.2	5.3	6.2	9.3	11.3	14.5
Sweden	1.6	1.6	1.8	2.2	2.1	2.0	2.5	3.1	3.5

48. Occupational injury and illness incidence rates by industry, United States

Industry and type of case ¹	Incidence rates per 100 full-time workers ²								
	1976	1977	1978	1979	1980	1981	1982	1983	1984
PRIVATE SECTOR³									
Total cases	-	-	-	-	-	8.3	7.7	7.6	8.0
Lost workday cases	-	-	-	-	-	3.8	3.5	3.4	3.7
Lost workdays	-	-	-	-	-	61.7	58.7	58.5	63.4
Agriculture, forestry, and fishing³									
Total cases	-	-	-	-	-	12.3	11.8	11.9	12.0
Lost workday cases	-	-	-	-	-	5.9	5.9	6.1	6.1
Lost workdays	-	-	-	-	-	82.8	86.0	90.8	90.7
Mining									
Total cases	-	-	-	-	-	11.6	10.5	8.4	9.7
Lost workday cases	-	-	-	-	-	6.2	5.4	4.5	5.3
Lost workdays	-	-	-	-	-	146.4	137.3	125.1	160.2
Construction									
Total cases	-	-	-	-	-	15.1	14.6	14.8	15.5
Lost workday cases	-	-	-	-	-	6.3	6.0	6.3	6.9
Lost workdays	-	-	-	-	-	113.1	115.7	118.2	128.1
General building contractors:									
Total cases	-	-	-	-	-	15.1	14.1	14.4	15.4
Lost workday cases	-	-	-	-	-	6.1	5.9	6.2	6.9
Lost workdays	-	-	-	-	-	107.1	112.0	113.0	121.3
Heavy construction contractors:									
Total cases	-	-	-	-	-	14.9	15.1	15.4	14.9
Lost workday cases	-	-	-	-	-	6.0	5.8	6.2	6.4
Lost workdays	-	-	-	-	-	106.0	113.1	122.4	131.7
Special trade contractors:									
Total cases	-	-	-	-	-	15.2	14.7	14.8	15.8
Lost workday cases	-	-	-	-	-	6.6	6.2	6.4	7.1
Lost workdays	-	-	-	-	-	119.3	118.6	119.0	130.1
Manufacturing									
Total cases	-	-	-	-	-	11.5	10.2	10.0	10.6
Lost workday cases	-	-	-	-	-	5.1	4.4	4.3	4.7
Lost workdays	-	-	-	-	-	82.0	75.0	73.5	77.9
Durable goods									
Lumber and wood products:									
Total cases	-	-	-	-	-	17.6	16.9	18.3	19.6
Lost workday cases	-	-	-	-	-	9.0	8.3	9.2	9.9
Lost workdays	-	-	-	-	-	158.4	153.3	163.5	172.0
Furniture and fixtures:									
Total cases	-	-	-	-	-	15.1	13.9	14.1	15.3
Lost workday cases	-	-	-	-	-	6.2	5.5	5.7	6.4
Lost workdays	-	-	-	-	-	91.9	85.6	83.0	101.5
Stone, clay, and glass products:									
Total cases	-	-	-	-	-	14.1	13.0	13.1	13.6
Lost workday cases	-	-	-	-	-	6.9	6.1	6.0	6.6
Lost workdays	-	-	-	-	-	122.2	112.2	112.0	120.8
Primary metal industries:									
Total cases	-	-	-	-	-	14.4	12.4	12.4	13.3
Lost workday cases	-	-	-	-	-	6.7	5.4	5.4	6.1
Lost workdays	-	-	-	-	-	121.3	101.6	103.4	115.3
Fabricated metal products:									
Total cases	-	-	-	-	-	17.5	15.3	15.1	16.1
Lost workday cases	-	-	-	-	-	7.5	6.4	6.1	6.7
Lost workdays	-	-	-	-	-	109.9	102.5	96.5	104.9
Machinery, except electrical:									
Total cases	-	-	-	-	-	12.9	10.7	9.8	10.7
Lost workday cases	-	-	-	-	-	5.1	4.2	3.6	4.1
Lost workdays	-	-	-	-	-	74.9	66.0	58.1	65.8
Electric and electronic equipment:									
Total cases	-	-	-	-	-	7.4	6.5	6.3	6.8
Lost workday cases	-	-	-	-	-	3.1	2.7	2.6	2.8
Lost workdays	-	-	-	-	-	48.4	42.2	41.4	45.0
Transportation equipment:									
Total cases	-	-	-	-	-	9.8	9.2	8.4	9.3
Lost workday cases	-	-	-	-	-	4.6	4.0	3.6	4.2
Lost workdays	-	-	-	-	-	78.1	72.2	64.5	68.8
Instruments and related products:									
Total cases	-	-	-	-	-	6.5	5.6	5.2	5.4
Lost workday cases	-	-	-	-	-	2.7	2.3	2.1	2.2
Lost workdays	-	-	-	-	-	39.2	37.0	35.6	37.5
Miscellaneous manufacturing industries:									
Total cases	-	-	-	-	-	10.7	9.9	9.9	10.5
Lost workday cases	-	-	-	-	-	4.4	4.1	4.0	4.3
Lost workdays	-	-	-	-	-	68.3	69.9	66.3	70.2

See footnotes at end of table.

48. —Continued Occupational injury and illness incidence rates by industry, United States

Industry and type of case ¹	Incidence rates per 100 full-time workers ²								
	1976	1977	1978	1979	1980	1981	1982	1983	1984
Nondurable goods									
Food and kindred products:									
Total cases	-	-	-	-	-	17.8	16.7	16.5	16.7
Lost workday cases	-	-	-	-	-	8.6	8.0	7.9	8.1
Lost workdays	-	-	-	-	-	130.7	129.3	131.2	131.6
Tobacco manufacturing:									
Total cases	-	-	-	-	-	8.2	7.2	6.5	7.7
Lost workday cases	-	-	-	-	-	3.9	3.2	3.0	3.2
Lost workdays	-	-	-	-	-	56.8	44.6	42.8	51.7
Textile mill products:									
Total cases	-	-	-	-	-	8.8	7.6	7.4	8.0
Lost workday cases	-	-	-	-	-	3.2	2.8	2.8	3.0
Lost workdays	-	-	-	-	-	59.2	53.8	51.4	54.0
Apparel and other textile products:									
Total cases	-	-	-	-	-	6.3	6.0	6.4	6.7
Lost workday cases	-	-	-	-	-	2.2	2.1	2.4	2.5
Lost workdays	-	-	-	-	-	35.0	36.4	40.6	40.9
Paper and allied products:									
Total cases	-	-	-	-	-	11.6	10.6	10.0	10.4
Lost workday cases	-	-	-	-	-	5.4	4.9	4.5	4.7
Lost workdays	-	-	-	-	-	103.6	99.1	90.3	93.8
Printing and publishing:									
Total cases	-	-	-	-	-	6.7	6.6	6.6	6.5
Lost workday cases	-	-	-	-	-	3.0	2.8	2.9	2.9
Lost workdays	-	-	-	-	-	47.4	45.7	44.6	46.0
Chemicals and allied products:									
Total cases	-	-	-	-	-	6.6	5.7	5.5	5.3
Lost workday cases	-	-	-	-	-	3.0	2.5	2.5	2.4
Lost workdays	-	-	-	-	-	48.1	39.4	42.3	40.8
Petroleum and coal products:									
Total cases	-	-	-	-	-	6.7	5.3	5.5	5.1
Lost workday cases	-	-	-	-	-	2.9	2.5	2.4	2.4
Lost workdays	-	-	-	-	-	51.2	46.4	46.8	53.5
Rubber and miscellaneous plastics products:									
Total cases	-	-	-	-	-	14.6	12.7	13.0	13.6
Lost workday cases	-	-	-	-	-	7.2	6.0	6.2	6.4
Lost workdays	-	-	-	-	-	117.4	100.9	101.4	104.3
Leather and leather products:									
Total cases	-	-	-	-	-	11.5	9.9	10.0	10.5
Lost workday cases	-	-	-	-	-	5.1	4.5	4.4	4.7
Lost workdays	-	-	-	-	-	82.6	86.5	87.3	94.4
Transportation and public utilities									
Total cases	-	-	-	-	-	9.0	8.5	8.2	8.8
Lost workday cases	-	-	-	-	-	5.3	4.9	4.7	5.2
Lost workdays	-	-	-	-	-	100.6	96.7	94.9	105.1
Wholesale and retail trade									
Total cases	-	-	-	-	-	7.3	7.2	7.2	7.4
Lost workday cases	-	-	-	-	-	3.1	3.1	3.1	3.3
Lost workdays	-	-	-	-	-	45.3	45.5	47.8	50.5
Wholesale trade:									
Total cases	-	-	-	-	-	7.7	7.1	7.0	7.2
Lost workday cases	-	-	-	-	-	3.6	3.4	3.2	3.5
Lost workdays	-	-	-	-	-	54.7	52.1	50.6	55.5
Retail trade:									
Total cases	-	-	-	-	-	7.1	7.2	7.3	7.5
Lost workday cases	-	-	-	-	-	2.9	2.9	3.0	3.2
Lost workdays	-	-	-	-	-	41.1	42.6	46.7	48.4
Finance, insurance, and real estate									
Total cases	-	-	-	-	-	1.9	2.0	2.0	1.9
Lost workday cases	-	-	-	-	-	.8	.9	.9	.9
Lost workdays	-	-	-	-	-	11.6	13.2	12.8	13.6
Services									
Total cases	-	-	-	-	-	5.0	4.9	5.1	5.2
Lost workday cases	-	-	-	-	-	2.3	2.3	2.4	2.5
Lost workdays	-	-	-	-	-	35.9	35.8	37.0	41.1

¹ Total cases include fatalities.

² The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as: (N/EH) X 200,000, where:

N = number of injuries and illnesses or lost workdays.

EH = total hours worked by all employees during calendar year. 200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year.)

³ Excludes farms with fewer than 11 employees since 1976.

- Data not available.

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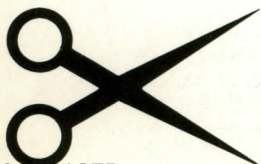
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