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February cover:

Detail from *Riveters*, a scale model
relief sculpture by Chaim Gross,
from the exhibition, "Special Delivery:
Murals for the New Deal Era";
photograph courtesy of the
National Museum of American Art,
Washington, DC

Cover design by Melvin B. Moxley

Labor Month In Review

OLDER WORKERS. The U.S. Department of Labor reported to the Congress on older persons who experience job market problems. The following are highlights from the report, which was prepared by Philip L. Rones and Diane E. Herz of the Bureau of Labor Statistics.

Unemployment. Workers age 55 and over consistently have the lowest rates of unemployment of any labor force group. However, the data do not fully depict the extent of their problems in the job market, especially as compared to those of other groups. For example, by definition, workers who retire after unsuccessfully seeking employment are out of the labor force. Thus, they are not counted among the unemployed.

Older unemployed workers under the age of 62, like their younger counterparts, have strong labor force attachments. These persons typically look for full-time rather than part-time jobs. Until age 62, when they become eligible for Social Security retirement benefits, these workers rarely can afford to retire or to take only part-time jobs; thus, they generally continue seeking full-time employment until they find it. By contrast, unemployed persons age 62 and over—particularly those over 65—often look for part-time or temporary jobs, search for work less intensively than younger persons, and end their job search by retiring rather than finding a job. The latter option is made possible by the availability of retirement benefits, although the amount of such benefits may be quite small.

Commonly available data show that the average number of weeks of unemployment increases with age, and some analysts have concluded that older workers have a more difficult time finding a job than do younger ones. However, this conclusion is problematic because (1) other sources of data on the duration of unemployment suggest that younger persons may require about as much time as older ones to find a job, and (2) the data reflect not only employers' demand for specific types of workers, but also the available supply of workers. Older workers may seek different work schedules or wage arrangements than younger ones, or they may have better nonwork (usually retirement) options. These differences affect whether, how long, and how intensely individuals will look for work.

Permanent displacement from jobs probably occurs about as frequently to older workers as to others. Much permanent job loss is the result of plant closings and other actions from which seniority affords little or no protection. Also, large-scale layoffs occur most often in declining industries, in which workers are older, on average, than they are in growing industries.

When an older worker loses a job, that worker typically gives up a considerable amount of tenure and, along with the tenure, a substantial pay premium. If the individual must find employment in a different occupation, the wages he or she will receive will often be at the level of an "inexperienced" applicant for the position. On the other hand, a substantial proportion of job losers do obtain jobs with wages that match or even exceed the wages in their lost jobs. Displacement late in one's career, however, can lead to premature retirement, which is often seen as a socially acceptable alternative to prolonged unemployment. Such job-loss-induced withdrawal from the labor force can be dramatically higher when the national jobless rate is high.

Older men who lose jobs tend to experience greater losses of earnings than do older women upon reemployment. This is because the men's wages were typically far higher to begin with. For example, when women lose factory jobs, these jobs are typically in textiles, apparel, or leather products industries, in which average wages for production workers are about $6 to $7 per hour. The factory jobs men lose are more often in industries such as steel, machinery, or automobile manufacturing, in which average wages range from $10 to $15 per hour. Older women who are reentering the labor force experience problems related to outdated skills, lack of confidence, and lack of personal contacts that might lead to employment. The principal labor market problem facing reentrants is the same as that confronting women already holding jobs—very low earnings compared to those of men.

Barriers to employment. Older persons face a number of barriers to employment. In many jobs, they are presented with a choice between full-time employment and complete retirement. While many retirees would prefer a phased retirement, employers generally prefer full-time workers, and pension plan provisions make continued employment with a reduced schedule impossible or impractical. Thus, those older employees who would like to continue working beyond normal retirement age, and who would prefer to stay with the same employer or to have a reduced schedule, are often unable to do so.

Even when an older worker is able to secure a satisfactory working arrangement, continued employment beyond the age of pension eligibility often does not pay. Private pension policies and Social Security regulations frequently stipulate that added earnings from continued employment are to be offset by pension losses. As a result, many workers do not find it financially worthwhile to work beyond the normal age of retirement.

Even those older workers who seek only part-time work are affected by pension and Social Security regulations. Persons who choose to continue working part time after receiving a pension often limit their hours and, hence, their earnings, so as to avoid exceeding the Social Security exempt amount. Part-time work is often not a viable alternative to complete retirement, as pay is often much lower than that which experienced workers are used to receiving. This does not necessarily reflect age discrimination; rather, it applies to workers of all ages and results largely from the relatively high hourly costs and low level of skills usually associated with part-time, as opposed to full-time, jobs.

The Social Security Amendments of 1983 contained a number of provisions that were designed to eliminate some of the system's disincentives to work. Four in particular were noteworthy: an increase in the normal retirement age, an increase in the early retirement penalty, an increase in the credit for delayed retirement, and a decrease in the withholding rate under the earnings test. However, most analysts believe that the effect of these changes on retirement age will be minimal.

Single copies of the Labor Department publication, *Labor Market Problems of Older Workers*, based largely on the report to Congress, are available from Inquiries and Correspondence, Bureau of Labor Statistics, Washington, DC 20212. □

Labor market completes sixth year of expansion in 1988

Both civilian and nonagricultural employment
continued to rise; the 5.3-percent unemployment rate
in the fourth quarter was the lowest
since the second quarter of 1974

WAYNE J. HOWE AND WILLIAM PARKS II

Labor market performance by most measures remained healthy in 1988, as employment gains continued and the civilian unemployment rate fell to a 14-year low. The economy completed its sixth year of expansion, the second longest period of sustained growth since World War II and the longest peacetime expansion.

Following are highlights of employment and unemployment developments in 1988:

* Employment growth continued during the year, as measured by both the Current Employment Statistics survey (CES)— a survey of more than 300,000 business establishments—and the Current Population Survey (CPS) —a survey of nearly 56,000 households. The establishment survey showed an increase of 3.7 million persons, or 3.5 percent, while the household survey showed an increase of 2.4 million persons, or 2.1 percent. (See box on page 4.)
* The goods-producing sector showed significant job gains for the second straight year. Within that sector, both construction and manufacturing registered over-the-year increases. The service-producing sector continued to grow at a rapid pace, with services and wholesale trade increasing the fastest.
* After declining early in 1988, the civilian worker unemployment rate fluctuated around 5.5 percent for much

of the year before edging to 5.3 percent in the fourth quarter. The rate was then six-tenths of a percentage point below that of a year earlier and at its lowest mark since the second quarter of 1974. All major age and sex groups benefited from the unemployment decline.
* All three major racial and ethnic groups shared in 1988's job market improvements. Each group recorded a drop in its unemployment rate, and employment growth, particularly strong for Hispanics, continued.
* The number of persons working part time for economic reasons declined in 1988, but their proportion of total employment still remained above what it was prior to the recessions early in the decade. The number of discouraged workers showed little change over the year.

Industry developments

Nonagricultural payroll employment, as measured by the Bureau of Labor Statistics' business establishment survey, continued to show a healthy employment gain throughout 1988. At 107.3 million in the fourth quarter of 1988, nonfarm employment increased by about 3.7 million over the year. (See table 1.) (All over-the-year comparisons are made using fourth-quarter averages, unless otherwise noted.) This marks the second straight year in which nonfarm job growth exceeded 3 million.

As has typically been the case, employment rose at a faster rate in the service-producing sector than it did in the goods-producing sector, accounting for 4 of 5 of the net job gains during 1988. Services and wholesale trade had the fastest rates of employment growth in this sector.

(See chart 1.) In addition, following declines in 1985 and 1986, the goods-producing sector showed a significant job gain for the second straight year. Both construction and manufacturing continued to expand, while the number of mining jobs declined.

The *service-producing sector* continued to add jobs at about the same rapid pace that has prevailed throughout the 6-year expansion, with employment in the sector increasing by 2.9 million, or 3.7 percent. The *services* division recorded the largest over-the-year employment gain, adding 1.3 million jobs, or almost 4 of every 10 additional jobs. (See chart 1.) This division is a heterogeneous mix that includes such industries as business, health, educational, social, and legal services; hotels and motels; entertainment; and auto repair. While the services divi-

sion as a whole continued to grow at the brisk pace experienced throughout the expansion, its two largest industries, business and health services, showed somewhat different over-the-year trends.

Business services exhibited a slightly lower rate of employment growth than in previous years, while the pace accelerated sharply in health services. A decline in the rate of employment growth in personnel supply services, particularly in temporary help, explains some of the drop-off in the pace of business services employment growth. However, the other dynamic business services industry— computer and data processing services—continued to grow at a fast pace. Much of the recent growth has been in the computer programming and software services component. This includes firms which provide analysis and

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Examining the divergences in the CPS and CES

While it is common for the household and payroll surveys to have different patterns of growth or even occasionally move in different directions in the short run, longer periods of major divergence are unusual. Between the fourth quarters of 1987 and 1988, the establishment survey registered a job gain that exceeded the rise in civilian employment by nearly 1.3 million.

The two surveys do measure different things; for instance, the household survey includes among the employed agricultural workers, the self-employed, private household workers, workers on leave without pay, and persons working without pay in a family business for 15 hours or more. The establishment survey does not cover such employment. These definitional differences, however, do not explain the sudden divergence in the two surveys.

Although there is no direct evidence to explain the divergent survey results, several possibilities may account for some of the differences:

—The household survey estimates are based on current estimates of the population which are developed from the 1980 census, inflated to account for births, deaths, and migration into and out of the United States. If the population estimates for the inter-census period have been too low (as they were found to be between 1970 and 1980), then the employment estimates will have been similarly understated. The most problematical aspect of population estimation is accounting for illegal immigration. The Census Bureau currently adds 200,000 per year to their population estimate to account for illegal immigration, but if this estimate is too conservative, actual population growth (and the employment totals on which they are based) may have been underestimated. The establishment survey employment estimates, in contrast, are "rebench-

marked" each year based on counts of all employees from administrative records obtained through the unemployment insurance system.

—Because the establishment survey counts jobs, not people, persons holding more than one job are counted at each job. Thus, if an increasing number of workers were holding more than one job, business payrolls would register the resultant job gains while the household count of employed persons would not. In fact, between 1980 and 1985, the last 2 years in which the CPS measured the incidence of multiple-jobholding, the rate jumped considerably, particularly among women. If that trend has continued since 1985, it may account for some of the survey differences. (Additional data on multiple jobholding is scheduled to be collected in May of 1989, but results will not be available until around year's end.)

—The establishment survey sample does not have a systematic rotation of sample units, but replaces reporters as needed. This tends to underrepresent newly formed establishments. Because these firms might account for a substantial portion of job growth, some estimate of their contribution to employment growth must be included in the CES employment estimate. Otherwise, the CES estimates would consistently fall below those of the benchmark count, which would include new firms. Because this "bias adjustment" is based on past patterns of job creation, at any point in time it may under- or overestimate the contribution of new businesses to job growth. The process is particularly likely to result in an overstatement of growth as the economy approaches a business cycle peak, and to do the opposite at a trough. Unfortunately, a final estimation of the difference between recent CES employment growth and that registered by the benchmark will not be known until mid-1990.

Chart 1. Employment increases by major industry division, fourth-quarter 1987-88

Percent

7 6 5 4 3 2 1 0 -1 -2

Thousands

-200   200   600   1,000   1,400

	Construction
	Services
	Wholesale trade
	Retail trade
	Transportation and public utilities
	Manufacturing
	Government
	Finance, insurance, and real estate
	Mining
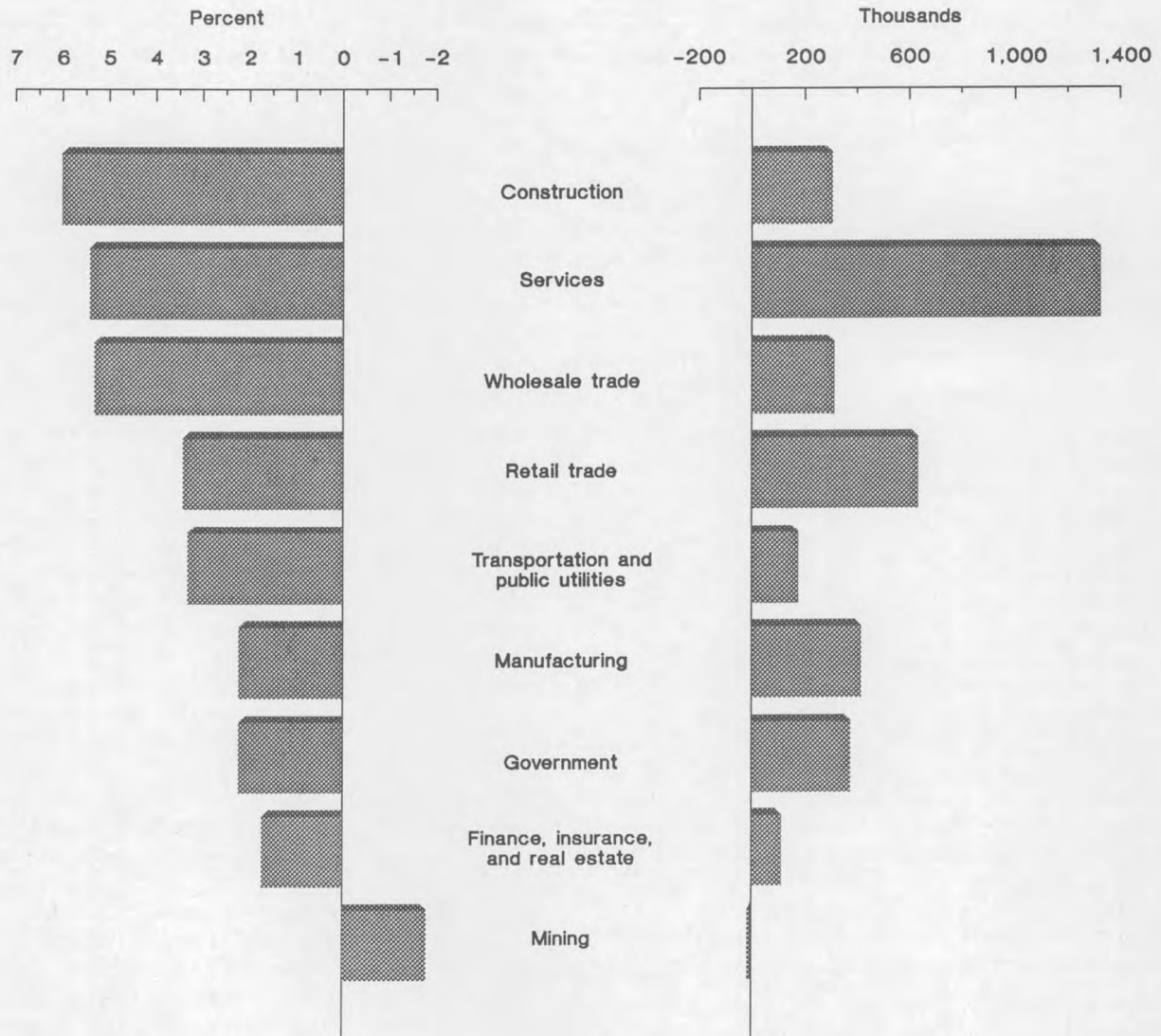
design for computer systems, development of computer programs or systems, computer programming services, and computer-related systems engineering.

The rise in *health services* employment has been driven by an increasingly aging population requiring more health care, the expansion of outpatient care services, and the growing willingness of health insurance programs to cover home health care. Within health services, employment growth was widespread. The largest number of job gains occurred, as in the past, in hospitals, where almost half of all health services workers are employed. The larg-

est rates of employment growth, both in 1988 and in the last 6 years, occurred in outpatient care facilities, where employment has risen by more than 80 percent over the expansion and, to a lesser extent, in medical and dental labs and offices of physicians.

Retail trade added 635,000 jobs in 1988, a growth rate of 3.4 percent. Retail sales were strong throughout much of the year. However, retailers' profits were weak, as overstocking and subsequent discounting depressed performance.

Employment growth among the various retail industries was mixed. Following a slack year in 1987, food stores

grew the fastest of any component. Consumers were apparently undaunted by rising food prices following the summer's drought, as food sales were up significantly in 1988. Auto dealers and service stations, which have both been strong throughout the recovery, also experienced substantial employment growth throughout the year. Employment

in general merchandise stores expanded rapidly in the first quarter of 1988, was unchanged in the second quarter, and then declined in the last half of the year (on a seasonally adjusted basis). Elsewhere, employment in eating and drinking places continued to grow at a steady pace; employment in radio, television, and music stores, which had

Table 1.   Employees on nonagricultural payrolls by industry, seasonally adjusted, quarterly averages, 1982–88
[In thousands]

Industry	1982	1984	1986	1987	1988			
	IV				I	II	III	IVᵖ
Total	88,717	95,868	100,347	103,683	104,670	105,609	106,478	107,335
Total private	72,893	79,710	83,496	86,518	87,406	88,263	89,071	89,793
Goods-producing..	22,980	24,935	24,443	25,116	25,260	25,498	25,650	25,827
Mining	1,029	956	715	737	731	739	738	729
Oil and gas extraction	651	609	396	419	416	424	422	407
Construction..	3,837	4,499	4,843	5,089	5,142	5,261	5,345	5,396
General building contractors	959	1,187	1,302	1,347	1,375	1,402	1,402	1,404
Manufacturing..	18,115	19,481	18,885	19,290	19,388	19,498	19,567	19,706
Durable goods	10,484	11,631	11,137	11,353	11,403	11,484	11,550	11,634
Lumber and wood products............................	596	703	723	749	755	757	754	767
Furniture and fixtures	425	492	501	531	535	536	539	541
Stone, clay, and glass products......................	558	593	581	585	584	586	587	591
Primary metal industries	824	843	729	768	770	777	787	795
Blast furnaces and basic steel products...............	344	317	255	279	280	281	281	282
Fabricated metal products	1,349	1,483	1,404	1,428	1,437	1,450	1,461	1,474
Machinery, except electrical	2,051	2,236	2,002	2,062	2,092	2,122	2,155	2,184
Electrical and electronic equipment..................	1,953	2,248	2,102	2,101	2,113	2,117	2,124	2,129
Transportation equipment.............................	1,662	1,931	2,037	2,048	2,031	2,047	2,043	2,049
Motor vehicles and equipment	659	877	868	855	837	850	854	860
Instruments and related products	699	721	698	703	705	709	716	721
Miscellaneous manufacturing	367	381	360	378	381	382	385	383
Nondurable goods..	7,631	7,850	7,748	7,937	7,985	8,014	8,017	8,072
Food and kindred products	1,628	1,608	1,616	1,635	1,648	1,645	1,631	1,658
Tobacco manufactures	68	64	57	53	54	53	52	52
Textile mill products	729	726	709	732	731	727	722	723
Apparel and other textile products	1,139	1,155	1,094	1,107	1,105	1,099	1,091	1,091
Paper and allied products	654	682	676	683	686	689	690	691
Printing and publishing.................................	1,271	1,404	1,475	1,527	1,543	1,559	1,571	1,585
Chemical and allied products.........................	1,055	1,055	1,017	1,041	1,049	1,060	1,069	1,073
Petroleum and coal products.........................	200	188	165	167	165	166	167	168
Rubber and miscellaneous plastics products	679	792	797	845	857	869	878	886
Leather and leather products.........................	209	176	143	145	147	146	146	145
Service-producing..	65,737	70,933	75,904	78,567	79,410	80,111	80,828	81,509
Transportation and public utilities	5,023	5,200	5,285	5,465	5,514	5,560	5,607	5,643
Transportation...	2,735	2,963	3,093	3,230	3,273	3,313	3,355	3,393
Communication and public utilities	2,288	2,237	2,192	2,235	2,241	2,248	2,253	2,250
Wholesale trade	5,213	5,644	5,761	5,959	6,035	6,117	6,195	6,275
Durable goods	3,034	3,336	3,381	3,516	3,573	3,635	3,697	3,761
Nondurable goods..	2,179	2,308	2,380	2,443	2,462	2,482	2,498	2,514
Retail trade	15,189	16,919	18,157	18,750	19,007	19,143	19,277	19,384
General merchandise stores	2,141	2,315	2,379	2,493	2,543	2,545	2,538	2,534
Food stores	2,510	2,685	2,945	2,979	3,029	3,061	3,104	3,158
Automotive dealers and service stations	1,634	1,834	1,967	2,028	2,047	2,070	2,093	2,106
Eating and drinking places.............................	4,872	5,526	6,007	6,213	6,290	6,338	6,377	6,435
Finance, insurance, and real estate	5,356	5,780	6,401	6,610	6,640	6,662	6,688	6,722
Finance...	2,664	2,890	3,210	3,298	3,306	3,302	3,299	3,315
Insurance	1,715	1,785	1,978	2,045	2,055	2,069	2,080	2,092
Real estate	977	1,105	1,214	1,267	1,279	1,291	1,309	1,314
Services...	19,131	21,232	23,448	24,618	24,949	25,284	25,653	25,943
Business services	3,289	4,196	4,926	5,292	5,370	5,448	5,517	5,573
Health services	5,892	6,177	6,632	6,962	7,054	7,161	7,277	7,417
Government...	15,824	16,158	16,851	17,165	17,264	17,346	17,407	17,542
Federal	2,745	2,830	2,899	2,973	2,972	2,957	2,965	2,990
State	3,641	3,771	3,925	3,991	4,017	4,047	4,072	4,075
Local	9,438	9,557	10,026	10,200	10,275	10,342	10,370	10,477

p=preliminary.

shown the largest percentage job growth of any retail industry in the past few years, was little changed in 1988.

A substantial job gain in *wholesale trade*—315,000—was largely attributed to an increase in the sale of durable goods, particularly among wholesalers of export-driven goods such as machinery and equipment. Some of the strength in wholesale employment also resulted from the increased demand for lumber and materials used by the construction industry. In the last 6 years, these and other durable goods components of wholesale trade have accounted for about 70 percent of wholesale trade employment gains.

Transportation was responsible for nearly all of the 180,000 employment gain in the *transportation and public utilities* industry. Within transportation, trucking and airlines continued to post gains while railroad employment was little changed.

Employment in the *finance, insurance, and real estate* industry was up by a comparatively meager 110,000 in 1988, the smallest increase of the 6-year expansion. Insurance and real estate continued to show steady employment gains throughout the year. However, weakness in both the banking and securities industries—the latter largely related to the October 1987 stock market crash—held finance employment in check.

Government employment increased by 375,000 in 1988, which is consistent with the rate of growth evident since 1984. Virtually all of the 1988 increase was in State and local governments.

Employment in the *goods-producing sector* rose by 710,000 to 25.8 million by the fourth quarter of 1988. Rates of growth within the sector varied: construction advanced sharply, manufacturing rose moderately, and mining declined.

Construction employment rose by 305,000 during the year, the largest growth since 1984. Job gains within construction were unevenly distributed, as strong growth in special trades contrasted with modest gains in other industry components. The special trades industry, which includes a wide variety of construction trades (plumbing, painting, papering, electrical work, stone masonry, and roofing), has accounted for nearly three-fourths of all new construction jobs in the 6 years of the present expansion. As a result, 3 of every 5 construction workers are now employed in special trades. Elsewhere in the industry, general building contractors experienced moderate employment growth in the first half of 1988, but little change during the last 6 months.

Manufacturing added 415,000 jobs in 1988, the second straight year that factory jobs have grown by more than 2 percent. These back-to-back gains more than offset the 3-percent employment decline in the 1985–86 period, but still left the number of factory jobs below 1979 levels. The rise in foreign demand for products manufactured in the United States helped spur the recent growth; the decline

Occupation	1983	1984	1985	1986	1987	1988
Total......................	3.5	3.3	2.0	2.3	2.8	2.1
Executive, administrative, and managerial	3.1	7.4	4.7	4.4	5.5	5.5
Professional specialty	1.4	3.2	3.9	1.6	3.6	4.1
Technicians and related support	1.6	3.4	2.7	3.4	.5	4.8
Sales occupations...........	5.1	5.3	.7	5.5	.6	2.5
Administrative support, including clerical	.9	1.5	4.2	2.3	3.6	−1.5
Service occupations	4.9	.9	2.6	1.2	2.3	2.6
Precision production, craft, and repair...................	10.9	3.5	1.4	.6	.7	.4
Operators, fabricators, and laborers	3.5	3.1	−1.0	.8	3.8	1.7
Farming, forestry, and fishing	−6.7	.8	−7.9	2.8	1.6	1.0

Table 2. Over-the-year employment change by major occupation, 1983–88
[In percent]

NOTE: Data based on fourth-quarter comparisons.

in the value of the dollar in 1988, caused partly by concern over the large merchandise trade deficit, played a major role. As the dollar fell, U.S. goods became cheaper and more competitive in foreign markets, while the prices of U.S. imports rose, in turn narrowing the trade gap.

In response to the increased demand for both durable and nondurable products, industrial production rose throughout the year, and factory employees worked long hours by historical standards. Average weekly hours fluctuated between 40.9 and 41.2 hours and overtime ranged from 3.7 to 4.0 hours; these were the highest sustained levels since 1973. The capacity utilization rate in manufacturing rose to over 84 percent, its highest level since mid-1979, and both new and unfilled orders were growing at yearend.

Durable goods manufacturing employment rose steadily in 1988, accounting for more than two-thirds of the overall increase in factory jobs. The capacity utilization rate among durable goods producers surged to record highs, while the rate for nondurable producers was elevated but stable all year. Benefiting from strong exports and investment spending on business computing equipment, the machinery industry recorded a particularly large job increase of 120,000 in 1988. However, employment in this industry was still well below prerecession levels. Strong, though more modest, over-the-year gains were also made in the primary and fabricated metals industries, two other industries in which recent employment gains failed to match earlier declines.

Nondurable goods industries added 135,000 jobs in 1988, as the printing and publishing, chemical and allied products, and plastics products industries showed the

most strength. Despite midyear job losses resulting from 1988's drought, over-the-year employment was up in the food products industry. The textiles and apparel industries each had a small decline in jobs in 1988, after experiencing increases in 1987.

For a number of years, employment changes in the *mining* industry have mirrored developments in oil and gas extraction, which, in turn, are closely tied to crude oil prices. Mining employment was down in 1988 due to the relatively low prices of crude oil and an international surplus. This left little incentive for increased exploration and, hence, employment. At year's end, oil producers were making efforts to reach an accord to reduce production with the hopes of bolstering prices. Mining was the only major industry division in which employment at the end of 1988 was below the 1982 recession trough level.

Cyclical comparisons. Since the end of World War II, three periods of economic growth have lasted more than 4 years. The present economic expansion, which completed its sixth year in November 1988, is the second longest period of sustained growth, surpassed only by the nearly 9-year expansion following the 1960–61 recession. The recovery following the 1973–75 recession lasted nearly 5 years.

The three expansions are quite similar in terms of their annualized rates of employment growth, at 3.8 percent in the 1961–69 period, 3.9 percent in 1975–79, and 3.5 percent thus far during the present expansion. The *composition* of employment growth by industry, however, was markedly different over the course of the three expansions, as may be seen in the first three columns of the following tabulation:

	Percent contribution			Percent distribution	
	1961 –69	1975 –80	1982 –88	February 1961	December 1988
Nonagricultural total	100.0	100.0	100.0	100.0	100.0
Goods-producing ..	27.0	27.7	15.5	36.6	24.1
Mining	–.3	1.8	–1.6	1.3	.7
Construction	4.8	7.3	8.3	5.3	5.0
Manufacturing ...	22.5	18.6	8.8	30.1	18.3
Service-producing .	73.0	72.3	84.5	63.4	75.9
Transportation and public utilities	3.3	4.4	3.3	7.3	5.2
Wholesale trade ..	4.8	6.2	5.7	5.9	5.9
Retail trade	15.9	18.0	22.5	15.3	18.1
Finance, insurance, and real estate	5.2	6.6	7.3	5.0	6.3
Services............	21.9	26.7	36.5	14.1	24.2
Government	21.9	10.3	9.2	15.8	16.3

The proportion of job growth made up by the goods-producing sector has been much smaller over the current expansion than it was in the two prior growth periods. Within the goods sector, the manufacturing share of employment growth declined from 23 percent in 1961–69 to 19 percent in 1975–80, and then fell sharply to 9 percent in the current recovery. As the last two columns show, manufacturing has a much smaller share of total nonagricultural employment today than it had in 1961. The construction industry gradually increased its share in each successive expansion and, despite being very hard hit in recessions, has maintained a 5-percent share of total employment. The shift towards service-producing employment shows up principally in the sizable gains in the services and retail trade industries. Services has both increased its share of growth during expansions and been relatively insulated from job losses during recessions. As a result, its share of employment has risen dramatically since the early 1960's; the industry now accounts for almost 1 of every 4 jobs. The notably small government share of employment growth in the 1975–80 recovery has been maintained in the present expansion; these smaller growth rates partly reflect the fact that, by the late 1970's, the baby-boom generation had largely passed through the public education systems.

Occupational developments

The greatest rate of job growth in 1988, as it was throughout most of the expansion, was among executives, administrators, and managers. (See table 2.) Gains were also strong in the professional specialty occupations and among technicians and related support. Services and sales occupations showed growth of a more moderate nature, but occupations concentrated in the manufacturing and agriculture industries (production, craft, and repair workers; operators, fabricators, and laborers; and employees in farming, forestry, and fishing occupations) registered very little change from the year before.

Overall employment growth during the entire expansion has been widespread, but some occupations and industries have expanded more than others. Charts 2 and 3 provide employment growth rates of major occupational categories and industry divisions since the trough of the recession.

Civilian employment

Total civilian employment, as measured by the CPS, rose by 2.4 million in 1988 to 115.8 million. With the exception of the 2.8-percent employment jump in 1987, the current economic expansion has followed a "normal" pattern for an economic recovery—robust job gains in the first few years (average growth was 3.4 percent in the 1983–84 rebound years), succeeded by much smaller gains in subsequent years (the 2.1-percent job increase in 1988 matches the average employment gain in the 1985–86 period).

Chart 2. Percentage change in employment by major occupation, fourth–quarter 1982–88
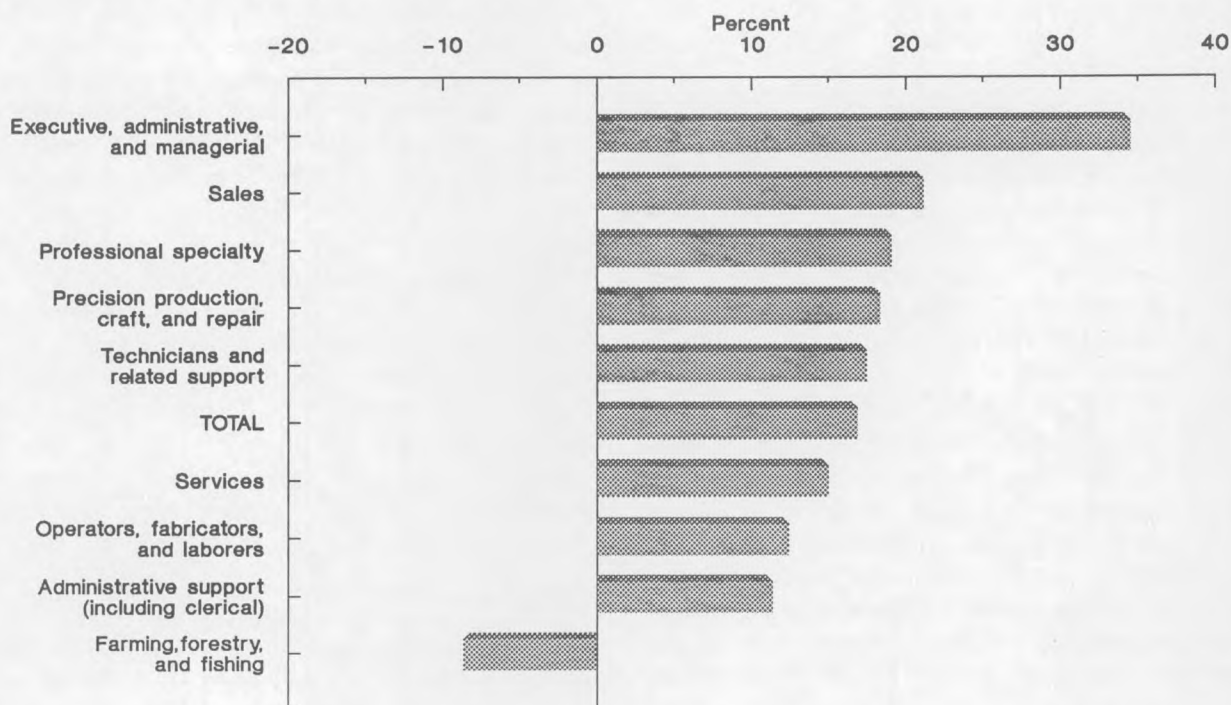
All three major age and sex groups (adult men, adult women, and teenagers) shared in 1988's employment expansion. (See table 3.) Adult women, who represent 45 percent of the work force, accounted for a little more than 60 percent of the over-the-year job gain, slightly more than their share of employment growth throughout the first 5 years of the expansion. Adult men were responsible for a slightly smaller than normal share of the employment growth than they had experienced in recent years, and, for the third straight year, teenagers experienced a job gain.

The employment-population ratio provides a useful indicator of the economy's ability to generate jobs for a growing population, as the ratio is affected by both the supply of jobs and the supply of workers. Thus, a 0.6-percentage-point over-the-year rise in the employment-population ratio reflects both the 2.4 million employment advance in 1988 as well as a slowdown in the rate of growth of the working-age population.

As the tabulation below shows, the overall employment-population ratio for all workers declined during the 1980–82 recessionary period, but has steadily increased ever since; record highs have been established every quarter since mid-1985, including the 62.5-percent level recorded in the fourth quarter of 1988:

	Total	Men, 20 years and over	Women, 20 years and over	Teenagers
Fourth-quarter:				
1979	60.0	76.1	48.1	48.5
1982	57.3	70.9	48.1	41.3
1985	60.3	73.4	51.4	43.9
1986	60.9	73.4	52.4	44.5
1987	61.9	74.0	53.5	45.9
1988	62.5	74.2	54.5	47.1

The employment-population ratios for the three age and sex groups have shown different patterns since 1979. The ratio for women, which has risen steadily since the mid-1950's, paused in the early 1980's and then increased by about a percentage point a year between 1983 and 1988. In contrast, the employment-population ratio for men dropped 5.2 percentage points between 1979 and 1982. It only partly recovered in 1983 and 1984, was unchanged in 1985 and 1986, and edged up in 1987 and 1988. By year's end, the ratio for men remained well below that posted in 1979, in large part attributable to a decline in work activity among those of potential retirement age (55 and older). The ratio for teenagers followed a pattern similar to that of men during the 1979–85 period. However, after edging up in 1986, it has increased even faster than the ratio for women, growing nearly 3

percentage points in the last 2 years. Nevertheless, at year's end the teenage employment-population ratio remained below prerecession levels.

Unemployment

After declining in 1988, the rate of unemployment for civilian workers fluctuated around 5.5 percent for much of the year before edging down to 5.3 percent in the fourth quarter, the lowest rate since the second quarter of 1974. Over the year, the number of unemployed persons fell by 530,000, to 6.6 million. Following a sharp decline in 1987 in the level and rate of unemployment, both measures resumed the pattern exhibited in 1985 and 1986 of little or no improvement.

The 1988 decline in the overall civilian jobless rate was shared by teenagers, men, and women. The number of unemployed teenagers fell by about 13 percent. This resulted in a 2.1-percentage-point drop in their unemployment rate, the third straight yearly decline. The improvement was largely attributable to a combination of rising demand in many services jobs that have traditionally been filled by teenagers and a dwindling supply of such young workers. At 14.6 percent in the fourth quarter of 1988, the teenage rate was the lowest since 1973.

The unemployment rate for adult men declined by 0.3 percentage point to 4.7 percent in the second quarter of 1988 and remained at that rate the rest of the year. However, that level was still slightly above the fourth-quarter 1979 level, as adult men were still affected by their heavy concentration in some slow-growing (or declining) industries and occupations. The rate for adult women slipped 0.5 percentage point to 4.7 percent at year's end—its lowest level since the first quarter of 1970 and well below the rates recorded just before the 1980–82 recessionary period.

In the 1960's and 1970's, unemployment rates were much higher for adult women than men. In the past few years, however, the male-female unemployment rate differential has become negligible. (See chart 4.) Improvement in women's educational attainment, their increasing attachment to year-round full-time jobs, and their greatly reduced tendency to leave the labor force for child-bearing and -rearing have acted to lower their unemployment rates. The continuing strong employment growth in the service-producing sector—particularly services, where 60 percent of jobs are held by women—has also played a role.

Labor force

Civilian labor force growth was steady throughout the year, increasing by 1.8 million to 122.4 million in the fourth quarter of 1988. The year's 1.5-percent labor force rise was somewhat below the growth rates in each of the previous 4 years, which ranged from 1.7 percent to 2.0

Chart 3. Percentage change in employment by major industry division, fourth-quarter 1982–88
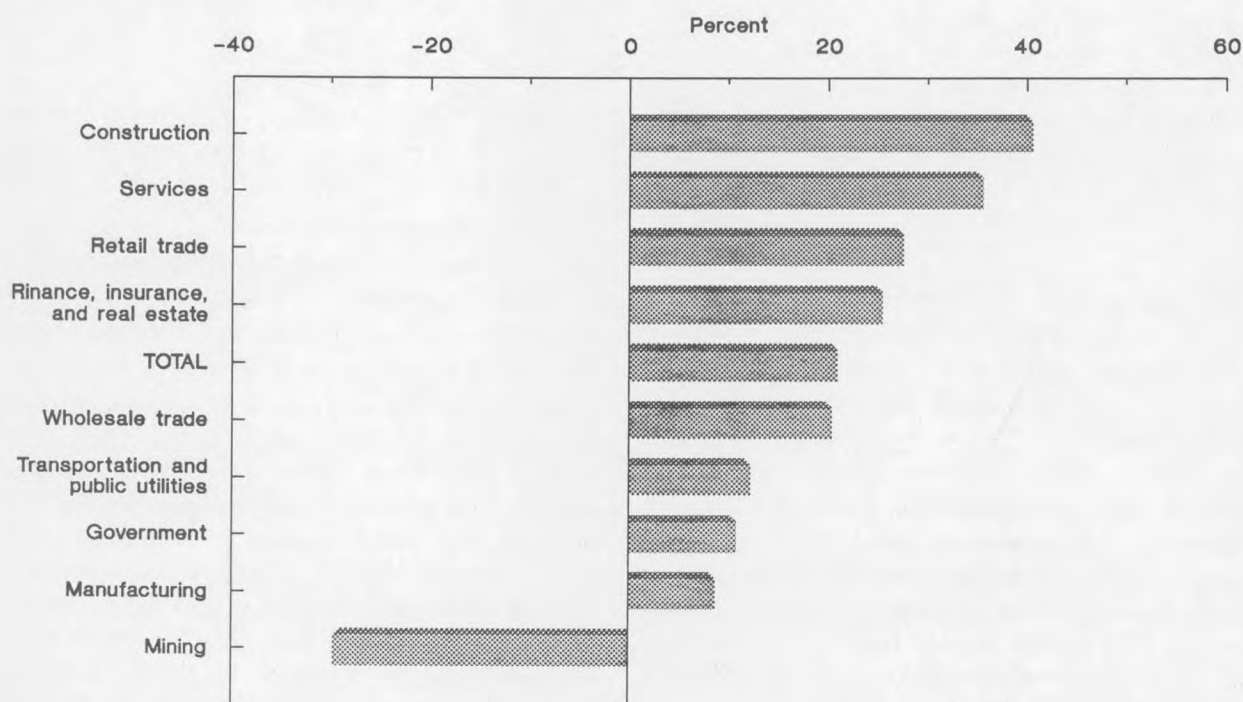
Table 3. Selected labor force indicators by sex, age, race, and Hispanic origin, seasonally adjusted quarterly averages, 1982–88

[Numbers in thousands]

Characteristic	1982	1985	1986	1987	1988			
					I	II	III	IV
	IV	IV	IV	IV				
Total								
Civilian labor force	110,959	116,183	118,548	120,552	121,045	121,352	121,881	122,388
Percent of population	64.1	64.9	65.4	65.7	65.8	65.8	65.9	66.1
Employed	99,120	107,981	110,428	113,475	114,152	114,688	115,202	115,843
Agriculture	3,471	3,087	3,163	3,191	3,212	3,139	3,126	3,223
Nonagriculture	95,649	104,894	107,264	110,282	110,940	111,549	112,076	112,620
Employment-population ratio	57.3	60.3	60.9	61.9	62.1	62.2	62.3	62.5
Unemployed	11,839	8,202	8,120	7,077	6,893	6,664	6,678	6,545
Unemployment rate	10.7	7.1	6.8	5.9	5.7	5.5	5.5	5.3
Men, 20 years and over								
Civilian labor force	58,375	60,594	61,670	62,270	62,522	62,721	62,843	62,971
Percent of population	78.8	78.1	78.2	77.9	78.0	78.0	77.9	77.8
Employed	52,553	56,943	57,885	59,147	59,448	59,756	59,905	60,017
Employment-population ratio	70.9	73.4	73.4	74.0	74.1	74.3	74.3	74.2
Unemployed	5,822	3,651	3,785	3,123	3,074	2,965	2,938	2,953
Unemployment rate	10.0	6.0	6.1	5.0	4.9	4.7	4.7	4.7
Women, 20 years and over								
Civilian labor force	44,112	47,733	48,993	50,214	50,501	50,604	50,919	51,449
Percent of population	52.9	54.9	55.7	56.5	56.6	56.6	56.8	57.2
Employed	40,127	44,684	46,062	47,605	47,963	48,122	48,423	49,022
Employment-population ratio	48.1	51.4	52.4	53.5	53.8	53.8	54.0	54.5
Unemployed	3,985	3,049	2,931	2,609	2,538	2,483	2,496	2,427
Unemployment rate	9.0	6.4	6.0	5.2	5.0	4.9	4.9	4.7
Both sexes, 16 to 19 years								
Civilian labor force	8,472	7,856	7,885	8,069	8,022	8,026	8,119	7,969
Percent of population	54.3	54.3	54.2	55.1	55.0	55.1	56.0	55.2
Employed	6,440	6,353	6,481	6,723	6,742	6,810	6,874	6,804
Employment-population ratio	41.3	43.9	44.5	45.9	46.2	46.7	47.4	47.1
Unemployed	2,032	1,503	1,404	1,345	1,281	1,216	1,244	1,165
Unemployment rate	24.0	19.1	17.8	16.7	16.0	15.2	15.3	14.6
White								
Civilian labor force	96,623	100,530	102,413	103,758	104,255	104,555	104,900	105,286
Percent of population	64.4	65.2	65.7	65.9	66.1	66.2	66.2	66.4
Employed	87,452	94,486	96,345	98,527	99,204	99,691	99,909	100,436
Employment-population ratio	58.3	61.3	61.8	62.6	62.9	63.1	63.1	63.3
Unemployed	9,171	6,044	6,067	5,231	5,050	4,864	4,991	4,849
Unemployment rate	9.5	6.0	5.9	5.0	4.8	4.7	4.8	4.6
Black								
Civilian labor force	11,503	12,473	12,709	13,167	13,137	13,090	13,240	13,342
Percent of population	61.5	63.0	63.2	64.3	63.9	63.4	63.8	64.1
Employed	9,155	10,573	10,893	11,546	11,512	11,530	11,751	11,831
Employment-population ratio	48.9	53.4	54.1	56.4	56.0	55.8	56.7	56.8
Unemployed	2,348	1,900	1,816	1,621	1,626	1,559	1,489	1,510
Unemployment rate	20.4	15.2	14.3	12.3	12.4	11.9	11.2	11.3
Hispanic origin								
Civilian labor force	6,826	7,804	8,252	8,724	8,889	8,914	9,007	9,119
Percent of population	63.5	64.6	66.0	66.9	67.6	67.2	67.3	67.6
Employed	5,783	6,968	7,418	7,981	8,176	8,127	8,286	8,409
Employment-population ratio	53.8	57.7	59.3	61.2	62.2	61.3	61.9	62.3
Unemployed	1,043	837	834	743	713	787	721	709
Unemployment rate	15.3	10.7	10.1	8.5	8.0	8.8	8.0	7.8

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.

percent. Similar to recent years, the labor force participation rate (the proportion of the population that is in the labor force) grew by 0.4 percent to 66.1 percent.

Contributing to the slower growth in the labor force in 1988 was a 1.2-percent drop in the size of the teenage labor force. This fall-off coincided with the first decline in the teenage population since 1985. As a result, the teenage labor force participation rate remained virtually unchanged at 55.2 percent. The labor force participation rates for adult men and women moved differently in 1988, as they have for many years. A 0.7-percentage-point rise in the labor force participation rate for adult women over the year carried on a long-term uptrend. In contrast, the labor force participation rate for adult men was flat at about 78 percent. This measure has slowly trended downward during the four decades of the monthly CPS, having dropped about 10 percentage points over that period. As with the employment-population ratio, this has largely

been the result of persons retiring at an earlier age. Be-
tween 1986 and 1987, however, there was some indication
that this long-term retirement trend might have pla-
teaued, as participation rates for men age 55 and older
were little changed over the period. Data from 1988 show
a return to the downward trend, with a 1.1-percentage-
point fall in the participation rate for men ages 55 to 64.

Developments by race and ethnic origin

All three race and ethnic groups shared in 1988's labor
market gains. Black and white workers registered similar
proportional declines in their levels of unemployment, al-
though the black unemployment rate at yearend was still
somewhat higher than that of Hispanics and much higher
than that for whites. While Hispanics did not register as
strong an unemployment level decline as the others, 1988
was another exceptional year in terms of their employ-
ment growth.

The Hispanic population has been showing very rapid
growth throughout the 1980's, a time when overall popu-
lation growth has been slowing. The Hispanic population
surge has manifested itself in a rapidly expanding labor
force, which grew by nearly 5 percent in 1988. The rate of
labor force growth for Hispanics has consistently ex-
ceeded that of their population, and, during the current
expansion, their labor force participation rate surpassed

that of whites for the first time. In 1988, it continued to be
the highest among the race and ethnic groups, at 67.6
percent.

Following the pace-setting rates of Hispanic population
and labor force growth, Hispanic employment has also
shown the fastest rise. In 1988, Hispanic employment
grew at a very rapid rate of 5.4 percent. After being hit
particularly hard in the last recession, Hispanics have
since accounted for over 15 percent of total employment
gains, about twice their share of total employment. Their
proportion of total employment growth, large in the early
years of the expansion, has become even greater in recent
years.

Though dropping by a percentage point from the year
before, the unemployment rate for black workers (11.3
percent) remained well above that for Hispanics (7.8 per-
cent). In the second quarter, the black unemployment rate
dipped below its prerecession levels for the first time, si-
multaneously attaining a 14-year low. The black teenage
unemployment rate did not share in the over-the-year
decline, holding at slightly above 30 percent at yearend.

As with Hispanics, blacks have shown greater rates of
employment growth than whites in the expansion. Nonethe-
less, a large gap still remains between minority unemploy-
ment rates and that for whites; the Hispanic rate remains
more than 1.5 times the white rate, and the black rate is still

**Chart 4.   Unemployment rates for men and women age 20 and over,
quarterly averages, 1968–88**

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deral Reserve Bank of St. Louis

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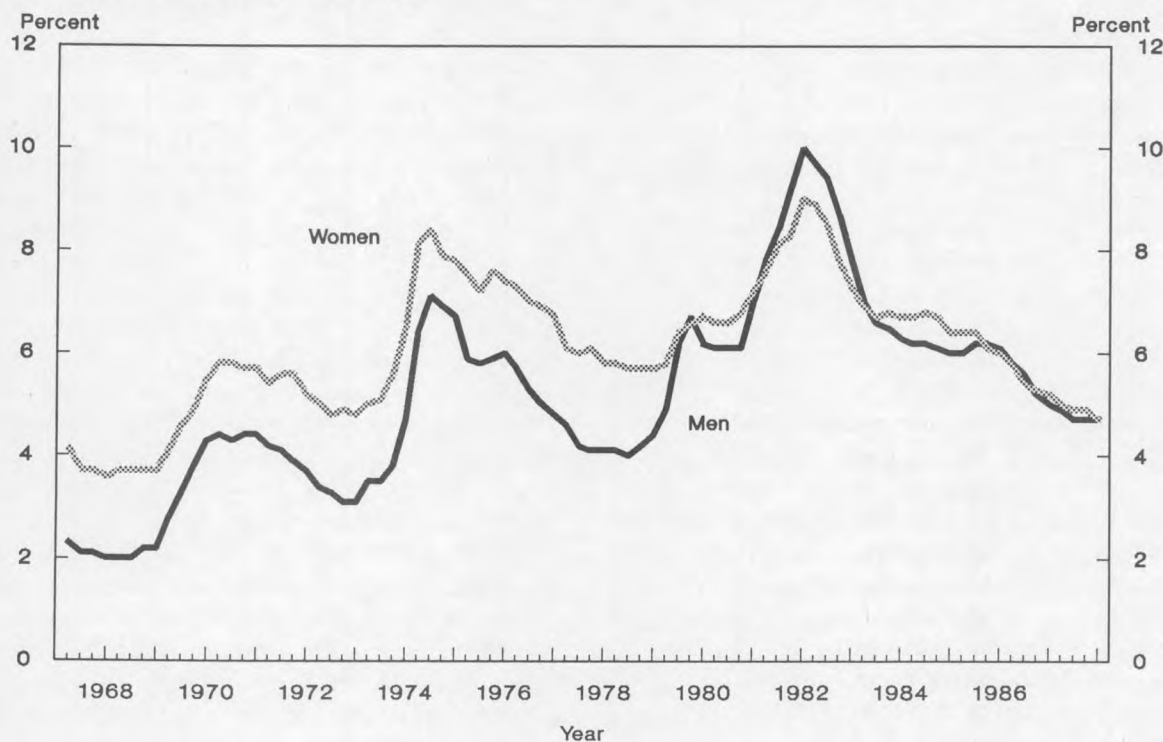
nearly 2.5 times higher.

After changing little in the first half of 1988, employment and labor force levels for blacks made some gains in the final two quarters, resulting in moderate over-the-year improvements for those measures. The second-half employment rise propelled the employment-population ratio for blacks to a record high 56.8 percent (since separate statistics for blacks became available in 1972). That ratio is 6.5 percentage points lower than the one for whites; the gap between the ratios was 9.4 points at the recession trough.

The 1988 rate of employment growth for whites returned to its 1985–86 pace of about 2 percent, after experiencing a sudden upturn in 1987 along with the rates for other groups. The ratio of employed whites to their population reached a new high—63.3 percent—as it has done in virtually every quarter since the recession. The unemployment situation for whites also improved in 1988, as the absolute number of unemployed persons dipped to its lowest level in the decade, despite continued labor force growth over the year. The already low unemployment rate for white workers edged down from the previous year and reached its lowest point since 1974—4.6 percent.

Other labor market developments

Two additional measures of the condition of the labor market are the counts of "discouraged workers" and "persons working part time for economic reasons." The number of *discouraged workers*—persons who want jobs but are not looking for them because they believe no work is available—was essentially unchanged over the year, at 950,000. This was a bit unusual in that the number of discouraged workers generally follows overall movements in the level of unemployment, which fell nearly 8 percent over the year. Women continued to make up slightly more than half of all discouraged workers, and black persons made up nearly a quarter.

The number of persons working *part time for economic reasons*—those working part time even though they would prefer a full-time job—was as high as 6.7 million during the 1981–82 recession, but had fallen by a million by early 1984. From then until the beginning of 1987, the measure was stubborn in its improvements, as it fluctuated in a very narrow range between 5.5 million and 5.7 million. In the last 2 years, that lower boundary was broken and, though erratic month-to-month changes have still been the norm, the level was down to 5.1 million by the end of 1988. Despite the recent improvement, this count of underutilized workers is still nearly 40 percent above its fourth-quarter 1979 level. Even given the present expansion's rapid employment growth, persons working part time for economic reasons accounted for a much higher percentage of total employment at the end of 1988 than in 1979—4.4 percent, compared with 3.7 percent.

Duration of unemployment. The median duration of unemployment ended the year at a postrecession low of 5.7 weeks. During the last half of 1987 and all of 1988, the number of persons becoming unemployed each month was remarkably consistent. That is, the number reporting they had been jobless for less than 5 weeks was between 3.0 million and 3.2 million for each month of the period. This means that the declines in the level and rate of unemployment over that period reflected a drop in the amount of time workers were remaining unemployed. In particular, the number of persons whose spell of unemployment was more than half a year declined rapidly, from around 1 million in mid-1987 to just under 750,000 in late 1988. Those workers made up 11 percent of all unemployed persons, as compared with 15 percent in the mid-1983 highpoint (long-duration joblessness usually lags by 6 months or longer). The current proportion of workers encountering such extreme job market difficulties is still quite high by historical standards for this far into an economic expansion.

Reasons for unemployment. Two related postrecession trends continued in 1988: a slight increase in the proportion of unemployed workers who *left* their last job and a slight decrease in the proportion who *lost* their last job. Such trends are usually considered signs of labor market health; in periods of economic uncertainty, the two trends reverse directions, as more workers are forced into unemployment attributable to cutbacks (and thereby become job losers) and fewer voluntarily give up their jobs (and become job leavers).

Regional unemployment. Just as decreases in joblessness were widely dispersed among the major age-sex and race-ethnic groups in 1988, unemployment declined in virtually all geographic regions of the country. However, as is always the case, there were wide differences in the incidence of unemployment among the regional labor markets. As the tabulation below shows, the unemployment rate (not seasonally adjusted) in the fourth quarter of 1988 was markedly lower than the national average in the Northeast, especially in New England. In contrast, jobless rates in the South Central States continued to be much higher than the national average, attributable principally to weaknesses in the energy-related industries.

Total United States 5.3

Northeast	3.9	South	5.7
New England	2.9	South Atlantic	4.5
Mid-Atlantic	4.3	East South Central ...	6.9
		West South Central ..	7.0
North Central	5.3	West	5.0
East North Central	5.7	Mountain	5.4
West North Central ...	4.4	Pacific	4.8

IN SUMMARY, the economy maintained its expansion through a sixth full year in 1988, as growth in employment and declines in unemployment continued. As in past years, the service-producing sector paced the expansion, although the manufacturing industry demonstrated strength for the second straight year. The Nation's civilian jobless rate, at 5.3 percent in the final quarter, reached its lowest point since 1974, as most major worker groups shared in the improving job picture.   □

Shiskin award nominations

The Washington Statistical Society invites nominations for the tenth annual Julius Shiskin Award in recognition of outstanding achievement in the field of economic statistics.

The award, in memory of the former Commissioner of Labor Statistics, is designed to honor an unusually original and important contribution in the development of economic statistics, or in the use of economic statistics in interpreting the economy. The contribution could be in statistical research, in the development of statistical tools, in the application of computers, in the use of economic statistics to analyze and interpret the economy, in the management of statistical programs, or in developing public understanding of measurement issues, to all of which Mr. Shiskin contributed. Either individuals or groups can be nominated.

The award will be presented, with an honorarium of $500, at the Washington Statistical Society's annual dinner in June 1989. A nomination form may be obtained by writing to the Julius Shiskin Award Committee, American Statistical Association, 1429 Duke Street, Alexandria, VA 22314-3402. Completed nomination forms must be received by April 1, 1989.

Families of working wives spending more on services and nondurables

When a wife becomes a second earner,
husband-wife families spend more
on work-related and timesaving items
such as child care and food away from home,
according to the Consumer Expenditure Survey

EVA JACOBS, STEPHANIE SHIPP,
AND GREGORY BROWN

During the post-World War II era, there has been a dramatic increase in women's labor force participation. This has generated a great deal of public interest in the social and economic consequences of the employment of women. High rates of labor force participation are prevalent for women both with and without children. Today, more than half of all mothers with children under age 3 work outside the home, compared with fewer than one-fourth of such mothers in 1967. (See table 1.)

The Consumer Expenditure Survey provides data that permit us to examine the effects of a wife's labor force participation on the income and expenditures of her family. The data used in this study are from the 1984–86 Consumer Expenditure Survey.[1] To determine the economic effects on the family of a wage-earning wife, two groups of consumer units[2] are compared: (1) husband-wife families in which only the husband is an earner, and (2) husband-wife families in which both the husband and wife (and no others) are earners. These families will be referred to as one- and two-earner families, respectively. Families in which the wife is the only earner are not included in this study. In our analysis, expenditures generally perceived to be associated with the wife working outside the home are studied; these include expenditures on women's apparel, child care, purchase of vehicles, gasoline, public transportation, housing, and Social Security and pension plan costs. We will also discuss the additional income received from the wife's employment.

There are two parts to this analysis. First, we compare the average annual income and expenditures of those consumer units in which the wife became employed during the period the consumer unit was in the survey with similar consumer units in which the wife was not employed. The economic costs and benefits from the wife's employment are defined in terms of the changes in expenditures and income that result from the change in the employment status of the wife. In the second part, we use multivariate regression analysis to measure the effect of the wife's employment on consumer-unit expenditures for all husband-wife units. In this part, we examine all one-earner and two-earner families and also make the distinction between part-time and full-time working status of the wife. Each part of the study will be described in turn.

The price of time

Intuitively, one would expect two-earner households to spend their money differently than do one-earner house-

holds. First, households in which both the husband and wife work have less time available for household-related activities such as cooking and cleaning. This increased demand on a couple's time raises the value of time as a factor of production in household activities. Second, there is an income effect by which the wife's additional income increases expenditures in accordance with the relevant income elasticities. In addition, the wife's contribution to the family income may play an enhanced role in the decision about how to allocate income among expenditures. One can envision a pooling of income in which individual preferences are weighted differently when the wife works. The relative weighting of these preferences may be altered by the wife's decision to work. Vicki Schram Fitzsimmons found that there was a greater incidence of joint responsibility for money management tasks in two-earner families than in one-earner families.[3]

Household production time, we assume, would be a more valuable "commodity" to two-earner families than to one-earner families. Some studies suggest that time may be more valuable today in the United States than in the past or in other countries. For example, Victor Fuchs found that women were working 20 minutes longer per day in 1983 than in 1959, if one includes working for pay, housework, and child care.[4] As early as 1965, Gary S. Becker pointed out that Americans are much more wasteful of food and other goods than persons in poorer countries and much more conscious of time: "The tendency to be economical about time and lavish about goods may be no paradox, but in part simply a reaction to a difference in relative costs."[5]

The substitution of goods and services for time induced by an increase in the cost of time would often include substitution of more expensive goods and services. For example, an increase in the value of a mother's time may induce her to enter the labor force and spend less time cooking by using prepared foods and less time on child care by using day care centers or babysitters. During the busiest years of raising a family and working, the value of time is relatively high. It is during the working–child caring phase of the life cycle that the individual works more and has less leisure time.[6] If the wife works outside the home, she will be more inclined to pay for services than the nonworking wife. The value of time also changes for an individual at various states in his life and, later in the life cycle, these changes induce substitution of relatively cheaper means of household production for purchased goods and services.

Don Bellante and Ann C. Foster used this theory of the allocation of time as the primary rationale underlying their 1983 study.[7] Because working wives spend fewer hours per week in housework, Bellante and Foster examined the influence of the wife's employment on expenditures for services. They also controlled for a variety of demographic variables. Their results were mixed, in that there was a positive relationship between employment and

Age	Participation rate in —			
	1948	1967	1977	1987
Total, 16 years and over.....	32.7	41.1	48.4	56.0
16 to 19 years	42.0	41.9	51.2	53.3
20 to 24 years	45.3	53.3	66.5	73.0
25 to 34 years	33.2	41.9	59.7	72.4
35 to 44 years	36.9	48.1	55.8	74.5
45 to 54 years	35.0	51.8	55.8	67.1

Table 1.   Labor force participation rates of women by age, selected years, 1948–87

some relevant services, such as child care, but not between employment and domestic services.

Using data from the 1972–73 Consumer Expenditure Survey, Elizabeth Waldman and Eva E. Jacobs found that "it is not employment or nonemployment of the wife that per se accounts for difference in expenditures, but rather the interaction between earner status and the contribution to income of the second earner."[8]

Longitudinal aspects of the study

The Consumer Expenditure Survey, which has been continuous since 1980, has a limited longitudinal aspect. For the Interview portion of the survey, a sample of consumer units is interviewed every 3 months over five consecutive quarters, with the number of interviewed cases expected to be about 5,000 per quarter. For reasons of operational efficiency, the sample is rotating—one-fifth of the consumer units are replaced by new units every quarter. Each quarter of data is treated as statistically independent. If a survey respondent moves, the new residents at that address become the sample unit. Movers are not followed. About 70 percent of the consumer units participate for all five interviews.[9]

The interviewer collects extensive expenditure data and information on the characteristics of the consumer unit. Among these are the age, income, and work experience of all the members. Because the interview is lengthy and time-consuming, the work and income questions are asked only in the second and fifth interviews.

We have not heretofore explored the possibilities of using the limited longitudinal aspect of the Consumer Expenditure Survey. However, we have investigated the types of questions we could attempt to answer by following the same household over time. Because one of the current issues being widely discussed is the prevalence of the two-earner family, we decided to investigate what happens to the expenditures of a consumer unit when the wife goes to work during the survey period. For this part of the study, we examine the income and expenditures of husband-wife consumer units in which the wife began working between the second and fifth interviews and consumer units in which the wife was not working during either the second or fifth interview periods.[10]

We identified the first group as "new earner" consumer units. The second group we called the "control" consumer units. The control households, in which the wife was not employed in either the second or fifth interview, were selected based on characteristics such as age, family size, family type, and income that made them similar to the new earner group. To obtain a sample of sufficient size for analysis, consumer units were selected from the years 1984–86. The resulting sample in each group was 175 consumer units. We first examined the changes in income and expenditures between the second and fifth interviews within each group, and then compared the changes between the two groups. It should be noted that, for this study, we did not take account of the actual date on which the wife started working. Therefore, by the fifth interview she may have been working for as little as 1 month or as much as 9 months.

It was hypothesized that income and those expenditures which are commonly associated with working would be higher in the fifth interview than in the second interview for the new earner households. The expenditures are for food away from home, women's apparel, child care, vehicles, gasoline, and mass transit. In addition, we looked at housing, because the desire for homeownership is frequently given as a reason for wives returning to work, and at Social Security taxes and pension contributions, which are directly associated with earnings.

The results as shown in table 2 are mixed. For the new earner group, the components that met expectations are income, with an increase of 17 percent from interview 2 to interview 5; food away from home, with a 16-percent increase; and child care, with a 30-percent increase. Because gasoline prices were declining during the reference period, the 7-percent rise in that component reflects a much larger real increase and can be included as well. Housing and pension costs also increased, but at a lower rate, and expenditures on women's apparel increased only a small amount. The result for vehicles can probably be explained by the small number of reports for this category, which leads to a high variance. For example, if one or two consumer units purchase an expensive automobile or truck in interview 2 and not in interview 5, a high variance could result with such a small number of observations. Expenditures for mass transit are a small value, in addition to being sparsely reported.

It is noteworthy that the average age of the wife in the new earner group is 42, near the upper age limit of the high labor force participation group. Considering the large proportion of younger women employed in the total population, it appears that a few women are leaving and rejoining the labor force but that more are employed continuously. On the other hand, the expenditures show that those in the younger group often require child care as soon as they enter or reenter the employed labor force.

When comparing the new earner and control groups, we run into unexpected anomalies. The increase for the control group is much larger for food away from home and women's apparel. This may be just an aberration. For most of the categories, the results are generally satisfactory, with the new earner group showing larger changes than the control group.

If these results reflect reality, one can rationalize the discrepancy between the increase in income and the increase in expenditures. The new earner group wives could have entered the labor force to help pay for the earlier or prospective purchase of a car or house or college tuition, or to repay previously incurred debts. The improvement in the financial position of the new earner group, going from expenditures equalling income after taxes in interview 2 to a surplus in interview 5, may be used for these purposes. The control group, on the other hand, has a similar surplus in both periods.

This is our first attempt at using the longitudinal character of the Consumer Expenditure Survey. We hope to investigate the effect of other events. One approach would be to examine the reverse of the labor force movement we have examined here, that is, to look at consumer units in which the reference person has retired during the consumer unit's participation in the survey. Other possibilities are to compare the expenditures of consumer units with members moving in, newly born members, or other additions to the unit with consumer units of constant size. However, the sample size may be statistically inadequate for some of these investigations until we accumulate more years of data.

Characteristics of families

Following are our findings about the differences in expenditures between all one-earner and two-earner consumer units obtained from regression analysis. First,

Table 2. Longitudinal comparison of selected characteristics and expenditures of one- and two-earner husband-wife families, 1984–86

Item	New earners			Control group		
	Interview		Per-cent change	Interview		Per-cent change
	2	5		2	5	
Income before taxes	$27,951	$32,425	16	$27,480	$28,081	2
Income after taxes.........	$26,006	$30,482	17	$25,237	$25,913	3
Age of wife	—	42.0	—	—	43.3	—
Family size	—	3.8	—	—	3.9	—
Total expenditures	$26,160	$27,912	7	$23,744	$23,796	0
Food away from home .	937	1,092	17	733	1,024	40
Women's apparel	456	469	3	385	429	11
Child care	122	158	30	130	118	−9
Vehicles	2,423	1,398	−42	1,904	1,494	−22
Gasoline	1,101	1,180	7	1,081	1,066	−1
Mass transit	41	35	−15	33	18	−46
Shelter	2,593	2,736	6	2,284	2,363	3
Social Security, pensions	2,256	2,380	5	2,135	2,124	0

Table 3. Demographic characteristics of husband-wife families[1] classified by wife's employment status, 1984–86

Characteristic	All husband-wife families			Family income and wife's employment status								
				Less than $20,000			$20,000–$34,999			$35,000 and over		
	Not working	Part-time	Full-time	Not working	Part-time	Full-time	Not working	Part-time	Full-time	Not working	Part-time	Full-time
Number of consumer units (in thousands)	14,052	9,351	18,774	6,178	3,414	4,553	4,674	3,562	7,436	3,200	2,375	6,786
Income before taxes	$28,923	$30,820	$36,282	$12,807	$12,582	$14,216	$28,914	$29,884	$30,863	$64,140	$58,439	$57,114
Income after taxes	$26,439	$28,221	$32,573	$11,725	$11,673	$12,879	$26,184	$26,943	$27,846	$58,973	$53,923	$51,441
Size of consumer unit	3.4	3.4	3.0	3.3	3.2	3.1	3.4	3.5	3.0	3.3	3.5	2.9
Age of reference person .	44.5	38.3	37.9	44.1	38.1	36.6	43.8	36.8	36.6	46.5	41.0	40.1
Number in consumer unit:												
Earners	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Vehicles	2.2	2.5	2.5	1.9	2.2	2.2	2.4	2.6	2.6	2.5	2.8	2.7
Children under 18	1.3	1.4	1.0	1.3	1.2	1.1	1.3	1.5	1.0	1.3	1.4	0.9
Percent reporting												
Housing tenure:												
Homeowner with mortgage..............	50	60	62	33	39	38	56	66	62	72	82	78
Homeowner without mortgage..............	26	15	12	28	20	18	24	13	11	20	10	9
Renter......................	24	25	26	39	41	44	20	21	27	8	8	13
Race of reference person:												
Black	5	5	9	8	9	12	3	3	9	2	3	7
White and other	95	95	91	92	91	88	97	97	91	98	97	93
Education of reference person:												
Elementary (1–8)	10	4	5	17	10	9	5	1	4	1	1	2
High school (9–12).....	47	39	43	55	53	59	53	44	48	24	21	27
College...................	43	57	52	28	37	32	42	55	48	75	78	71

[1] Data are for complete income reporters. See text footnote 10.

however, we examine the characteristics of all husband-wife families classified by the wife's earner status.

Families in which both the husband and wife work are a major and growing segment of American society. In almost 70 percent of husband-wife families, the wife works outside the home. Two-thirds of these women work full time, while one-third work part time. (See table 3.)

There are differences in the characteristics of families in which the wife works full time and those in which the wife is not employed. For example, families in which both the husband and wife work full time are younger, are more likely to have attended college, and have fewer children. The homeownership rate is about the same for the two types of families, but the two full-time earner family is only half as likely to own its home mortgage free. A higher proportion of families with two full-time workers are black. Also, two full-time earner families own more vehicles than one-earner families, although both average at least two.

Families in which the wife works part time exhibit some of the characteristics of families in which the wife works full time and some of the characteristics of those in which the wife does not work outside the home. Families in which the wife works part time are, on average, the same age and own the same number of vehicles as two full-time earner families. However, two-earner families in which the wife works part time are more like one-earner

families in that, on average, they have about the same number of children. This may explain, in part, why the wife works part time, as it may not be economically feasible to pay for extra child care. She may arrange her work schedule around the schoolday or her husband's work schedule, or both.

A look at the characteristics presented in table 3 shows that approximately the same relationships hold across all income levels. However, there are some interesting differences. Not surprisingly, the wife works full time in more than half of the families in the highest income group, compared to only one-third of the families in the lowest income group. The average age of the highest income group is higher. It is possible that the children are also older, permitting more women to work full time.

On average, women contributed substantially to family income. Earnings of women working part time represented about 29 percent of their families' total income. Women who work full time contribute 40 percent of their families' income.[11]

The sources of income are somewhat different in general between one-earner and two-earner households. (See table 4.) Two-earner families obtain a higher share of their income from wages and salaries and a lower share from self-employment income than one-earner families. As one would expect, one-earner families receive a higher share of their income from Social Security, private, and govern-

ment retirement. This reflects the higher average age of the head of the one-earner consumer unit, in which one spouse may be retired and the other still working. Heads of one-earner households are, on average, 6 years older than heads of two-earner households.

One-earner families earn two to three times more from interest and other property income, both as a share of income and in absolute dollar terms, than two-earner families. This may be because one-earner families are older and therefore more likely to have accumulated wealth. It may also be because single-earner families may invest and save more than dual-earner families to offset somewhat their reliance on a single paycheck. A wife's earnings may diminish a family's motive to save as a hedge against a husband's possible job loss. In addition, if a working wife is covered by a pension plan, which is in part employer financed, the family's motivation to save for retirement may be lessened.[12]

Income is 23 percent higher for two full-time earner families when compared to one-earner families, whereas it is only 7 percent higher for two-earner families in which the wife works part time. Income for one-earner and two-earner (wife works part time) families are about the same for the two lowest income groups. If the wife works full time, income is between 6 and 10 percent higher than the income of one-earner families in the two lowest income groups. In the highest income group, the one-earner family appears to be a different type. Income is 14 percent higher than that of families in which the wife works full time and 9 percent higher than that of families with wives employed part time. This can be explained by the fact that the higher income group is open ended. One-earner families in this income group have more self-employed earners, and interest, dividends, and other property income are also substantial.

In families in which the husband earns an income that is considerably above average, a high proportion of the wives do not work. The benefit of additional income from the wife is probably relatively low. Also, if the wife does not have the training or inclination for professional work, it may be relatively difficult for her to find work that befits the social status she derives from her husband. According to Barbara R. Bergmann, "Such families constitute the last bastion of the full-time housewife."[13]

This review of the characteristics and income of these households emphasizes that there are other variables besides earner status that influence spending patterns, and that many of these variables are related to each other.

Regression analysis

Multivariate tobit regression analysis was used to examine whether expenditure differences exist between one- and two-earner families after controlling for differences in demographic characteristics.[14] The tobit statistical procedure is particularly well suited to the analysis of data when some consumer units incur no expenditures for some items during the interview period. Weights were used in the regression analysis, so that the results apply to the total population.

The analysis was limited to those expenditures generally perceived to be influenced more by the earner status of the wife than by other demographic characteristics. Eight equations were estimated. The eight dependent variables were expenditures[15] for food away from home, child care and babysitting, gasoline and motor oil, purchase of new vehicles, purchase of used vehicles, women's apparel, public transportation, and shelter.

Independent variables and hypotheses. We are investigating whether the working status of the wife accounts for differences in expenditures among husband-wife families or whether the differences are due to income, family size, the presence of children, or some other characteristic. The working status of the wife is the variable of interest for this study. To isolate the effect of that variable, we are

Table 4. Percent distribution of income by source for husband-wife families[1] classified by wife's employment status, 1984–86												
Income by source	All husband-wife families			Family income and wife's employment status								
				Less than $20,000			$20,000 to $34,999			$35,000 and over		
	Not working	Part-time	Full-time	Not working	Part-time	Full-time	Not working	Part-time	Full-time	Not working	Part-time	Full-time
Income before taxes ...	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wages and salaries	77.3	86.2	91.0	79.4	82.2	87.3	86.1	92.6	91.8	78.4	82.8	87.3
Self employment...........	9.2	7.3	4.7	4.7	5.2	4.2	5.1	3.4	4.0	9.7	11.7	8.1
Social Security, private, and government retirement...................	7.4	2.6	1.6	9.1	5.9	3.1	5.0	1.8	1.8	4.8	2.0	1.4
Interest, dividends, rental income, and other property income ...	4.6	2.4	1.4	2.1	2.0	1.1	2.8	1.3	1.2	6.6	2.6	2.2
Other income[2]	1.6	1.4	1.3	4.6	4.6	4.3	1.0	0.9	1.2	0.5	0.8	1.0

[1]Data are for complete income reporters. See text footnote 10.

[2]Other income includes unemployment and workers' compensation, veterans' benefits, public assistance, supplemental security income, food stamps, and regular contributions for support.

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Table 5.   Tobit regression coefficients

Independent variable[1]	Dependent variables							
	Food away from home	Child care[2]	New vehicles	Used vehicles	Gasoline and motor oil	Public transportation	Women's apparel	Shelter
Employment status of wife (not working):								
Part-time	19.00**	523.37*	−1198.57	−70.44	12.30*	40.59	−36.19**	−25.48
Full-time	27.74*	785.04*	870.19	20.25	24.89*	29.40	36.23*	41.77**
Total expenditures[3]	3.31*	1.79*	144.55*	30.38*	0.56*	3.89*	1.65*	11.42*
Age of reference person	5.12*	46.62*	−699.29*	−405.71*	7.11*	9.00**	2.33**	11.16*
Age-squared..........................	−0.04*	−0.53*	6.22*	3.19*	−0.08*	−0.06	−0.03*	−0.23*
Age* part-time employment status of wife.......................	—	−8.86*	—	—	—	—	1.52*	—
Age* full-time employment status of wife.......................	—	−13.64*	—	—	—	—	−0.34	—
Family size............................	−5.11	−14.90**	−1553.68	212.62**	18.98*	17.67	−12.48*	−21.05**
Presence of children (age 12 or over):								
Under age 6	−79.00*	822.16*	—	—	−28.88*	−141.64*	−28.40*	47.57**
Ages 6–11..........................	6.45	208.96*	—	—	−18.52*	−75.00*	−27.08*	32.77
Education (high school):								
Less than 12 years	−83.76*	−87.08*	−1385.39	1274.55*	−16.42*	15.27	−40.67*	−43.93
Some college......................	50.24*	82.08*	−874.15	−1574.48*	2.92	109.33*	27.54*	90.59*
College graduate or more........	99.03*	166.42*	−3800.40*	−2461.19*	−10.85*	293.42*	57.01*	445.23*
Seasons (Fall: October– December):								
Winter (January–March)	−45.35*	—	11.20	−449.43	8.47	−11.06	46.81*	−46.48**
Spring (April–June)	−8.72	—	697.57	518.29	5.94	−3.17	−7.73	−117.68*
Summer (July–September)	12.37	—	932.17	−103.24	33.57*	108.72*	−13.02**	−47.41**
Region (South):								
Northeast	33.32*	−46.82*	645.68	—	−53.09*	222.62*	15.75*	92.84*
Midwest	27.93*	25.73	−24.18	—	−34.75*	28.43	11.73	9.95
West	14.13	18.05	−2856.01*	—	−11.38*	213.55*	−0.09	336.26*
Urbanization (urban):								
Rural	−44.69*	−36.31*	139.42	−312.16	22.99*	−300.53*	−29.15*	−315.08*
Number of vehicles	—	—	2006.12*	1328.87*	32.85*	−76.98*	—	—
Housing tenure (renter):								
Homeowner	—	—	—	—	—	—	—	32.34
Constant	−75.63**	−2149.00*	−21401.44*	−6608.70*	4.54	−1261.17*	−84.11*	227.31*

[1] Where appropriate, characteristics of the reference group are indicated in parentheses.
[2] Child care includes day care and babysitting.
[3] Values have been multiplied by 100.

*Significant at the alpha = .01 level.
**Significant at the alpha = .05 level.
NOTE: Dash indicates that the variable was not used in the model.

controlling the other socioeconomic variables. These variables are listed in table 5 and are similar, although not identical, for each of the eight models being estimated.

Where appropriate, the characteristics of the reference group are indicated in parentheses in the table. The reference group is the group to which the comparison is made. For instance, in table 5, the reference group is "wife not working." The coefficients for "Part-time" and "Full-time" are compared to the "not working" group. By way of example, the coefficient of 19.00 for food away from home for wives working part time indicates that these women's families spend more on food away from home than families in which the wife does not work. Unlike ordinary least squares regression estimates, tobit regression coefficients indicate only the direction, and not the magnitude, of the differences between groups.

The working status[16] of the wife is defined as follows: (1) the wife is not employed outside the home (the refer-

ence group); (2) the wife is working part time; or, (3) the wife is working full time. Working part time is defined as working fewer than 35 hours per week or working full time for part of the year. Working full time is defined as working 35 hours or more per week for at least 50 weeks. It is hypothesized that working will be positively related to the expenditures under study.

Consistent with classical consumption theory and the results of previous research, income is hypothesized to be positively related to expenditures. Total expenditures are chosen as a proxy for income for three reasons.[17] First, the permanent income hypothesis suggests that total expenditures are an appropriate measure of income because, in the short run, families have more control over expenditures than over incomes. Second, total expenditures have been shown to give a better fit than income in models designed to predict expenditures in a number of expenditure categories.[18] Third, in addition to the economic reasons, there are

operational reasons for using total expenditures. Income data are only collected during interviews 2 and 5. Income data are collected for the previous year while expenditure data are collected for the previous 3 months. Thus, there is a lag between reports of income and expenditures that disappears at the aggregate level but may distort results at the micro level. Using total expenditures as proxy for income corrects this timelag problem.

The presence of children by age group is included in the model because it affects expenditures, particularly for child care and food away from home. This variable is entered as a categorical variable and is defined as (1) the presence of children under age 6; (2) the presence of children ages 6 to 11; or, (3) the presence of children age 12 or older (the reference group).

Age and age-squared are included in the model to measure changes in expenditure patterns over the life cycle.[19] (Recall that one-earner families are, on average, older.) Family size is also included because it is a major determinant of household consumption patterns,[20] although the direction of its effect may differ depending on the item— expenditures probably vary negatively with family size for food away from home, and positively for child care. It is not clear what the effect on the other expenditure categories will be. Housing tenure is included in the shelter model because of the inherent differences in the cost of renting versus owning a home. Education is controlled for because previous research indicates that education increases efficiency in all nonmarket activities.[21] This greater efficiency increases a household's real income. Education also is used as a variable in consumer research to measure social status.

Regional variation in the availability of and need for goods and services as well as regional price differences makes it necessary to control for the region of the country in which the consumer unit lives. The same is true for urban and rural differences.

Results

Results of the regression analysis are displayed in table 5. To test the overall significance of the set of variables included in each expenditure model, the likelihood ratio test statistic was used.[22] The resulting chi-square values were statistically significant at the 0.01 level. This allowed for the rejection of the null hypothesis that all of the coefficients (except the intercept) are equal to zero for all the models considered. The coefficients from the tobit regression models were used to calculate the predicted expenditures and to determine changes in expenditure patterns over the life cycle.

Expenditures for households in which the wife works full time or part time were significantly greater for most of the items under study than for households in which the wife is not employed, after accounting for the other differences. Families in which the wife is employed spend significantly more on food away from home, child care, women's apparel,[23] and gasoline and motor oil than do families in which the wife does not work outside the home. If the wife works full time, her family also spends significantly more than the one-earner family on shelter.

Child care expenditures include all expenses for nursery school, day care, babysitting, camp, and so on. Child care expenditures are a necessity for mothers employed outside the home. Whether the wife works part time or full time, child care expenditures are significantly more than for families in which the wife is not employed. However, this difference narrows as these women get older. This makes intuitive sense because older women are more likely to have older children, who require less outside care. It is also confirmed by the presence-of-children variable that shows families with children age 11 or younger spending significantly more for child care than families with children age 12 or older. Based on results from the regression equation, child care expenditures for families in which the wife works full time increase until age 30 and continue at that level until about age 35, at which point they begin to decline steadily. Child care expenditures for families in which the wife works part time increase through age 35, when they level out until age 40 and then begin to decline. The wives in these families have more children and return to work later or work part time longer.

Households in which the wife works spend significantly more on food away from home than the one-earner household. The working wife often buys lunch or breakfast, or both, at work. In addition, she may be inclined to cook dinner less often, due to lack of time. This means her family will often eat dinner out as well.

Expenditures for vehicles, both new and used, are the same for one- and two-earner families despite the fact that two-earner families own more vehicles than do one-earner families (2.5 versus 2.2 vehicles). Ownership of more vehicles is one reason why gasoline and motor oil expenditures are higher for two-earner families. In addition, the accrued mileage that occurs from daily commuting increases gas and motor oil consumption.

Wives who work full time spend more on clothing than wives who are not working, although the difference closes with increasing age. Wives who work part time spend more on apparel than nonworking wives after age 24.

Expenditures for shelter, including both owned dwellings and rental units, are significantly higher for families in which the wife works full time. These families are younger and have higher mortgages. Also, fewer two-earner families own their homes without mortgage—12 percent versus 24 percent of one-earner families. Two full-time earner families who are renters also have higher average rental costs. If the wife works part time, shelter costs are about the same as for families in which the wife is not employed. This may be explained by the fact that

one-earner and two-earner families in which the wife works part time have the same number of children, on average, and thus have similar space requirements and housing needs. In addition, the average income of families in which the wife works part time is only slightly higher than that of one-earner households.

While the employment status of the wife is statistically significant in explaining differences in the levels of expenditures for child care, food away from home, gasoline and motor oil, women's apparel, and shelter, it is important to note the relative impact of the wife's working status on expenditures. One way to do this is by looking at the effect of the wife's working status on the predicted expenditures. After controlling for other explanatory variables, the working status of the wife has a small, although significant, impact on the predicted expenditures for these items. For example, families of employed wives spend an average of 17 to 18 percent more per year on child care and about 4 percent more on women's apparel than families of wives who are not employed. Expenditures on food away from home are between 2 and 3 percent higher if the wife works. Thus, the relative impact on expenditures of the wife's working appears small. This is supported by previous studies that yielded similar results, in that significant differences are found but the actual dollar differences are relatively small.[24] What appears to be happening is that these same expenditures rise as the income of the one-earner family rises. Therefore, the difference in expenditures at the same income level is not as great as might be expected.

What about the expenditure categories for which the wife's earner status is not significant, such as for the purchase of vehicles? All husband-wife families own more than two vehicles, on average. Purchase of new vehicles is determined by income and age while purchase of used vehicles is determined by income, age, family size, and education. A similar finding about other consumers' durable goods was made by Myra H. Strober: " . . . although initial labor force participation may be associated with an increase in the durables to income ratio, after wives have been at work for a few years, most of the substitution out of home production is likely to be into the time-saving nondurables and services."[25]

Public transportation is another expenditure category for which the wife's earner status is not significant. In the regression equations, public transportation includes large ticket items which are often used as vacation transportation, such as airline fares, train tickets, and ship fares, as well as local transit. The commuter component is relatively small. Therefore, it is not surprising that the wife's earner status is not significant. Public transportation expenditures for husband-wife families are positively related to income and age and negatively related to the presence of children under age 12. Another indication that this is

vacation transportation is that the regression results indicate that expenditures are highest in the summer.

Summary

The results from the longitudinal analysis and regression analysis are similar although not identical. Both analyses yield similar findings for expenditures on child care, gasoline, and vehicles. Child care and gasoline expenditures were found to be higher for the families of working wives, while vehicle purchases and public transportation expenditures were comparable for all husband-wife families regardless of the wife's employment status. The low increases in shelter in the longitudinal analysis may be explained in part by the mixed result in the regression analysis section. Two full-time earner families do spend significantly more than one-earner families on shelter, while two-earner families in which the wife works part time spend the same amount on shelter as one-earner families.

Expenditures for food away from home and women's apparel are significantly higher for all two-earner husband-wife families when compared to one-earner husband-wife families, according to the regression results. The longitudinal analysis also shows increases in expenditures for food away from home and women's apparel for families in which the wife returns to work. The only puzzling result here is that expenditures for food away from home and women's apparel increased more for the "control" (one-earner) households than for the "new earner" (two-earner) households.

The labor force is now growing at slightly more than 1 percent a year, compared to double that rate during the 1970's and early 1980's. Labor shortages in some industries are already beginning to appear. The Census Bureau's 1982 Current Population Survey found that 26 percent of nonworking mothers with preschoolers would look for work if "reasonably priced child care were available."[26] This represents a potential addition to the labor force of 1.7 million women. Thirteen percent of employed women with preschoolers (about 700,000 workers) said they would work longer hours if additional or better child care were available. Given these attitudes toward work and tighter labor supplies, it is likely that more employers will begin to offer child care benefits to induce women to enter the labor force. Hence, the number of two-earner families may be expected to continue to grow. The ongoing Consumer Expenditure Survey will allow for future examination of the spending patterns of these families.   □

--------*FOOTNOTES*--------

[1] The data used in this study were drawn from the Interview portion of the 1984, 1985, and 1986 Consumer Expenditure Survey. The Interview survey is the most comprehensive survey of demographic characteristics of American consumer units. The Interview sample, selected on a rotat-

ing panel basis, is targeted at 5,000 consumer units per quarter. Each quarter, one-fifth of the sample is new to the survey. Consumer units who participate in the survey are interviewed five times, once per quarter; the first interview is used only for bounding purposes. Data for interviews 2 through 5 are used for publication and analysis. Over the 1984–86 time frame, data for a consumer unit may be available from one to four times. Each quarter is considered as a separate sample when estimates are calculated.

[2]The terms "household," "family," and "consumer unit" are used interchangeably throughout the text.

[3]Vicki Schram Fitzsimmons, "Family Money Management: How One-Earner and Two-Earner Families Handle Money," poster presentation at the annual meeting of the American Council on Consumer Interests, Chicago, IL, April 1988.

[4]Victor Fuchs, "Sex Differences in Economic Well-Being," *Science*, Apr. 25, 1986, pp. 459–64.

[5]G.S. Becker, "A Theory of the Allocation of Time," *The Economic Journal*, September 1965, pp. 493–517.

[6]Robert T. Michael and Gary S. Becker "On the New Theory of Consumer Behavior," *Swedish Journal of Economics*, September 1973, pp. 378–95.

[7]Don Bellante and Ann C. Foster, "Working Wives and Expenditure on Services," *Journal of Consumer Research*, September 1983, pp. 700–07.

[8]Elizabeth Waldman and Eva E. Jacobs, "Working Wives and Family Expenditures," *Proceedings of the Social Statistics Section of the American Statistical Association*, 1978.

[9]For the initial interview, information is collected on demographic and family characteristics and on the inventory of major durable goods of each consumer unit. Expenditure information is also collected in this interview, using a 1-month recall, but is used, along with the inventory information, solely for bounding purposes; that is, to classify the unit for analysis and to prevent duplicate reporting of expenditures in subsequent interviews. Data from the first interview are not used in the estimates.

[10]Complete income reporters. The distinction between complete and incomplete income reporters is based in general on whether the respondent provided values for major sources of income, such as wages and salaries, self-employment income, and Social Security income. Even complete income reporters may not have provided a full accounting of all income from all sources. In the current survey, across-the-board zero income reporting was designated as invalid, and the consumer unit was categorized as an incomplete reporter.

Data for the descriptive statistics (tables 2 and 3) are for complete income reporters only. Data used in the regression analysis are for all husband-wife families.

[11]Susan E. Shank, "Women and the labor market: the link grows stronger," *Monthly Labor Review*, March 1988, pp. 3–8.

[12]Myra H. Strober, "Wives' Labor Force Behavior and Family Consumption Patterns," *American Economic Review*, February 1977, pp. 410–17.

[13]Barbara R. Bergmann, *The Economic Emergence of Women* (New York, Basic Books, Inc., 1986).

[14]For a description of the methodology, see G.S. Maddala, *Limited-Dependent and Qualitative Variables in Econometrics* (New York, Cambridge University Press, 1983).

[15]Expenditures are defined as the transaction cost, including excise and sales taxes, of goods and services acquired during the interview period. Expenditure estimates include expenditures for gifts, but exclude purchases or the portion of purchases directly assignable to business purposes. Also excluded are periodic credit or installment payments on goods or services previously acquired. The full cost of each purchase is recorded when the purchase is made, even though full payment may not have been made on the date of purchase.

[16]Families in which the wife works as a volunteer are not included in this study. These families were dropped because they could introduce conflicting results. That is, they probably make use of the same timesaving techniques that employed women use but there is no additional income.

[17]In addition, if a wife begins to work during the periods covered by the third and fourth interviews, that information is collected. This was discussed in the longitudinal part of this study. However, if the wife stops working, that information is not recorded until the fifth interview. Hence, a family may be misclassified for up to two quarters.

[18]S. J. Prais and H. S. Houthakker, *The Analysis of Family Budgets* (Cambridge, MA, The University Press, 1971).

[19]Age is that of the reference person in the consumer unit. The reference person is the first member mentioned by the survey respondent when asked to "Start with the name of the person or one of the persons who owns or rents the home." It is with respect to this person that the relationship of other consumer unit members is determined. Thus, age may refer to the husband or the wife.

[20]Robert A. Pollack and Terence J. Wales, "Demographic Variables, in Demand Analysis," *Econometrica*, November 1981, pp. 1533–51.

[21]See Robert T. Michael, *The Effect of Education on Efficiency in Consumption*, National Bureau of Economic Research Occasional Paper No. 116 (New York, Columbia University, 1972).

[22]The test statistic is $\chi^2 = -2(\log \text{Likelihood } R - \log \text{Likelihood } U)$. The statistic is asymptotically chi-square, distributed with the degrees of freedom equal to the number of coefficients set equal to zero. The log likelihood function for the restricted model, represented by R, is obtained when the function is maximized with respect to the intercept only. The log likelihood of the unrestricted model, U, is obtained when the function is maximized with respect to all the coefficient estimates corresponding to the intercept and all explanatory variables.

[23]The part-time earner status coefficient for women's apparel is negative. However, when the interaction term "age* part-time employment status of the wife" is included in the equation, the net effect is that, for families with a reference person over age 24, households with wives working part time spend more on apparel than those in which the wife does not work.

[24]Waldman and Jacobs, "Working Wives."

[25]Strober, "Wives' Labor Force Behavior."

[26]Martin O'Connell and David E. Bloom, "Juggling Jobs and Babies: America's Child Care Challenges," *Population Trends and Public Policy*, Issue no. 12 (Washington, Population Reference Bureau, February 1987).

Variations in holidays, vacations, and area pay levels

*Higher paying localities often report
more liberal leave provisions, but
factors other than pay also are important*

JOHN E. BUCKLEY

Workers with above-average holiday and vacation bene-
fits are likely to be in areas that have above-average pay
levels and that are located outside the South. For blue-
collar workers, leave time also is likely to be greater in
areas with larger establishments and a relatively high
incidence of unionization and manufacturing activity. De-
troit, for example, has these characteristics, and combined
holiday and vacation time for production workers in the
area is about 20 percent (nearly 4 days) above the national
average. San Antonio, in contrast, is an area with below-
average pay, unionization, and manufacturing activity
levels, and with smaller than average establishment em-
ployments. Leave levels in the area also are considerably
below the national norms.

The data used in this analysis come largely from sur-
veys conducted in 68 localities included in the Bureau's
Area Wage Survey (AWS) program. This program pro-
vides information on occupational pay and employee
benefits derived from a statistical sample of the Nation's
metropolitan areas.[1] The program provides wage data
(straight-time earnings) for workers in selected narrowly
defined occupations, such as maintenance mechanic, jani-
tor, secretary, and computer programmer, reflecting the
typical practice of setting wage and salary rates by job
performed. Information on benefit plans is obtained only
for two broad employment categories—production and
office workers—because employers generally provide
uniform benefits within each of these groups.[2]

The occupational wage data collected in the AWS pro-
gram are used to produce indexes (labeled "relative pay

levels") of interarea differences in average straight-time
weekly or hourly earnings for four employee groups: of-
fice clerical, electronic data processing (EDP), skilled
maintenance, and unskilled plant workers.[3] These four
sets of pay relatives, together with area vacation and holi-
day practice data for the production and office groups,
provide the compensation inputs for the analysis pre-
sented in this article.

Basic assumptions

To permit comparison of area pay and leave standings,
within each metropolitan area studied the two blue-collar
groups are assumed to receive holiday and vacation bene-
fits equal to the average for the area's production and
related workers. Also, the white-collar groups are as-
sumed to receive the average benefits of office workers.

Furthermore, because the AWS program does not pro-
vide sufficient detail on most employee benefits, it was
possible to include only paid holiday and vacation data in
this study.[4] The holiday data are comparable to those
published in individual AWS reports, except that workers
receiving no paid holidays are included in the calculation
of area averages. In contrast, vacation data differ from
those published in AWS reports, which describe area vaca-
tion schedules—that is, lengths of vacation granted after
specified periods of service (such as 5 days' pay after 1
year of service, 10 days' after 3 years, and so forth). Ac-
cordingly, to facilitate comparisons of leave time among
areas, and to relate leave to area pay levels, the vacation
schedules in the AWS reports were converted into esti-
mates of the average number of vacation days granted by

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applying national tenure data from the January 1983 Current Population Survey.

Finally, national tenure data were used because area data are not available. While these data do not reflect area-related differences in workers' seniority, their use still provides the benefits of standardization in comparisons across areas: Area-related differences in vacation time for workers with uniform lengths of service are revealed. This use of national tenure data for standardization is similar to the use of national occupational weights for computing area relative pay levels.

Holidays and vacation days

Table 1 contains information on paid holiday and vacation provisions in all metropolitan areas combined and in four broad regions.[5] The data span the period 1983–86, when information on benefits was collected at least once in each area.[6] While more than 90 percent of the workers received paid holidays, the number of days off varied considerably among regions and occupational groups. For example, about 8 percent of the Southern workers received 12 or more holidays a year, compared with 17 percent nationwide. Among the occupational groups, office workers averaged one more holiday nationwide than production and related workers (9.7 versus 8.7 holidays).

Vacation provisions also differed considerably between office and production workers and among regions, especially for workers with a short duration of service. Eighty-five percent of the office workers, for example, had plans giving at least 2 weeks of vacation after 1 year of service, while only 39 percent of the production workers had the same provision. If, in each area studied, workers' seniority with their current employer had followed the national pattern revealed by the January 1983 Current Population Survey, office workers would have averaged one more day of vacation than production workers. As with holidays, vacation benefits were not as liberal in the South as they were in other regions.

When estimates of holidays and vacation days in individual metropolitan areas were compared, it was found that localities with liberal holiday practices generally had liberal vacation policies as well. (See tables 2 and 3.) Correlation coefficients measuring the degree of this association were 0.81 for production workers and 0.62 for office workers. (Perfect correlation = 1.00.) Despite these degrees of correlation, some atypical observations emerged. For example, production workers in Paterson–Clifton–Passaic received 10.7 holidays compared with a national average of 8.7, but had only average vacation provisions. Conversely, office workers in San Antonio received only 7.6 holidays but had near-average vacation provisions.

Interarea comparisons

When holidays and vacation days were combined (called total leave here), the highest averages for production workers were reported in two Michigan metropolitan areas: Saginaw, with 23.8 days, and Detroit, with 22.4 days. The national average was 18.6 days, while the lowest average, 14.4 days, was found in Gainesville, FL. Six of the ten areas with the highest totals were located in the Northeast; the other four were in the Midwest, although San Jose tied Milwaukee for 10th place. The 10 areas with

Table 1. Selected paid holiday and vacation provisions, all metropolitan areas and four broad regions, 1983–86

Provision	Production and related workers					Office workers				
	All metropolitan areas	Northeast	South	Midwest	West	All metropolitan areas	Northeast	South	Midwest	West
Paid holidays										
Percent of workers in establishments providing paid holidays	94	97	92	97	92	99	99	99	99	99
5 days or more	91	96	86	95	88	99	99	98	99	99
10 days or more	48	63	31	60	43	58	76	40	57	55
12 days or more	17	25	8	26	13	17	25	7	19	15
Average number of holidays	8.7	9.7	7.4	9.6	8.4	9.7	10.5	8.8	9.8	9.7
Paid vacations										
Percent of workers in establishments providing paid vacations	98	98	97	99	98	99	99	99	99	99
2 weeks or more after 1 year of service	39	45	35	38	42	85	88	81	83	86
3 weeks or more after 5 years of service	33	35	27	35	41	52	58	42	46	62
4 weeks or more after 20 years of service	67	71	54	79	65	84	86	77	88	84
Average number of vacation days	9.9	10.3	9.2	10.4	10.0	10.9	11.2	10.6	11.0	11.0
Total paid leave[1]										
Average number of days	18.6	20.0	16.6	20.0	18.4	20.6	21.7	19.4	20.8	20.7

[1]Limited to paid holidays and paid vacations.

Table 2.   Number of leave days for production and related workers and relative pay levels for skilled maintenance and unskilled plant workers, 68 metropolitan areas, 1983–86

Metropolitan area	Average leave days,[1] production and related workers			Relative pay levels	
	Total[2]	Holidays	Vacation	Skilled maintenance	Unskilled plant
Saginaw, MI	23.8	12.1	11.7	—	—
Detroit, MI	22.4	11.1	11.3	111	131
Buffalo, NY	21.4	10.5	10.9	102	97
Trenton, NJ	21.4	10.6	10.8	92	—
Toledo, OH–MI	21.1	10.6	10.5	105	128
Boston, MA	20.9	10.1	10.8	94	97
New York, NY–NJ	20.8	10.0	10.8	94	128
Newark, NJ	20.8	10.2	10.5	94	89
Paterson–Clifton–Passaic, NJ	20.6	10.7	9.9	89	96
Milwaukee, WI	20.4	9.9	10.5	105	98
San Jose, CA	20.4	9.3	11.2	115	112
Nassau–Suffolk, NY	20.3	10.0	10.2	94	98
Indianapolis, IN	20.2	9.9	10.3	106	103
St. Louis, MO–IL	20.2	9.9	10.3	103	99
San Francisco–Oakland, CA	20.1	9.3	10.8	117	143
Chicago, IL	19.9	9.4	10.5	107	120
South Bend, IN	19.9	9.6	10.3	90	128
York, PA	19.8	9.7	10.1	89	110
Dayton, OH	19.7	9.3	10.3	103	114
Green Bay, WI	19.7	8.8	10.9	97	97
Davenport–Rock Island–Moline, IA–IL	19.6	9.7	9.8	110	130
Albany–Schenectady–Troy, NY	19.5	9.2	10.2	89	107
Cleveland, OH	19.4	9.3	10.1	102	107
Huntsville, AL	19.4	9.4	10.0	99	90
Kansas City, MO–KS	19.4	9.3	10.1	101	105
Portland, ME	19.3	9.2	10.2	—	95
Seattle–Everett, WA	19.3	8.9	10.4	—	116
Worcester, MA	19.3	9.4	9.9	87	94
Cincinnati, OH–KY–IN	19.2	9.1	10.1	95	99
Hartford, CT	19.1	9.3	9.8	90	87
Philadelphia, PA–NJ	19.1	9.4	9.7	99	113
Providence–Warwick–Pawtucket, RI–MA	19.1	9.7	9.5	80	82
Minneapolis–St. Paul, MN–WI	19.0	8.9	10.1	105	110
Richmond, VA	19.0	8.8	10.2	109	85
Gary–Hammond–East Chicago, IN	18.8	9.5	9.4	106	102
Sacramento, CA	18.8	8.4	10.4	107	—
All metropolitan areas	**18.6**	**8.7**	**9.9**	**100**	**100**
Columbus, OH	18.6	8.6	10.0	98	92
Louisville, KY–IN	18.6	8.6	10.0	103	100
Pittsburgh, PA	18.5	8.7	9.8	101	97
Los Angeles–Long Beach, CA	18.4	8.6	9.7	109	97
Northeast Pennsylvania	18.4	8.8	9.6	80	94
Wichita, KS	18.4	8.8	9.7	94	—
Portland, OR–WA	18.3	8.1	10.2	106	114
Salt Lake City–Ogden, UT	18.3	8.3	10.0	94	89
Fresno, CA	18.1	8.2	9.9	93	94
Dallas–Fort Worth, TX	17.9	8.1	9.8	95	88
Atlanta, GA	17.7	7.9	9.7	95	80
Baltimore, MD	17.7	8.3	9.3	100	82
Omaha, NE–IA	17.5	7.8	9.7	91	84
Billings, MT	17.3	7.3	10.0	—	—
San Diego, CA	17.3	7.8	9.5	106	—
Anaheim–Santa Ana–Garden Grove, CA	17.2	7.6	9.6	96	96
Denver–Boulder, CO	17.2	7.4	9.7	100	88
Memphis, TN–AR–MS	17.0	7.7	9.3	93	76
Washington, DC–MD–VA	16.9	7.4	9.5	—	77
Oklahoma City, OK	16.7	7.3	9.4	97	84
Greenville–Spartanburg, SC	16.5	7.4	9.1	73	74
Houston, TX	16.2	7.2	9.1	100	72
Chattanooga, TN–GA	16.1	7.5	8.7	81	78
Jacksonville, FL	15.9	7.0	8.9	94	74
New Orleans, LA	15.8	7.0	8.9	99	68
Jackson, MS	15.7	7.1	8.6	94	76
Norfolk–Virginia Beach–Portsmouth, VA–NC	15.7	6.7	9.0	89	78
Miami, FL	15.6	6.5	9.1	83	71
Greensboro–Winston-Salem–High Point, NC	15.4	6.8	8.6	94	77
San Antonio, TX	15.4	6.5	8.9	79	71
Corpus Christi, TX	15.2	6.3	8.9	101	69
Gainesville, FL	14.4	5.4	9.0	—	76

[1] Limited to paid holidays and paid vacations.

[2] Because of rounding, the sum of the average number of holidays and the average number of vacation days for a given metropolitan area may not equal the total number of leave days for that area.

NOTE: Dashes indicate that data do not meet publication criteria.

the lowest averages were in the South.

Average leave days for office workers were highest in Trenton (23 days) and Davenport–Rock Island–Moline (22.9 days). Jackson, MS, had the lowest average leave (17.7 days). As with production workers, the 10 highest paid leave areas were mostly in the Northeast and Midwest, and the 10 lowest in the South.

Comparisons of the total leave and pay levels in tables 2 and 3 uncover the extent to which high leave levels are found in areas with high pay levels. The results are summarized as follows:

	Observations of pay levels above the national average	
	Total	Corresponding leave levels above the average
All groups	75	53
Skilled maintenance	23	17
Unskilled plant...................	19	18
Office clerical	20	12
Electronic data processing	13	6

A parallel set of comparisons relating below-average pay to leave levels showed that slightly more than half (57 percent) of all pay observations below the national average were matched with below-average leave provisions. Areas in the Northeast, however, deviated sharply from this pattern, with most localities in the region having below-average pay but above-average total leave.

Pay levels differed more by area than did leave days. Among office clerical jobs, for example, the highest pay relative (Davenport) was 43 percent greater than the lowest (Norfolk and Northeast Pennsylvania). By contrast, the spread between areas with the highest and lowest leave levels for office workers (Trenton and Jackson) was 30 percent. For both pay and leave, the percentage spreads were considerably greater for blue-collar than for white-collar groups.

Because area leave levels often are above average in areas with above-average pay, there was a greater spread in employers' costs for paid leave than in either leave days or pay. In Newark, for example, the average office clerical worker received about 9 percent more leave time than similar workers nationwide and 2 percent more pay. Consequently, the Newark worker was paid 11 percent above the national average for vacation and holiday benefits.[7] The broadest range in leave pay was for the unskilled plant group, with costs in Detroit, at 158 percent of the national average, nearly three times those in Corpus Christi, at 56 percent of the national average.

Other influences on leave levels

Area leave levels appear to be influenced by many of the forces that influence pay levels. Bureau studies of area pay differences generally report higher pay levels in the Midwest and West and in areas with larger average establish-ment employments and greater degrees of unionization. These studies have also found that industrial composition heavily influences a locality's pay level.[8]

Similar patterns appeared when average numbers of leave days were examined. Table 4 shows that areas with a high leave level for production workers commonly were located in the Northeast or Midwest and had above-average degrees of unionization, sizes of establishment employment, and proportions of manufacturing activity.[9]

The table also shows that of the 36 areas whose production workers' leave levels were above average, 27 had collective bargaining agreement coverage that was above average, 19 had high average establishment employment size, 30 were located in the Northeast or Midwest, and 24 had high proportions of manufacturing employment.

The type of manufacturing within an area also is an important determinant of leave levels. For example, two areas with approximately the same percentage of workers in manufacturing industries, Gary–Hammond–East Chicago and Greenville–Spartanburg, had quite different leave levels. Gary, with a high concentration of workers in the primary metals industries, had a considerably higher leave level than did Greenville, where textile mills dominate among manufacturing activities.

There may be interactions among the variables in these simple cross tabulations. For example, large establishments are more likely to have collective bargaining agreements, and, for blue-collar workers, manufacturing establishments are more likely to have collective bargaining agreements than nonmanufacturing establishments. The appendix to this article offers the results of a multiple regression analysis designed to isolate the effect of each variable from others in the study. It thus provides a more precise indication than is given here of how the various forces under consideration influence area leave levels.

Data limitations

The analysis undertaken compared pay only to vacation and holiday provisions; one should not assume that similar findings would result if total benefit packages had been used. Nationally, vacations and holidays account for only about one-third of all employer costs for benefits, excluding legally required items.[10] The remaining two-thirds are for sick leave, supplemental pay, insurance, pension and savings plans, and other benefits.

Another note of caution concerns the length of paid vacations. While Area Wage Surveys report paid vacation *provisions* that apply after specified lengths of service, area-wide distributions of workers by length of service are not provided. These distributions, however, are needed to estimate averages of the number of vacation days available to employees. As a substitute, national job tenure data for occupational groups similar to the production and office groups considered here were taken from the January 1983 Current Population Survey[11] and were used

Table 3.   Number of leave days for office workers and relative pay levels for office clerical and electronic data processing workers, 68 metropolitan areas, 1983–86

Metropolitan area	Average leave days,[1] office workers			Relative pay levels	
	Total[2]	Holidays	Vacation	Office clerical	Electronic data processing
Trenton, NJ	23.0	11.0	12.1	96	93
Davenport–Rock Island–Moline, IA–IL	22.9	10.4	12.5	119	—
Newark, NJ	22.4	11.1	11.3	102	104
Detroit, MI	22.0	10.7	11.3	114	109
New York, NY–NJ	22.0	10.6	11.4	102	105
Saginaw, MI	22.0	10.9	11.1	115	—
Boston, MA	21.9	10.5	11.3	96	96
Hartford, CT	21.8	10.4	11.4	91	95
Nassau–Suffolk, NY	21.8	10.8	11.0	93	98
San Jose, CA	21.6	10.2	11.4	115	115
Milwaukee, WI	21.5	10.4	11.1	99	97
Paterson–Clifton–Passaic, NJ	21.5	10.7	10.7	93	98
San Francisco–Oakland, CA	21.5	9.9	11.6	114	114
Toledo, OH–MI	21.3	10.3	11.0	108	96
Albany–Schenectady–Troy, NY	21.2	10.0	11.3	98	97
Buffalo, NY	21.2	10.2	10.9	89	89
Portland, ME	21.2	10.1	11.0	85	88
Seattle–Everett, WA	21.2	10.1	11.1	108	95
South Bend, IN	21.2	10.3	10.9	94	88
Worcester, MA	21.2	10.4	10.8	94	94
Philadelphia, PA–NJ	21.0	10.2	10.8	98	94
Providence–Warwick–Pawtucket, RI–MA	20.9	10.2	10.6	86	90
Washington, DC–MD–VA	20.9	9.1	11.7	101	99
Chicago, IL	20.7	9.6	11.1	101	102
Dayton, OH	20.7	10.0	10.7	94	89
Fresno, CA	20.7	9.8	10.9	92	—
Sacramento, CA	20.7	9.5	11.2	103	—
St. Louis, MO–IL	20.7	9.9	10.8	97	98
All metropolitan areas	**20.6**	**9.7**	**10.9**	**100**	**100**
Cleveland, OH	20.6	9.8	10.8	96	97
Los Angeles–Long Beach, CA	20.6	9.8	10.8	114	109
Minneapolis–St. Paul, MN–WI	20.6	9.5	11.1	97	95
Gary–Hammond–East Chicago, IN	20.5	9.4	11.1	118	—
Indianapolis, IN	20.5	9.9	10.7	96	92
Pittsburgh, PA	20.5	9.8	10.7	101	96
York, PA	20.5	10.0	10.5	92	86
Anaheim–Santa Ana–Garden Grove, CA	20.4	9.8	10.6	105	102
Denver–Boulder, CO	20.3	9.3	11.0	99	103
Cincinnati, OH–KY–IN	20.2	9.5	10.7	98	94
Columbus, OH	20.2	9.4	10.8	91	95
Huntsville, AL	20.2	9.4	10.8	93	—
San Diego, CA	20.2	9.5	10.7	100	104
Kansas City, MO–KS	20.1	9.5	10.6	99	97
Northeast Pennsylvania	20.1	9.8	10.3	83	85
Jacksonville, FL	20.0	9.3	10.7	92	95
Portland, OR–WA	20.0	9.0	11.0	102	98
Salt Lake City–Ogden, UT	20.0	9.4	10.6	94	101
Richmond, VA	19.9	9.2	10.8	92	95
Wichita, KS	19.9	9.7	10.2	104	93
Baltimore, MD	19.8	9.3	10.4	98	95
Green Bay, WI	19.7	9.0	10.7	92	85
Houston, TX	19.7	8.9	10.8	109	115
Atlanta, GA	19.6	9.0	10.7	102	103
Miami, FL	19.6	8.8	10.8	95	100
Dallas–Fort Worth, TX	19.5	9.0	10.5	100	97
Omaha, NE–IA	19.5	8.7	10.7	93	97
Chattanooga, TN–GA	19.2	9.0	10.2	93	—
Billings, MT	19.1	8.8	10.3	90	—
New Orleans, LA	19.1	9.1	10.0	96	97
Louisville, KY–IN	19.0	8.6	10.4	95	100
Oklahoma City, OK	19.0	8.8	10.2	98	95
Memphis, TN–AR–MS	18.7	8.4	10.3	92	90
Norfolk–Virginia Beach–Portsmouth, VA–NC	18.7	8.5	10.2	83	88
Gainesville, FL	18.5	8.0	10.5	—	—
Greensboro–Winston-Salem–High Point, NC	18.4	8.1	10.3	93	97
San Antonio, TX	18.4	7.6	10.8	89	97
Greenville–Spartanburg, SC	18.3	8.0	10.3	87	90
Corpus Christi, TX	17.9	8.2	9.7	92	—
Jackson, MS	17.7	7.8	9.8	94	96

[1] Limited to paid holidays and paid vacations.

[2] Because of rounding, the sum of the average number of holidays and the average number of vacation days for a given metropolitan area may not equal the total number of leave days for that area.

NOTE: Dashes indicate that data do not meet publication criteria.

in each area. However, because tenure data relate to a worker's length of time with the current employer, an area with a vibrant economy and a mobile (and possibly younger) work force is likely to experience a lower average tenure than the national average or the average for an area in economic decline. As a result, the actual vacation time available in a given area may be higher or lower than is estimated using national tenure data.

Yet another limitation is that establishment vacation plans may not reflect the tenure profile of covered employees. For example, a plan's provisions may allow for additional vacation pay after 20 or 25 years of service, but it may be that none of the company's employees has as yet attained that length of service.

Finally, the analysis dealt with relative pay and leave provisions that were in effect sometime between 1983 and 1986, depending on the particular area in question. These provisions, however, are not static. For example, benefits provided in a period of economic growth and prosperity may not survive during a period of retrenchment. In the late 1970's and early 1980's, for instance, workers in the automobile manufacturing industry received 7 to 9 paid personal leave days, but this benefit was dropped when the industry experienced financial difficulties. In recent years, workers in other industries have accepted cutbacks

Table 4. Distribution of 68 metropolitan areas by production worker leave levels and selected area characteristics, 1983–86

Selected characteristics	Number of areas with leave levels—	
	Above average	At or below average
All areas	36	32
With collective bargaining agreement coverage:		
Above average	27	9
At or below average	9	23
With average establishment employment size:		
Above average	19	9
At or below average	17	23
Region:		
Northeast	14	2
South	2	19
Midwest	16	3
West	4	8
With manufacturing employment as percent of all-industry employment:		
Above average	24	8
At or below average	12	24

in wages or nonwage benefits or both, in exchange for greater job security. Nevertheless, the basic finding of this study—that area wage and leave levels, whether high or low, often operate in tandem—is likely to stand for some time to come. □

------FOOTNOTES------

[1] Two relatively small Area Wage Survey (AWS) areas were excluded from the analysis that follows because the number of occupations reported was insufficient for interarea calculations. Also, in a few other areas, pay calculations could not be made for one or more of the four occupational groups studied.

Prior to 1987, the AWS program consisted of annual surveys conducted in 70 metropolitan areas selected to represent all 262 Standard Metropolitan Statistical Areas (SMSA's), excluding those in Alaska and Hawaii, as defined by the U.S. Office of Management and Budget through February 1974. In 1987, this program was replaced by a program of 32 areas studied annually and 58 areas biennially (half one year and half the next). Thus, 61 areas are surveyed each year. The 90 areas now in the program comprise a sample of the 326 metropolitan areas recognized as of October 1984. For additional information on the program, see Laura Scofea, "BLS area wage surveys will cover more areas," *Monthly Labor Review*, June 1986, pp. 19–23.

[2] In the AWS program, benefit provisions that apply to a majority of the production (or office) workers in an establishment are considered to apply to all such workers in the establishment. Conversely, a provision is considered nonexistent if it applies to fewer than a majority of the production (or office) workers.

[3] Occupations included are as follows: *Office clerical*—secretary; stenographer I and II; typist I and II; file clerk I, II, and III; messenger; switchboard operator; order clerk I and II; accounting clerk I, II, III, and IV; payroll clerk; and key entry operator I and II. *Electronic data processing*—computer systems analyst; computer programmer; and computer operator. *Skilled maintenance*—carpenter; electrician; painter; machinist; mechanic (machinery); pipefitter; motor vehicle mechanic; and tool and die maker. *Unskilled plant*—janitor, porter, or cleaner; and material handling laborer.

Descriptions of the surveyed jobs are included in individual area bulletins. Roman numerals are used to identify skill levels studied separately in many of the occupations; the higher the numeral, the higher is the degree of difficulty and responsibility associated with the job.

[4] The incidence of health and retirement plans is developed in the AWS program, but the detailed provisions of these plans are not. The provisions of paid personal leave plans are collected, but not in sufficient detail to calculate the average number of days available to employees.

[5] Regions are defined as follows: *Northeast*—Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont; *South*—Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia; *Midwest*—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin; *West*—Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

[6] Until 1987, information on employee benefits was generally collected in an area once every 3 years. Beginning in 1988, this information will be collected every fourth year.

[7] Relative leave costs can be computed for each area/occupational group for which relative pay levels are shown by converting the area's leave days into a percentage of the national average and multiplying that percentage by the area's pay relative. In Newark again, for example, leave time for office workers (22.4 days) was 109 percent of the national average (20.6 days). Multiplying this percentage by the Newark office clerical pay relative (102) and then dividing by 100 yields a leave cost relative of 111.

[8] See, for example, Stephen E. Baldwin and Robert S. Daski, "Occupational pay differences among metropolitan areas," *Monthly Labor Review*, May 1976, pp. 29–35; and *Wage Differences among Metropolitan Areas, 1986*, Summary 87–4 (Bureau of Labor Statistics, June 1987). See also George E. Johnson, "Intermetropolitan Wage Differentials in the United States," in Jack E. Triplett, ed., *The Measurement of Labor Cost* (Chicago, University of Chicago Press, 1983), pp. 309–32.

[9]Data on collective bargaining agreement coverage, average establishment employment size, manufacturing activity, and regional leave level are from the Bureau's Area Wage Survey program.

[10]See Felicia Nathan, "Analyzing employers' costs for wages, salaries, and benefits," *Monthly Labor Review*, October 1987, pp. 3–11.

[11]For a discussion of job tenure, see Ellen Sehgal, "Occupational mobility and job tenure, 1983," *Monthly Labor Review*, October 1984, pp. 18–23.

APPENDIX: Regression analysis

A regression model was developed to identify forces influencing area leave days (the dependent variable). The six independent (explanatory) variables in the model were area pay level, manufacturing employment as a percent of total area employment, percent of workers covered by collective bargaining agreements, area population size, average employment within area establishments, and geographic region. Pay relatives for skilled maintenance workers were used in the reported analysis of production and related workers, and pay relatives for office clerical workers in the office worker regression. Results were similar when both skilled maintenance and unskilled plant worker relatives were included in the blue-collar regression and when office clerical and electronic data processing worker relatives were included in the white-collar study.

The results of the regression analysis are shown in table A–1. As indicated by the $\bar{R}^2$ values, the model had much success in explaining area differences in leave days, accounting for more than four-fifths of the interarea variation for production workers and three-fourths for office workers. For each of the two groups, a statistically significant[1] positive relationship at the 5-percent level or lower emerged between area leave and area pay levels. Areas with relatively high pay levels tend to be more liberal in leave provisions as well. Consequently, one cannot explain interarea differentials in pay rates by claiming offsetting differences in leave provisions. For production workers, other independent variables being held constant, an increase of 1 percentage point in an area's average pay level was associated with an increase of 0.041 day in the area's leave time.

Several other significant relationships emerge from the model. For example, the coefficients show interesting regional differences, with all regional coefficients significantly above the South—the region against which the other three regions were compared.[2] For office workers, other things being equal, area leave time in the Northeast was 2.252 days higher than in the South. Two establishment characteristics—unionization and average employment size—also provided significant explanations of area leave differences, but only for production workers.

Furthermore, a significant positive relationship is shown between area leave days and the degree of manufacturing activity, but again only for production workers. Note, however, that the regression model did not take account of area differences in type of manufacturing, and, as mentioned earlier, type of manufacturing is an impor-

Table A–1.   Regression analysis of area differences in leave days, 1983–86

Item	Production and related workers	Office workers
Constant	9.649** (5.97)	13.478** (9.08)
Pay level	.041* (2.11)	.056** (3.16)
Manufacturing employment	.024* (2.45)	−.005 (−.72)
Unionization	.031** (3.16)	.002 (.10)
Area population	−.001 (−.79)	−.001 (−.74)
Average establishment employment	.007* (2.52)	.003 (1.22)
Northeast	2.035** (5.10)	2.252** (9.51)
Midwest	1.356** (3.64)	1.339** (6.05)
West	.875* (2.26)	.885** (3.00)
$\bar{R}^2$	.82	.75
F Value	31.00**	19.94**
Number of areas studied	62	67

NOTE: Numbers in parentheses below coefficients are *t*-statistics.

$\bar{R}^2$ is the coefficient of determination adjusted for degrees of freedom. It shows the percentage of total variation in area leave days that is explained by regression analysis.

F statistics are measures of the overall significance of the regressions.

** = Significant at the 0.01 level.
 * = Significant at the 0.05 level.

tant determinant of leave and pay levels.

The remaining variable tested in the model, area population size, was not statistically related to leave levels for either of the two occupational groups.

———*FOOTNOTES*———

[1]All estimated regression coefficients were evaluated at the 5- and 1-percent significance level. An estimated regression coefficient is said to be significant at the 5-percent level if the null hypothesis that a coefficient is zero would be rejected only 5 percent of the time in repeated sampling. Similarly, the coefficient is significant at the 1-percent level if the null hypothesis would be rejected only 1 percent of the time.

[2]Coefficients of the regional variables shown in table A–1 indicate the difference in leave relatives resulting from being located outside the South, whose value is embodied in the equation's constant term. A regression equation's constant term shows the estimated value of the dependent variable when all the independent variables are zero, including, in this instance, when an area is in the South.

Labor market changes and adjustments: how do the U.S. and Japan compare?

*Both countries are flexible in how they react
to structural changes in the labor market,
with each using different methods and programs
to adjust to such changes rather quickly*

ROBERT W. BEDNARZIK AND
CLINTON R. SHIELLS

Japan is beginning to experience the same sort of economic restructuring that the United States has faced during the last decade or so. Although manufacturing employment is declining (both in an absolute and relative sense), it still plays a larger role in total employment and output in Japan than in the United States.

Large trade deficits in the aggregate or in specific industries may lead to worker dislocations. The ability of the labor market to respond and adjust to change can be considered a competitive factor. For example, if workers can move quickly from declining industries to growing industries, the economy can be more responsive to international competition. Because much of U.S. trade is in merchandise, not services, the manufacturing industry plays a prominent role in international trade. How, then, does the continued job shift to services affect our ability to lower our trade deficit?

This article analyzes labor market flexibility and adjustment capabilities of Japan and the United States. It examines the job shift to services and trends in wages, productivity, and exchange rates to judge the international competitive position of each country.

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Job shift to services

The number and proportion of jobs in the service sector of Japan and the United States are increasing. However, the magnitude and the timing of the increase are different. In 1987, for example, 71 percent of U.S. workers were employed in services, compared with 58.5 percent of Japanese workers. (See table 1.)

In 1960, Japanese agricultural employment constituted 30 percent of total employment, and was higher than employment in manufacturing. By 1987, agricultural employment in Japan had dropped to 8 percent of total employment. This is almost 3 times higher than in the United States, where agricultural employment as a percent of the total has been declining for most of this century. The manufacturing share of total employment peaked in Japan in the early 1970's at around 28 percent, slipping to 24 percent in 1987. In the United States, the share has been drifting downward for a much longer period, and fell below 19 percent in 1987. (See table 1.)

From an employment standpoint, the service sector is dominant in both countries. Agriculture and manufacturing play a larger role in Japan than in the United States, but their share in Japan is declining. Although the two countries are following the same path, the shift from an agricultural to an industrial economy, then to a service or information-based economy started much sooner in the

United States and has, therefore, progressed further.

Does the shift to services, especially in the United States, imply that the United States and Japan are losing their industrial base? Given that around 70 percent of U.S. merchandise exports are in manufacturing, a declining industrial base would make it more difficult for the United States to lower its trade deficit unless exports of services increase dramatically. So, is the job shift to services another factor contributing to the large U.S. merchandise trade deficit?

A recent study by Ronald Kutscher and Valerie Personick examined whether changes in employment and output in manufacturing declined either in absolute or in relative terms.[1] Kutscher and Personick noted that an absolute decline is more serious than a relative one, and that production declines are a more alarming signal of a reduction in the industrial base than employment declines. For example, a decline in employment need not necessarily signify an erosion of the industrial base if real output is still increasing.

Manufacturing employment in the United States in absolute terms has been around 20 million for the last 20 years. At 19.2 million in 1987, it was only slightly below its prerecession level. Although the percentage of total U.S. employment in manufacturing has declined, real U.S. manufacturing output as a percent of real gross domestic product (GDP), at 22 percent in 1985, has actually increased somewhat recently. The following tabulation shows real manufacturing output as a percent of real gross domestic product

in the United States and Japan, 1970–85:[2]

	1970	1975	1980	1985
United States (1982 dollars)	21.1	20.5	21.2	22.1
Japan (1981 yen)	25.9	25.9	29.3	35.0

On this basis, the U.S. industrial base at the aggregate level is not disappearing. However, there have been steady declines in both output and employment for individual U.S. industries such as steel, leather, and tires.

A recent Office of Technology Assessment study shows that only 6 of 21 major manufacturing industries experienced an increasing share of gross national product from 1979 to 1986—about enough of a rise to offset the decline in the majority of industries. Interestingly, nonelectrical machinery, which includes computers, was the only major industry showing a big increase in shares. The study concludes that if it were not for the computer industry, the U.S. economy might well be deindustrializing.[3]

In Japan, moreover, manufacturing output as a percent of gross domestic product increased substantially from 29 to 35 percent between 1980 and 1985. Regardless of the reason, manufacturing accounts for a much higher percentage of gross domestic product in Japan than in the United States. More importantly, the gap between the two countries is widening. This implies that as recently as 1985, the Japanese were successfully competing internationally in manufacturing. Can the United States keep pace? A discussion of these issues follows.

Table 1.   Percent distribution of civilian employment by economic sector, 1960–87

Year	Agricultural sector[1]		Goods-producing sector				Service sector[3]	
			Total[2]		Manufacturing			
	United States	Japan	United States	Japan	United States	Japan	United States	Japan
1960	8.5	29.5	33.4	28.5	26.1	21.7	58.1	41.9
1965	6.3	22.7	34.2	32.5	27.0	24.8	59.5	44.8
1970	4.5	16.9	33.1	35.7	26.4	27.4	62.3	47.4
1971	4.4	15.5	31.7	35.9	24.7	27.4	63.8	48.6
1972	4.4	14.4	31.4	36.2	24.3	27.3	64.2	49.4
1973	4.2	13.1	32.0	37.0	24.8	27.8	63.8	49.9
1974	4.2	12.6	31.4	36.8	24.2	27.6	64.5	50.6
1975	4.1	12.4	29.5	35.6	22.7	26.1	66.4	52.0
1976	3.9	11.9	29.6	35.6	22.8	25.8	66.5	52.5
1977	3.7	11.6	29.7	35.1	22.7	25.3	66.6	53.3
1978	3.7	11.4	30.0	34.8	22.7	24.8	66.3	53.8
1979	3.6	10.8	30.2	34.7	22.7	24.6	66.3	54.5
1980	3.6	10.1	29.3	35.1	22.1	25.0	67.1	54.8
1981	3.5	9.7	28.9	35.0	21.7	25.1	67.6	55.3
1982	3.6	9.4	27.2	34.5	20.4	24.7	69.2	56.0
1983	3.5	8.9	26.8	34.4	19.8	24.8	69.7	56.6
1984	3.3	8.5	27.2	34.5	20.0	25.2	69.4	56.9
1985	3.1	8.4	26.9	34.6	19.5	25.3	70.0	57.0
1986	3.1	8.1	26.6	34.2	19.1	24.9	70.4	57.6
1987	3.0	8.0	26.0	33.5	18.6	24.3	71.0	58.5

[1] Includes agriculture, forestry, hunting, and fishing.

[2] Includes manufacturing, mining, and construction.

[3] Includes transportation, communication, public utilities, trade, finance, public administration, private household services, and miscellaneous services.

NOTE: Data have not been fully adjusted for comparability with U.S. definitions. Also, some employment could not be distributed by economic sector. Because of rounding, subtotals may not add to totals.

SOURCE: *Statistical Supplement to International Comparisons of Unemployment*, Bulletin 1979 (Bureau of Labor Statistics, June 1988).

Manufacturing productivity and labor costs

The ability of the U.S. manufacturing industry to compete internationally hinges on several factors, such as the cost and quality of the product. This in turn depends on overall labor costs, exchange rates, and labor productivity rates.[4] An examination of some recent trends reveals that the U.S. competitive situation is improving relative to Japan.

In 1987, as a result of a labor productivity increase in manufacturing (for the fifth consecutive year) and continued wage restraint, the United States showed a decline in unit labor cost—a useful measure of competitiveness. In assessing changes in unit labor costs in competitive terms, changes in the market value of each country's currency must be taken into account. The U.S. dollar has depreciated strongly against the yen and other currencies since 1985. Therefore, the relative improvement in U.S. manufacturing labor costs measured in national currency has been greatly enhanced by exchange rate movement. Japan's unit labor costs, measured in U.S. dollars, rose more than 40 percent in 1986 and 13.5 percent in 1987. (See table 2.)

Manufacturing output growth, which is related to a variety of factors, including improved international competitiveness, was higher in the United States than in Japan during 1986. Although output growth slowed significantly in 1986 in Japan, possibly a reflection of the appreciating yen, it recovered quickly in 1987. During that year, the percent change in output per hour in manufacturing was once again more than that in the United States. Manufacturing employment, which declined slightly in Japan in 1986, dropped significantly (1.1 percent) in 1987. At 14.2 million in 1987, manufacturing employment in Japan is still very near its all-time high of 14.5 million, reached in 1985.

In the United States, the comparable manufacturing employment figure has hovered around 20.9 million over the past 4 years.[5] However, there have been significant employment shifts among individual manufacturing industries. Also, some worker groups were more likely to suffer job losses than other groups.

Employment changes and job losses

Given the size of the merchandise trade deficit and the recent swings in exchange rates, there is little doubt that distribution of employment by industry has been affected. In theory, exchange rate changes affect the movement of labor between industry sectors primarily through changes in export and import prices. Depreciation of the dollar raises dollar prices of U.S. imports, leading to increased production and employment in import-competing industries. Also, depreciation lowers foreign currency prices of U.S. exports, making them more competitive in international markets, which leads to increased production and employment in export-oriented industries. The result is an improvement in the trade balance, at least once trade volumes have had time to adjust to price changes.

It is difficult to tie changes in the U.S. trade deficit to changes in exchange rates on a country-by-country basis. The extent of U.S. dollar depreciation varies substantially across trading partners. Also, there are several measures of currency movements, differing in their estimates of change depending on the methodology used.[6] What is important for the U.S. trade deficit is movement of the U.S. dollar against a basket of other currencies. Based on the Federal Reserve System Board of Governors widely

Table 2. Changes in productivity and related measures in manufacturing, United States and Japan, 1960–87
[In percent]

Year	United States	Japan
Output per hour:		
1960–87	2.8	7.7
1960–73	3.2	10.3
1973–87	2.5	5.3
1973–79	1.4	5.5
1979–87	3.4	5.1
1985	5.1	7.3
1986	3.7	1.7
1987	2.8	4.1
Hourly compensation (in national currency):		
1960–87	6.2	11.3
1960–73	5.0	15.1
1973–87	7.3	8.0
1973–79	9.5	12.8
1979–87	5.7	4.5
1985	5.3	4.9
1986	3.3	4.9
1987	1.3	1.4
Unit labor costs (in national currency):		
1960–87	3.3	3.4
1960–73	1.8	4.3
1973–87	4.7	2.6
1973–79	8.0	6.9
1979–87	2.2	−0.6
1985	0.2	−2.3
1986	−0.4	3.2
1987	−1.5	−2.5
Unit labor costs (in U.S. dollars):		
1960–87	3.3	6.9
1960–73	1.8	6.6
1973–87	4.7	7.3
1973–79	8.0	10.8
1979–87	2.2	4.7
1985	0.2	−2.7
1986	−0.4	46.1
1987	−1.5	13.5
Output:		
1960–87	3.4	8.7
1960–73	4.8	12.8
1973–87	2.2	6.2
1973–79	1.9	3.6
1979–87	2.4	6.2
1985	4.3	8.4
1986	2.8	0.6
1987	3.8	3.4

NOTE: Rates of change based on the compound rate method.

SOURCE: "Trends in manufacturing productivity and labor costs in the U.S. and abroad," *Monthly Labor Review*, December 1987, pp. 25–30; and "International Comparisons of Manufacturing Productivity and Labor Cost Trends 1987," *News Release*, 88–326 (U.S. Department of Labor, July 6, 1988).

used 10-country inflation-adjusted exchange rate index, the U.S. dollar had begun to appreciate in 1979, peaked in 1985, and had nearly fallen back to its 1979 level as of fourth-quarter 1987.[7] (See table 3.) A Morgan Guaranty Trust Co. index cited by BLS shows a similar trend.[8] New BLS dollar exchange rate indexes in national currency terms for export and import levels separately show that the trade-weighted value of the dollar fell 33 percent for imports and 27 percent for exports between the first quarter of 1985 and the last quarter of 1987.[9]

Paralleling exchange rate movement, the U.S. merchandise trade balance worsened between 1980 and late 1986, but has improved subsequently. Growth in export volume, which began in 1984, finally outpaced the continued growth in import volume in 1987. (See table 4.) It is surprising that import volume continued to rise after the dollar weakened. Possible explanations of this phenomenon include foreign exporters absorbing some of the currency shift and increased trade with countries whose currency did not appreciate against the dollar.[10]

Of course, import and export volume varies by industry. Useful measures of "trade sensitivity" are: for imports, the percentage of an industry's new supply accounted for by imports, and for exports, the percentage of an industry's shipments that are exported. In 1985, export-oriented industries included chemicals, machinery, transportation equipment, and instruments. All of these industries experienced declines in export shares during the period of dollar appreciation. (See table 5.)

Table 3.   Foreign exchange rates, 1967–87
[Currency units per U.S. dollar, except as noted]

Period	Japan (yen)	Multilateral trade-weighted value of the U.S. dollar	
		Nominal	Real[1]
March 1973	261.83	100.0	100.0
1967	362.13	120.0	—
1968	360.55	122.1	—
1969	358.36	122.4	—
1970	358.16	121.1	—
1971	347.78	117.8	—
1972	303.12	109.1	—
1973	271.30	99.1	98.8
1974	291.84	101.4	99.2
1975	296.78	98.5	93.9
1976	296.95	105.6	97.3
1977	268.62	103.3	93.1
1978	210.38	92.4	84.2
1979	219.02	88.1	83.2
1980	226.63	87.4	84.8
1981	220.63	102.9	100.8
1982	249.06	116.6	111.7
1983	237.55	125.3	117.3
1984	237.45	138.3	128.5
1985	238.47	143.2	132.0
1986	168.35	112.2	103.3
1987	144.60	96.9	90.6

[1]Adjusted by changes in consumer prices.

NOTE: Dashes indicate data not available.

SOURCE: Board of Governors of the Federal Reserve System.

Table 4.   U.S. merchandise exports and imports, 1979–87
[In billions of 1982 dollars]

Year	Exports	Imports	Net exports
1979	218.2	277.9	−59.7
1980	241.8	253.6	−11.8
1981	238.5	258.7	−20.2
1982	214.0	249.5	−35.5
1983	207.6	282.2	−74.6
1984	223.8	351.1	−127.3
1985	231.1	370.2	−139.1
1986	244.6	420.2	−175.6
1987[1]	282.0	443.5	−161.5

[1]Preliminary.

NOTE: Data are based on National Income and Product Accounts; seasonally adjusted annual rates.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis.

Import-sensitive industries, in which import penetration rose as the dollar strengthened, included apparel, leather, primary metals, machinery, transportation equipment, instruments, and miscellaneous manufactures. As shown, some industries are both export-oriented and import-sensitive.

Employment changes.   Although manufacturing employment in the United States has increased during the current economic recovery, it has not returned to its prerecession peak in 1979. However, some import-sensitive manufacturing industries, such as primary metal industries, apparel and other textile products, and leather and other leather products, have continued to experience job losses. (See table 6.) It is not clear how much appreciation of the dollar may have contributed to these long-term employment declines.

Many import-sensitive industries have experienced continuing employment declines largely unrelated to movements in the exchange rate. On the export side, employment in some export-oriented industries declined following the dollar's appreciation. However, it is difficult to isolate effects of currency appreciation from other factors (such as slow growth in Europe). Finally, many industries are in the service sector where the level of trade is much lower than in manufacturing, and where employment growth has been strong during periods of depreciation as well as appreciation.

Job losses.   Major structural economic changes such as those in international competition, technological change, deregulation, and demand shifts can lead to job losses, often referred to as "structural" unemployment. There are several useful measures of structural unemployment: long-term unemployment, job-loser unemployment, and the number of displaced workers. Although the evidence is mixed as to which of the two countries is experiencing greater "structural unemployment," both countries still have a problem.

Table 5. U.S. imports as a percent of new supply (import penetration) and U.S. exports as a percent of product shipments (export proportion), by major manufacturing group, selected years

Industry	Import penetration			Export proportion		
	1972	1979	1985	1972	1979	1985
All manufacturing.............................	6.1	7.8	11.7	5.6	8.5	7.9
Food	3.9	4.3	4.3	2.9	4.9	3.6
Tobacco..................................	0.6	0.6	0.5	5.7	11.8	8.1
Textiles	5.6	4.6	7.7	2.9	6.0	3.6
Apparel	7.0	12.7	22.4	1.2	3.4	1.8
Lumber	9.4	10.4	10.5	4.1	7.6	5.3
Furniture..................................	2.6	4.5	9.2	0.6	1.7	1.6
Paper	5.6	6.7	7.1	4.1	5.1	4.3
Printing and publishing	1.0	1.0	1.2	1.3	1.7	1.2
Chemicals................................	3.2	4.2	6.5	7.6	12.8	11.6
Petroleum refining	7.1	7.3	9.5	1.9	1.5	3.1
Rubber....................................	4.7	5.4	6.3	3.1	4.8	3.9
Leather	15.9	29.4	49.6	1.8	5.2	6.1
Stone, clay, and glass	3.7	4.8	7.6	2.4	3.8	3.4
Primary metals	8.9	11.0	16.6	2.8	4.0	3.7
Fabricated metals	2.5	3.6	5.5	3.9	5.6	4.7
Machinery, except electrical..........	5.4	7.8	13.9	14.9	20.3	20.1
Electrical machinery	7.6	11.0	17.0	6.7	12.2	10.1
Transportation equipment	9.8	11.8	18.4	9.2	13.3	13.0
Instruments	6.7	10.3	13.7	12.6	18.3	15.5
Miscellaneous manufactures	13.3	20.0	35.0	7.6	12.7	8.1

NOTE: New supply is defined as imports plus domestic product shipments. Imports as a percent of new supply is a commonly used measure of import penetration.

SOURCE: U.S. Department of Commerce.

Historically, the unemployment rate in Japan has been lower than in the United States, even when adjusted for conceptual differences.[11] However, a different view results when a more comprehensive measure of labor underutilization is used: the unemployment gap between the two countries is not as wide as it first appears because the broader measure includes groups in which a substantial part of Japan's labor underutilization falls. (See table 7.)

From a policy standpoint, the focus is usually on workers who may have difficulty becoming employed or re-employed. This latter group would include workers who are involuntarily out of work, often referred to as displaced workers. Although both countries attempt to count such workers, the definitions are so different that the data are not comparable. However, indirect measures of displacement are available, derived from data collected in regular labor market surveys. In most industrialized countries, these surveys collect data on reasons for unemployment: new entrants, re-entrants, job leavers, and job losers. The latter group includes mostly workers whose jobs ended and who immediately began looking for work. Workers involved in a plant closing would be tabulated as job losers. Workers on layoff are also included among job losers, but they are excluded from this analysis because our main interest is workers who have permanently lost their jobs. The percentage of total unemployment that was accounted for by job losers was similar in both countries, and rising in the 1980's. Permanent job loss accounted for around a third of total unemployment in 1986 in both countries.[12]

It is also useful and straightforward to compare long-term unemployment, defined here as being jobless for 1 year or longer. Although Japan's unemployment rate is less than half the United States rate, long-term unemployment as a percent of total unemployment was about twice as high in Japan than in the United States in 1986. Apparently, once a worker becomes unemployed, it is more difficult for him or her to become re-employed in Japan than it is for a worker in the United States.

Demographic limitations on flexibility

The characteristics of workers are important in understanding overall labor market flexibility. Also, the analysis of significant past and future employment and population trends will help explain unemployment differences between the United States and Japan and give some idea of the ability of each labor force to adjust to structural change.

The labor force participation rate was roughly the same in each country in 1986. This masks important age-sex differences. (See table 8.) For example, the rate for teenagers (defined as age 15 and over for Japan and age 16 and over for the United States) is very low in Japan, 18 percent, compared with 55 percent for U.S. teenagers. Japanese teens are less likely to work even part time while in school. This partially explains why teenage unemployment in Japan is low, which also helps to keep overall unemployment low. A rough estimate was that in 1985, the overall U.S. unemployment rate would be about 0.8 percentage point lower if U.S. teenagers had the same unemployment rate and labor force participation rate as teenagers in Japan.[13] In Japan, most would-be workers do not pursue their first job until all formal schooling is completed.

In contrast, a much greater percentage of older workers, mainly men, stay longer in the labor force in Japan than do comparable workers in the U.S. labor force. For example, in 1986, the labor force participation rate for men 55 years of age and over in Japan was 61 percent, versus 37 percent for their U.S. counterparts.

These magnitudes and patterns of labor force participation are important in gauging the flexibility of the labor force. This is easily seen by examining trends in fertility rates and population structure.

All industrialized countries have experienced declining fertility rates since the mid-1960's. As a result, their populations are aging. The decline in fertility rates started sooner in Japan, falling almost continuously since the late 1940's. Thus, the aging of the work force is occurring more rapidly. This shift may have some effect on the general productivity of the work force, although it is not entirely clear to what extent the experience and skills of older workers may offset the greater flexibility, mobility, and energy of younger workers.

Moreover, by the year 2000, the percentage of the population in Japan age 65 years and older will pass the U.S. percentage, and the gap will widen into the next century.[14] Given the high proclivity of Japan's older workers to stay in the labor force, the aging population structure is perhaps their number one problem in maintaining a flexible labor force and in keeping unemployment low. Also, these trends may lead to mismatches between jobs and worker skills. When there are a large number of older workers remaining in the labor force whose skills may become obsolete and there is a low participation rate among younger workers, it is not surprising, especially given Japan's low unemployment rate, for skill mismatches to occur.

In time, an aging work force will be a problem for all industrialized countries. However, in the near future, the declining fertility rates, especially in the United States, will help lower the overall unemployment rate, as a smaller number of younger workers, whose unemployment rate is higher than that for adult workers, will enter the labor force. Unless the skills of workers are continually upgraded, especially among the growing proportion that are older, the United States may soon face significant mismatch problems.

Trends in labor force participation are also important. For example, is labor force participation declining among older workers in Japan? This is indeed the case, which will soften the impact of Japan's aging population structure.

Table 6.   Nonagricultural U.S. employment by industry, selected years, annual averages
[In thousands]

Industry	1973	1979	1982	1986	1987
Total	76,790.0	89,823.0	89,566.0	99,525.0	102,310.0
Mining	642.0	958.0	1,128.0	777.0	721.0
Construction	4,097.0	4,463.0	3,905.0	4,816.0	4,998.0
Manufacturing	20,154.0	21,040.0	18,781.0	18,965.0	19,065.0
Durable goods	11,891.0	12,760.0	11,039.0	11,230.0	11,218.0
Lumber and wood products	759.2	766.9	597.5	710.3	739.6
Furniture and fixtures	506.8	497.8	432.0	498.2	518.2
Stone, clay, and glass products	715.7	708.7	576.9	585.1	582.2
Primary metal industries	1,259.1	1,253.9	921.9	751.7	749.4
Fabricated metal products	1,651.1	1,717.7	1,426.9	1,423.3	1,407.4
Machinery, except electrical	2,089.0	2,484.8	2,243.9	2,052.8	2,023.4
Electrical and electronic equipment	1,969.5	2,116.9	2,008.0	2,116.3	2,084.1
Transportation equipment	1,929.3	2,077.2	1,734.7	2,025.1	2,048.2
Instruments and related products	557.3	691.2	715.5	706.2	693.3
Miscellaneous manufacturing	454.4	444.8	382.1	361.3	369.6
Nondurable goods	8,262.0	8,280.0	7,741.0	7,734.0	7,847.0
Food and kindred products	1,714.8	1,732.5	1,635.9	1,609.3	1,623.9
Tobacco manufactures	77.5	70.0	68.7	58.6	54.3
Textile mill products	1,009.8	885.1	749.4	703.2	724.5
Apparel and other textile products	1,438.1	1,304.3	1,161.1	1,100.8	1,099.9
Paper and allied products	704.6	706.8	662.4	673.7	679.0
Printing and publishing	1,110.7	1,235.1	1,272.1	1,458.5	1,507.2
Chemicals and allied products	1,037.6	1,109.3	1,075.1	1,021.8	1,025.6
Petroleum and coal products	192.9	209.8	200.8	168.8	165.3
Rubber and miscellaneous plastics products	692.2	781.6	696.9	790.3	823.1
Leather and leather products	284.0	245.7	218.9	149.1	143.7
Transportation and public utilities	4,656.0	5,136.0	5,082.0	5,255.0	5,385.0
Wholesale and retail trade	16,607.0	20,192.0	20,457.0	23,683.0	24,381.0
Finance, insurance, and real estate	4,046.0	4,975.0	5,341.0	6,283.0	6,549.0
Services	12,857.0	17,112.0	19,036.0	23,053.0	24,196.0
Government	13,732.0	15,947.0	15,837.0	16,693.0	17,015.0

SOURCE: Compiled from the official statistics of the U.S. Department of Labor.

Table 7. Severity of joblessness in the United States and Japan, 1979 and 1986

[In percent]

Characteristic	U.S.	Japan
Unemployment rate[1]		
1979	5.8	2.1
1986	7.0	2.8
Percent of total unemployment		
Long term unemployment:[2]		
1979	4.2	17.0 (March)
1986	8.7	17.1 (February)
Job loser unemployment:[3]		
1979	29	30 (March)
1986	36	32 (February)
U-7 unemployment rate[4]		
1980	10.1	[5]7.0–8.7 (March)
1986	10.3	[5]8.9–11.8 (February)

[1] Approximating U.S. concepts.

[2] Unemployed 1 year or longer.

[3] For the United States, the reason for unemployment was permanent job loss; for Japan, the reason for unemployment was involuntary job loss.

[4] U-7 measures seekers of full-time jobs, plus one-half the number of seekers of part-time jobs, plus one-half the number of part-time workers who want full-time work, plus discouraged workers as a percent of the civilian labor force, adjusted to exclude one-half of the part-time labor force and to include the discouraged workers.

[5] This range for Japan reflects two different groups of discouraged workers.

SOURCES: *Statistical Supplement to International Comparisons of Unemployment*, Bulletin 1979 (Bureau of Labor Statistics, June 1988); *Employment and Earnings* (Bureau of Labor Statistics, January 1980 and 1987); Constance Sorrentino, "Japanese Unemployment: BLS updates its analysis," *Monthly Labor Review*, June 1987, pp. 47–53; and the special annual March or February household survey in Japan.

Labor force participation rates among older workers are declining in most other industrialized countries as well.

The labor force participation rate of women is still rising in the United States, but it appears to be falling slightly in Japan. (See table 9.) More importantly, the participation rate of women in Japan is more cyclical than that of women in the United States. This phenomenon is unique to Japan among the industrialized countries. Perhaps this gives employers in Japan more flexibility in dealing with business downturns than it gives employers in the United States and in other countries.

Other factors

Although there are many other work force characteristics which affect labor market flexibility, only three will be discussed here: educational level, occupational mobility, and geographical mobility of the work force.

Educational level. Educational attainment is a powerful predictor of the ability to adjust to unemployment, especially for workers suffering a permanent job loss. In the United States, the educational attainment of workers (measured by the number of years of school completed) has been increasing. Workers in the service sector in the United States have always been, on average, more highly educated than manufacturing workers. This is still the case, as the educational level of U.S. workers in both

sectors increased during the 1973–86 period. In manufacturing, the percentage of workers without a high school diploma decreased substantially. The same was true for workers in service-producing industries. The following tabulation, based on data from the Bureau of Labor Statistics, shows the percent of U.S. employees in the service-producing and manufacturing sectors, by educational attainment, 1973 and 1986:

Educational attainment	Service-producing sector		Manufacturing	
	1973	1986	1973	1986
Less than high school	26	14	38	21
High school	39	38	43	45
More than high school	35	48	20	33

Comparable data for Japan are not available. The data that are available yield somewhat conflicting results on how the educational level of Japanese workers compares with that of U.S. workers. For example, the percentage of 17-year-olds attending educational institutions in 1984 was slightly higher in Japan than in the United States. The percentage of young people obtaining credentials for university entrance in 1984 was much higher in Japan (92 percent) than in the United States (73 percent).[15]

In contrast, a World Bank study of primary, secondary, and higher *formal* education showed that twice as many U.S. labor force participants had a higher (post-secondary) education than their Japanese counterparts around the same time period.[16] Moreover, the mean years of schooling for U.S. labor force participants was 12.6 years in 1981, compared with 9.8 years for Japanese labor force participants in 1979.[17] It is significant, however, that education and training outside the ordinary education system was not included. This type of training accounts for a substantial part of the human capital stock embodied in the labor forces of both countries. In fact, the level of education and training provided in firms is widely regarded as a major determinant of Japan's impressive postwar economic performance.[18]

Occupational mobility. Occupational mobility is a difficult concept to measure and to assess. In most countries, occupations have emerged historically, reflecting particular features of industrial development. In this process, relatively few occupations have disappeared entirely, but most have changed substantially in terms of the composition and level of skills required.

In the United States, it is estimated that about 10 percent of the employed change occupations in a given year. The percentage is highest for youth and declines significantly with age.[19] Given the much higher labor force participation rates of teenagers in the United States than in Japan, and the fact that teenagers are the most mobile group (30 to 40 percent change occupations each year),

occupational mobility is probably higher in the United States than in Japan.

Although occupational mobility data for Japan are not available, fairly comparable data on occupational shifts exist. Japan, as well as the United States, is experiencing a dramatic shift in occupational distribution of employment. (See table 10.) In both countries, rapid growth is occurring in professional and technical occupations, which generally require a lot of education and training.

Managerial and sales occupations also have increased in both countries over the 1972–86 period, but more so in the United States. Generally, there was slower growth in occupations that do not require post-secondary education. A few exceptions were the rapid growth in both countries in the service occupations, which generally do not require advanced training or education, and a puzzling increase in Japan in the number of laborers.

Geographic mobility.   Geographic mobility is higher in the United States than in Japan. For example, in 1980, 6.2 percent of the U.S. population moved to another county within the same State; in Japan, the comparable rate was 2.6 percent.[20]

Several factors may account for this low mobility rate in Japan. The population and industries are very densely concentrated geographically, with supplier industries usually located near major clients. It is not unusual for workers to move from their primary industry to a supplier industry. There is also a high degree of internal (intrafirm) mobility. As a result, job turnover is lower and job tenure is higher in Japan, compared with the United States. Fewer than one-third of employees in Japan, primarily in large manufacturing firms, are covered by implicit lifetime employment agreements with their firms.[21] Though no formal commitments are made by either the employer or employee, it is understood that employment will be stable with few or no periods of layoff.

Speed of adjustment

A variety of evidence suggests that the speed with which firms adjust labor input (number of workers times the average number of hours worked) to fluctuations in production does not differ significantly between the United States and Japan. When production slows, U.S. firms tend to reduce the number of employees more quickly than do Japanese firms; Japanese firms rely more on reducing hours.

A 1980 study by Haruo Shimata, professor of economics at Keio University, examines trends in manufacturing production, employment, and labor input from November 1973 to December 1975 (a recessionary period) for Japan, the United States, the United Kingdom, West Germany, and France.[22] A substantial drop in production occurred in each country following an increase in energy and other raw material prices at the beginning of this period. The depth of employment adjustment relative to the size of the production drop in Japan was comparable to that in Europe, but was much less severe than in the United States. In contrast, labor input (as measured by the ratio of percentage changes in labor input and production) adjustment was greater in the United States than in Japan and Europe.

Shimata presents econometric estimates of adjustment speeds for employment and labor input on a comparable basis for Japan, the United States, and the United Kingdom.[23] The United States adjusted employment levels more quickly than did either Japan or the United Kingdom; whereas the speed with which Japanese firms adjusted labor input was similar to the United States and somewhat faster than in the United Kingdom.

A more detailed 1985 study by Shimata and others analyzes trends in employment and production for seven manufacturing industries in the United States and Japan, using data over a longer period that included two complete business cycles (1968–79).[24] Timing and depth of employment and production changes in U.S. manufacturing industries were very similar. In contrast, there was a marked absence of employment fluctuations in Japanese manufacturing industries.

The study also presents econometric estimates of employment adjustment speeds for 14 U.S. and Japanese manufacturing industries. It found that employment gen-

Table 8.   Percent distribution of labor force status by gender, United States and Japan, 1986

Characteristic	Total, 16 years[1] and over	Percent distribution			
		Total	Men[2]	Women[2]	Teenagers[1]
Population:					
United States	180,587	100.0	43.5	48.5	8.0
Japan	95,870	100.0	43.6	46.6	9.7
Labor force:					
United States	117,834	100.0	52.0	41.2	6.7
Japan	60,200	100.0	58.8	38.5	2.7
Employment:					
United States	109,597	100.0	52.5	41.6	5.9
Japan	58,530	100.0	58.9	38.5	2.6
Unemployment:					
United States	8,237	100.0	45.5	36.8	17.6
Japan	1,670	100.0	55.1	37.7	7.2
Labor force participation rate:					
United States	65.3	—	78.1	55.5	54.7
Japan	62.8	—	84.6	51.8	17.6
Employment-population ratio:					
United States	60.7	—	73.3	52.0	44.6
Japan	61.1	—	82.4	50.4	16.3
Unemployment rate:					
United States	7.0	—	6.1	6.2	18.3
Japan	2.8	—	2.6	2.7	7.3

[1] Includes, for Japan, 15-year-olds. Population, labor force, employment, and unemployment numbers are in millions.

[2] 20 years and older.

NOTE: U.S. data are for the civilian labor force; Japanese data include the National Defense Force.

SOURCE: U.S. data are from the Bureau of Labor Statistics. Data for Japan are from the Japan Statistics Bureau Management and Coordination Agency, *Annual Report on the Labour Force Survey*, 1986.

Table 9. Civilian labor force participation rates by gender, 1960–87

Year	Total		Men		Women	
	United States	Japan	United States	Japan	United States	Japan
1960	59.4	67.9	83.3	84.2	37.7	52.7
1961	59.3	67.8	82.9	84.3	38.1	52.4
1962	58.8	66.9	82.0	83.6	37.9	51.3
1963	58.7	65.7	81.4	82.5	38.3	50.0
1964	58.7	64.8	81.0	81.5	38.7	49.3
1965	58.9	64.4	80.7	81.1	39.3	48.8
1966	59.2	64.6	80.4	81.1	40.3	49.2
1967	59.6	64.8	80.4	81.0	41.1	49.6
1968	59.6	64.9	80.1	81.7	41.6	49.2
1969	60.1	64.6	79.8	81.5	42.7	48.8
1970	60.4	64.5	79.7	81.5	43.3	48.7
1971	60.2	64.2	79.1	81.9	43.4	47.7
1972	60.4	63.8	79.0	81.9	43.9	46.8
1973	60.8	64.0	78.8	81.9	44.7	47.3
1974	61.2	63.0	78.7	81.6	45.7	45.7
1975	61.2	62.4	77.9	81.2	46.3	44.8
1976	61.6	62.4	77.5	81.0	47.3	44.9
1977	62.3	62.5	77.7	80.4	48.4	45.7
1978	63.2	62.8	77.9	80.1	50.0	46.4
1979	63.7	62.7	77.8	79.9	50.9	46.6
1980	63.8	62.6	77.4	79.6	51.5	46.6
1981	63.9	62.6	77.0	79.6	52.1	46.7
1982	64.0	62.7	76.6	79.3	52.6	47.0
1983	64.0	63.1	76.4	79.2	52.9	48.0
1984	64.4	62.7	76.4	78.5	53.6	47.8
1985	64.8	62.3	76.3	77.9	54.5	47.6
1986	65.3	62.1	76.3	77.6	55.3	47.6
1987	65.6	61.9	76.2	77.1	56.0	47.6

NOTE: Data relate to the total labor force approximating U.S. concepts as a percent of the total noninstitutionalized working age population. Working age is defined as 16-year-olds and older in the United States; 15-year-olds and older in Japan. The institutionalized working age population is included in Japan.

SOURCE: *Statistical Supplement to International Comparisons of Unemployment*, Bulletin 1979 (Bureau of Labor Statistics, June 1988).

erally adjusts more quickly in U.S. manufacturing industries and that differences between the United States and Japan are smaller when the volume of employment is measured in terms of labor input.[25]

Adjustment mechanisms

Aside from the overall speed of adjustment, U.S. and Japanese firms have traditionally used different methods to cut labor costs in response to decreased demand.[26] In the United States, firms are quick to lay off workers and shut down inefficient plants. Reliance on private financial capital markets leads firms to reallocate productive capital to more productive plants in the United States or to locations outside the country. Workers at the older plants may be displaced and new workers (possibly elsewhere in the United States or overseas) take their places. There has been little sharing of information or communication between management and labor prior to layoffs and plant shutdowns.[27] Collective bargaining agreements between management and unions specify, in detail, the seniority-based rules for layoffs. However, only about a fourth of all U.S. workers are covered by a collective bargaining agreement.

In Japan, there is extensive reallocation of so-called regular workers (mainly those covered by lifetime employment) to different operations within the firm, to subsidiaries, or even to a different firm. Overtime hours

are reduced; wages and semiannual bonuses are cut. Workers on the shop floor are regularly consulted and informed regarding the plan for employment reduction; detailed employment adjustment plans usually are formulated after the need for adjustment becomes clear. Layoffs are rarely used. While these features are typical for large Japanese firms in export-oriented industries, it is important to note that employment adjustment often proceeds less smoothly in small and medium Japanese firms.

Also in Japan, extensive training is given to newly hired regular workers on all aspects of the company's organization, product lines, production technology, and the competition. Workers are rotated every 2 or 3 years to gain a variety of skills. Base pay is low, rises more steeply than in the United States, and peaks at about age 45. Raises are based mostly on seniority and tenure, rather than on the specific job performed. All nonmanagerial regular workers in a company are represented by the company union. Management is usually promoted from within the company; first-line shop managers are key points of contact, promoting good communication between management and shop-floor workers. Given the Japanese firm's substantial investment in the worker and the flexibility of labor within the firm, it makes sense to move workers internally rather than resort to layoffs.

In large U.S. manufacturing companies, the firm usually provides little training unrelated to the specific job for which workers are employed. Pay is closely attached to job classification. Promotion is usually achieved by changing jobs rather than on acquisition of a broad range of skills, with tenure either at the company or at a particular job being the basis for selection. Wage and compensation levels are usually set out in long-term contracts. There is very little communication and information sharing between management and unions. These features of U.S. internal labor markets make reallocation of labor within the firm costly and difficult. Given this, it is clear why U.S. companies reduce labor costs by readily using layoffs rather than by intra-firm or inter-firm transfers.

Adjustment policies

The U.S. and Japanese Governments use a variety of employment adjustment policies to assist displaced workers. Most U.S. workers, when unemployed, are also entitled to income maintenance under Federal-State unemployment insurance, which may be augmented by employer-financed supplemental unemployment benefits. The United States has two primary employment adjustment programs to provide job search aid to displaced workers: Trade Adjustment Assistance, and the Economic Dislocation and Worker Adjustment Assistance Act of 1988, which incorporated and substantially amended Title III of the Job Training Partnership Act.

Japan has several different employment adjustment programs that fall essentially into two groups: employment stabilization measures and vocational training. In addition, the Japanese Government has recently instituted a program which provides loans to firms adversely affected by the yen appreciation. This type of program indirectly assists in the employment adjustments for beneficiary firms.[28]

Jobless workers in the United States can receive weekly payments of 35 to 40 percent of previous wages for 26 to 39 weeks and job-search assistance through the State Employment Service. Workers must actively search for work to receive benefits.

U.S. Trade Adjustment Assistance. This program, expanded in the Trade Act of 1974, provides assistance to workers displaced as a result of increases in imports. Such workers are eligible to receive enhanced unemployment compensation and assistance in retraining, job search, and relocation. Expenditures of the program increased dramatically between 1979 and 1980, reaching more than $2 billion, because many laid-off automobile workers were eligible for, and collected, trade adjustment assistance. Amendments in 1981 to the Trade Act reduced the weekly monetary benefits a displaced worker could receive by switching benefits from a national to individual State level. As a result of these and other changes to the trade adjustment assistance pro-

gram, it is no longer a major source of aid to trade-displaced workers. It now functions mainly as an extended unemployment insurance program. That is, trade adjustment assistance extends the eligibility period for receiving unemployment insurance benefits from 26–39 weeks to 52 weeks for workers displaced as a result of increased imports. However, coverage under the program has recently been extended to include workers in industries that provide essential goods or services to a trade-affected industry and to workers in firms that engage in exploration or drilling for oil or natural gas.

Economic Dislocation and Worker Adjustment Assistance Act of 1988. This new $980 million program is now the major U.S. Federal employment adjustment program. The act replaces and expands the Job training Partnership Act, Title III program. It still provides block grants of funds to States, which in turn decide the type and amount of employment and training assistance to be provided to dislocated workers, regardless of the cause of displacement.

The act improves on the past, fragmented approach to worker readjustment by: establishing closer links with the unemployment insurance system and Trade Adjustment Assistance, responding earlier and more quickly to workers' needs once they are laid off, improving the targeting of funds to areas of greatest need, emphasizing training and reemployment rather than income support, and facili-

Table 10.   Employment change by occupation, United States and Japan, 1972–86

Occupation	Percent change, 1972–86
United States	
Total employment	33.4
Executive, administrative, and managerial workers	73.7
Professional workers	57.5
Technicians and related support workers	74.5
Salesworkers	54.6
Administrative support workers, including clerical	35.2
Private household workers	−31.9
Service workers, except private household workers	45.9
Precision production, craft, and repair workers	29.6
Operators, fabricators, and laborers	−1.3
Farming, forestry, and fishing workers	−10.4
Japan	
Total employment	14.2
Professional and technical workers	64.4
Salesworkers	29.5
Managers and officials	21.0
Clerical and related workers	31.8
Service workers	24.8
Craftsmen and production process workers	6.9
Workers in transport and communications	−3.3
Laborers	49.4
Farmers, lumbermen, and fishermen	−34.6

SOURCE: 1972–86 rates of change in the United States were derived from Current Population Survey data. See Ronald E. Kutscher and Constance E. Sorrentino, ''Employment and Unemployment Patterns in the U.S. and Europe, 1973–87,'' *Journal of Labor Research* (George Mason University, Department of Economics, forthcoming). For Japan, data are from Statistics Bureau, Prime Minister's Office, *Annual Report on the Labour Force Survey,* 1979 and 1986. Occupational definitions for the two countries are not directly comparable.

tating labor-management and government-community cooperation in responding to plant closings and layoffs.

Japan's transfer and retraining programs. In Japan, employment measures are aimed at preventing unemployment. The government does provide unemployment benefits in the event of job loss (60 to 80 percent of previous wages for 90 to 300 days, depending upon age and tenure). As mentioned earlier, under Japanese employment practices, it is very difficult for people once displaced to be re-employed. Employment adjustments are mainly done internally through intra- and inter-company transfers or retraining programs, often with government financial assistance. Japanese firms often pay wage subsidies to workers who are moved to other companies for a limited period of time. It is important to note that these comments apply primarily to regular workers. Nonregular employees are usually the first to be let go during an economic downturn, often leaving the labor force entirely.

In sharp contrast to U.S. practice, the government of Japan provides wage and training cost subsidies directly to employers. Government assistance is given under the 1983 Special Measures Law for Employment Security for Workers in Specified Depressed Industries and Areas to those employers forced to reduce the scale of their business activities, who temporarily shift workers to other enterprises, promptly recruit those leaving from structurally depressed industries, or offer training to workers who are obliged to leave their jobs entirely. These measures are largely financed through employers' contributions to the Employment Insurance Scheme; the Government does not provide large amounts of financial aid.

Fast adjustments although methods differ

The role of manufacturing in total output has not declined in either the United States or Japan. Thus, manufacturing continues to play a prominent role in both economies, with the competitive position of the U.S. manufacturing industry recently improving relative to Japan. In both countries, however, manufacturing employment has declined recently and the industry share of total employment has continued to fall.

The ability of labor markets to respond to structural change depends upon many factors such as the characteristics of the work force and available adjustment mechanisms and policies. When we examined labor market flexibility by comparing labor force characteristics, we found that on one hand, a larger proportion of U.S. than of Japanese workers are young and more likely to change occupations and geographic areas than older workers. On the other hand, Japanese women are more likely than U.S. women to exit the labor force in economic downturns.

Overall, the U.S. labor market adjusts as quickly as the Japanese labor market. Not surprisingly, employment adjustment mechanisms in the two countries are quite different. In Japan, layoffs are rare. Workers' broad-based training provided by their employers allows them more access to different jobs in other parts of the same company or to a different company altogether without entering the unemployment pool. Overtime hours, wages, and bonuses are cut. In the United States, employers rely on layoffs to reduce labor costs.

Correspondingly, U.S. and Japanese employment adjustment policies are tailored to their respective labor markets. In the United States, unemployment compensation is available to job losers, which provides income support while awaiting recall or searching for a new job. Training, job search, and relocation assistance is provided to workers whose job loss appears to be permanent and 60 days notice is provided in the case of plant closings and mass layoffs.

In Japan, a variety of programs have been designed to prevent workers from ever becoming unemployed. Government subsidies are paid directly to firms to finance both wages and vocational training of underemployed workers. □

-----FOOTNOTES-----

[1] Ronald E. Kutscher and Valarie A. Personick, "Deindustrialization and the shift to services," *Monthly Labor Review,* June 1986, pp. 3–13.

[2] U.S. Department of Commerce, Bureau of Economic Analysis database; Japan Economic Planning Agency, *Annual Report on National Accounts,* 1987.

[3] U.S. Congress, Office of Technology Assessment, *Paying the Bill: Manufacturing and America's Trade Deficit,* OTA–ITE–390 (Washington, U.S. Government Printing Office, June 1988).

[4] Arthur Neef and James Thomas, "Trends in manufacturing productivity and labor costs in the U.S. and abroad," *Monthly Labor Review,* December 1987, pp. 25–30.

[5] These data and the figures in table 1 are a count of *workers* in the manufacturing industry derived from the Current Population Survey, a national sample of households. Data from the Current Employment Statistics program, a national survey of business establishments, provide a count of the number of *jobs* in the manufacturing industry. In 1987, there were 19.1 million manufacturing jobs. The larger number in the CPS is due in large part to the contrasting ways of counting workers on unpaid absences. Manufacturing has a relatively large number of unpaid absences and they are counted as employed only in the CPS, not in the establishment survey. See Christopher G. Gellner, "A 25-year look at employment," *Monthly Labor Review,* July 1973, pp. 14–23. Figures in table 6 are based on the establishment survey.

[6] Elizabeth Gibbons and Gerald F. Halpin, "Import price declines in 1986 reflected reduced oil prices," *Monthly Labor Review*, April 1987, pp. 3–17.

[7] *Economic Report of the President* (Washington, U.S. Government Printing Office, 1988).

[8] Gibbons and Halpin, chart 2, p. 5.

[9] Robert Blanchfield and William Marsteller, "Rising export and import prices in 1987 reversed the trend of recent years," *Monthly Labor Review*, June 1988, pp. 3–19.

[10] *Ibid.*, pp. 5–6.

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[13] Stuart E. Weiner, "Why is Japan's Unemployment Rate So Low and So Stable?" *Economic Review* (Federal Reserve Bank of Kansas City), April 1987, pp. 3–18.

[14] Organization for Economic Cooperation and Development (OECD), "The Social Policy Implications of Aging Populations" (Paris, OECD, forthcoming), table 12.

[15] Organization for Economic Cooperation and Development (OECD), *Structural Adjustment and Economic Performance* (Paris, OECD, 1987), table 1.1.

[16] George Psacharopoulos and Ana Maria Arriagada, "The educational composition of the labour force: an international comparison," *International Labour Review*, September–October 1986, pp. 56–74.

[17] *Ibid.*

[18] *Ibid.*

[19] Organization for Economic Cooperation and Development (OECD), *Flexibility in the Labor Force* (Paris, OECD, 1986), table II–9.

[20] *Ibid.*

[21] Weiner, "Why is Japan's Unemployment Rate So Low?" p. 16.

[22] Haruo Shimada, "The Japanese Employment System," *Japanese Industrial Relations Series*, Series 6 (Tokyo, Japan Institute of Labour, 1980).

[23] *Ibid.*

[24] James A. Orr, Haruo Shimada, and Atsushi Seike, *United States–Japan Comparative Study of Employment Adjustment*, Report to the U.S. Department of Labor and Japan Ministry of Labor, March 1985.

[25] *Ibid.*

[26] This section draws heavily on Orr, Shimada, and Seike, *United States–Japan Comparative Study.*

[27] This may change in the future with the recent passage of the Worker Adjustment and Retraining Notification Act of 1988, which requires firms that employ 100 or more workers to give workers 60 days notice that the plant may close or that a mass layoff will occur.

[28] Organization for Economic Cooperation and Development (OECD), *"Measures to Assist Workers."*

The importance of basic academic skills

Why are basic skills important? Because those with better basic skills—defined as the ability to read, write, communicate, and compute—do better in school, at work, and in other key areas of their lives. They are more likely to perform well in school, obtain a high school diploma, go on to and complete college, work more hours, earn higher wages, be more productive workers, and avoid bearing children out of wedlock. Conversely, those who are deficient in basic skills are more likely to be school dropouts, teenage parents, jobless, welfare dependent, and involved in crime. Moreover, in an interdependent world economy, the skills of the Nation's work force are becoming an increasingly important determinant of American industry's competitive position, workers' real wages, and our overall standard of living. In short, basic skills bear a distinct relation to the future well-being of workers, families, firms, and the country itself.

—GORDON BERLIN AND ANDREW SUM
Toward A More Perfect Union: Basic Skills,
Poor Families, and Our Economic Future
(New York, Ford Foundation, 1988), pp. 1–2.

Productivity in the carburetors, pistons, and valves industry

Growth in output per employee hour in the carburetors, pistons, and valves industry has been substantially below that for all manufacturing; the industry has felt the effects of weak demand

JOHN W. FERRIS AND VIRGINIA L. KLARQUIST

Productivity in the carburetors, pistons, and valves industry, as measured by output per employee hour, declined slightly at an average annual rate of 0.4 percent from 1972 to 1986.[1] This was below the rate for all manufacturing, which grew at a rate of 2.4 percent per year during the same period. The decline in productivity reflected a small decrease in output of 0.1 percent per year and a rise in employee hours of 0.3 percent per year. Adversely affecting the industry were cyclical downturns in the economy, which resulted in sizable drops in production in several years and corresponding declines in productivity.

The productivity trends in the industry can be divided into two distinct periods. From 1972 to 1980, productivity declined at an average annual rate of 3.1 percent. Output fell 1.3 percent per year, while hours rose 1.9 percent per year. In the two recessions which occurred during this period, output dropped sharply. In the recession year of 1974, output fell 14.3 percent and hours decreased 4.7 percent. This resulted in a productivity falloff of 10.0 percent. In the recession year of 1980, a 17.1-percent decrease in output and a 13.2-percent decline in hours led to a 4.5-percent drop in industry productivity.

From 1980 to 1986, productivity rebounded, increasing at a rate of 4.5 percent per year. This was a result of output's having risen at an average annual rate of 4.2 percent while hours changed little, falling 0.3 percent per year. Productivity advanced in each year from 1980 to 1985; however, in 1986 output per hour declined.[2]

Industry description

The carburetors, pistons, and valves industry includes establishments engaged primarily in the manufacture of all types of carburetors, pistons and piston rings, and valves for aircraft, motor vehicles, and engines. The breakdown of industry production in 1972 was 46 percent carburetors, 29 percent pistons and piston rings, and 25 percent valves. By 1986, the distribution had changed to 61 percent carburetors, 28 percent pistons and piston rings, and 11 percent valves. Michigan, New York, Kentucky, and Indiana are the leading States in employment in the industry, accounting for about 50 percent of the industry's employment in 1982 (the year of the most recent Census of Manufactures).

Establishments in the industry are large: The eight largest of the industry's 171 establishments accounted for more than one-half of the value of the industry's shipments in 1982. The average number of employees per establishment in 1982 was 182, compared to an average of 53 employees for all manufacturing.

Output and demand

The change in industry output over the entire period from 1972 to 1986 was negligible. However, annual output movements have varied significantly in certain years. (See

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table 1.) In 1973, the industry recorded its largest increase in output, 30.2 percent. The largest decrease—17.4 percent—occurred in 1975. Approximately three-fourths of the industry's output is purchased by motor vehicle manufacturers. Hence, the level of production in the motor vehicle industry is the primary determinant of industry output.[3]

From 1972 to 1980, output declined at an average annual rate of 1.3 percent, a reflection of a decline in output in the motor vehicle industry.[4] During this period the number of cars, trucks, and buses produced fell by 1.4 percent per year. The shift in automobile production in the United States from large cars to small and medium cars also adversely affected the industry. In 1972, the distribution of automobile production was 9 percent four cylinders, 11 percent six cylinders, and 80 percent eight cylinders. By 1980, the distribution had changed to 31 percent four cylinders, 37 percent six cylinders, and 32 percent eight cylinders.

By contrast, from 1980 to 1986, industry output grew at an average annual rate of 4.2 percent. This was primarily due to an 8.4-percent annual growth rate in motor vehicle production. However, other factors tempered the recovery of the carburetors, pistons, and valves industry. One of these was the continuing shift toward small-car production. By 1986, more than half of all automobiles produced in the United States had four-cylinder engines. Correlatively, the proportions of cars with six- and eight-cylinder engines both declined from 1980 levels, to 29 and 20 percent, respectively. Also tempering the growth rate of industry output was the increasing number of installations of electronic fuel injection systems in place of conventional carburetor systems in new cars. Before 1980, electronic fuel injection systems were virtually nonexistent in American-made automobiles. By 1986, nearly two-thirds of the automobiles produced in the United States were equipped with such systems.

Employment and hours

Industry employment grew at an average annual rate of 0.2 percent from 1972 to 1986. Employment increased from 26,700 in 1972 to a high of 36,200 in 1979 and fell to 28,800 in 1986. Total employee hours grew at a slightly faster pace of 0.3 percent per year. The number of production workers rose slightly from 21,600 in 1972 to 22,300 in 1986. Nonproduction worker employment grew at a faster rate of 1.4 percent per year as the number of nonproduction workers increased from 5,100 in 1972 to 6,500 in 1986. The proportion of production workers to total employment fell from 80.9 percent in 1972 to 77.4 percent in 1986.

Average hourly earnings of production workers were significantly higher in the industry than in all manufacturing industries. In 1972, industry average hourly earnings were $4.65, compared with $3.82 in all manufacturing industries. By 1986 the gap had widened, and industry average hourly earnings were $12.66 compared with $9.73 in all manufacturing.

Capital spending

Measured in constant dollars,[5] industry capital expenditures increased at an average annual rate of 6.6 percent from 1972 to 1986, as capital spending per employee was brought up to the level for all manufacturing industries. Strained production capacity, which peaked in the late 1970's, was the main reason for the high levels of capital spending. During the same years, capital expenditures by all manufacturing industries rose 2.5 percent per year.

From 1972 to 1980, investments in plant and equipment by companies in the industry rose 10.6 percent per year while all manufacturing industries increased their capital expenditures 5.2 percent per year. At the beginning of this period, the level of capital spending per employee in the industry was about one-half the level of all manufacturing industries. By the late 1970's, the industry was investing in plant and equipment at a level comparable to that of all manufacturing.

Following this period of high capital spending, industry productivity benefited from 1980 to 1986, growing 4.5 percent annually. The lag between capital expenditures and productivity is due in part to the lapse of time that occurs before the new facilities made possible by the capital expenditures, which incorporate technological advances, become fully operational.

Between 1980 and 1986, capital spending slowed slightly throughout the manufacturing segment of the economy, declining by 0.1 percent per year. In contrast,

Table 1. Productivity and related indexes for the carburetors, pistons, and valves industry, 1972–86

Year	Output per employee hour			Output	Employee hours		
	All employees	Production workers	Nonproduction workers		All employees	Production workers	Nonproduction workers
1972	113.6	113.8	112.9	94.3	83.0	82.9	83.5
1973	120.4	119.3	124.9	122.8	102.0	102.9	98.3
1974	108.3	108.8	106.3	105.3	97.2	96.8	99.1
1975	100.1	102.8	89.3	87.0	86.9	84.6	97.4
1976	107.3	108.4	102.0	102.9	95.9	94.9	100.9
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	94.6	95.1	92.5	96.5	102.0	101.5	104.3
1979	94.6	94.2	96.4	105.7	111.7	112.2	109.6
1980	90.3	93.3	78.7	87.6	97.0	93.9	111.3
1981	91.7	93.1	85.6	90.1	98.3	96.8	105.2
1982	92.0	97.4	73.7	85.3	92.7	87.6	115.7
1983	99.6	102.9	86.3	91.6	92.0	89.0	106.1
1984	110.3	111.5	105.2	115.3	104.5	103.4	109.6
1985	114.0	116.8	102.8	110.8	97.2	94.9	107.8
1986	111.1	114.9	96.3	101.3	91.2	88.2	105.2
Average annual rates of change (in percent)							
1972–86	−0.4	−0.1	−1.4	−0.1	0.3	0.0	1.3
1972–80	−3.1	−3.0	−3.9	−1.3	1.9	1.7	2.7
1980–86	4.5	4.4	4.9	4.2	−0.3	−0.2	−0.6

investment in plant and equipment in the carburetors, pistons, and valves industry increased 9.3 percent per year. Much of the capital spending by the industry was on the conversion to the production of electronic fuel injection systems.[6]

Technology

Although productivity has been dampened by decreasing demand, the industry has introduced some new technology into its production processes. Changes in technology have centered on improvements in metalworking machinery, as well as automatic movement and positioning of work.

In carburetor manufacturing, new technology has centered on improvements in assembly line production.[7] In the earliest years of the study period, loading and transferring the workpiece were manual operations. Soon, establishments increasingly installed automatic transfer lines. As a result, many metalworking operations (for example, milling, grinding, drilling, and reaming) became automated. In the newer system, workers perform the initial tool setup, monitor performance, and provide maintenance. Testing and inspection may or may not be automated. For the installation and continued use of such machinery to be economical, the volume of production must be very high.

In recent years the volume of production of carburetors has declined sharply, as more new cars are equipped with electronic fuel injection systems. Major manufacturers who once produced thousands of carburetors daily now produce only hundreds daily. The reduced volume of production has resulted in a shift away from the newer assembly line production technique toward cell manufacturing and job-order production. In cell manufacturing, the workpiece is assembled at one location, and jigs and fixtures are provided as operator aids. Convenient parts bins and state-of-the-art tools are also provided to minimize labor and increase production. Direct labor requirements are higher in cell manufacturing than in assembly line production.

In piston manufacturing, new technology has centered on improvements in metalworking and transfer machines. Traditionally, pistons were manufactured on a succession of lathes and grinders, requiring much manpower to transport and position the work in process. Some establishments in the industry have now installed automatic-dial transfer machines.[8] These machines perform all the operations of the lathes and grinders at a faster rate than the machines they replaced. The machine cycle consists of two trips around the seven-station dial with the pistons automatically positioned. Two pistons are always in place at each work station—one in a vertical position for the first series of machine operations and one in a horizontal position for the second series. At the first station an operator loads a casting that is indexed for the second station into the load-assist, which places the casting in a three-jaw compensating lathe. At the second station, a horizontal feed unit with a boring

spindle drills the wrist-pin hole and counterbores, faces, and chamfers (grooves) the piston skirt. At the third station, the near and far sides of the wrist-pin hole are recessed to hold a snap ring. The wrist-pin hole is bored further at the fourth station, and polishing takes place at the fifth station. At the sixth station a tool peens the surface of the piston, hardening the bore to the desired depth. At the final station in its first trip around the seven-station dial, the wrist-pin bore is gaged. The part is then automatically unloaded from the vertical position and reloaded in the horizontal position.

The second cycle begins at station 2, where the outside diameter of the piston is rough-turned. At the third station, the piston dome is rough-cut and finish-cut. A horizontal positioning unit with a grooving spindle then cuts the ring groove at the fourth station. At the fifth station, the outside diameter is finish-turned to the desired roundness tolerance. At the sixth station, the outside diameter is gaged. Finally, at the seventh station, the dial indexes the piston to its original position and automatically unloads it into a chute. Pistons produced on the automatic-dial transfer machine are of consistently higher quality than those produced on a succession of lathes and grinders. Also, labor requirements are significantly lower due to the reduced material handling and reworking of pistons.

Outlook

The carburetor segment of the carburetors, pistons, and valves industry is expected to decline sharply. In 1987, the proportion of new American-made cars with electronic fuel injection systems rose to 77 percent. Industry sources predict that carburetors will cease to exist as original equipment on new American cars by 1991. However, manufacturers will continue to produce carburetors for replacements in older cars and for nonautomotive use. The low level of demand will probably be responsible for the failure to adopt, on a widespread basis, new technologies such as automatic transfer lines.

The outlook for the remaining segments of the industry appears better. Diffusion of the more efficient metalworking and transfer machinery is far from complete. In addition, establishments in the industry may adopt computer-integrated manufacturing, a system in which engineers use computers to design products. Computers can also guide workpieces among machines and direct machine tools.

The major reason for the lack of diffusion of the newer technologies throughout the industry is weak and volatile demand. Contributing to the weakness in demand is strong foreign competition. For example, in 1972 imports of piston rings were virtually nonexistent. Today, one industry source estimates that imports account for 20 percent of the piston ring market. The volatility in demand is a byproduct of the cyclical patterns in motor vehicle production. □

——FOOTNOTES——

[1] The carburetors, pistons, and valves industry is designated by the Office of Management and Budget as SIC 3592 in the *Standard Industrial Classification Manual, 1987*. This industry comprises establishments engaged primarily in the manufacture of carburetors, pistons, piston rings, and engine intake and exhaust valves.

Average annual rates mentioned in the text and tables are based on the linear least squares trend of the logarithms of the index numbers. The indexes for productivity and related variables are updated annually and published in *Productivity Measures for Selected Industries and Government Services*, Bulletin 2296 (Bureau of Labor Statistics, November 1987).

[2] By definition, the least squares rate of change is the rate resulting from the best fit of the trend line. The overall rate is not necessarily the average of the year-to-year rates of change. In this case, the overall rate of change is not an average of the two subperiod rates of change.

[3] *Census of Manufactures* (U.S. Department of Commerce, 1972, 1977, 1982), table 6a.

[4] All motor vehicle data in this article come from *Facts and Figures '86* (Motor Vehicles Manufacturers Association of the United States, Inc., 1987); or *Ward's Automotive Yearbook* (Ward's Communications, Inc., 1987).

[5] Capital expenditures were deflated by the implicit price deflator for producers' durable equipment; see *The Economic Report to the President*, transmitted to the Congress January 1988, table B3.

[6] Industry sources. It should be noted that production of electronic fuel injection systems is done primarily in the motor vehicle parts and accessories industry (SIC 3714). Conversion to electronic fuel injection systems will lead to a reduction in the size of the carburetors, pistons, and valves industry as presently defined in the *Standard Industrial Classification Manual*.

[7] *Ibid*.

[8] "Transfer Machine for Mini Pistons," *American Machinist*, March 1981, pp. 112–14; and "Machine of the Month: Hardinge Piston Turning Machine," *Manufacturing Engineering*, March 1979, p. 43.

APPENDIX: Measurement techniques and limitations

Indexes of output per employee hour measure changes in the relation between the output of an industry and employee hours expended on that output. An index of output per employee hour is derived by dividing an index of output by an index of industry employee hours.

The preferred output index of manufacturing industries would be obtained from data on quantities of the various goods produced by the industry, each weighted (multiplied) by the employee hours required to produce one unit of each good in some specified base period. Thus, those goods which require more labor for production are given more importance in the index.

In the absence of adequate data on quantities produced, the output index for the carburetors, pistons, and valves industry was constructed by a deflated-value technique. The values of shipments of the various product classes were adjusted for price changes by appropriate producer price indexes and industry sector price indexes to derive real output measures. These, in turn, were combined with employee hour weights to derive the overall output measure. The result is a final output index that is conceptually close to the preferred output measure.

The annual output index series was then adjusted (by linear interpolation) to the index levels of the "benchmark" output series. This benchmark series incorporates more comprehensive, but less frequently collected, economic census data.

The indexes of output per employee hour relate total output to one input—labor. The indexes do not measure the specific contribution of labor, capital, or any other single factor. Rather, they reflect the joint effects of factors such as changes in technology, capital investment, capacity utilization, plant design and layout, skill and effort of the work force, managerial ability, and labor-management relations.

The average annual rates of change presented in the text are based on the linear least squares trend of the logarithms of the index numbers. Extensions of the indexes will appear annually in the BLS bulletin, *Productivity Measures for Selected Industries and Government Services*. A technical note describing the methods used to develop the indexes is available from the Bureau's Office of Productivity and Technology, Division of Industry Productivity and Technology Studies.

Foreign Labor Developments

OECD social ministers focus on rising pension, health costs

MELVIN BRODSKY

The economic implications of social policies are becoming a major concern of the Organization for Economic Cooperation and Development (OECD) as social expenditures account for a larger share of the gross national product (GNP). In their first meeting, social policy ministers of the OECD met on July 6–7, 1988, to discuss social policies for the 1990's. Secretary of Health and Human Services Otis R. Bowen led the U.S. delegation. The specific issues addressed were work and welfare; retirement pensions; and health care systems.

In their discussions, the ministers recognized that social protection systems must adapt to changing economic, social, and demographic conditions. In addition, increased care must be taken to minimize economic disincentives of social programs.

The need for efficient, economical, and flexible social programs will increase over the next 50 years when social expenditures in real terms are expected to rise by one-third.[1] A major reason for this increase is the aging of the population. The OECD projects that the proportion of the population age 65 and older will increase from slightly more than 12 percent to almost 22 percent in the year 2040 when the number of older workers is expected to peak,[2] creating a greater need for public sector social expenditures, particularly old age pensions, disability payments, and medical care. Governments will also be faced with other demands as well. Increasing numbers of single-parent families, long-term unemployment, and persistent poverty all call out for increased government assistance.

Work and welfare

Ministers expressed support for a closer relationship between social policies, employment, the labor market,

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and education, noting that all are important elements in a dynamic system of social protection. Secretary-General Jean Claude Paye remarked, "Policies for income support should not simply 'passively' support people during periods of unemployment, but should have an active role, more closely integrated with education and training policies, in developing the skills and characteristics which would improve the labor market opportunities of the individual." Secretary Bowen agreed, noting that welfare programs should be judged on how they promote independence. He added that numerous State programs are now experimenting with "workfare" programs to encourage welfare recipients to enter the U.S. labor market.

The ministers agreed to four major policies. First, that income support policies should include both income maintenance and training services. Second, that the implementation of income support, child care, and other policies will enable the growing number of single-parent families with low incomes to combine work and family responsibilities. Third, that the development of tax, employment, welfare, and supporting services should assist in maintaining strong and stable families. For example, Canada and New Zealand have introduced the concept of a refundable tax credit whereby working mothers can take the credit against their tax liability, or if not working, can receive refundable credits as direct cash payments. Fourth, that top priority should be given to the elimination of poverty and its causes.

Retirement and pensions

Discussions revealed a sense of urgency among the ministers to act at once in the face of rapid growth in public pension expenditures in the OECD countries. Some ministers observed that changes in their pension systems would be very slow and difficult to bring about. It was noted that in most countries, severe demographic pressures will probably not occur during the next 15 to 20 years, but reforms need to be put in place to allow people to plan for their retirement.

The OECD's analytical work in the area of pensions highlights the seriousness of the situation. Between 1960–84, the share of national wealth devoted to financing pensions has doubled, making pensions the largest

item in the budgets of most countries.[3] Because both the benefit levels and the share of the older population eligible for pensions will continue to increase for some time, the situation will worsen. After the year 2010, almost all OECD countries will be faced with a substantial increase in the ratio of aged to working population, reaching a peak around 2040. The OECD estimates that between 1988 and 2040, the demographic effect on pension expenditures relative to the national income will double the pension burden for the OECD area as a whole and will increase by about 80 percent in the United States.[4]

The ministers considered a number of policy options for meeting this challenge. One option is to increase the retirement age with opportunities for individual choice and part-time employment. The OECD estimates that an increase in the retirement age—from 65 to 66 years old—would reduce pension outlays by 5 to 10 percent.[5] A second possibility is to alter the balance between public, occupational, and private pension schemes. The OECD notes that a shift from public to nonpublic pension schemes would ease the pressures on the public system, although not necessarily on society as a whole.

Health care systems

The ministers noted that while today's health care systems provide excellent services in OECD countries, these systems have become increasingly complex and costly.

Health care budgets in OECD countries have climbed steadily from a 4.2-percent share of GNP in 1960 to a 7.5-percent share in 1986.[6] This represents a growth rate almost twice that of GNP. Health care expenditures in countries with private insurance schemes similar to the United States have risen just as rapidly. For example, total national health expenditures in the United States have increased from $215.1 billion in 1979 to $387.4 billion in 1984.[7]

In discussing cost control and management, the ministers examined changes in patient cost sharing, restructuring hospital and medical payment systems, and alternative health care delivery systems. The Canadian delegate observed that a complicating factor was the high public expectation for health care, and that any change required strong public support. Country discussions showed a strong interest in measures for long-term cost control with the need to encourage healthier life styles. Secretary Bowen's intervention stressed U.S. actions to control costs and maintain quality of health care.

The subject of AIDS as an economic burden proved to be a main focus of discussion. The observer for the World Health Organization noted that AIDS cases reportly have increased 25 percent in the last 6 months to slightly more than 100,000 and that the disease has entered the epidemic stage. The total cost to health care systems will rise substantially as the number of AIDS cases increases. For example, it is estimated that the total direct costs of medical care for AIDS patients in the United States in 1991 will be between $8 billion and $16 billion.[8] Ministers supported research toward controlling and eliminating the disease, increased educational programs, and improved medical care and support systems for AIDS patients.   ☐

————FOOTNOTES————

[1]See "Making Provision for Aging Populations," *The OECD Observer*, October–November 1987, p. 6.

[2]*Ibid.* p. 5.

[3]*Aging Populations, The Social Implications* (Washington, Organization for Economic Cooperation and Development, 1988), p. 69.

[4]*Retirement Pensions, Demographic Pressures and Economic Constraints* (Washington, Organization for Economic Cooperation and Development, 1988), p. 12.

[5]*Ibid.*, p. 6.

[6]*Health Care Systems: Needs, Control and Efficiency* (Washington, Organization for Economic Cooperation and Development, 1988), p. 5.

[7]*Structural Adjustment and Economic Performance* (Washington, Organization for Economic Cooperation and Development, 1987), p. 323.

[8]*Ibid.*, p. 11.

Major Agreements Expiring Next Month

This list of selected collective bargaining agreements expiring in March is based on information collected by the Bureau's Office of Compensation and Working Conditions. The list includes agreements covering 1,000 workers or more. Private industry is arranged in order of Standard Industrial Classification.

Industry or activity	Employer and location	Labor organization[1]	Number of workers
Private			
Construction	Associated Building Contractors of Northern Ohio (Ohio)	Carpenters	1,800
	Associated General Contractors of Connecticut (Hartford, CT)	Carpenters	1,200
	Associated General Contractors of Connecticut (Hartford, CT)	Laborers	5,000
	Associated General Contractors (Central Connecticut)	Carpenters	1,750
	Associated General Contractors and Wabash Valley Contractors Association (Illinois)	Laborers	1,500
	Associated General Contractors and Construction Employers Association (Houston, TX)	Operating Engineers	1,000
	Associated General Contractors and Construction Employers Association (Houston, TX)	Laborers	1,000
	Heavy Constructors Association (Kansas City, MO)	Laborers	3,000
	Heavy Constructors Association (Kansas City, MO)	Operating Engineers	1,000
	Houston Sheet Metal Contractors Association (Texas)	Sheet Metal Workers	1,500
Food products	Dairy Industry Industrial Relations Association (Southern California)	Teamsters	2,500
	Winery Employers Association (California)	Distillery Workers	1,300
Tobacco	Loews Theatres Inc., Lorillard Division (North Carolina)	Bakery, Confectionery and Tobacco Workers	2,100
Paper	Lily Tulip, Inc. (Springfield, MO)	Electrical Workers (IBEW)	1,000
Printing and publishing	Printing Industries of Metropolitan New York, Printers League Section (New York)	Graphic Communications	1,600
	Printing Industries of Metropolitan New York (New York)	Graphic Communications	2,000
Stone, clay, and glass products	Owens-Corning Fiberglas Corp. (Newark, OH)	Various unions	1,600
Fabricated metal products	American Can Co. (Interstate)	Machinists	1,100
	Continental Group, Inc. (Interstate)	Machinists	1,800
Transportation equipment	Bethlehem Steel Corp., shipbuilding (Maryland)	Marine and Shipbuilding Workers	1,500
	Teledyne Industries Inc., Ryan Aeronautical Division (San Diego, CA)	Auto Workers	1,500
Instruments	Xerox Corp. (Rochester, NY)	Clothing and Textile Workers	3,400
Trucking	Moving and Storage Industry of New York (New York, NY)	Teamsters	1,500
Air transportation	Delta Air Lines, pilots (Interstate)	Air Line Pilots	4,200
	American Airlines, ground service (Interstate)	Transport Workers	12,000
Communication	American Broadcasting Co. (Interstate)	Broadcast Employees and Technicians	3,200
	General Telephone Co. of California	Communications Workers	20,000
Utilities	Virginia Electric and Power Co. (Interstate)	Electrical Workers (IBEW)	4,700
	Cincinnati Gas and Electric Co. (Ohio)	Independent Utilities Union (Ind.)	1,200
Retail trade	Independent food stores (Illinois and Indiana)	Food and Commercial Workers	2,000
	Acme Markets (Interstate)	Food and Commercial Workers	1,900
	Kroger and National Stores (St. Louis, MO)	Food and Commercial Workers	1,350

See footnote at end of table.

Continued—Major Agreements Expiring Next Month

Industry or activity	Employer and location		Labor organization[1]	Number of workers
Restaurants	Restaurant-Hotel Employers' Council (California)		Hotel Employees and Restaurant Employees	8,000
	Hyatt Hotels (California)		Hotel Employees and Restaurant Employees	1,000
Real estate...........................	Bronx Realty Advisory Board (New York, NY)............................		Service Employees	4,000
Amusements	Distribution and film service companies (Interstate)......................		Theatrical Stage Employees	1,200
Hospitals	Appalachian Regional Hospitals, Inc. (Interstate)		Steelworkers	1,850
Public				
General government	Massachusetts:	State government, general employees	State, County and Municipal Employees; Service Employees	30,000
Education		Wrentham State Mental and Physically Handicapped School, paraprofessionals	State, County and Municipal Employees	1,950
	Michigan:	University of Michigan, graduate student teachers ...	Teachers	1,800
General government	Ohio:	Cleveland, municipal unit	State, County and Municipal Employees	1,800
Law enforcement...................		Cleveland Police Department, patrol officers	Police Patrolmen's Association (Ind.)	1,500
Transit	Pennsylvania:	Southeast Pennsylvania Transit Authority.............	Transport Workers......................	5,200
	Wisconsin:	Milwaukee City School District, recreation employees	State, County and Municipal Employees	1,950

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

Developments in Industrial Relations
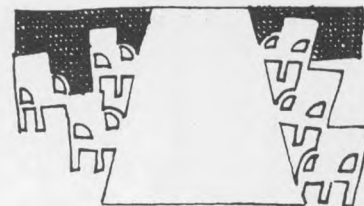
Pan Am settles with Flight Attendants

Financially-troubled Pan American World Airways moved closer to its goal of winning $180 million a year in labor and cost reductions from its unions by settling with the Independent Union of Flight Attendants on a 39-month contract calling for a reported cut of $33 million a year. Earlier in 1988, members of the Air Line Pilots and the Flight Engineers Beneficial Association had accepted cuts and Pan Am had imposed an 8-percent pay cut on Teamsters' members under provisions of the Railway Labor Act after the employees had refused to use arbitration to resolve bargaining differences.

Under the Flight Attendants' contract, wages were cut by differing amounts, depending on the tier: for the upper tier or "A" scale (those hired prior to May 1985), the cut was 11.715 percent; for the lower tier or "B" scale (those hired after May 1985), the cut was 2 percent. The only increase was in the starting rate for B scale employees hired during the contract term; they begin at $1,000 a month, instead of $907.

In return for the cuts, Pan Am agreed to move toward elimination of the two tiers. This was accomplished by lengthening the pay progression schedule to 13 years, from 7 years, for B scale employees; but merging it with the schedule for A scale employees after 10 years of service. Previously, top B rates were lower than top A rates.

The accord also provided for cuts in paid vacation for some shorter service A and B scale employees, for decreases in per diem allowances, and for an increase in the number of foreign nationals Pan Am may hire (from 150 to 350).

At the time of the Flight Attendants' settlement, Pan Am was negotiating with the Teamsters on a contract to replace the imposed terms for ramp service employees, and was in arbitration to settle differences with the Transport Workers over terms for mechanics.

Retail trade contracts

In Southern California, a total of 18,000 workers were covered by contracts the Food and Commercial Workers and the Teamsters unions negotiated with the Food Employees Council, comprising eight grocery store chains. The Food and Commercial Workers agreement for meat department employees provides for wage increases totaling 35 cents an hour over the term; expands apprenticeship opportunities; more precisely defines meatcutters' duties; reduces employee eligibility for medical and dental insurance coverage to 64 hours of work per month; and guarantees 16 hours of work per week to part-time employees to assure that they will benefit from the eased eligibility.

The 21-month contract, which will expire at the same time as the existing contract for retail clerks, also represented by the Food and Commercial Workers, provides for a July 1989 merger of pension and health and welfare funds for the two groups of employees.

The 3-year Teamsters' accord, covering 8,000 warehouse personnel and truck drivers employed by the eight chains, also was expected to set a pattern for Teamsters settlements for 4,000 employees of other firms.

Over the term, employees will receive wage increases totaling $1.30 an hour. Pay progression from the starting rate to the top rate was cut to 18 months, from 3 years, and the employers also agreed to two 10-cent-an-hour increases in benefits funding. Under the prior agreement, maximum pay rates were $14.52 an hour for drivers and $14.19 for warehouse employees.

In the Eugene, OR, area, 1,000 grocery, bakery, and meat department employees were covered by a November settlement between Food and Commercial Workers Local 555 and Food Employers, Inc., comprising Safeway Stores, Albertson's Inc., Fred Meyer Inc., and other chains.

During the 3-year agreement, which was retroactive to February 7, 1988, full-time employees will receive two 20-cent-an-hour increases in their wage rates, bringing the rates to $12.46 for meatcutters and $10.03 for other employees. The increases do not apply to part-time courtesy clerks, who will now advance to $4 an hour, from $3.80, after they have worked 520 hours.

The settlement also extends the progression period for journeypersons to 30 months, from 24, and obligates the employers to increase their financing of health and welfare benefits to $112 a month, from $84.

Elsewhere, the Food and Commercial Workers settled with Bradlees Department Store Co. for 3,000 employees of 24 stores in New Jersey and upstate New York.

"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.

According to the union, the major issues were company proposals to assume sole administration of the health and welfare and pension funds and to reduce fund reserves. Under the settlement, the parties will continue to jointly administer the funds and the minimum level of reserves was determined by an actuarial firm.

Over the 3-year term, hourly wage increases will range from $1.15 for employees with less than 1 year of service to $1.40 for those with 10 or more years. Previous wage rates ranged from $5 to $7 an hour.

In addition to a requirement that health and welfare benefits be maintained at current levels, the contract calls for increases in the schedule of dental benefits; a $2 increase in the $14 a month pension rate for each year of service for current employees; and a "bonus" lump-sum payment in 1989 and 1990 to current retirees. The bonus will be equal to 1 month's pension check.

Two Chicago newspapers complete negotiations

The *Chicago Sun-Times* settled with The Newspaper Guild and *The Chicago Tribune* settled with the Chicago Typographical Union, a unit of the Communications Workers.

The Sun-Times, in its negotiations, initially sought a 3-year contract calling for an immediate 3-percent wage cut, which would have been restored after 18 months, while The Newspaper Guild sought three wage increases totaling 19.5 percent. Although the newspaper was operating at a profit, it apparently wanted the wage cut because it was losing circulation and advertising to the larger *Chicago Tribune*, and also faced large interest payments on money it borrowed after it was purchased by an investment group.

The *Sun-Times* settlement was reached a few hours after a strike deadline, but the 250 reporters, editors, and photographers remained on the job, continuing The Newspaper Guild's strike-free history at the 40-year-old publication. The new 40-month contract, which was retroactive to the June 1, 1988, termination date of the preceding contract, did not provide for a first-year wage change. The employees will receive a $500 lump-sum payment and a 3-percent wage increase at the beginning of the second year, followed by an additional 3-percent increase at the beginning of the third year. Prior to the accord, reporters' pay ranged from $625 a week at hiring to $895 after 5 years of service.

Other terms include company provision of attorneys to defend reporters against charges of libel resulting from their work; extension of maternity leave for female employees to cover adoptions; establishment of 2 weeks' paternity leave for male employees; and a new plan to finance child care with pre-tax dollars, subject to Internal Revenue Service approval.

At the *Chicago Tribune*, the settlement ended a dispute that began in 1985, when 240 printers walked out to protest management efforts to gain greater control over hiring and assignments in the composing room. Under the 3-year settlement, negotiated with the aid of former Secretary of Labor William J. Usery, the 120 people still on strike have the option of a $30,000 cash buyout of their job and pension rights or a lifetime annuity of $500 to $570 a month and company-paid health insurance. Fifty printers still on the job after unconditionally returning to work in 1986 have the choice of a $30,000 buyout or remaining on the job under the new contract, which provides for an immediate $150 a week wage increase to bring printers' pay up to the $630 level at the *Sun-Times*. They will also receive guaranteed wage increases and possible automatic cost-of-living pay adjustments in the second and third years. When these employees leave their jobs, they will be replaced by lower paid "typographical associates."

Bakery workers rewarded for perfect attendance

Keebler Co. and the Bakery, Confectionery and Tobacco Workers negotiated a 3-year contract for 3,500 cookie and cracker workers at six plants. The contract provided for wage increases totaling $1.45 an hour for production workers and $4.65 for skilled trades workers. According to the union, previous wage rates ranged from $11.97 to $14.55 an hour.

Benefit changes included a new program offering employees 1 day's pay for each 4 months of perfect attendance; a $10 increase in the weekly sickness and accident benefit, bringing the maximum to $160; and two $50 increases in the $700 monthly pension for future retirees with 25 years of service, or with age and service totaling 80.

The parties also agreed to further discussions on retraining employees to avoid their being displaced by technological changes in the industry.

The agreement runs to October 31, 1991. The plants are in Denver, CO; Atlanta and Macon, GA; Cincinnati, OH; Grand Rapids, MI; and Van Nuys, CA.

NJ Transit System contract runs 7 years

The New Jersey Transit System and its largest union, the United Transportation Union, negotiated a 7-year contract that was expected to lead management and leaders of 10 other unions to add 3 years to their recently negotiated 4-year contracts scheduled to expire in June 1989. The 7-year agreement and the 4-year agreements were all retroactive to the July 1, 1985, date when conditions of employment were subject to amendment under provisions of the Railway Labor Act. Common terms for the United Transportation Union and the other unions during the 4-year period ending in June 1989 include a $1,000 lump-sum payment in lieu of a wage increase retroactive to July 1, 1985, 3-percent wage increases retroactive to July of 1986 and 1987, and a 4-percent increase retroactive to July 1988.

Terms for the 3 additional years of the United Transportation Union accord, which were expected to set a

pattern for the other unions, included 5-percent wage increases in July of 1989, 1990, and 1991; adoption of a pension plan supplementing benefits under the Railroad Retirement System and financed by an employer obligation equal to 3 percent of employee earnings; adoption of a savings plan permitting the 600 conductors and brakemen to defer paying taxes on up to $7,500 of their annual earnings; one new uniform a year plus $175 for maintenance (was one or two uniforms a year with the transit authority paying half the cost); and a reduction to 1 hour (previously 2 hours) in the maximum permitted unpaid layover between split shifts (meaning that employees on a 2-hour layover will now normally receive 9.5 hours' pay for their workday—two 4-hour split shifts at straight-time rates plus 1 hour of the layover paid at time and one-half).

The transit authority employs more than 4,000 people serving the State of New Jersey.

Pulp mill adopts team approach

Kimberly-Clark Corp. announced a 5-year, $200 million modernization plan for its pulp and newsprint mill in Coosa Pines, AL, after members of three unions agreed to contract changes intended to reduce labor costs. The changes, to be worked out by a joint committee, are revisions in work rules and adoption of a team approach under which employees would work interchangeably within small groups and participate in determining production methods and standards. The cost-saving changes include permitting operators to make routine inspections and adjustments of their machines, rather than waiting for a skilled trades employee, and permitting skilled trades employees to assist in maintenance work outside their current duties.

Company officials said the cooperative approach was a vital aspect of its plan to enable the 40-year-old mill to compete with several new mills expected to be completed by other companies by 1992.

The agreement stipulates that no employees on the payroll on April 27, 1988, will be laid off, but the company did indicate that it hoped to cut about 250 jobs—160 through new early retirement inducements and 90 through attrition.

The settlement, which extends the expiration date of the existing contract by 3 years, to September 15, 1992, also provides for lump-sum payments of $500 to employees on the payroll on October 1, 1988, and $750 to those on the payroll on September 15, 1989, and wage increases of 25 cents an hour on January 1, 1989, 2.5 percent on September 15, 1990, and 2 percent on September 15, 1991. In addition, employees affected by changes in methods and procedures will receive, by June 1, 1989, pay adjustments from an allocation equal to an expected 20 cents an hour when averaged over all employees. Skilled trades workers will receive an additional 50-cent-an-hour increase on June 1, 1989, in return for the broadening of

their duties. An official of one the unions, the United Paperworkers, said that prior to the increases, his members were paid $10 to $22 an hour, and some earned as much as $70,000 a year, with overtime.

The two other unions involved in the settlement were the Machinists and Aerospace Workers and the International Brotherhood of Electrical Workers. With the United Paperworkers, the three unions represent 1,300 of the plant's 1,800 employees.

Omak Wood Products employees buy company

In the forest products industry, the 635 employees of Omak Wood Products, Inc., of Omak, WA, became owners of the log-cutting and plywood manufacturing facility when Sir James Goldsmith accepted their offer of nearly $35 million. A spokesperson for the British industrialist said that Goldsmith gave preferential treatment to the employees' bid because he "believed it would be in the best interests of the community" if they owned the operation. The employees' decision to join in the purchase bidding was impelled by their concern that a purchase by another party might lead to cuts in operation in an area already suffering from an unemployment rate of about 14 percent. Operations cuts had occurred after each of a succession of ownership changes preceding Goldsmith's acquisition of the property.

The purchase drive was led by Lloyd Groomes, business agent of the local union of the Lumber and Sawmill Workers, a unit of the Carpenters union. He expects the purchase to be accomplished from operating profits, if possible. If not, money will be drawn from a contingency fund accumulated by setting aside 10 percent of each worker's earnings. The current 4-year contract, negotiated prior to the bidding, was not changed. Nonunion employees also participated in the purchase.

Disney World employees settle

After rejecting two earlier proposals, employees of Walt Disney World in Lake Buena Vista, FL, approved a 3-year contract calling for a wage increase averaging 7.6 percent, retroactive to the October 30 termination date of the prior contract, and for an increase averaging 6 percent on April 1, 1989. The company said that the initial increase amounted to 50 cents for employees at the top of rate ranges and 35 cents for others, and the 1989 increase amounted to 45 and 30 cents, respectively. Under the prior contract, starting and top rates were generally $4.85 and $6.80 an hour.

Other wage terms included a $500 lump-sum payment to tipped food service employees, who will now be paid a flat rate equal to half the top rate for other employees and will now receive a 15-percent gratuity Disney will add to the bill for groups of 10 diners or more.

Benefit changes include a maximum monthly pension

of $530 after 25 years of service (was $420 after 20 years); a fourth week of paid vacation after 17 years of service; and the employee option of converting two days of annual sick leave to personal leave.

The settlement covered 11,400 employees, including 1,200 at the Disney World Village Marketplace recently organized by the Food and Commercial Workers. The five other unions in the Service Trades Council that negotiated the settlement are the Hotel Employees and Restaurant Employees, the Teamsters, the Service Employees, the Transportation•Communications Union, and the Theatrical Stage Employees.   □

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, DC 20212.

Current
Labor Statistics

Productivity data

International comparisons

Injury and illness data
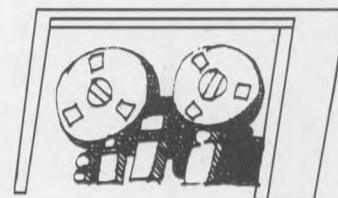
Schedule of release dates for BLS statistical series							
Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	February 3	January	March 10	February	April 7	March	1; 4–21
Productivity and costs: Nonfarm business and manufacturing	February 6	4th quarter	....	....	....	....	2; 42–44
Nonfinancial corporations	....	....	March 7	4th quarter	....	....	2; 42–44
Producer Price Index	February 10	January	March 17	February	April 14	March	2; 33–35
Consumer Price Index	February 22	January	March 21	February	April 18	March	2; 30–32
Real earnings	February 22	January	March 21	February	April 18	March	14–17
Major collective bargaining settlements .	....	....	....	....	April 25	1st quarter	3; 25–28
Employment Cost Index....................	....	....	....	....	April 25	1st quarter	1–3; 22–24
U.S. Import and Export Price Indexes ...	....	....	....	....	April 27	1st quarter	36–41

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 are 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, 17, 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 seasonally adjusted with a 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 Estela Bee Dagum (Statistics Canada, Catalogue No. 12–564E, February 1980). The second change is that seasonal factors are calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at midyear 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 1989 issue of the *Review*, to reflect experience through 1988.

Annual revisions of the seasonally adjusted payroll data shown in tables 13, 14, and 18 were made in the July 1988 *Review* 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 1977 = 100, the hourly rate expressed in 1977 dollars is $2 ($3/150 × 100 = $2). The $2 (or any other resulting values) are described as "real," "constant," or "1977" dollars.

Additional Information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. News 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 are published in the data books—*Revised Seasonally Adjusted Labor Force Statistics,* Bulletin 2306, and *Labor Force Statistics Derived From the Current Population Survey,* Bulletin 2307. 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 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 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.

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,* Bulletin 2285 (Bureau of Labor Statistics, 1988), as well as the additional bulletins, articles, and other publications noted in the separate sections of the *Review*'s "Current Labor Statistics Notes." Users may also wish to consult *Major Programs, Bureau of Labor Statistics,* Report 718 (Bureau of Labor Statistics, 1985).

EMPLOYMENT AND UNEMPLOYMENT 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 55,800 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 employment 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 housework, those not working while attending school, those unable to work because of long-term illness, those discouraged from seeking work because of personal or job-market factors, and those who are voluntarily idle. The **noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy, and members of the Armed Forces stationed in the United States. The **labor force participation rate** is the proportion of the noninstitutional population that is in the labor force. The **employment-population ratio** is total employment (including the resident Armed Forces) as a percent of the noninstitutional population.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the preceding years. These adjustments affect the comparability of historical data. 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 1988.

Additional sources of information

For detailed explanations of the data, see *BLS Handbook of Methods,* Bulletin 2285 (Bureau of Labor Statistics, 1988). Historical unadjusted data from 1948 to 1987 are available in *Labor Force Statistics Derived from the Current Population Survey,* Bulletin 2307 (Bureau of Labor Statistics, 1988). Historical seasonally adjusted data appear in *Labor Force Statistics Derived from the Current Population Survey: A Databook,* Vol. II, Bulletin 2096 (Bureau of Labor Statistics, 1982), and *Revised Seasonally Adjusted Labor Force Statistics, 1978–87,* Bulletin 2306 (Bureau of Labor Statistics, 1988).

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 300,000 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 working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 12–17 include production workers in manufacturing and mining; construction workers in construction; and 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 Earners and Clerical Workers (CPI-W). The **Hourly Earnings Index** is calculated from average hourly earnings data adjusted to exclude the effects of two types of changes that are unrelated to underlying wage-rate developments: fluctuations in overtime premiums in manufacturing (the only sector for which overtime data are available) and the effects of changes and seasonal factors in the proportion of workers in high-wage and low-wage industries. Publication of the Hourly Earnings Index series shown in table 17 will be discontinued with the initial publication of December 1988 data in the February 1989 issue of the *Review* (see G. Donald Wood, "Employment Cost Index series to replace Hourly Earnings Index," *Monthly Labor Review*, July 1988, pp. 32–35).

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 average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The Diffusion Index, introduced in the May 1983 *Review,* 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 1988 data, published in the July 1988 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 1986; seasonally adjusted data have been revised back to January 1983. These revisions were published in the *Supplement to Employment and Earnings* (Bureau of Labor Statistics, 1988). Unadjusted data from April 1987 forward, and seasonally adjusted data from January 1984 forward are subject to revision in future benchmarks.

In the establishment survey, estimates for the 2 most recent months are based on incomplete returns and are published as preliminary in the tables (13 to 18 in the *Review*). When all returns have been received, the estimates are revised and published as final in the third month of their appearance. Thus, August data are published as preliminary in October and November and as final in December. For the same reason, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, second-quarter data are published as preliminary in August and September and as final in October.

Additional sources of information

Detailed national 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 (Bureau of Labor Statistics 1985) and its annual supplement. For a detailed discussion of the methodology of the survey, see BLS *Handbook of Methods,* Bulletin 2285 (Bureau of Labor Statistics, 1988).

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 2285 (Bureau of Labor Statistics, 1988).

COMPENSATION AND WAGE DATA
(Tables 1–3; 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 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, on wages and salaries, and on benefit costs are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. The total compensation costs and wages and salaries 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 3,400 private nonfarm establishments providing about 18,000 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.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the indexes for civilian, private, and State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) 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 1980 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's 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 for changes in wages and salaries in the private nonfarm economy was published beginning in 1975. Changes in total compensation cost—wages and salaries and benefits combined—were published beginning in 1980. The series for changes in wages and salaries and for total compensation in the State and local government sector and in the civilian nonfarm economy (excluding Federal employees) were published beginning in 1981. Historical indexes (June 1981 = 100) of the quarterly rates of change are presented in the March issue of the BLS periodical, *Current Wage Developments*.

Additional sources of information

For a more detailed discussion of the Employment Cost Index, see the *Handbook of Methods,* Bulletin 2285 (Bureau of Labor Statistics, 1988), 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 (wage and benefit 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 of the contract effective date—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 straight-time hourly wage rate plus shift premium at the time the agreement is reached. Compensation changes are calculated by

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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 of 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

Comparisons of major collective bargaining settlements for State and local government with those for private industry should note differences in occupational mix, bargaining practices, and settlement characteristics. Professional and white-collar employees, for example, make up a much larger proportion of the workers covered by government than by private industry settlements. Lump-sum payments and cost-of-living adjustment (COLA) clauses, on the other hand, are rare in government but common in private industry settlements. Also, State and local government bargaining frequently excludes items such as pension benefits and holidays, that are prescribed by law, while these items are typical bargaining issues in private industry.

Additional sources of information

For a more detailed discussion on the series, see the BLS *Handbook of Methods,* Bulletin 2285 (Bureau of Labor Statistics, 1988). Comprehensive data are published in press releases issued quarterly (in January, April, July, and October) for private industry, and semiannually (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 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 workdays lost by workers involved in the stoppages.

Days of idleness as a percent of estimated working time: Aggregate workdays lost as a percent of the aggregate number of standard workdays 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 and historical data appear in the BLS periodical, *Current Wage Developments.* Historical data appear in the *Handbook of Labor Statistics,* Bulletin 2217 (Bureau of Labor Statistics, 1985).

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 2; 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 (1982 = 100 for many Producer Price Indexes or 1982–84 = 100 for many Consumer Price Indexes, unless otherwise noted).

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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 1982–84 buying habits of about 80 percent of the noninstitutional population of the United States at that time, compared with 32 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 are 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 21,000 retail establishments and 60,000 housing units in 91 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 27 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. An updated CPI-U and CPI-W were introduced with release of the January 1987 data.

Additional sources of information

For a discussion of the general method for computing the CPI, see *BLS Handbook of Methods,* Bulletin 2285 (Bureau of Labor Statistics, 1988). 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,* July 1982, pp. 9–14. An overview of the recently introduced revised CPI, reflecting 1982–84 expenditure patterns, is contained in *The Consumer Price Index: 1987 Revision,* Report 736 (Bureau of Labor Statistics, 1987).

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, 1985).

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,100 commodities and about 75,000 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 1987, 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 1982. 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.*

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 2285 (Bureau of Labor Statistics, 1988).

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, 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 1985 = 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 Laspeyres 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 1985.

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. For a given product, only one price basis series is used in the construction of an index.

Beginning in 1988, the Bureau has also been publishing a series of indexes which represent the price of U.S. exports and imports in foreign currency terms.

Additional sources of information

For a discussion of the general method of computing International Price Indexes, see BLS Handbook of Methods, Bulletin 2285 (Bureau of Labor Statistics, 1988).

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, 1985). For further information on the foreign currency indexes, see "BLS publishes average exchange rate and foreign currency price indexes," *Monthly Labor Review*, December 1987, pp. 47–49.

PRODUCTIVITY DATA
(Tables 2; 42–44)

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 productivity 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 combined labor and capital inputs). 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 output per unit of combined labor and capital inputs. 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 Consumer Price Index for All Urban Consumers.

Unit labor costs are the labor compensation costs expended in the production of a unit of output and are 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 with inventory valuation and capital consumption 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

Constant-dollar output for the **business sector** is equal to constant-dollar gross national product but excludes the rental value of owner-occupied dwellings, the rest-of-world sector, the output of nonprofit institutions, the output of paid employees of private households, general government, and the statistical discrepancy. Output of the **nonfarm business sector** is equal to business sector output less farming. 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 measures of manufacturing 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 2285 (Bureau of Labor Statistics, 1988). Historical data for selected industries are provided in the *Handbook of Labor Statistics,* Bulletin 2217 (Bureau of Labor Statistics, 1985).

INTERNATIONAL COMPARISONS
(Tables 45–47)

Labor force and unemployment

Description of the series

Tables 45 and 46 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and six European countries. The unemployment statistics (and, to a lesser extent, employment statistics) published by other industrial countries are not, in most cases, comparable to U.S. unemployment statistics. Therefore, the Bureau adjusts the figures for selected countries, where necessary, for all known major definitional differences. Although precise comparability may not be achieved, these adjusted figures provide a better basis for international comparisons than the figures regularly published by each country.

Definitions

For the principal U.S. definitions of the **labor force, employment,** and **unemployment,** see the Notes section on **EMPLOYMENT DATA**: Household Survey Data.

Notes on the data

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S.

standard of 16 years of age and over. Therefore, the adjusted statistics relate to the population age 16 and over in France, Sweden, and from 1973 onward, the United Kingdom; 15 and over in Canada, Australia, Japan, Germany, the Netherlands, and prior to 1973, the United Kingdom; and 14 and over in Italy. The institutional population is included in the denominator of the labor force participation rates and employment-population ratios for Japan and Germany; it is excluded for the United States and the other countries.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their job are classified as unemployed. European and Japanese layoff practices are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. For further information, see *Monthly Labor Review,* December 1981, pp. 8–11.

The figures for one or more recent years for France, Germany, Italy, the Netherlands, and the United Kingdom are calculated using adjustment factors based on labor force surveys for earlier years and are considered preliminary. The recent-year measures for these countries are, therefore, subject to revision whenever data from more current labor force surveys become available.

There are breaks in the date series for Germany (1983), Italy (1986), the Netherlands (1983), and Sweden (1987). For both Germany and the Netherlands, the breaks reflect the replacement of labor force survey results tabulated by the national statistical offices with those tabulated by the European Community Statistical Office (EUROSTAT). The Dutch figures for 1983 onward also reflect the replacement of man-year

employment data with data from the Dutch Survey of Employed Persons. The impact of the changes was to lower the adjusted unemployment rate by 0.3 percentage point for Germany and by about 2 percentage points for the Netherlands.

For Italy, the break in series reflects more accurate enumeration of time of last job search. This resulted in a significant increase in the number of people reported as seeking work in the past 30 days. The impact was to increase the Italian unemployment rates approximating U.S. concepts by about 1 percentage point.

Sweden introduced a new questionnaire. Questions regarding current availability were added and the period of active workseeking was reduced from 60 days to 4 weeks. These changes resulted in lowering Sweden's unemployment rate by 0.5 percentage point.

Additional sources of information

For further information, see *International Comparisons of Unemployment*, Bulletin 1979 (Bureau of Labor Statistics, 1978), Appendix B, and unpublished Supplements to Appendix B, available on request. The statistics are also analyzed periodically in the *Monthly Labor Review*. The latest article appears in the April 1988 *Review*. Additional historical data, generally beginning with 1959, are published in the *Handbook of Labor Statistics* and are available in unpublished statistical supplements to Bulletin 1979.

Manufacturing productivity and labor costs

Description of the series

Table 47 presents comparative measures of manufacturing labor productivity, hourly compensation costs, and unit labor costs for the United States, Canada, Japan, and nine European countries. 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 output are unavailable.

Definitions

Output is constant value output (value added), generally taken from the national accounts of each country. While the national accounting methods for measuring real output differ considerably among the 12 countries, 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 refer to all employed persons including the self-employed in the United States and Canada; to all wage and salary employees in the other countries. The U.S. hours measure is hours paid; the hours measures for the other countries are hours worked.

Compensation (labor cost) includes all payments in cash or kind made directly to employees plus employer expenditures for legally required insurance programs and contractual and private benefit plans. In addition, for some countries, compensation is adjusted for other significant taxes on payrolls or employment (or reduced to reflect subsidies), even if they are not for the direct benefit of workers, because such taxes are regarded as labor costs. However, compensation does not include all items of labor cost. The costs of recruitment, employee training, and plant facilities and services—such as cafeterias and medical clinics—are not covered because data are not available for most countries. Self-employed workers are included in the U.S. and Canadian compensation figures by assuming that their hourly compensation is equal to the average for wage and salary employees.

Notes on the data

For most of the countries, 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 1971), refer to manufacturing and mining less energy-related products and the figures for the Netherlands exclude petroleum refining from 1969 to 1976. For all countries, manufacturing includes the activities of government enterprises.

The figures for one or more recent years are generally based on current indicators of manufacturing output, employment, hours, and hourly compensation and are considered preliminary until the national accounts and other statistics used for the long-term measures become available.

Additional sources of information

For additional information, see the BLS *Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988), and periodic *Monthly Labor Review* articles. Historical data are provided in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985). The statistics are issued twice per year—in a news release (generally in May) and in a *Monthly Labor Review* article.

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, and so forth, 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 Safety, Health, and Working Conditions.

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 Safety, Health, and Working Conditions.

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 2285 (Bureau of Labor Statistics, 1988); *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	1986	1987	1986 IV	1987 I	1987 II	1987 III	1987 IV	1988 I	1988 II	1988 III
Employment data										
Employment status of the civilian noninstitutionalized population (household survey)[1]										
Labor force participation rate	65.3	65.6	65.4	65.4	65.6	65.6	65.7	65.8	65.8	65.9
Employment-population ratio	60.7	61.5	60.9	61.1	61.5	61.7	61.9	62.1	62.2	62.3
Unemployment rate	7.0	6.2	6.8	6.6	6.3	6.0	5.9	5.7	5.5	5.5
Men	6.9	6.2	6.9	6.6	6.4	6.0	5.8	5.6	5.4	5.4
16 to 24 years	13.7	12.6	13.3	13.3	13.1	12.2	11.9	11.8	11.2	11.4
25 years and over	5.4	4.8	5.4	5.1	4.9	4.6	4.4	4.3	4.2	4.1
Women	7.1	6.2	6.8	6.6	6.2	6.0	6.0	5.8	5.6	5.6
16 to 24 years	12.8	11.7	12.6	12.5	11.7	11.4	11.2	11.0	10.7	10.5
25 years and over	5.5	4.8	5.3	5.0	4.7	4.7	4.6	4.5	4.3	4.4
Unemployment rate, 15 weeks and over	1.9	1.7	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.3
Employment, nonagricultural (payroll data), in thousands:[1]										
Total	99,525	102,310	100,347	101,024	101,841	102,669	103,683	104,670	105,609	106,478
Private sector	82,832	85,295	83,496	84,130	84,869	85,643	86,518	87,406	88,263	89,063
Goods-producing	24,558	24,784	24,443	24,523	24,644	24,847	25,116	25,260	25,498	25,648
Manufacturing	18,965	19,065	18,885	18,895	18,965	19,112	19,290	19,388	19,498	19,567
Service-producing	74,967	77,525	75,904	76,500	77,196	77,782	78,567	79,410	80,111	80,830
Average hours:										
Private sector	34.8	34.8	34.7	34.8	34.7	34.7	34.8	34.7	34.8	34.7
Manufacturing	40.7	41.0	40.8	41.0	40.9	40.9	41.1	41.0	41.1	41.1
Overtime	3.4	3.7	3.5	3.6	3.7	3.8	3.9	3.8	3.9	3.9
Employment Cost Index										
Percent change in the ECI, compensation:										
All workers (excluding farm, household, and Federal workers)	3.6	3.6	.6	.9	.7	1.2	.8	1.4	1.1	1.3
Private industry workers	3.2	3.3	.6	1.0	.7	1.0	.7	1.5	1.2	1.0
Goods-producing[2]	3.1	3.1	.5	.5	.7	.8	1.0	1.8	1.1	.6
Service-producing[2]	3.2	3.7	.6	1.3	.7	1.0	.5	1.3	1.4	1.2
State and local government workers	5.2	4.4	.8	.8	.3	2.3	.9	1.3	.3	2.7
Workers by bargaining status (private industry):										
Union	2.1	2.8	.3	.5	.5	.6	1.1	1.6	1.0	.7
Nonunion	3.6	3.6	.7	1.1	.7	1.1	.6	1.5	1.3	1.1

[1] Quarterly data seasonally adjusted.

[2] Goods-producing industries include mining, construction, and manufacturing. Service-producing industries include all other private sector industries.

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

Selected measures	1986	1987	1986 IV	1987 I	1987 II	1987 III	1987 IV	1988 I	1988 II	1988 III
Compensation data [1], [2]										
Employment Cost Index--compensation (wages, salaries, benefits):										
Civilian nonfarm	3.6	3.6	0.6	0.9	0.7	1.2	0.8	1.4	1.1	1.3
Private nonfarm	3.2	3.3	.6	1.0	.7	1.0	.7	1.5	1.2	1.0
Employment Cost Index--wages and salaries										
Civilian nonfarm	3.5	3.5	.6	1.0	.5	1.3	.7	1.0	.9	1.3
Private nonfarm	3.1	3.3	.5	1.0	.7	1.0	.6	1.0	1.1	1.0
Price data[1]										
Consumer Price Index (All urban consumers): All items	1.1	4.4	.3	1.4	1.2	1.3	.3	1.0	1.3	1.5
Producer Price Index:										
Finished goods	-2.3	2.2	1.1	.8	1.2	.2	.1	.5	1.3	.8
Finished consumer goods	-3.5	2.6	.8	.9	1.6	.3	-.2	.4	1.4	1.0
Capital equipment	2.1	1.3	2.1	.1	.3	-.2	1.1	.7	.6	.4
Intermediate materials, supplies, components	-4.4	5.4	-.3	1.3	1.9	1.2	.9	1.1	2.6	1.2
Crude materials	-8.9	8.9	.6	4.2	5.3	.6	-1.4	-.3	4.0	-1.3
Productivity data[3]										
Output per hour of all persons:										
Business sector	2.2	.8	-.8	.3	2.7	3.9	.6	3.5	-3.4	1.5
Nonfarm business sector	2.0	.8	-.9	.0	3.2	3.7	.9	3.4	-2.4	1.9
Nonfinancial corporations [4]	1.8	1.5	2.6	-1.0	3.1	4.7	-.1	4.3	-1.6	-1.1

[1] Annual changes are December-to-December change. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted and the price data are not compounded.
[2] Excludes Federal and private household workers.

[3] Annual rates of change are computed by comparing annual averages. Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.
[4] Output per hour of all employees.

3. Alternative measures of wage and compensation changes

Components	Quarterly average 1987 II	1987 III	1987 IV	1988 I	1988 II	1988 III	Four quarters ended-- 1987 II	1987 III	1987 IV	1988 I	1988 II	1988 III
Average hourly compensation:[1]												
All persons, business sector	3.6	4.6	6.2	3.7	4.8	6.1	3.8	3.9	4.2	4.5	4.8	5.2
All employees, nonfarm business sector	3.4	4.5	6.4	3.5	4.2	5.6	3.7	3.7	4.1	4.4	4.6	4.9
Employment Cost Index--compensation:												
Civilian nonfarm [2]	.7	1.2	.8	1.4	1.1	1.3	3.3	3.4	3.6	4.1	4.6	4.7
Private nonfarm	.7	1.0	.7	1.5	1.2	1.0	3.0	3.3	3.3	3.9	4.5	4.5
Union	.5	.6	1.1	1.6	1.0	.7	1.9	2.0	2.8	3.9	4.3	4.5
Nonunion	.7	1.1	.6	1.5	1.3	1.1	3.4	3.7	3.6	4.0	4.5	4.5
State and local governments	.3	2.3	.9	1.3	.3	2.7	4.7	4.2	4.4	4.9	5.0	5.4
Employment Cost Index--wages and salaries:												
Civilian nonfarm[2]	.5	1.3	.7	1.0	.9	1.3	3.2	3.4	3.5	3.5	3.9	3.9
Private nonfarm	.7	1.0	.6	1.0	1.1	1.0	3.0	3.3	3.3	3.3	3.7	3.7
Union	.5	.6	1.1	.4	.8	.7	1.7	1.7	2.6	2.6	2.9	2.9
Nonunion	.8	1.1	.5	1.0	1.2	1.0	3.3	3.8	3.6	3.5	4.0	3.9
State and local governments	.2	2.3	.9	.9	.3	2.6	5.0	4.1	4.2	4.4	4.4	4.7
Total effective wage adjustments[3]	1.0	.9	.8	.4	.9	.8	2.2	2.6	3.1	3.2	3.0	2.8
From current settlements	.2	.2	.3	.1	.3	.2	.3	.4	.7	.8	1.0	.9
From prior settlements	.7	.6	.3	.3	.5	.4	1.6	1.7	1.8	1.8	1.6	1.4
From cost-of-living provision	.2	.1	.2	.1	.1	.2	.3	.4	.5	.5	.5	.5
Negotiated wage adjustments from settlements:[3]												
First-year adjustments	2.6	2.1	2.4	2.1	2.6	2.7	1.5	2.0	2.2	2.4	2.4	2.5
Annual rate over life of contract	2.9	2.0	1.8	2.3	2.2	2.9	2.0	2.2	2.1	2.2	2.0	2.2
Negotiated wage and benefit adjustments from settlements:[4]												
First-year adjustment	4.1	2.5	3.4	1.8	3.3	3.4	1.8	2.7	3.0	3.1	3.0	3.2
Annual rate over life of contract	3.9	2.1	2.4	1.8	2.4	3.3	2.1	2.6	2.6	2.5	2.3	2.5

[1] Seasonally adjusted.
[2] Excludes Federal and household workers.
[3] Limited to major collective bargaining units of 1,000 workers or more. The most recent data are preliminary.
[4] Limited to major collective bargaining units of 5,000 workers or more. The most recent data are preliminary.

4. Employment status of the total population, by sex, monthly data seasonally adjusted

(Numbers in thousands)

Employment status	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	1988 Feb.	1988 Mar.	1988 Apr.	1988 May	1988 June	1988 July	1988 Aug.	1988 Sept.	1988 Oct.	1988 Nov.	1988 Dec.
TOTAL															
Noninstitutional population [1], [2]	184,490	186,322	185,370	185,571	185,705	185,847	185,964	186,088	186,247	186,402	186,522	186,666	186,801	186,949	187,098
Labor force[2]	121,602	123,378	122,451	122,784	122,901	122,672	123,060	122,917	123,209	123,331	123,692	123,688	123,778	124,215	124,259
Participation rate [3]	65.9	66.2	66.1	66.2	66.2	66.0	66.2	66.1	66.2	66.2	66.3	66.3	66.3	66.4	66.4
Total employed [2]	114,177	116,677	115,490	115,804	116,009	115,865	116,392	116,117	116,686	116,707	116,895	117,074	117,260	117,652	117,705
Employment-population ratio [4]	61.9	62.6	62.3	62.4	62.5	62.3	62.6	62.4	62.7	62.6	62.7	62.7	62.8	62.9	62.9
Resident Armed Forces [1]	1,737	1,709	1,750	1,749	1,736	1,736	1,732	1,714	1,685	1,673	1,692	1,704	1,687	1,705	1,696
Civilian employed	112,440	114,968	113,740	114,055	114,273	114,129	114,660	114,403	115,001	115,034	115,203	115,370	115,573	115,947	116,009
Agriculture	3,208	3,169	3,212	3,256	3,200	3,181	3,187	3,110	3,121	3,060	3,142	3,176	3,238	3,238	3,193
Nonagricultural industries	109,232	111,800	110,528	110,799	111,073	110,948	111,473	111,293	111,880	111,974	112,061	112,194	112,335	112,709	112,816
Unemployed	7,425	6,701	6,961	6,980	6,892	6,807	6,668	6,800	6,523	6,624	6,797	6,614	6,518	6,563	6,554
Unemployment rate [5]	6.1	5.4	5.7	5.7	5.6	5.5	5.4	5.5	5.3	5.4	5.5	5.3	5.3	5.3	5.3
Not in labor force	62,888	62,944	62,919	62,787	62,804	63,175	62,904	63,171	63,038	63,071	62,830	62,978	63,023	62,734	62,839
Men, 16 years and over															
Noninstitutional population [1], [2]	88,476	89,404	88,924	89,033	89,099	89,168	89,225	89,287	89,367	89,445	89,504	89,577	89,637	89,716	89,792
Labor force[2]	67,784	68,474	68,058	68,219	68,289	68,194	68,462	68,409	68,436	68,461	68,685	68,604	68,569	68,686	68,638
Participation rate [3]	76.6	76.6	76.5	76.6	76.6	76.5	76.7	76.6	76.6	76.5	76.7	76.6	76.5	76.6	76.4
Total employed [2]	63,684	64,820	64,281	64,420	64,587	64,417	64,866	64,672	64,894	64,941	64,931	65,015	64,976	65,074	65,055
Employment-population ratio [4]	72.0	72.5	72.3	72.4	72.5	72.2	72.7	72.4	72.6	72.6	72.5	72.6	72.5	72.5	72.5
Resident Armed Forces [1]	1,577	1,547	1,589	1,588	1,577	1,573	1,569	1,553	1,523	1,512	1,529	1,540	1,526	1,542	1,534
Civilian employed	62,107	63,273	62,692	62,832	63,010	62,844	63,297	63,119	63,371	63,429	63,402	63,475	63,450	63,532	63,521
Unemployed	4,101	3,655	3,777	3,799	3,702	3,777	3,596	3,737	3,542	3,520	3,754	3,589	3,593	3,612	3,583
Unemployment rate [5]	6.1	5.3	5.5	5.6	5.4	5.5	5.3	5.5	5.2	5.1	5.5	5.2	5.2	5.3	5.2
Women, 16 years and over															
Noninstitutional population [1], [2]	96,013	96,918	96,446	96,538	96,606	96,679	96,739	96,801	96,880	96,957	97,018	97,089	97,164	97,234	97,306
Labor force[2]	53,818	54,904	54,393	54,565	54,612	54,478	54,598	54,508	54,773	54,870	55,007	55,084	55,209	55,529	55,621
Participation rate [3]	56.1	56.6	56.4	56.5	56.5	56.3	56.4	56.3	56.5	56.6	56.7	56.7	56.8	57.1	57.2
Total employed[2]	50,494	51,858	51,209	51,384	51,422	51,448	51,526	51,445	51,792	51,766	51,964	52,059	52,284	52,578	52,650
Employment-population ratio [4]	52.6	53.5	53.1	53.2	53.2	53.2	53.3	53.1	53.5	53.4	53.6	53.6	53.8	54.1	54.1
Resident Armed Forces [1]	160	162	161	161	159	163	163	161	162	161	163	164	161	163	162
Civilian employed	50,334	51,696	51,048	51,223	51,263	51,285	51,363	51,284	51,630	51,605	51,801	51,895	52,123	52,415	52,488
Unemployed	3,324	3,046	3,184	3,181	3,190	3,030	3,072	3,063	2,981	3,104	3,043	3,025	2,925	2,951	2,971
Unemployment rate [5]	6.2	5.5	5.9	5.8	5.8	5.6	5.6	5.6	5.4	5.7	5.5	5.5	5.3	5.3	5.3

[1] The population and Armed Forces figures are not adjusted for seasonal variation.
[2] Includes members of the Armed Forces stationed in the United States.
[3] Labor force as a percent of the noninstitutional population.

[4] Total employed as a percent of the noninstitutional population.
[5] Unemployment as a percent of the labor force (including the resident Armed Forces).

5. Employment status of the civilian population, by sex, age, race and Hispanic origin, monthly data seasonally adjusted

(Numbers in thousands)

Employment status	Annual average		1987	1988											
	1987	1988	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
TOTAL															
Civilian noninstitutional population[1]	182,753	184,613	183,620	183,822	183,969	184,111	184,232	184,374	184,562	184,729	184,830	184,962	185,114	185,244	185,402
Civilian labor force	119,865	121,669	120,701	121,035	121,165	120,936	121,328	121,203	121,524	121,658	122,000	121,984	122,091	122,510	122,563
Participation rate	65.6	65.9	65.7	65.8	65.9	65.7	65.9	65.7	65.8	65.9	66.0	66.0	66.0	66.1	66.1
Employed	112,440	114,968	113,740	114,055	114,273	114,129	114,660	114,403	115,001	115,034	115,203	115,370	115,573	115,947	116,009
Employment-population ratio[2]	61.5	62.3	61.9	62.0	62.1	62.0	62.2	62.0	62.3	62.3	62.3	62.4	62.4	62.6	62.6
Unemployed	7,425	6,701	6,961	6,980	6,892	6,807	6,668	6,800	6,523	6,624	6,797	6,614	6,518	6,563	6,554
Unemployment rate	6.2	5.5	5.8	5.8	5.7	5.6	5.5	5.6	5.4	5.4	5.6	5.4	5.3	5.4	5.3
Not in labor force	62,888	62,944	62,919	62,787	62,804	63,175	62,904	63,171	63,038	63,071	62,830	62,978	63,023	62,734	62,839
Men, 20 years and over															
Civilian noninstitutional population[1]	79,565	80,553	80,002	80,120	80,203	80,260	80,326	80,402	80,526	80,608	80,669	80,751	80,851	80,924	81,001
Civilian labor force	62,095	62,768	62,281	62,421	62,614	62,532	62,774	62,721	62,669	62,729	62,916	62,884	62,915	62,995	63,002
Participation rate	78.0	77.9	77.8	77.9	78.1	77.9	78.1	78.0	77.8	77.8	78.0	77.9	77.8	77.8	77.8
Employed	58,726	59,781	59,220	59,315	59,561	59,468	59,833	59,656	59,780	59,897	59,839	59,979	60,004	59,999	60,049
Employment-population ratio[2]	73.8	74.2	74.0	74.0	74.3	74.1	74.5	74.2	74.2	74.3	74.2	74.3	74.2	74.1	74.1
Agriculture	2,329	2,271	2,290	2,302	2,279	2,258	2,259	2,238	2,231	2,252	2,273	2,249	2,315	2,313	2,292
Nonagricultural industries	56,397	57,510	56,930	57,013	57,282	57,210	57,574	57,418	57,549	57,645	57,566	57,730	57,689	57,686	57,757
Unemployed	3,369	2,987	3,061	3,106	3,053	3,064	2,941	3,065	2,889	2,832	3,077	2,905	2,911	2,996	2,953
Unemployment rate	5.4	4.8	4.9	5.0	4.9	4.9	4.7	4.9	4.6	4.5	4.9	4.6	4.6	4.8	4.7
Women, 20 years ond over															
Civilian noninstitutional population[1]	88,583	89,532	89,010	89,110	89,178	89,261	89,307	89,382	89,502	89,588	89,670	89,735	89,807	89,887	89,954
Civilian labor force	49,783	50,870	50,327	50,462	50,530	50,510	50,591	50,532	50,690	50,807	50,959	50,991	51,201	51,558	51,587
Participation rate	56.2	56.8	56.5	56.6	56.7	56.6	56.6	56.5	56.6	56.7	56.8	56.8	57.0	57.4	57.3
Employed	47,074	48,383	47,722	47,894	47,934	48,060	48,120	48,040	48,205	48,242	48,492	48,535	48,788	49,113	49,165
Employment-population ratio[2]	53.1	54.0	53.6	53.7	53.8	53.8	53.9	53.7	53.9	53.8	54.1	54.1	54.3	54.6	54.7
Agriculture	622	625	640	639	638	641	653	604	626	549	609	638	640	640	646
Nonagricultural industries	46,453	47,757	47,082	47,255	47,296	47,419	47,467	47,436	47,579	47,693	47,883	47,897	48,148	48,473	48,519
Unemployed	2,709	2,487	2,605	2,568	2,596	2,450	2,471	2,492	2,485	2,565	2,467	2,456	2,413	2,445	2,422
Unemployment rate	5.4	4.9	5.2	5.1	5.1	4.9	4.9	4.9	4.9	5.0	4.8	4.8	4.7	4.7	4.7
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	14,606	14,527	14,609	14,592	14,588	14,591	14,598	14,590	14,534	14,533	14,491	14,477	14,456	14,433	14,447
Civilian labor force	7,988	8,031	8,093	8,152	8,021	7,894	7,963	7,950	8,165	8,122	8,125	8,109	7,975	7,957	7,974
Participation rate	54.7	55.3	55.4	55.9	55.0	54.1	54.5	54.5	56.2	55.9	56.1	56.0	55.2	55.1	55.2
Employed	6,640	6,805	6,798	6,846	6,778	6,601	6,707	6,707	7,016	6,895	6,872	6,856	6,781	6,835	6,795
Employment-population ratio[2]	45.5	46.8	46.5	46.9	46.5	45.2	45.9	46.0	48.3	47.4	47.4	47.4	46.9	47.4	47.0
Agriculture	258	273	282	315	283	282	275	268	264	259	260	289	283	285	255
Nonagricultural industries	6,382	6,532	6,516	6,531	6,495	6,319	6,432	6,439	6,752	6,636	6,612	6,567	6,498	6,550	6,540
Unemployed	1,347	1,226	1,295	1,306	1,243	1,293	1,256	1,243	1,149	1,227	1,253	1,253	1,194	1,122	1,179
Unemployment rate	16.9	15.3	16.0	16.0	15.5	16.4	15.8	15.6	14.1	15.1	15.4	15.5	15.0	14.1	14.8
White															
Civilian noninstitutional population[1]	156,958	158,194	157,552	157,676	157,773	157,868	157,943	158,034	158,166	158,279	158,340	158,422	158,524	158,603	158,705
Civilian labor force	103,290	104,756	103,907	104,188	104,404	104,172	104,517	104,433	104,716	104,651	105,013	105,036	105,051	105,395	105,411
Participation rate	65.8	66.2	66.0	66.1	66.2	66.0	66.2	66.1	66.2	66.1	66.3	66.3	66.3	66.5	66.4
Employed	97,789	99,812	98,787	99,011	99,350	99,252	99,663	99,508	99,902	99,761	99,907	100,058	100,199	100,543	100,567
Employment-population ratio[2]	62.3	63.1	62.7	62.8	63.0	62.9	63.1	63.0	63.2	63.0	63.1	63.2	63.2	63.4	63.4
Unemployed	5,501	4,944	5,120	5,177	5,054	4,920	4,854	4,925	4,814	4,890	5,106	4,978	4,852	4,852	4,844
Unemployment rate	5.3	4.7	4.9	5.0	4.8	4.7	4.6	4.7	4.6	4.7	4.9	4.7	4.6	4.6	4.6
Black															
Civilian noninstitutional population[1]	20,352	20,692	20,508	20,539	20,569	20,596	20,622	20,650	20,683	20,715	20,736	20,762	20,786	20,811	20,842
Civilian labor force	12,993	13,205	13,181	13,174	13,138	13,100	13,101	13,102	13,066	13,283	13,236	13,201	13,290	13,330	13,405
Participation rate	63.8	63.8	64.3	64.1	63.9	63.6	63.5	63.4	63.2	64.1	63.8	63.6	63.9	64.1	64.3
Employed	11,309	11,658	11,560	11,570	11,504	11,461	11,534	11,514	11,543	11,761	11,733	11,758	11,807	11,831	11,856
Employment-population ratio[2]	55.6	56.3	56.4	56.3	55.9	55.6	55.9	55.8	55.8	56.8	56.6	56.6	56.8	56.8	56.9
Unemployed	1,684	1,547	1,621	1,604	1,634	1,639	1,567	1,588	1,523	1,522	1,503	1,443	1,483	1,499	1,549
Unemployment rate	13.0	11.7	12.3	12.2	12.4	12.5	12.0	12.1	11.7	11.5	11.4	10.9	11.2	11.2	11.6

See footnotes at end of table.

5. Continued— Employment status of the civilian population, by sex, age, race and Hispanic origin, monthly data seasonally adjusted

(Numbers in thousands)

Employment status	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Hispanic origin															
Civilian noninstitutional population[1]	12,867	13,325	13,082	13,115	13,153	13,192	13,230	13,268	13,306	13,344	13,381	13,419	13,458	13,495	13,533
Civilian labor force	8,541	8,982	8,770	8,862	8,987	8,818	8,823	8,910	9,009	8,997	8,963	9,061	9,075	9,148	9,133
Participation rate	66.4	67.4	67.0	67.6	68.3	66.8	66.7	67.2	67.7	67.4	67.0	67.5	67.4	67.8	67.5
Employed	7,790	8,250	8,045	8,199	8,241	8,088	8,030	8,128	8,222	8,265	8,214	8,378	8,368	8,419	8,441
Employment-population ratio[2]	60.5	61.9	61.5	62.5	62.7	61.3	60.7	61.3	61.8	61.9	61.4	62.4	62.2	62.4	62.4
Unemployed	751	732	725	663	746	730	793	782	787	732	749	683	707	729	692
Unemployment rate	8.8	8.2	8.3	7.5	8.3	8.3	9.0	8.8	8.7	8.1	8.4	7.5	7.8	8.0	7.6

[1] The population figures are not seasonally adjusted.
[2] Civilian employment as a percent of the civilian noninstitutional population.
NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

6. Selected employment indicators, monthly data seasonally adjusted

(In thousands)

Selected categories	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
CHARACTERISTIC															
Civilian employed, 16 years and over	112,440	114,968	113,740	114,055	114,273	114,129	114,660	114,403	115,001	115,034	115,203	115,370	115,573	115,947	116,009
Men	62,107	63,273	62,692	62,832	63,010	62,844	63,297	63,119	63,371	63,429	63,402	63,475	63,450	63,532	63,521
Women	50,334	51,696	51,048	51,223	51,263	51,285	51,363	51,284	51,630	51,605	51,801	51,895	52,123	52,415	52,488
Married men, spouse present	40,265	40,472	40,616	40,438	40,488	40,486	40,494	40,317	40,493	40,518	40,511	40,513	40,504	40,407	40,483
Married women, spouse present	28,107	28,756	28,299	28,435	28,620	28,713	28,772	28,632	28,678	28,669	28,809	28,836	28,890	28,995	29,053
Women who maintain families	6,060	6,211	6,181	6,153	6,151	6,158	6,091	6,000	6,130	6,170	6,280	6,253	6,344	6,375	6,399
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,632	1,621	1,589	1,629	1,640	1,610	1,632	1,574	1,583	1,572	1,607	1,612	1,661	1,672	1,698
Self-employed workers	1,423	1,398	1,461	1,427	1,410	1,416	1,390	1,365	1,375	1,362	1,411	1,421	1,405	1,450	1,349
Unpaid family workers	153	150	155	143	123	146	152	155	161	149	158	137	177	125	149
Nonagricultural industries:															
Wage and salary workers	100,771	103,021	101,922	102,413	102,498	102,339	102,562	102,145	102,953	103,189	103,207	103,501	103,733	103,770	103,904
Government	16,800	17,114	17,021	17,080	16,961	16,952	17,012	16,946	17,049	17,031	17,111	17,145	17,240	17,387	17,423
Private industries	83,970	85,907	84,901	85,333	85,537	85,387	85,550	85,199	85,904	86,158	86,096	86,356	86,493	86,383	86,481
Private households	1,208	1,153	1,172	1,146	1,167	1,167	1,114	1,152	1,146	1,132	1,128	1,119	1,152	1,209	1,210
Other	82,762	84,754	83,729	84,187	84,370	84,220	84,436	84,047	84,758	85,026	84,968	85,237	85,341	85,174	85,271
Self-employed workers	8,201	8,519	8,306	8,246	8,338	8,395	8,567	8,816	8,536	8,531	8,508	8,570	8,479	8,619	8,602
Unpaid family workers	260	260	250	241	232	250	272	301	297	251	241	230	232	300	266
PERSONS AT WORK PART TIME[1]															
All industries:															
Part time for economic reasons	5,401	5,206	5,246	5,355	5,369	5,331	5,212	4,878	5,302	5,341	5,192	5,097	4,963	5,061	5,321
Slack work	2,385	2,350	2,265	2,351	2,408	2,448	2,264	2,267	2,346	2,471	2,315	2,266	2,220	2,279	2,549
Could only find part-time work	2,672	2,487	2,617	2,630	2,591	2,548	2,519	2,353	2,586	2,538	2,473	2,389	2,399	2,375	2,410
Voluntary part time	14,395	14,963	14,690	14,580	14,619	14,654	14,949	14,813	14,612	15,026	14,999	15,270	15,161	15,446	15,363
Nonagricultural industries:															
Part time for economic reasons	5,122	4,965	4,979	5,113	5,101	5,087	4,953	4,676	5,073	5,102	4,972	4,862	4,727	4,819	5,033
Slack work	2,201	2,199	2,099	2,212	2,258	2,265	2,131	2,136	2,183	2,334	2,171	2,102	2,095	2,116	2,377
Could only find part-time work	2,587	2,408	2,518	2,554	2,477	2,482	2,426	2,276	2,504	2,493	2,408	2,317	2,319	2,288	2,307
Voluntary part time	13,928	14,509	14,205	14,115	14,172	14,203	14,441	14,376	14,180	14,606	14,564	14,819	14,679	14,986	14,928

[1] Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illness, or industrial disputes.

7. Selected unemployment indicators, monthly data seasonally adjusted

(Unemployment rates)

Selected categories	Annual average		1987	1988											
	1987	1988	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
CHARACTERISTIC															
Total, all civilian workers	6.2	5.5	5.8	5.8	5.7	5.6	5.5	5.6	5.4	5.4	5.6	5.4	5.3	5.4	5.3
Both sexes, 16 to 19 years	16.9	15.3	16.0	16.0	15.5	16.4	15.8	15.6	14.1	15.1	15.4	15.5	15.0	14.1	14.8
Men, 20 years and over	5.4	4.8	4.9	5.0	4.9	4.9	4.7	4.9	4.6	4.5	4.9	4.6	4.6	4.8	4.7
Women, 20 years and over	5.4	4.9	5.2	5.1	5.1	4.9	4.9	4.9	4.9	5.0	4.8	4.8	4.7	4.7	4.7
White, total	5.3	4.7	4.9	5.0	4.8	4.7	4.6	4.7	4.6	4.7	4.9	4.7	4.6	4.6	4.6
Both sexes, 16 to 19 years	14.4	13.1	13.5	13.9	12.5	14.1	13.9	13.2	12.3	12.9	13.7	13.4	12.9	11.9	12.6
Men, 16 to 19 years	15.5	13.9	14.8	14.5	12.5	15.5	14.4	14.0	13.2	14.3	13.9	14.5	14.4	12.6	13.4
Women, 16 to 19 years	13.4	12.3	12.0	13.3	12.6	12.6	13.3	12.3	11.4	11.4	13.5	12.3	11.3	11.3	11.8
Men, 20 years and over	4.8	4.1	4.3	4.4	4.2	4.2	4.0	4.2	4.0	3.9	4.3	4.1	4.1	4.2	4.1
Women, 20 years and over	4.6	4.1	4.4	4.2	4.4	3.9	4.0	4.1	4.1	4.3	4.1	4.1	4.0	4.0	3.9
Black, total	13.0	11.7	12.3	12.2	12.4	12.5	12.0	12.1	11.7	11.5	11.4	10.9	11.2	11.2	11.6
Both sexes, 16 to 19 years	34.7	32.4	33.9	34.2	36.8	35.8	30.8	33.9	30.6	31.7	32.1	31.9	30.9	31.1	29.6
Men, 16 to 19 years	34.4	32.7	34.3	34.6	39.9	37.8	27.9	33.2	31.5	31.2	32.1	31.9	32.8	32.1	29.8
Women, 16 to 19 years	34.9	32.0	33.6	33.7	33.8	33.9	33.9	34.8	29.6	32.4	32.0	31.9	28.6	29.9	29.3
Men, 20 years and over	11.1	10.1	10.4	10.2	10.9	11.0	10.4	10.4	9.9	9.6	9.7	9.1	9.6	9.8	10.0
Women, 20 years and over	11.6	10.4	10.9	11.0	10.5	10.8	10.9	10.6	10.6	10.3	10.0	9.7	9.8	9.8	10.5
Hispanic origin, total	8.8	8.2	8.3	7.5	8.3	8.3	9.0	8.8	8.7	8.1	8.4	7.5	7.8	8.0	7.6
Married men, spouse present	3.9	3.3	3.4	3.5	3.4	3.4	3.1	3.3	3.2	3.1	3.4	3.1	3.1	3.3	3.1
Married women, spouse present	4.3	3.9	4.4	4.1	4.0	4.0	3.8	3.9	3.9	4.0	4.0	3.8	3.7	3.8	3.7
Women who maintain families	9.2	8.1	8.3	8.8	8.3	7.5	8.5	8.4	7.9	8.5	7.5	8.1	7.9	7.7	8.2
Full-time workers	5.8	5.2	5.4	5.4	5.3	5.3	5.1	5.2	5.0	5.0	5.3	5.1	5.0	5.0	5.1
Part-time workers	8.4	7.6	8.1	8.3	7.9	7.8	7.5	7.7	7.7	8.0	7.4	7.4	7.4	7.1	7.0
Unemployed 15 weeks and over	1.7	1.3	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2
Labor force time lost[1]	7.1	6.3	6.6	6.6	6.6	6.5	6.2	6.4	6.3	6.4	6.4	6.3	6.1	6.2	6.3
INDUSTRY															
Nonagricultural private wage and salary workers	6.2	5.5	5.7	5.8	5.7	5.6	5.4	5.6	5.4	5.4	5.6	5.4	5.4	5.5	5.4
Mining	10.0	7.9	8.2	7.5	7.8	8.2	8.1	9.4	6.8	5.4	7.0	8.6	8.8	8.9	7.7
Construction	11.6	10.6	10.7	11.9	10.9	10.6	10.6	10.5	10.3	10.4	10.7	9.6	10.0	10.6	10.4
Manufacturing	6.0	5.3	5.2	5.5	5.6	5.2	5.3	5.3	4.9	5.2	5.5	5.4	5.3	5.1	5.2
Durable goods	5.8	5.0	4.8	5.3	5.7	5.1	4.8	4.9	4.5	4.9	5.0	5.2	5.0	4.9	5.0
Nondurable goods	6.3	5.7	5.6	5.8	5.4	5.4	5.9	5.9	5.5	5.6	6.3	5.8	5.7	5.3	5.5
Transportation and public utilities	4.5	3.9	4.6	3.7	3.8	4.1	3.8	4.2	4.1	3.6	3.8	3.8	3.5	4.0	3.8
Wholesale and retail trade	6.9	6.2	6.2	6.2	6.3	6.7	5.9	6.3	6.0	6.2	6.4	6.2	6.0	6.2	6.3
Finance and service industries	4.9	4.5	4.8	4.9	4.6	4.3	4.3	4.6	4.6	4.5	4.4	4.4	4.5	4.6	4.1
Government workers	3.5	2.8	3.0	3.0	2.9	2.9	3.0	2.9	2.9	3.0	2.9	2.7	2.6	2.5	2.7
Agricultural wage and salary workers	10.5	10.6	11.5	11.4	10.5	11.0	11.0	12.4	10.0	11.0	11.0	10.8	10.2	9.3	8.8

[1] Aggregate hours lost by the unemployed and persons on part time for economic reasons as a percent of potentially available labor force hours.

8. Unemployment rates by sex and age, monthly data seasonally adjusted

(Civilian workers)

Sex and age	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total, 16 years and over	6.2	5.5	5.8	5.8	5.7	5.6	5.5	5.6	5.4	5.4	5.6	5.4	5.3	5.4	5.3
16 to 24 years	12.2	11.0	11.2	11.6	11.1	11.6	11.2	11.2	10.5	10.9	11.0	10.9	10.9	10.6	10.9
16 to 19 years	16.9	15.3	16.0	16.0	15.5	15.8	16.4	15.6	14.1	15.1	15.4	15.5	15.0	14.1	14.8
16 to 17 years	19.1	17.4	17.6	18.5	17.7	17.7	17.7	16.7	15.9	17.5	18.5	19.6	17.2	15.8	16.6
18 to 19 years	15.2	13.8	14.6	14.5	14.1	15.3	14.1	14.8	13.3	13.1	13.7	12.8	13.3	12.9	13.3
20 to 24 years	9.7	8.7	8.6	9.1	8.7	9.0	8.7	8.8	8.5	8.5	8.4	8.4	8.6	8.7	8.7
25 years and over	4.8	4.3	4.5	4.5	4.4	4.2	4.2	4.3	4.2	4.2	4.4	4.2	4.1	4.2	4.1
25 to 54 years	5.0	4.5	4.8	4.6	4.7	4.5	4.4	4.5	4.4	4.4	4.5	4.4	4.3	4.4	4.3
55 years and over	3.3	3.1	3.1	3.4	3.2	2.9	3.0	3.3	3.0	3.1	3.2	2.9	2.8	2.8	3.0
Men, 16 years and over	6.2	5.5	5.7	5.7	5.5	5.7	5.4	5.6	5.3	5.3	5.6	5.4	5.4	5.4	5.3
16 to 24 years	12.6	11.4	11.7	12.2	11.4	11.9	11.2	11.5	11.0	11.3	11.4	11.3	11.8	10.9	11.1
16 to 19 years	17.8	16.0	17.1	16.5	15.8	17.4	15.9	16.3	15.4	16.3	16.0	16.4	16.5	14.8	15.4
16 to 17 years	20.2	18.2	18.7	19.2	17.6	18.6	17.6	17.4	17.5	18.1	17.7	20.8	18.5	17.3	17.3
18 to 19 years	16.0	14.6	15.4	15.1	14.9	16.6	14.7	15.3	14.3	14.4	14.5	13.5	15.0	13.0	13.5
20 to 24 years	9.9	8.9	8.8	9.8	9.0	9.0	8.7	8.9	8.5	8.5	8.9	8.5	9.2	8.8	8.7
25 years and over	4.8	4.2	4.4	4.3	4.3	4.3	4.1	4.3	4.1	4.0	4.4	4.1	4.0	4.2	4.1
25 to 54 years	5.0	4.4	4.6	4.5	4.5	4.5	4.3	4.4	4.2	4.2	4.5	4.3	4.2	4.4	4.3
55 years and over	3.5	3.3	3.1	3.8	3.4	3.4	3.2	3.5	3.2	3.2	3.4	2.9	3.0	3.2	3.3
Women, 16 years and over	6.2	5.6	5.9	5.8	5.9	5.6	5.6	5.6	5.5	5.7	5.5	5.5	5.3	5.3	5.4
16 to 24 years	11.7	10.6	10.7	11.0	10.9	11.2	11.1	10.9	10.0	10.5	10.4	10.5	9.9	10.3	10.7
16 to 19 years	15.9	14.4	14.8	15.6	15.1	15.2	15.6	15.0	12.6	13.8	14.8	14.5	13.3	13.3	14.2
16 to 17 years	18.0	16.6	16.3	17.7	17.7	16.7	17.7	16.0	14.1	16.8	19.2	18.2	15.8	14.1	15.8
18 to 19 years	14.3	12.9	13.8	13.9	13.3	14.0	13.5	14.2	12.1	11.6	12.8	12.0	11.6	12.8	13.1
20 to 24 years	9.4	8.5	8.4	8.4	8.5	9.0	8.6	8.6	8.6	8.6	8.0	8.2	7.9	8.6	8.7
25 years and over	4.8	4.3	4.6	4.6	4.6	4.1	4.3	4.4	4.3	4.4	4.3	4.3	4.2	4.2	4.1
25 to 54 years	5.1	4.6	5.0	4.9	4.9	4.5	4.6	4.6	4.6	4.7	4.6	4.5	4.5	4.4	4.4
55 years and over	3.0	2.8	3.1	2.9	3.0	2.4	2.8	3.1	2.8	2.9	2.8	2.9	2.4	2.4	2.6

9. Unemployed persons by reason for unemployment, monthly data seasonally adjusted

(Numbers in thousands)

Reason for unemployment	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Job losers	3,566	3,092	3,192	3,181	3,182	3,131	2,968	3,201	3,070	3,085	3,112	3,079	2,951	3,031	3,066
On layoff	943	851	863	872	877	882	844	806	861	853	880	833	844	814	819
Other job losers	2,623	2,241	2,329	2,309	2,305	2,249	2,124	2,395	2,209	2,232	2,232	2,246	2,107	2,217	2,247
Job leavers	965	983	946	1,046	969	1,059	985	942	953	923	986	985	984	963	998
Reentrants	1,974	1,809	1,963	1,907	1,916	1,792	1,804	1,804	1,747	1,883	1,843	1,767	1,747	1,766	1,725
New entrants	920	816	900	870	855	871	886	811	800	799	800	761	747	799	799
PERCENT OF UNEMPLOYED															
Job losers	48.0	46.1	45.6	45.4	46.0	45.7	44.7	47.4	46.7	46.1	46.2	46.7	45.9	46.2	46.5
On layoff	12.7	12.7	12.3	12.5	12.7	12.9	12.7	11.9	13.1	12.8	13.1	12.6	13.1	12.4	12.4
Other job losers	35.3	33.4	33.3	33.0	33.3	32.8	32.0	35.4	33.6	33.4	33.1	34.1	32.8	33.8	34.1
Job leavers	13.0	14.7	13.5	14.9	14.0	15.5	14.8	13.9	14.5	13.8	14.6	14.9	15.3	14.7	15.1
Reentrants	26.6	27.0	28.0	27.2	27.7	26.1	27.2	26.7	26.6	28.1	27.3	26.8	27.2	26.9	26.2
New entrants	12.4	12.2	12.9	12.4	12.4	12.7	13.3	12.0	12.2	11.9	11.9	11.5	11.6	12.2	12.1
PERCENT OF CIVILIAN LABOR FORCE															
Job losers	3.0	2.5	2.6	2.6	2.6	2.6	2.4	2.6	2.5	2.5	2.6	2.5	2.4	2.5	2.5
Job leavers	.8	.8	.8	.9	.8	.9	.8	.8	.8	.8	.8	.8	.8	.8	.8
Reentrants	1.6	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.5	1.5	1.4	1.4	1.4	1.4
New entrants	.8	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.6	.6	.7	.7

10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

Weeks of unemployment	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Less than 5 weeks	3,246	3,084	3,225	3,118	3,097	3,057	3,093	3,072	3,093	2,985	3,158	3,116	3,059	3,117	3,029
5 to 14 weeks	2,196	2,007	1,981	2,214	2,093	2,060	1,969	2,068	1,910	2,041	1,956	1,896	1,835	1,935	2,039
15 weeks and over	1,983	1,610	1,781	1,728	1,732	1,693	1,582	1,614	1,543	1,619	1,636	1,568	1,554	1,502	1,495
15 to 26 weeks	943	801	881	838	842	851	756	789	749	826	831	775	788	787	758
27 weeks and over	1,040	809	900	890	890	842	826	825	794	793	805	793	766	715	737
Mean duration in weeks	14.5	13.5	14.2	14.2	14.1	13.8	13.5	13.8	13.2	13.5	13.5	13.5	13.4	12.6	12.8
Median duration in weeks	6.5	5.9	5.9	6.3	6.3	6.4	5.8	5.9	5.9	6.2	5.9	5.7	5.7	5.6	5.8

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

State	Nov. 1987	Nov. 1988	State	Nov. 1987	Nov. 1988
Alabama	7.0	7.0	Montana	6.7	6.0
Alaska	9.8	9.0	Nebraska	4.5	3.6
Arizona	5.7	6.5	Nevada	5.7	4.3
Arkansas	7.5	6.8	New Hampshire	2.2	2.5
California	5.1	5.1			
			New Jersey	3.2	3.5
Colorado	7.3	6.3	New Mexico	8.2	6.4
Connecticut	2.9	3.0	New York	4.9	4.3
Delaware	2.8	3.4	North Carolina	4.0	3.6
District of Columbia	5.8	4.5	North Dakota	4.5	5.2
Florida	5.1	5.2			
			Ohio	5.8	5.3
Georgia	5.0	5.0	Oklahoma	6.3	6.1
Hawaii	3.6	3.0	Oregon	5.4	5.5
Idaho	6.8	5.1	Pennsylvania	5.2	4.3
Illinois	6.3	6.5	Rhode Island	3.1	2.7
Indiana	5.7	5.4			
			South Carolina	5.1	4.4
Iowa	4.4	3.8	South Dakota	5.1	4.3
Kansas	4.3	4.6	Tennessee	5.9	5.8
Kentucky	7.7	6.8	Texas	7.9	6.6
Louisiana	9.7	9.6	Utah	5.6	4.9
Maine	3.4	2.9			
			Vermont	3.3	2.9
Maryland	4.0	4.4	Virginia	4.0	4.1
Massachusetts	2.3	3.5	Washington	7.4	6.0
Michigan	7.4	6.8	West Virginia	9.2	9.0
Minnesota	5.2	4.5	Wisconsin	5.5	3.8
Mississippi	8.4	8.6			
Missouri	5.9	5.7	Wyoming	7.2	7.1

NOTE: Some data in this table may differ from data published elsewhere because of the continual updating of the database.

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

(In thousands)

State	Nov. 1987	Oct. 1988	Nov. 1988p	State	Nov. 1987	Oct. 1988	Nov. 1988p
Alabama	1,524.0	1,538.6	1,545.7	Nebraska	670.3	675.9	681.2
Alaska	206.5	212.3	207.4	Nevada	512.1	544.0	546.5
Arizona	1,417.2	1,421.7	1,429.0	New Hampshire	522.6	547.6	547.3
Arkansas	851.4	872.0	872.1				
California	11,906.4	12,264.1	12,327.2	New Jersey	3,649.6	3,718.0	3,726.8
				New Mexico	537.0	550.4	554.1
Colorado	1,407.4	1,404.3	1,410.8	New York	8,200.3	8,306.6	8,351.3
Connecticut	1,665.3	1,681.8	1,696.0	North Carolina	2,924.7	2,996.3	3,010.2
Delaware	327.9	336.0	336.8	North Dakota	255.6	262.0	259.7
District of Columbia	659.4	676.4	679.3				
Florida	4,980.7	5,113.8	5,174.4	Ohio	4,674.2	4,770.6	4,845.1
				Oklahoma	1,108.7	1,110.8	1,107.1
Georgia	2,803.0	2,813.8	2,822.0	Oregon	1,121.4	1,175.2	1,176.8
Hawaii	468.1	469.8	474.0	Pennsylvania	5,016.3	5,115.1	5,123.1
Idaho	341.9	357.0	355.3	Rhode Island	460.0	463.2	463.5
Illinois	4,965.1	5,077.1	5,117.0				
Indiana	2,361.3	2,445.6	2,449.8	South Carolina	1,418.0	1,458.3	1,460.0
				South Dakota	257.3	263.2	261.1
Iowa	1,137.5	1,163.6	1,166.7	Tennessee	2,058.7	2,078.5	2,076.8
Kansas	1,020.4	1,031.4	1,040.1	Texas	6,575.2	6,658.6	6,676.7
Kentucky	1,341.6	1,372.4	1,373.0	Utah	650.7	670.6	675.6
Louisiana	1,503.6	1,513.3	1,514.8				
Maine	515.1	533.1	533.8	Vermont	249.5	257.9	258.0
				Virginia	2,733.7	2,841.2	2,857.1
Maryland	2,045.9	2,072.4	2,079.9	Washington	1,883.0	1,974.6	1,973.0
Massachusetts	3,092.2	3,152.0	3,165.8	West Virginia	608.4	612.3	622.9
Michigan	3,777.5	3,809.0	3,848.3	Wisconsin	2,126.2	2,192.1	2,192.7
Minnesota	2,004.6	2,067.6	2,066.8				
Mississippi	883.9	895.7	897.3	Wyoming	178.4	179.7	178.5
Missouri	2,219.3	2,242.6	2,246.2	Puerto Rico	777.5	805.9	809.3
Montana	277.1	280.3	277.9	Virgin Islands	39.8	39.2	39.9

p = preliminary

NOTE: Some data in this table may differ from data published elsewhere because of the continual updating of the database.

13. Employment of workers on nonagricultural payrolls by industry, monthly data seasonally adjusted

(In thousands)

Industry	Annual average 1987	Annual average 1988 P	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.P	Dec.P
TOTAL	102,310	106,037	104,001	104,262	104,729	105,020	105,281	105,489	106,057	106,271	106,425	106,737	106,973	107,377	107,656
PRIVATE SECTOR	85,295	88,648	86,794	87,044	87,475	87,700	87,973	88,139	88,678	88,941	89,066	89,205	89,481	89,817	90,082
GOODS-PRODUCING	24,784	25,564	25,201	25,180	25,271	25,330	25,435	25,466	25,592	25,663	25,639	25,648	25,743	25,844	25,893
Mining	721	733	735	728	731	733	737	739	740	740	739	734	729	721	723
Oil and gas extraction	405	417	417	414	415	419	421	425	425	424	423	419	413	405	402
Construction	4,998	5,292	5,118	5,083	5,150	5,192	5,238	5,237	5,308	5,330	5,340	5,365	5,366	5,405	5,418
General building contractors	1,326	1,396	1,352	1,365	1,377	1,383	1,400	1,394	1,412	1,400	1,401	1,404	1,393	1,404	1,414
Manufacturing	19,065	19,540	19,348	19,369	19,390	19,405	19,460	19,490	19,544	19,593	19,560	19,549	19,648	19,718	19,752
Production workers	12,995	13,339	13,215	13,225	13,249	13,251	13,280	13,302	13,341	13,382	13,352	13,332	13,412	13,467	13,489
Durable goods	11,218	11,518	11,390	11,393	11,404	11,411	11,459	11,477	11,515	11,566	11,547	11,537	11,595	11,638	11,668
Production workers	7,453	7,678	7,590	7,582	7,599	7,598	7,632	7,649	7,676	7,720	7,705	7,689	7,733	7,768	7,792
Lumber and wood products	740	758	754	754	756	755	758	757	757	756	753	753	760	768	772
Furniture and fixtures	518	538	533	536	535	534	535	537	537	541	537	538	540	540	542
Stone, clay, and glass products	582	587	588	583	584	585	587	585	587	589	586	585	588	591	594
Primary metal industries	749	782	769	768	770	772	773	776	781	789	785	787	794	796	796
Blast furnaces and basic steel products	269	281	279	279	280	281	281	281	281	282	281	280	282	283	281
Fabricated metal products	1,407	1,455	1,433	1,435	1,438	1,439	1,444	1,448	1,457	1,464	1,458	1,460	1,469	1,473	1,479
Machinery, except electrical	2,023	2,138	2,074	2,085	2,091	2,099	2,111	2,121	2,134	2,151	2,156	2,159	2,173	2,186	2,193
Electrical and electronic equipment	2,084	2,121	2,110	2,112	2,112	2,115	2,117	2,115	2,120	2,122	2,126	2,124	2,126	2,131	2,130
Transportation equipment	2,048	2,042	2,046	2,036	2,031	2,025	2,045	2,048	2,047	2,052	2,044	2,032	2,045	2,050	2,053
Motor vehicles and equipment	865	850	851	839	837	835	848	851	850	857	855	849	859	860	861
Instruments and related products	696	713	704	704	705	705	706	709	713	715	718	716	719	720	723
Miscellaneous manufacturing industries	370	383	379	380	382	382	383	381	382	387	384	383	381	383	386
Nondurable goods	7,847	8,022	7,958	7,976	7,986	7,994	8,001	8,013	8,029	8,027	8,013	8,012	8,053	8,080	8,084
Production workers	5,543	5,661	5,625	5,643	5,650	5,653	5,648	5,653	5,665	5,662	5,647	5,643	5,679	5,699	5,697
Food and kindred products	1,624	1,646	1,638	1,647	1,649	1,647	1,648	1,643	1,645	1,631	1,630	1,632	1,654	1,662	1,659
Tobacco manufactures	54	53	54	55	54	54	54	52	53	52	52	51	52	53	52
Textile mill products	725	726	733	732	732	729	727	728	727	726	719	722	722	723	723
Apparel and other textile products	1,100	1,097	1,106	1,105	1,104	1,106	1,100	1,100	1,097	1,096	1,089	1,087	1,086	1,093	1,094
Paper and allied products	679	689	684	685	686	687	687	689	691	692	691	688	691	692	689
Printing and publishing	1,507	1,565	1,532	1,538	1,544	1,548	1,554	1,559	1,565	1,567	1,572	1,575	1,581	1,583	1,590
Chemicals and allied products	1,026	1,063	1,047	1,047	1,049	1,052	1,056	1,060	1,065	1,067	1,070	1,069	1,071	1,073	1,075
Petroleum and coal products	165	167	167	166	165	164	165	166	167	167	167	168	169	169	167
Rubber and misc. plastics products	823	872	851	854	856	860	864	870	873	882	878	874	882	887	889
Leather and leather products	144	146	146	147	147	147	146	146	146	147	145	146	145	145	146
SERVICE-PRODUCING	77,525	80,473	78,800	79,082	79,458	79,690	79,846	80,023	80,465	80,608	80,786	81,089	81,230	81,533	81,763
Transportation and public utilities	5,385	5,581	5,481	5,499	5,513	5,530	5,543	5,556	5,582	5,598	5,605	5,618	5,631	5,648	5,650
Transportation	3,166	3,334	3,244	3,261	3,272	3,285	3,298	3,308	3,332	3,345	3,351	3,366	3,380	3,397	3,403
Communication and public utilities	2,218	2,248	2,237	2,238	2,241	2,245	2,245	2,248	2,250	2,253	2,254	2,252	2,251	2,251	2,247
Wholesale trade	5,872	6,156	5,984	6,010	6,035	6,061	6,089	6,115	6,148	6,174	6,192	6,219	6,246	6,276	6,303
Durable goods	3,449	3,667	3,536	3,555	3,573	3,591	3,610	3,635	3,660	3,681	3,696	3,714	3,736	3,761	3,785
Nondurable goods	2,423	2,489	2,448	2,455	2,462	2,470	2,479	2,480	2,488	2,493	2,496	2,505	2,510	2,515	2,518
Retail trade	18,509	19,205	18,784	18,927	19,045	19,050	19,093	19,130	19,205	19,261	19,279	19,291	19,327	19,387	19,439
General merchandise stores	2,432	2,540	2,494	2,526	2,561	2,543	2,546	2,541	2,549	2,545	2,539	2,533	2,520	2,518	2,565
Food stores	2,957	3,088	2,988	3,014	3,029	3,044	3,049	3,053	3,080	3,097	3,106	3,110	3,143	3,157	3,173
Automotive dealers and service stations	2,004	2,079	2,033	2,038	2,047	2,055	2,064	2,070	2,076	2,088	2,095	2,095	2,103	2,106	2,108
Eating and drinking places	6,127	6,360	6,232	6,260	6,291	6,319	6,326	6,336	6,352	6,369	6,377	6,384	6,415	6,440	6,449
Finance, insurance, and real estate	6,549	6,678	6,619	6,633	6,636	6,651	6,650	6,656	6,679	6,684	6,689	6,692	6,708	6,724	6,733
Finance	3,275	3,305	3,301	3,308	3,305	3,306	3,302	3,299	3,304	3,300	3,298	3,300	3,308	3,314	3,324
Insurance	2,022	2,074	2,049	2,052	2,053	2,060	2,065	2,067	2,074	2,077	2,081	2,083	2,089	2,092	2,096
Real estate	1,252	1,299	1,269	1,273	1,278	1,285	1,283	1,290	1,301	1,307	1,310	1,309	1,311	1,318	1,313
Services	24,196	25,463	24,725	24,795	24,975	25,078	25,163	25,216	25,472	25,561	25,662	25,737	25,826	25,938	26,064
Business services	5,172	5,477	5,306	5,321	5,385	5,405	5,420	5,443	5,480	5,500	5,512	5,538	5,553	5,560	5,606
Health services	6,828	7,228	6,995	7,019	7,056	7,088	7,126	7,153	7,203	7,238	7,271	7,323	7,365	7,413	7,474
Government	17,015	17,389	17,207	17,218	17,254	17,320	17,308	17,350	17,379	17,330	17,359	17,532	17,492	17,560	17,574
Federal	2,943	2,971	2,980	2,973	2,972	2,970	2,963	2,957	2,951	2,951	2,956	2,989	2,989	2,988	2,993
State	3,963	4,052	4,001	4,006	4,014	4,031	4,041	4,050	4,049	4,059	4,070	4,086	4,070	4,071	4,084
Local	10,109	10,366	10,226	10,239	10,268	10,319	10,304	10,343	10,379	10,320	10,333	10,457	10,433	10,501	10,497

P = preliminary
NOTE: See notes on the data for a description of the most recent benchmark revision.

14. Average weekly hours of production or nonsupervisory workers on private nonagricultural payrolls by industry, monthly data seasonally adjusted

Industry	Annual average		1987	1988											
	1987	1988ᵖ	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.ᵖ	Dec.ᵖ
PRIVATE SECTOR	34.8	34.8	34.6	34.7	34.8	34.6	34.9	34.7	34.7	34.9	34.6	34.7	34.9	34.8	34.7
MANUFACTURING	41.0	41.1	41.0	41.1	41.0	40.9	41.2	41.0	41.1	41.1	41.0	41.2	41.2	41.2	41.0
Overtime hours	3.7	3.9	3.8	3.9	3.7	3.7	3.9	3.9	3.9	3.9	3.9	3.9	4.0	3.9	3.9
Durable goods	41.5	41.8	41.5	41.6	41.5	41.5	42.0	41.8	41.8	41.8	41.6	41.9	41.9	41.9	41.7
Overtime hours	3.8	4.0	3.8	3.8	3.8	3.8	4.2	4.2	4.1	4.0	4.1	4.0	4.2	4.1	4.1
Lumber and wood products	40.6	40.3	40.4	40.2	40.3	40.1	40.6	40.1	40.2	40.5	40.0	39.9	40.7	40.3	40.6
Furniture and fixtures	40.0	39.4	39.8	39.6	39.5	39.3	39.5	39.5	39.4	39.7	39.0	39.6	39.4	39.5	39.3
Stone, clay, and glass products	42.3	42.3	42.5	42.0	42.3	42.3	42.5	42.3	42.4	42.1	42.1	42.3	42.5	42.6	42.1
Primary metal industries	43.1	43.6	43.4	43.4	43.1	43.3	43.5	43.6	43.6	43.4	43.5	44.0	43.8	43.7	43.4
Blast furnaces and basic steel products	43.4	44.0	44.0	44.0	43.8	43.7	43.8	43.9	44.3	44.0	44.0	44.6	44.3	44.0	43.8
Fabricated metal products	41.5	41.8	41.7	41.8	41.6	41.6	42.0	41.9	42.0	41.7	41.8	42.0	41.9	42.1	41.9
Machinery except electrical	42.2	42.6	42.6	42.7	42.6	42.5	42.8	42.6	42.5	43.0	42.4	42.7	42.6	42.4	42.4
Electrical and electronic equipment	40.9	41.0	40.9	41.1	40.9	40.9	41.2	41.0	41.1	41.0	40.8	41.0	41.0	41.0	40.7
Transportation equipment	42.0	42.8	41.5	42.0	42.0	42.1	43.0	43.0	43.0	42.6	42.7	43.3	43.3	43.4	43.0
Motor vehicles and equipment	42.2	43.6	41.4	42.1	42.3	42.3	44.1	44.0	44.2	42.5	43.6	44.5	44.2	44.8	43.9
Instruments and related products	41.4	41.6	41.2	41.8	41.3	41.4	41.8	41.4	41.3	41.8	41.5	41.6	41.9	41.5	41.4
Miscellaneous manufacturing	39.4	39.2	39.2	39.1	39.3	39.2	39.4	39.2	39.3	39.3	39.2	39.2	39.1	39.3	39.0
Nondurable goods	40.2	40.2	40.3	40.3	40.2	40.1	40.3	40.0	40.1	40.2	40.1	40.2	40.2	40.2	40.0
Overtime hours	3.6	3.7	3.7	3.8	3.6	3.6	3.6	3.6	3.6	3.7	3.6	3.7	3.8	3.7	3.7
Food and kindred products	40.2	40.4	40.5	40.6	40.3	40.1	40.1	40.1	40.3	40.5	40.4	40.3	40.6	40.6	40.5
Textile mill products	41.8	41.1	41.5	41.5	41.6	41.2	41.6	40.8	40.7	41.1	41.1	41.1	41.0	41.0	41.0
Apparel and other textile products	37.0	36.9	37.1	36.8	37.0	37.0	37.4	36.8	36.9	36.9	36.8	37.1	36.8	37.0	36.8
Paper and allied products	43.4	43.2	43.3	43.4	43.3	43.2	43.3	43.3	43.2	43.2	43.2	43.3	43.2	43.0	42.9
Printing and publishing	38.0	38.0	38.0	38.1	38.1	38.1	38.2	37.7	38.0	38.0	38.0	38.1	38.0	37.8	37.7
Chemicals and allied products	42.3	42.3	42.5	42.5	42.4	42.5	42.1	42.0	42.4	42.3	42.1	42.1	42.5	42.4	42.3
Rubber and miscellaneous plastics products	41.6	41.6	41.6	41.7	41.6	41.7	42.0	41.7	41.6	41.6	41.5	41.6	41.5	41.7	41.4
Leather and leather products	38.2	37.5	38.0	38.0	37.8	37.9	37.3	37.3	36.9	37.0	37.6	37.5	37.9	37.5	37.1
TRANSPORTATION AND PUBLIC UTILITIES	39.2	39.3	39.1	39.5	39.1	38.8	39.5	39.4	39.3	39.5	39.3	39.4	39.4	39.3	39.5
WHOLESALE TRADE	37.5	–	38.0	38.1	38.2	38.1	38.3	38.0	37.9	38.2	37.8	38.1	38.1	38.0	38.0
RETAIL TRADE	29.2	29.1	28.8	29.0	29.1	29.0	29.2	29.0	29.1	29.3	29.0	28.9	29.2	29.0	28.9
SERVICES	32.5	32.6	32.5	32.6	32.7	32.4	32.7	32.5	32.5	32.7	32.4	32.6	32.8	32.6	32.7

– Data not available.
ᵖ = preliminary

NOTE: See "Notes on the data" for a description of the most recent benchmark adjustment.

15. Average hourly earnings of production or nonsupervisory workers on private nonagricultural payrolls by industry

Industry	Annual average 1987	Annual average 1988p	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.p	Dec.p
PRIVATE SECTOR	$8.98	$9.29	$9.13	$9.18	$9.17	$9.18	$9.23	$9.26	$9.23	$9.25	$9.24	$9.40	$9.45	$9.45	$9.45
Seasonally adjusted	–	–	9.11	9.14	9.13	9.16	9.23	9.27	9.27	9.32	9.32	9.37	9.43	9.42	9.44
MINING	12.52	12.68	12.60	12.77	12.71	12.59	12.60	12.54	12.55	12.66	12.62	12.75	12.72	12.80	12.84
CONSTRUCTION	12.69	12.97	12.81	12.99	12.82	12.87	12.88	12.87	12.85	12.91	12.95	13.13	13.13	13.04	13.15
MANUFACTURING	9.91	10.17	10.07	10.07	10.05	10.07	10.12	10.14	10.16	10.16	10.12	10.25	10.24	10.30	10.37
Durable goods	10.43	10.70	10.60	10.60	10.58	10.59	10.65	10.67	10.69	10.67	10.64	10.78	10.78	10.85	10.92
Lumber and wood products	8.40	8.60	8.43	8.51	8.53	8.45	8.50	8.54	8.60	8.65	8.58	8.67	8.76	8.68	8.74
Furniture and fixtures	7.67	7.92	7.78	7.80	7.74	7.76	7.81	7.87	7.91	7.97	8.00	8.07	8.04	8.00	8.04
Stone, clay, and glass products	10.25	10.47	10.29	10.35	10.33	10.36	10.41	10.45	10.48	10.54	10.46	10.55	10.58	10.60	10.50
Primary metal industries	11.94	12.15	12.11	12.06	12.03	12.07	12.11	12.13	12.15	12.22	12.11	12.25	12.20	12.23	12.26
Blast furnaces and basic steel products	13.78	13.97	13.93	13.82	13.89	13.89	13.94	13.96	13.96	14.09	13.96	14.08	14.04	13.99	13.96
Fabricated metal products	10.00	10.24	10.19	10.12	10.13	10.14	10.22	10.23	10.26	10.18	10.20	10.32	10.32	10.35	10.39
Machinery, except electrical	10.70	10.97	10.89	10.85	10.82	10.84	10.88	10.90	10.93	10.94	10.93	11.05	11.07	11.17	11.20
Electrical and electronic equipment	9.88	10.13	10.03	10.02	10.02	10.04	10.09	10.12	10.15	10.13	10.15	10.19	10.16	10.23	10.30
Transportation equipment	12.95	13.37	13.25	13.22	13.17	13.20	13.28	13.31	13.35	13.23	13.26	13.49	13.49	13.61	13.78
Motor vehicles and equipment	13.55	14.08	13.87	13.94	13.85	13.93	14.09	14.10	14.16	13.86	13.90	14.17	14.16	14.26	14.48
Instruments and related products	9.71	9.94	9.84	9.93	9.92	9.88	9.89	9.87	9.88	9.93	9.91	9.97	10.05	10.02	10.06
Miscellaneous manufacturing	7.75	7.98	7.91	7.97	7.90	7.91	7.92	7.94	7.93	7.94	7.93	7.99	8.07	8.09	8.17
Nondurable goods	9.18	9.42	9.32	9.32	9.31	9.33	9.37	9.38	9.39	9.45	9.40	9.50	9.48	9.52	9.60
Food and kindred products	8.94	9.11	9.07	9.06	9.06	9.07	9.14	9.15	9.12	9.13	9.04	9.12	9.04	9.15	9.21
Tobacco manufactures	14.03	14.58	13.69	13.79	14.01	14.42	14.98	15.24	15.78	15.66	14.84	13.98	13.92	14.45	14.40
Textile mill products	7.17	7.37	7.31	7.34	7.30	7.31	7.35	7.31	7.33	7.31	7.37	7.43	7.45	7.47	7.51
Apparel and other textile products	5.93	6.10	6.00	6.02	6.02	6.03	6.04	6.05	6.08	6.02	6.07	6.19	6.20	6.23	6.27
Paper and allied products	11.43	11.64	11.53	11.54	11.50	11.52	11.60	11.64	11.65	11.71	11.63	11.70	11.67	11.70	11.78
Printing and publishing	10.28	10.53	10.43	10.38	10.40	10.45	10.40	10.43	10.43	10.49	10.55	10.70	10.68	10.66	10.72
Chemicals and allied products	12.37	12.68	12.61	12.55	12.55	12.53	12.57	12.59	12.60	12.70	12.63	12.76	12.79	12.87	13.02
Petroleum and coal products	14.59	15.04	14.73	14.89	14.96	14.98	15.00	14.93	15.04	14.99	14.91	15.08	15.22	15.26	15.25
Rubber and miscellaneous plastics products	8.91	9.11	9.04	9.00	9.00	9.00	9.04	9.04	9.07	9.11	9.14	9.18	9.20	9.22	9.29
Leather and leather products	6.08	6.27	6.16	6.16	6.19	6.23	6.29	6.27	6.27	6.20	6.23	6.31	6.34	6.39	6.33
TRANSPORTATION AND PUBLIC UTILITIES	12.03	12.33	12.24	12.16	12.23	12.19	12.27	12.28	12.27	12.33	12.35	12.41	12.43	12.50	12.48
WHOLESALE TRADE	9.59	9.92	9.73	9.78	9.78	9.78	9.88	9.87	9.85	9.93	9.88	10.01	10.08	10.05	10.13
RETAIL TRADE	6.11	6.30	6.19	6.24	6.23	6.24	6.26	6.28	6.26	6.28	6.26	6.37	6.38	6.43	6.40
FINANCE, INSURANCE, AND REAL ESTATE	8.73	9.09	8.81	8.96	9.02	8.97	9.03	9.09	8.98	9.03	9.04	9.14	9.29	9.27	9.28
SERVICES	8.48	8.90	8.73	8.81	8.81	8.80	8.82	8.84	8.78	8.79	8.79	8.98	9.07	9.09	9.13

– Data not available.
p = preliminary

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

16. Average weekly earnings of production or nonsupervisory workers on private nonagricultural payrolls by industry

Industry	Annual average 1987	1988ᵖ	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.ᵖ	Dec.ᵖ
PRIVATE SECTOR															
Current dollars	$312.50	$323.29	$317.72	$315.79	$316.37	$315.79	$320.28	$320.40	$322.13	$324.68	$323.40	$327.12	$329.81	$327.92	$329.81
Seasonally adjusted	–	–	315.21	317.16	317.72	316.94	322.13	321.67	321.67	325.27	322.47	325.14	329.11	327.82	327.57
Constant (1977) dollars	169.28	–	169.54	167.97	168.01	167.08	168.57	167.92	168.13	168.75	167.30	168.10	168.96	167.82	–
MINING	530.85	535.10	543.06	537.62	531.28	527.52	539.28	529.19	533.38	535.52	530.04	538.05	543.14	536.32	540.56
CONSTRUCTION	479.68	491.56	481.66	466.34	462.80	481.34	488.15	491.63	497.30	497.04	499.87	504.19	512.07	491.61	489.18
MANUFACTURING															
Current dollars	406.31	417.99	420.93	412.87	409.04	411.86	414.92	414.73	418.59	413.51	412.90	423.33	422.91	427.45	433.47
Constant (1977) dollars	220.10	–	224.62	219.61	217.23	217.92	218.38	217.36	218.47	214.92	213.61	217.54	216.66	218.76	–
Durable goods	432.85	447.26	449.44	440.96	436.95	440.54	444.11	444.94	448.98	439.60	439.43	452.76	452.76	457.87	465.19
Lumber and wood products	341.04	346.58	341.42	336.15	339.49	337.16	345.10	345.87	351.74	348.60	345.77	348.53	358.28	347.20	355.72
Furniture and fixtures	306.80	312.05	319.76	303.42	301.09	302.64	305.37	307.72	311.65	310.03	314.40	323.61	322.40	319.20	326.42
Stone, clay, and glass products	433.58	442.88	435.27	423.32	426.63	435.12	442.43	447.26	448.54	446.90	444.55	451.54	454.94	451.56	439.95
Primary metal industries	514.61	529.74	534.05	524.61	519.70	523.84	526.79	527.66	530.96	525.46	521.94	539.00	531.92	536.90	540.67
Blast furnaces and basic steel products	598.05	614.68	618.49	606.70	609.77	606.99	613.36	612.84	621.22	619.96	608.66	629.38	616.36	615.56	618.43
Fabricated metal products	415.00	428.03	435.11	423.02	418.37	421.82	426.17	426.59	431.95	417.38	423.30	433.44	433.44	438.84	445.73
Machinery, except electrical	451.54	467.32	475.89	464.38	459.85	462.87	463.49	462.16	465.62	462.76	459.06	471.84	470.48	476.96	487.20
Electrical and electronic equipment	404.09	415.33	421.26	413.83	406.81	410.64	411.67	411.88	417.17	409.25	412.09	417.79	416.56	423.52	430.54
Transportation equipment	543.90	572.24	565.78	560.53	553.14	561.00	569.71	572.33	574.05	551.69	554.27	580.07	581.42	594.76	609.08
Motor vehicles and equipment	571.81	613.89	593.64	592.45	587.24	598.99	621.37	624.63	625.87	576.58	587.97	624.90	623.04	638.85	657.39
Instruments and related products	401.99	413.50	415.25	415.07	408.70	411.01	410.44	406.64	409.03	408.12	408.29	414.75	419.09	419.84	426.54
Miscellaneous manufacturing	305.35	312.82	316.40	310.03	307.31	310.07	309.67	309.66	311.65	305.69	309.27	314.01	319.57	321.98	325.17
Nondurable goods	369.04	378.68	381.19	374.66	370.54	373.20	373.86	374.26	377.48	377.06	377.88	384.75	382.04	385.56	389.76
Food and kindred products	359.39	368.04	372.78	366.93	358.78	359.17	361.03	366.92	367.54	368.85	368.83	373.01	368.83	374.24	378.53
Tobacco manufactures	547.17	578.83	554.45	540.57	540.79	566.71	576.73	601.98	628.04	613.87	595.08	575.98	574.90	582.34	567.36
Textile mill products	299.71	302.91	307.75	303.14	301.49	299.71	301.35	297.52	300.53	295.32	304.38	307.60	306.94	309.26	312.42
Apparel and other textile products	219.41	225.09	225.60	220.33	220.93	223.11	222.27	222.64	226.18	220.33	223.98	229.03	229.40	232.38	233.87
Paper and allied products	496.06	502.85	509.63	501.99	494.50	494.21	498.80	501.68	502.12	502.36	498.93	511.29	505.31	506.61	515.96
Printing and publishing	390.64	400.14	403.64	392.36	393.12	399.19	395.20	391.13	392.17	396.52	403.01	411.95	406.91	406.15	411.65
Chemicals and allied products	523.25	536.36	542.23	533.38	530.87	532.53	529.20	528.78	534.24	533.40	527.93	539.75	541.02	548.26	557.26
Petroleum and coal products	641.96	666.27	655.49	658.14	647.77	654.63	666.00	658.41	678.30	679.05	664.99	674.08	680.33	672.97	667.95
Rubber and miscellaneous plastics products	370.66	378.98	383.30	376.20	372.60	375.30	377.87	376.06	378.22	373.51	377.48	381.89	382.72	386.32	392.04
Leather and leather products	232.26	235.13	237.78	231.62	227.79	233.00	232.73	235.75	237.63	231.26	234.87	236.63	240.29	240.26	238.64
TRANSPORTATION AND PUBLIC UTILITIES	471.58	484.57	479.81	474.24	475.75	470.53	480.98	481.38	484.67	490.73	490.30	490.20	490.99	492.50	494.21
WHOLESALE TRADE	365.38	377.95	371.69	370.66	370.66	370.66	377.42	375.06	375.29	380.32	375.44	381.38	385.06	381.90	386.97
RETAIL TRADE	178.41	183.33	181.37	176.59	177.56	178.46	180.91	181.49	184.04	188.40	186.55	184.73	185.66	185.18	187.52
FINANCE, INSURANCE, AND REAL ESTATE	316.90	327.24	317.16	324.35	328.33	321.13	326.89	325.42	321.48	326.89	322.73	327.21	334.44	330.94	332.22
SERVICES	275.60	290.14	282.85	285.44	287.21	284.24	287.53	286.42	287.11	290.07	288.31	291.85	296.59	295.43	297.64

– Data not available.
ᵖ = preliminary

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

17. The Hourly Earnings Index for production or nonsupervisory workers on private nonagricultural payrolls by industry

Industry	Not seasonally adjusted				Seasonally adjusted					
	Dec. 1987	Oct. 1988	Nov. 1988[p]	Dec. 1988[p]	Dec. 1987	Aug. 1988	Sept. 1988	Oct. 1988	Nov. 1988[p]	Dec. 1988[p]
PRIVATE SECTOR (in current dollars)	176.3	181.4	181.7	182.2	175.7	179.5	180.3	181.5	181.4	181.7
Mining[1]	183.9	186.5	187.1	187.3	–	–	–	–	–	–
Construction	155.9	160.8	159.5	160.4	155.4	158.6	159.3	159.2	159.3	159.9
Manufacturing	177.0	179.8	180.6	181.3	176.6	179.3	180.0	180.5	180.7	180.9
Transportation and public utilities	179.8	183.1	184.2	184.4	178.2	181.9	182.0	183.1	182.9	182.8
Wholesale trade[1]	179.6	186.0	185.1	186.6	–	–	–	–	–	–
Retail trade	162.7	168.3	168.9	168.2	162.7	166.7	167.1	168.4	168.9	168.2
Finance, insurance, and real estate[1]	189.9	200.2	199.5	200.2	–	–	–	–	–	–
Services	186.2	193.8	194.0	194.9	185.2	190.9	191.9	194.0	193.3	193.9
PRIVATE SECTOR [in constant (1977) dollars]	94.1	92.9	93.0	–	93.7	92.9	93.0	93.1	92.9	–

[1] This series is not seasonally adjusted because the seasonal component is small relative to the trend-cycle, irregular components, or both, and consequently cannot be separated with sufficient precision.

– Data not available.

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision. Publication of the Hourly Earnings Index series will be discontinued with the initial publicatgion of the December 1988 data.

18. Indexes of diffusion: industries in which employment increased, data seasonally adjusted

(In percent)

Time span and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Over 1-month span:												
1986	57.0	47.3	49.5	50.8	51.9	46.8	51.9	54.1	51.4	53.0	58.9	58.9
1987	50.8	59.2	61.1	62.4	62.4	61.6	70.8	62.2	68.1	67.3	67.8	68.4
1988	61.6	61.6	62.2	63.8	58.1	68.9	61.4	51.9	49.5	62.4	71.1	63.2
Over 3-month span:												
1986	50.0	47.6	45.7	46.2	46.2	46.2	48.1	51.9	50.5	55.9	59.7	59.2
1987	57.6	57.0	65.1	69.2	68.1	71.9	73.8	76.8	74.1	76.5	78.1	73.0
1988	71.6	66.8	67.0	66.8	71.4	69.7	68.4	57.3	57.0	66.2	74.2	–
Over 6-month span:												
1986	48.1	47.3	43.8	42.7	43.2	47.0	46.5	50.0	55.9	53.2	55.9	58.4
1987	64.6	64.3	63.0	70.3	72.4	77.3	78.4	79.7	82.7	77.8	77.0	76.5
1988	73.5	70.3	70.3	73.8	70.5	68.4	64.9	72.4	71.1	–	–	–
Over 12-month span:												
1986	42.2	41.6	43.8	44.9	45.7	48.6	46.8	48.6	51.6	53.8	56.5	57.8
1987	63.8	67.3	69.5	73.5	76.8	76.8	78.9	78.9	79.7	78.4	77.8	81.9
1988	77.6	77.6	74.3	76.2	73.5	–	–	–	–	–	–	–

– Data not available.

NOTE: Figures are the percent of industries with employment rising. (Half of the unchanged components are counted as rising.) Data are centered within the spans. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

19. Annual data: Employment status of the noninstitutional population

(Numbers in thousands)

Employment status	1980	1981	1982	1983	1984	1985	1986	1987	1988ᵖ
Noninstitutional population	169,349	171,775	173,939	175,891	178,080	179,912	182,293	184,490	186,322
Labor force:									
Total (number)	108,544	110,315	111,872	113,226	115,241	117,167	119,540	121,602	123,378
Percent of population	64.1	64.2	64.3	64.4	64.7	65.1	65.6	65.9	66.2
Employed:									
Total (number)	100,907	102,042	101,194	102,510	106,702	108,856	111,303	114,177	116,677
Percent of population	59.6	59.4	58.2	58.3	59.9	60.5	61.1	61.9	62.6
Resident Armed Forces	1,604	1,645	1,668	1,676	1,697	1,706	1,706	1,737	1,709
Civilian									
Total	99,303	100,397	99,526	100,834	105,005	107,150	109,597	112,440	114,968
Agriculture	3,364	3,368	3,401	3,383	3,321	3,179	3,163	3,208	3,169
Nonagricultural industries	95,938	97,030	96,125	97,450	101,685	103,971	106,434	109,232	111,800
Unemployed:									
Total (number)	7,637	8,273	10,678	10,717	8,539	8,312	8,237	7,425	6,701
Percent of labor force	7.0	7.5	9.5	9.5	7.4	7.1	6.9	6.1	5.4
Not in labor force (number)	60,806	61,460	62,067	62,665	62,839	62,744	62,752	62,888	62,944

ᵖ = preliminary

20. Annual data: Employment levels by industry

(Numbers in thousands)

Industry	1980	1981	1982	1983	1984	1985	1986	1987	1988ᵖ
Total employment	90,406	91,156	89,566	90,200	94,496	97,519	99,525	102,310	106,037
Private sector	74,166	75,126	73,729	74,330	78,472	81,125	82,832	85,295	88,648
Goods-producing	25,658	25,497	23,813	23,334	24,727	24,859	24,558	24,784	25,564
Mining	1,027	1,139	1,128	952	966	927	777	721	733
Construction	4,346	4,188	3,905	3,948	4,383	4,673	4,816	4,998	5,292
Manufacturing	20,285	20,170	18,781	18,434	19,378	19,260	18,965	19,065	19,540
Service-producing	64,748	65,659	65,753	66,866	69,769	72,660	74,967	77,525	80,473
Transportation and public utilities	5,146	5,165	5,082	4,954	5,159	5,238	5,255	5,385	5,581
Wholesale trade	5,275	5,358	5,278	5,268	5,555	5,717	5,753	5,872	6,156
Retail trade	15,035	15,189	15,179	15,613	16,545	17,356	17,930	18,509	19,205
Finance, insurance, and real estate	5,160	5,298	5,341	5,468	5,689	5,955	6,283	6,549	6,678
Services	17,890	18,619	19,036	19,694	20,797	22,000	23,053	24,196	25,463
Government	16,241	16,031	15,837	15,869	16,024	16,394	16,693	17,015	17,389
Federal	2,866	2,772	2,739	2,774	2,807	2,875	2,899	2,943	2,971
State	3,610	3,640	3,640	3,662	3,734	3,832	3,893	3,963	4,052
Local	9,765	9,619	9,458	9,434	9,482	9,687	9,901	10,109	10,366

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

ᵖ = preliminary

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

Industry	1980	1981	1982	1983	1984	1985	1986	1987	1988ᵖ
Private sector									
Average weekly hours	35.3	35.2	34.8	35.0	35.2	34.9	34.8	34.8	34.8
Average hourly earnings (in dollars)	6.66	7.25	7.68	8.02	8.32	8.57	8.76	8.98	9.29
Average weekly earnings (in dollars)	235.10	255.20	267.26	280.70	292.86	299.09	304.85	312.50	323.29
Mining									
Average weekly hours	43.3	43.7	42.7	42.5	43.3	43.4	42.2	42.4	42.2
Average hourly earnings (in dollars)	9.17	10.04	10.77	11.28	11.63	11.98	12.46	12.52	12.68
Average weekly earnings (in dollars)	397.06	438.75	459.88	479.40	503.58	519.93	525.81	530.85	535.10
Construction									
Average weekly hours	37.0	36.9	36.7	37.1	37.8	37.7	37.4	37.8	37.9
Average hourly earnings (in dollars)	9.94	10.82	11.63	11.94	12.13	12.32	12.48	12.69	12.97
Average weekly earnings (in dollars)	367.78	399.26	426.82	442.97	458.51	464.46	466.75	479.68	491.56
Manufacturing									
Average weekly hours	39.7	39.8	38.9	40.1	40.7	40.5	40.7	41.0	41.1
Average hourly earnings (in dollars)	7.27	7.99	8.49	8.83	9.19	9.54	9.73	9.91	10.17
Average weekly earnings (in dollars)	288.62	318.00	330.26	354.08	374.03	386.37	396.01	406.31	417.99
Transportation and public utilities									
Average weekly hours	39.6	39.4	39.0	39.0	39.4	39.5	39.2	39.2	39.3
Average hourly earnings (in dollars)	8.87	9.70	10.32	10.79	11.12	11.40	11.70	12.03	12.33
Average weekly earnings (in dollars)	351.25	382.18	402.48	420.81	438.13	450.30	458.64	471.58	484.57
Wholesale trade									
Average weekly hours	38.5	38.5	38.3	38.5	38.5	38.4	38.3	38.1	38.1
Average hourly earnings (in dollars)	6.96	7.56	8.09	8.55	8.89	9.16	9.35	9.59	9.92
Average weekly earnings (in dollars)	267.96	291.06	309.85	329.18	342.27	351.74	358.11	365.38	377.95
Retail trade									
Average weekly hours	30.2	30.1	29.9	29.8	29.8	29.4	29.2	29.2	29.1
Average hourly earnings (in dollars)	4.88	5.25	5.48	5.74	5.85	5.94	6.03	6.11	6.30
Average weekly earnings (in dollars)	147.38	158.03	163.85	171.05	174.33	174.64	176.08	178.41	183.33
Finance, insurance, and real estate									
Average weekly hours	36.2	36.3	36.2	36.2	36.5	36.4	36.4	36.3	36.0
Average hourly earnings (in dollars)	5.79	6.31	6.78	7.29	7.63	7.94	8.36	8.73	9.09
Average weekly earnings (in dollars)	209.60	229.05	245.44	263.90	278.50	289.02	304.30	316.90	327.24
Services									
Average weekly hours	32.6	32.6	32.6	32.7	32.6	32.5	32.5	32.5	32.6
Average hourly earnings (in dollars)	5.85	6.41	6.92	7.31	7.59	7.90	8.18	8.48	8.90
Average weekly earnings (in dollars)	190.71	208.97	225.59	239.04	247.43	256.75	265.85	275.60	290.14

ᵖ = preliminary

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

(June 1981 = 100)

Series	1986		1987				1988			Percent change	
										3 months ended	12 months ended
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Sept. 1988	
Civilian workers [2]	133.0	133.8	135.0	135.9	137.5	138.6	140.6	142.1	144.0	1.3	4.7
Workers, by occupational group:											
White-collar workers	136.0	136.9	138.5	139.3	141.2	142.2	144.2	145.7	147.9	1.5	4.7
Blue-collar workers	127.8	128.4	129.1	130.1	131.3	132.5	134.7	136.2	137.2	.7	4.5
Service occupations	135.4	136.6	138.0	138.5	139.9	140.8	142.9	144.3	147.2	2.0	5.2
Workers, by industry division:											
Goods-producing	128.8	129.5	130.2	131.1	132.2	133.5	135.8	137.3	138.2	.7	4.5
Manufacturing	129.3	130.1	130.7	131.5	132.7	134.1	136.8	138.1	139.0	.7	4.7
Service-producing	135.6	136.5	138.1	138.9	140.8	141.7	143.6	145.1	147.6	1.7	4.8
Services	142.4	143.6	145.2	145.8	149.2	150.6	152.8	153.8	157.7	2.5	5.7
Health services	–	–	–	–	–	–	–	–	–	1.7	5.6
Hospitals	–	–	–	–	–	–	–	–	–	1.8	5.8
Public administration [3]	140.6	141.6	144.1	144.7	146.4	148.1	150.3	151.2	154.0	1.9	5.2
Nonmanufacturing	134.6	135.4	136.9	137.8	139.6	140.5	142.3	143.9	146.1	1.5	4.7
Private industry workers	130.8	131.6	132.9	133.8	135.1	136.0	138.1	139.8	141.2	1.0	4.5
Workers, by occupational group:											
White-collar workers	133.5	134.3	136.1	137.0	138.5	139.3	141.2	143.0	144.6	1.1	4.4
Professional specialty and technical occupations	–	–	–	–	–	–	–	–	–	1.6	5.2
Executive, administrative, and managerial occupations	–	–	–	–	–	–	–	–	–	.8	3.3
Sales occupations	–	–	–	–	–	–	–	–	–	.5	4.0
Administrative support occupations, including clerical	–	–	–	–	–	–	–	–	–	1.4	5.2
Blue-collar workers	127.2	127.8	128.4	129.5	130.6	131.8	134.1	135.6	136.5	.7	4.5
Precision production, craft, and repair occupation	–	–	–	–	–	–	–	–	–	.6	3.8
Machine operators, assemblers, and inspectors	–	–	–	–	–	–	–	–	–	.7	5.4
Transportation and material moving occupations	–	–	–	–	–	–	–	–	–	1.0	5.0
Handlers, equipment cleaners, helpers, and laborers	–	–	–	–	–	–	–	–	–	.8	4.8
Service occupations	132.3	133.5	134.7	135.2	135.9	136.7	138.6	140.1	142.2	1.5	4.6
Workers, by industry division:											
Goods-producing	128.6	129.2	129.9	130.8	131.9	133.2	135.6	137.1	137.9	.6	4.5
Construction	–	–	–	–	–	–	–	–	–	.8	4.1
Manufacturing	129.3	130.1	130.7	131.5	132.7	134.1	136.8	138.1	139.0	.7	4.7
Durables	–	–	–	–	–	–	–	–	–	.5	4.8
Nondurables	–	–	–	–	–	–	–	–	–	.9	4.5
Service-producing	132.7	133.5	135.3	136.3	137.7	138.4	140.2	142.1	143.8	1.2	4.4
Transportation and public utilities	–	–	–	–	–	–	–	–	–	.7	3.2
Transportation	–	–	–	–	–	–	–	–	–	.7	4.0
Public utilities	–	–	–	–	–	–	–	–	–	.6	2.2
Wholesale and retail trade	–	–	–	–	–	–	–	–	–	1.1	4.6
Wholesale trade	–	–	–	–	–	–	–	–	–	1.0	4.4
Retail trade	–	–	–	–	–	–	–	–	–	1.1	4.7
Finance, insurance, and real estate	–	–	–	–	–	–	–	–	–	.1	3.0
Service	–	–	–	–	–	–	–	–	–	2.0	5.6
Health services	–	–	–	–	–	–	–	–	–	1.6	5.8
Hospitals	–	–	–	–	–	–	–	–	–	1.7	5.9
Nonmanufacturing	131.7	132.4	134.1	135.1	136.4	137.1	138.9	140.8	142.4	1.1	4.4
State and local government workers	143.6	144.7	145.9	146.3	149.7	151.1	153.1	153.6	157.8	2.7	5.4
Workers, by occupational group:											
White-collar workers	145.0	146.0	147.2	147.5	151.2	152.7	154.8	155.2	159.6	2.8	5.6
Blue-collar workers	138.5	139.5	140.8	141.3	143.3	144.3	145.9	145.9	148.4	1.7	3.6
Workers, by industry division:											
Services	145.5	146.6	147.3	147.6	151.8	153.1	155.2	155.6	160.5	3.1	5.7
Hospitals and other services [4]	139.4	141.1	142.5	143.3	145.1	146.3	150.3	150.4	153.2	1.9	5.6
Health services	–	–	–	–	–	–	–	–	–	2.3	4.9
Schools	147.6	148.4	148.9	149.1	154.1	155.5	156.8	157.3	163.1	3.7	5.8
Elementary and secondary	149.4	150.3	150.5	150.7	156.5	157.8	158.9	159.4	165.4	3.8	5.7
Public administration [3]	140.6	141.6	144.1	144.7	146.4	148.1	150.3	151.2	154.0	1.9	5.2

[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] Consist of legislative, judicial, administrative, and regulatory activities.
[4] Includes, for example, library, social, and health services.
– Data not available.

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

(June 1981 = 100)

Series	1986 Sept.	1986 Dec.	1987 Mar.	1987 June	1987 Sept.	1987 Dec.	1988 Mar.	1988 June	1988 Sept.	Percent change 3 months ended Sept. 1988	Percent change 12 months ended Sept. 1988
Civilian workers [1]	130.7	131.5	132.8	133.5	135.2	136.1	137.4	138.7	140.5	1.3	3.9
Workers, by occupational group:											
White-collar workers	134.1	135.0	136.6	137.3	139.4	140.2	141.5	143.0	145.2	1.5	4.2
Blue-collar workers	125.0	125.6	126.2	127.1	128.3	129.4	130.4	131.6	132.5	.7	3.3
Service occupations	131.7	132.8	134.2	134.7	136.0	136.6	138.0	139.3	141.8	1.8	4.3
Workers, by industry division											
Goods-producing	126.3	127.0	127.8	128.5	129.8	131.0	132.2	133.4	134.1	.5	3.3
Manufacturing	127.2	127.9	128.7	129.5	130.8	132.2	133.3	134.4	135.1	.5	3.3
Service-producing	133.4	134.2	135.8	136.5	138.5	139.2	140.5	141.9	144.2	1.6	4.1
Services	139.9	141.1	142.7	143.4	146.8	148.2	149.5	150.4	154.0	2.4	4.9
Health services	–	–	–	–	–	–	–	–	–	1.8	5.3
Hospitals	–	–	–	–	–	–	–	–	–	1.8	5.6
Public administration [2]	137.5	138.1	140.5	141.0	142.6	143.8	145.5	146.4	148.9	1.7	4.4
Nonmanufacturing	132.2	133.0	134.5	135.2	137.1	137.8	139.0	140.5	142.7	1.6	4.1
Private industry workers	128.8	129.5	130.8	131.7	133.0	133.8	135.1	136.6	137.9	1.0	3.7
Workers, by occupational group:											
White-collar workers	132.0	132.7	134.6	135.4	137.0	137.6	139.0	140.8	142.4	1.1	3.9
Professional specialty and technical occupations	135.4	136.4	138.4	139.1	141.2	142.6	144.0	145.8	148.1	1.6	4.9
Executive, administrative, and managerial occupations	132.4	133.5	135.6	136.4	138.6	139.2	139.9	141.3	142.5	.8	2.8
Sales occupations	125.2	124.9	126.7	127.1	127.0	126.1	127.5	130.8	131.5	.5	3.5
Administrative support occupations, including clerical	131.7	132.7	134.3	135.5	137.1	138.1	140.2	141.2	143.2	1.4	4.4
Blue-collar workers	124.5	125.1	125.6	126.6	127.7	128.9	129.9	131.1	131.9	.6	3.3
Precision production, craft, and repair occupations	126.7	127.4	127.9	128.8	130.2	131.1	132.1	133.4	134.0	.4	2.9
Machine operators, assemblers, and inspectors	124.1	124.9	125.5	126.7	127.5	129.2	129.9	131.2	131.9	.5	3.5
Transportation and material moving occupations	119.8	120.1	120.5	121.5	122.3	122.9	123.7	125.4	126.7	1.0	3.6
Handlers, equipment cleaners, helpers, and laborers	120.9	121.4	121.9	122.6	123.7	125.0	126.7	127.5	128.4	.7	3.8
Service occupations	128.9	130.1	131.4	131.9	132.6	133.2	134.5	135.8	137.6	1.3	3.8
Workers, by industry division:											
Goods-producing	126.1	126.8	127.5	128.3	129.6	130.8	132.0	133.2	133.9	.5	3.3
Construction	120.5	120.8	121.7	122.7	123.8	124.7	125.9	127.6	128.6	.8	3.9
Manufacturing	127.2	127.9	128.7	129.5	130.8	132.2	133.3	134.4	135.1	.5	3.3
Durables	126.4	127.2	127.7	128.7	129.7	131.1	132.1	133.1	133.7	.5	3.1
Nondurables	128.5	129.3	130.5	131.0	132.8	134.1	135.6	136.7	137.6	.7	3.6
Service-producing	130.9	131.6	133.4	134.3	135.7	136.2	137.5	139.3	141.0	1.2	3.9
Transportation and public utilities	127.3	127.5	128.1	129.3	130.0	130.2	131.3	132.5	133.5	.8	2.7
Transportation	–	–	–	–	–	–	–	–	–	.9	2.6
Public utilities	–	–	–	–	–	–	–	–	–	.7	2.7
Wholesale and retail trade	126.5	126.9	127.9	129.9	130.6	130.7	131.9	134.6	136.0	1.0	4.1
Wholesale trade	131.8	133.1	134.8	137.2	137.8	138.5	139.0	141.7	143.2	1.1	3.9
Retail trade	124.4	124.5	125.2	127.1	127.8	127.7	129.2	131.7	133.2	1.1	4.2
Finance, insurance, and real estate	129.0	130.0	133.5	131.5	131.8	131.6	132.9	134.9	134.9	.0	2.4
Services	138.2	139.5	141.8	142.8	145.9	147.1	148.6	149.8	152.9	2.1	4.8
Health services	–	–	–	–	–	–	–	–	–	1.7	5.5
Hospitals	–	–	–	–	–	–	–	–	–	1.7	5.7
Nonmanufacturing	129.7	130.4	131.9	132.8	134.2	134.8	136.0	137.8	139.4	1.2	3.9
State and local government workers	140.4	141.4	142.5	142.8	146.1	147.4	148.7	149.1	153.0	2.6	4.7
Workers, by occupational group											
White-collar workers	141.8	142.8	143.9	144.1	147.7	149.3	150.5	150.8	154.9	2.7	4.9
Blue-collar workers	134.5	135.1	136.3	136.9	139.0	139.6	141.1	141.1	143.5	1.7	3.2
Workers, by industry division											
Services	142.1	143.3	143.9	144.2	148.2	149.5	150.7	151.1	155.6	3.0	5.0
Hospitals and other services [3]	135.8	137.3	138.6	139.4	141.2	142.2	144.5	144.7	147.4	1.9	4.4
Health services	–	–	–	–	–	–	–	–	–	2.4	4.8
Schools	144.1	145.1	145.5	145.6	150.3	151.8	152.6	153.0	158.0	3.3	5.1
Elementary and secondary	145.7	146.4	146.5	146.6	152.0	153.4	154.0	154.3	159.7	3.5	5.1
Public administration [2]	137.5	138.1	140.5	141.0	142.6	143.8	145.5	146.4	148.9	1.7	4.4

[1] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.
[2] Consists of legislative, judicial, administrative, and regulatory activities.
[3] Includes, for example, library, social and health services.
– Data not available.

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

(June 1981=100)

Series	1986		1987				1988			Percent change	
										3 months ended	12 months ended
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Sept. 1988	
COMPENSATION											
Workers, by bargaining status[1]											
Union	129.4	129.8	130.5	131.2	132.0	133.4	135.6	136.9	137.9	0.7	4.5
Goods-producing	127.3	127.5	128.0	128.7	129.5	131.3	134.1	135.3	136.2	.7	5.2
Service-producing	132.8	133.4	134.4	135.2	135.9	136.7	138.0	139.4	140.5	.8	3.4
Manufacturing	127.5	127.9	128.0	128.7	129.5	131.5	135.0	136.2	137.0	.6	5.8
Nonmanufacturing	131.2	131.5	132.6	133.5	134.3	135.1	136.2	137.5	138.6	.8	3.2
Nonunion	131.2	132.1	133.6	134.6	136.1	136.9	138.9	140.7	142.2	1.1	4.5
Goods-producing	129.1	130.0	130.8	131.8	133.1	134.1	136.2	137.8	138.7	.7	4.2
Service-producing	132.5	133.4	135.3	136.4	137.9	138.6	140.5	142.5	144.4	1.3	4.7
Manufacturing	130.4	131.4	132.2	133.2	134.6	135.6	137.8	139.2	140.1	.6	4.1
Nonmanufacturing	131.6	132.5	134.3	135.3	136.8	137.5	139.4	141.5	143.2	1.2	4.7
Workers, by region [1]											
Northeast	134.2	135.2	137.4	138.6	140.3	141.9	143.7	145.9	147.8	1.3	5.3
South	130.7	131.4	132.1	133.2	134.2	135.4	137.1	139.3	140.4	.8	4.6
Midwest (formerly North Central)	127.3	128.1	129.1	130.2	131.2	131.7	134.4	135.5	136.7	.9	4.2
West	132.1	132.8	134.1	134.2	135.8	136.3	138.3	139.5	140.6	.8	3.5
Workers, by area size [1]											
Metropolitan areas	131.4	132.2	133.5	134.4	135.8	136.7	138.9	140.5	142.0	1.1	4.6
Other areas	127.2	127.9	129.0	130.2	131.3	132.0	133.6	135.5	136.2	.5	3.7
WAGES AND SALARIES											
Workers, by bargaining status [1]											
Union	126.9	127.2	127.7	128.3	129.1	130.5	131.0	132.0	132.9	.7	2.9
Goods-producing	124.5	124.8	125.0	125.8	126.5	128.5	128.7	129.7	130.4	.5	3.1
Service-producing	130.5	130.9	131.7	132.2	132.9	133.6	134.4	135.4	136.7	1.0	2.9
Manufacturing	125.0	125.5	125.6	126.2	127.0	129.3	129.6	130.4	131.0	.5	3.1
Nonmanufacturing	128.5	128.7	129.5	130.1	130.8	131.5	132.1	133.3	134.5	.9	2.8
Nonunion	129.4	130.3	131.8	132.8	134.3	135.0	136.4	138.1	139.5	1.0	3.9
Goods-producing	127.0	127.8	128.8	129.6	131.1	132.1	133.6	135.0	135.7	.5	3.5
Service-producing	130.8	131.7	133.6	134.6	136.2	136.7	138.0	140.0	141.8	1.3	4.1
Manufacturing	128.5	129.5	130.6	131.5	133.0	133.9	135.5	136.7	137.4	.5	3.3
Nonmanufacturing	129.8	130.6	132.4	133.4	134.9	135.4	136.8	138.8	140.4	1.2	4.1
Workers, by region [1]											
Northeast	132.3	133.1	135.4	136.6	138.3	139.7	140.9	142.9	144.6	1.2	4.6
South	128.8	129.4	130.1	131.1	132.1	133.0	134.0	136.1	137.1	.7	3.8
Midwest (formerly North Central)	125.3	126.2	127.4	128.5	129.6	129.9	131.3	132.1	133.3	.9	2.9
West	129.3	130.1	131.2	131.1	133.1	133.5	134.9	136.0	137.4	1.0	3.2
Workers, by area size[1]											
Metropolitan areas	129.4	130.2	131.6	132.4	133.7	134.6	135.8	137.3	138.7	1.0	3.7
Other areas	125.0	125.6	126.6	127.8	129.1	129.8	130.9	133.0	133.5	.4	3.4

[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							
	1986	1987	1986 IV	1987 I	1987 II	1987 III	1987 IV	1988 Ip	1988 IIp	1988 IIIp
Specified adjustments:										
Total compensation [1] adjustments, [2] settlements covering 5,000 workers or more:										
First year of contract	1.1	3.0	2.7	1.1	4.1	2.5	3.4	1.8	3.3	3.4
Annual rate over life of contract	1.6	2.6	2.4	2.1	3.9	2.1	2.4	1.8	2.4	3.3
Wage adjustments, settlements covering 1,000 workers or more:										
First year of contract	1.2	2.2	2.0	.8	2.6	2.1	2.4	2.1	2.6	2.7
Annual rate over life of contract	1.8	2.1	2.1	1.6	2.9	2.0	1.8	2.3	2.2	2.9
Effective adjustments:										
Total effective wage adjustment [3]	2.3	3.1	.5	.4	1.0	.9	.8	.4	.9	.8
From settlements reached in period	.5	.7	.2	(4)	.2	.2	.3	.1	.3	.2
Deferred from settlements reached in earlier periods	1.7	1.8	.2	.3	.7	.6	.3	.3	.5	.4
From cost-of-living-adjustments clauses	.2	.5	.1	.1	.2	.1	.2	.1	.1	.2

[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.
[4] Between –0.05 and 0.05 percent.
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--							
	1986 IV	1987 I	1987 II	1987 III	1987 IV	1988 Ip	1988 IIp	1988 IIIp
Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:								
First year of contract	1.1	1.2	1.8	2.7	3.0	3.1	3.0	3.2
Annual rate over life of contract	1.6	1.7	2.1	2.6	2.6	2.5	2.3	2.5
Specified wage adjustments, settlements covering 1,000 workers or more:								
All industries								
First year of contract	1.2	1.2	1.5	2.0	2.2	2.4	2.4	2.5
Contracts with COLA clauses	1.9	2.0	1.8	2.1	2.3	2.2	2.4	2.4
Contracts without COLA clauses	.9	.8	1.3	2.0	2.1	2.5	2.4	2.6
Annual rate over life of contract	1.8	1.8	2.0	2.2	2.1	2.2	2.0	2.2
Contracts with COLA clauses	1.7	1.8	1.7	1.7	1.5	1.4	1.5	1.5
Contracts without COLA clauses	1.8	1.8	2.1	2.5	2.5	2.7	2.5	2.8
Manufacturing								
First year of contract	-1.2	-1.5	-.8	1.1	2.1	2.4	2.5	2.5
Contracts with COLA clauses	1.3	1.3	1.3	2.1	2.4	2.4	2.5	2.4
Contracts without COLA clauses	-2.8	-3.5	-2.7	-.1	1.3	2.4	2.5	3.0
Annual rate over life of contract	.2	(2)	.3	1.0	1.3	1.5	1.6	1.9
Contracts with COLA clauses	.9	.8	.8	1.0	1.0	1.0	1.3	1.4
Contracts without COLA clauses	-.2	-.6	-.2	1.2	2.1	2.7	2.5	3.1
Nonmanufacturing								
First year of contract	2.0	2.2	2.3	2.4	2.3	2.3	2.3	2.5
Contracts with COLA clauses	2.1	2.2	2.1	2.1	1.9	1.6	2.2	2.4
Contracts without COLA clauses	2.0	2.1	2.3	2.6	2.4	2.5	2.4	2.5
Annual rate over life of contract	2.3	2.4	2.6	2.8	2.7	2.7	2.3	2.5
Contracts with COLA clauses	2.1	2.2	2.2	2.4	2.7	2.4	1.9	1.8
Contracts without COLA clauses	2.4	2.5	2.7	2.9	2.7	2.7	2.6	2.7
Construction								
First year of contract	2.2	2.4	2.7	3.0	2.9	2.9	2.6	2.1
Contracts with COLA clauses	1.4	1.6	3.7	(1)	(1)	(1)	(1)	(1)
Contracts without COLA clauses	2.3	2.4	2.7	(1)	(1)	(1)	(1)	(1)
Annual rate over life of contract	2.5	2.5	2.9	3.2	3.1	3.1	2.7	2.4
Contracts with COLA clauses	1.6	1.4	3.8	(1)	(1)	(1)	(1)	(1)
Contracts without COLA clauses	2.5	2.6	2.9	(1)	(1)	(1)	(1)	(1)

[1] Data do not meet publication standards.
[2] Between –0.05 and 0.05 percent.
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--						
	1987				1988		
	I	II	III	IV	Ip	IIp	IIIp
For all workers:[1]							
Total	2.0	2.2	2.6	3.1	3.2	3.0	2.8
From settlements reached in period	.3	.3	.4	.7	.8	1.0	.9
Deferred from settlements reached in earlier period	1.5	1.6	1.7	1.8	1.8	1.6	1.4
From cost-of-living-adjustments clauses	.1	.3	.4	.5	.5	.5	.5
For workers receiving changes:							
Total	2.4	2.8	3.2	3.6	3.8	3.7	3.5
From settlements reached in period	1.1	.9	1.8	2.9	2.9	2.9	2.9
Deferred from settlements reached in earlier period	3.7	3.5	3.3	3.3	3.3	3.3	3.0
From cost-of-living-adjustments clauses	.6	1.8	2.3	2.6	2.7	2.3	2.5

[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
	1986	1987	1988
Specified adjustments:			
Total compensation [1] adjustments, [2] settlements covering 5,000 workers or more:			
First year of contract	6.2	4.9	6.3
Annual rate over life of contract	6.0	4.8	5.5
Wage adjustments, settlements covering 1,000 workers or more:			
First year of contract	5.7	4.9	5.4
Annual rate over life of contract	5.7	5.1	5.1
Effective adjustments:			
Total effective wage adjustment [3]	5.5	4.9	.9
From settlements reached in period	2.4	2.7	.4
Deferred from settlements reached in earlier periods	3.0	2.2	.5
From cost-of-living-adjustment clauses	(4)	(4)	(4)

[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.
[4] Less than 0.05 percent.

29. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1987		1988p										
	1986	1987	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Number of stoppages:															
Beginning in period	69	46	6	0	3	5	1	0	3	3	4	7	1	3	1
In effect during period	72	51	11	5	6	8	6	6	8	10	12	16	12	8	5
Workers involved:															
Beginning in period (in thousands)	533.0	174.4	11.8	.0	7.2	17.5	6.7	.0	10.3	7.8	24.6	11.6	1.4	8.6	2.3
In effect during period (in thousands)	899.5	377.7	22.2	8.9	10.8	21.1	24.2	14.9	18.2	20.0	36.4	35.8	27.9	21.4	10.6
Days idle:															
Number (in thousands)	11,861.0	4,455.6	222.9	159.4	36.6	337.0	203.6	207.9	271.4	264.5	605.0	656.3	411.9	240.0	77.9
Percent of estimated working time[1]	.05	.02	.01	.01	.01	.01	.01	.01	.01	.01	.02	.03	.02	.01	(2)

[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.
[2] Less than .005 percent.
p = preliminary

(1982-84=100, unless otherwise indicated)

Series	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS:															
All items	113.6	118.3	115.4	115.7	116.0	116.5	117.1	117.5	118.0	118.5	119.0	119.8	120.2	120.3	120.5
All items (1967=100)	340.4	354.3	345.7	346.7	347.4	349.0	350.8	352.0	353.5	354.9	356.6	358.9	360.1	360.5	360.9
Food and beverages	113.5	118.2	114.8	115.7	115.8	116.0	116.7	117.1	117.6	118.8	119.4	120.1	120.3	120.2	120.6
Food	113.5	118.2	114.7	115.7	115.7	115.9	116.6	117.0	117.6	118.8	119.4	120.2	120.3	120.2	120.7
Food at home	111.9	116.6	112.8	114.1	113.9	113.9	114.6	115.1	115.8	117.3	118.1	119.0	119.0	118.7	119.1
Cereals and bakery products	114.8	122.1	116.8	118.1	118.7	118.9	119.8	120.3	120.8	122.1	124.0	124.7	125.6	125.9	126.6
Meats, poultry, fish, and eggs	110.5	114.3	110.3	111.0	110.6	111.2	111.5	112.1	114.6	116.5	117.3	117.4	116.8	116.4	116.1
Dairy products	105.9	108.4	106.7	107.4	107.3	107.2	107.1	107.4	107.2	107.6	108.2	108.9	109.9	110.6	111.4
Fruits and vegetables	119.1	128.1	123.4	126.4	124.7	123.0	126.0	127.1	126.1	129.0	129.9	133.2	131.7	129.5	131.0
Other foods at home	110.5	113.1	110.0	111.3	111.8	112.0	112.1	112.3	112.4	113.1	113.6	114.0	114.8	114.9	115.3
Sugar and sweets	111.0	114.0	111.0	112.2	112.2	112.6	112.3	112.5	113.3	114.0	114.8	115.6	116.0	115.9	116.7
Fats and oils	108.1	113.1	107.7	108.5	109.5	110.3	110.3	111.2	111.5	112.6	114.9	115.9	117.1	117.1	118.5
Nonalcoholic beverages	107.5	107.5	104.8	106.9	107.7	107.7	107.8	107.5	107.1	107.2	107.0	107.4	108.1	108.2	107.8
Other prepared foods	113.8	118.0	115.0	115.9	116.1	116.3	116.6	117.0	117.1	118.3	118.7	119.1	119.9	120.1	120.7
Food away from home	117.0	121.8	118.9	119.3	119.7	120.2	120.7	121.0	121.5	122.1	122.5	123.0	123.4	123.7	124.1
Alcoholic beverages	114.1	118.6	115.4	115.8	116.8	117.4	118.0	118.2	118.7	119.2	119.3	119.6	119.8	119.9	119.9
Housing	114.2	118.5	115.6	116.2	116.6	117.0	117.3	117.7	118.6	119.1	119.5	119.9	119.9	119.9	120.2
Shelter	121.3	127.1	123.7	124.6	125.0	125.6	125.8	126.2	126.6	127.4	128.2	128.4	128.8	129.1	129.3
Renters' costs (12/82=100)	128.1	133.6	129.1	130.8	131.3	132.9	132.9	133.1	133.7	134.7	135.6	134.7	134.8	134.2	134.1
Rent, residential	123.1	127.8	125.6	126.0	126.3	126.4	126.6	126.9	127.3	127.8	128.4	129.1	129.4	129.8	130.1
Other renters' costs	127.4	134.8	124.1	129.4	130.4	136.6	136.0	135.7	137.0	139.2	141.3	135.5	134.8	131.1	130.0
Homeowners' costs (12/82=100)	124.8	131.1	128.0	128.5	129.0	129.2	129.4	129.9	130.4	131.0	131.8	132.6	133.1	133.8	134.0
Owners' equivalent rent (12/82=100)	124.8	131.1	128.0	128.6	129.0	129.2	129.5	130.0	130.4	131.1	131.9	132.7	133.1	133.9	134.1
Household insurance (12/82=100)	124.0	129.0	126.2	126.9	127.1	127.8	128.2	128.2	128.9	129.7	130.1	130.2	130.4	130.2	130.6
Maintenance and repairs	111.8	114.7	113.3	113.7	114.3	113.3	115.3	114.3	114.7	114.5	115.0	115.3	115.0	115.4	115.8
Maintenance and repair services	114.8	117.9	116.6	117.4	117.9	116.4	119.4	117.8	118.1	117.9	118.1	118.1	117.6	118.2	118.4
Maintenance and repair commodities	107.8	110.4	109.1	108.7	109.5	109.2	109.7	109.8	110.1	110.1	110.8	111.7	111.6	111.7	112.4
Fuel and other utilities	103.0	104.4	102.0	102.4	102.8	102.7	102.8	103.5	105.9	106.0	106.1	106.4	105.4	104.3	105.0
Fuels	97.3	98.0	95.1	95.6	96.0	95.8	95.7	96.5	100.8	100.8	100.9	101.0	98.6	96.8	97.4
Fuel oil, coal, and bottled gas	77.9	78.1	80.5	80.8	80.9	80.5	80.2	80.0	79.1	76.9	76.3	75.9	74.6	75.0	76.8
Gas (piped) and electricity	103.8	104.6	100.9	101.5	101.9	101.7	101.6	102.6	107.8	108.1	108.3	108.5	105.8	103.7	104.1
Other utilities and public services	120.1	122.9	120.9	121.3	121.8	121.7	122.3	122.6	122.3	122.4	122.6	123.3	124.5	124.4	125.5
Household furnishings and operations	107.1	109.4	107.3	107.5	107.7	108.3	109.1	109.3	109.6	109.8	109.7	110.1	110.3	110.6	110.6
Housefurnishings	103.6	105.1	103.3	103.5	103.7	104.7	104.9	104.9	105.3	105.5	105.3	105.7	105.9	106.1	105.9
Housekeeping supplies	111.5	114.7	112.5	113.1	113.2	112.9	113.8	114.1	114.7	115.2	114.8	115.5	115.6	116.5	117.0
Housekeeping services	110.6	114.3	111.4	111.5	111.6	111.7	114.7	114.8	114.8	115.0	115.1	115.5	115.5	115.7	115.9
Apparel and upkeep	110.6	115.4	112.7	110.4	110.2	114.3	117.0	116.3	114.6	112.7	112.6	117.8	120.7	119.9	118.0
Apparel commodities	108.9	113.7	111.0	108.6	108.3	112.7	115.5	114.8	112.9	110.8	110.7	116.2	119.3	118.4	116.3
Men's and boys' apparel	109.1	113.4	110.7	109.0	109.1	111.6	112.9	113.6	112.5	111.9	111.6	115.2	117.6	118.2	117.3
Women's and girls' apparel	110.4	114.9	112.6	108.2	107.8	115.3	119.6	117.3	114.1	109.8	109.9	118.1	121.9	120.2	116.5
Infants' and toddlers' apparel	112.1	116.4	114.5	113.6	111.4	114.0	117.1	117.7	116.5	116.2	118.2	119.0	118.1	117.2	117.3
Footwear	105.1	109.9	107.2	106.1	105.8	107.3	109.4	109.7	109.2	108.2	107.4	112.2	115.9	114.5	113.5
Other apparel commodities	108.0	116.0	111.3	112.9	111.3	113.6	114.4	114.9	114.6	116.5	116.2	117.4	119.4	119.5	119.1
Apparel services	119.6	123.7	121.4	121.6	122.0	122.2	122.6	122.8	123.1	123.4	124.0	124.4	125.5	126.3	126.7
Transportation	105.4	108.7	107.6	107.1	106.8	106.5	107.2	108.1	108.5	108.9	109.6	109.7	110.0	110.7	110.8
Private transportation	104.2	107.6	106.5	106.0	105.7	105.4	106.0	107.0	107.4	107.8	108.6	108.6	109.0	109.6	109.6
New vehicles	114.4	116.5	116.4	116.1	116.0	115.7	115.6	115.9	116.1	116.1	115.9	116.2	117.2	118.4	119.0
New cars	114.6	116.9	116.6	116.2	116.2	116.0	115.9	116.3	116.5	116.5	116.3	116.8	117.7	118.7	119.1
Used cars	113.1	118.0	116.3	116.0	116.0	116.1	116.6	117.0	117.6	117.9	119.2	119.4	119.9	119.7	120.2
Motor fuel	80.2	80.9	82.0	79.7	78.3	77.5	79.4	81.4	81.4	82.3	84.1	83.1	81.6	81.5	80.3
Gasoline	80.1	80.8	81.8	79.5	78.1	77.3	79.2	81.3	81.3	82.3	84.2	83.1	81.6	81.4	80.3
Maintenance and repair	114.8	119.7	116.9	117.2	117.7	118.5	118.8	118.8	119.3	119.7	120.0	120.3	120.9	121.1	121.5	121.5
Other private transportation	120.8	127.9	123.8	124.7	125.0	124.9	125.0	126.3	127.2	127.5	128.7	129.3	131.0	132.1	132.5
Other private transportation commodities	96.9	98.9	97.5	98.2	98.1	98.3	98.2	98.9	98.8	98.2	99.2	99.7	99.3	99.4	100.3
Other private transportation services	125.6	133.9	129.2	130.1	130.6	130.3	130.5	132.0	133.1	133.7	134.8	135.5	137.7	139.1	139.3
Public transportation	121.1	123.3	122.1	121.8	120.8	121.4	122.4	122.4	123.2	123.7	123.7	124.0	124.2	125.3	126.5
Medical care	130.1	138.6	133.1	134.4	135.5	136.3	136.9	137.5	138.2	139.3	139.9	140.4	141.2	141.8	142.3
Medical care commodities	131.0	139.9	134.9	135.4	136.1	137.0	138.1	139.0	139.4	140.5	141.1	142.0	143.2	143.3	144.2
Medical care services	130.0	138.3	132.7	134.1	135.3	136.1	136.6	137.2	137.9	139.0	139.6	140.1	140.8	141.5	141.9
Professional services	128.8	137.5	131.8	133.2	134.5	135.4	136.0	136.4	137.5	138.4	138.7	139.2	139.8	140.4	140.8
Hospital and related services	131.6	143.9	135.9	137.6	139.0	140.0	140.7	141.8	142.1	144.3	145.9	146.9	148.5	149.7	150.8
Entertainment	115.3	120.3	117.4	118.1	118.3	119.0	119.6	119.7	120.1	120.5	120.7	121.3	121.8	122.2	122.8
Entertainment commodities	110.5	115.0	112.6	112.9	112.9	113.4	114.2	114.5	114.8	115.3	115.4	116.0	116.3	117.2	117.5
Entertainment services	122.0	127.7	124.3	125.4	125.7	126.5	127.0	126.9	127.3	127.7	128.1	128.6	129.4	129.3	130.0
Other goods and services	128.5	137.0	132.1	133.4	134.2	134.6	134.8	135.1	135.5	136.5	137.5	140.0	140.6	141.0	141.3
Tobacco products	133.6	145.8	137.0	140.8	142.2	142.8	142.9	143.2	143.6	147.5	148.6	148.9	149.3	149.7	149.9
Personal care	115.1	119.4	116.5	117.3	117.8	118.1	118.5	118.7	119.0	119.2	119.0	120.3	121.0	121.8	122.4
Toilet goods and personal care appliances	113.9	118.1	115.0	116.1	116.4	116.8	117.4	117.2	117.5	117.8	117.2	118.7	119.8	120.7	121.6
Personal care services	116.2	120.7	117.9	118.4	119.1	119.2	119.5	120.1	120.4	120.6	121.0	121.9	122.0	122.7	123.1
Personal and educational expenses	138.5	147.9	143.4	143.9	144.7	145.0	145.2	145.5	146.0	146.3	147.8	151.8	152.4	152.7	153.0
School books and supplies	138.1	148.1	142.4	144.6	146.3	146.2	146.3	146.4	146.5	146.5	146.9	151.1	152.0	152.1	152.2
Personal and educational services	138.7	148.0	143.6	144.0	144.8	145.1	145.3	145.6	146.2	146.5	148.1	152.1	152.7	152.9	153.2

See footnotes at end of table.

30. Continued— Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

(1982-84 = 100, unless otherwise indicated)

Series	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Apparel commodities	108.8	113.4	111.1	108.6	108.3	112.4	114.9	114.3	112.6	110.6	110.5	115.8	118.9	118.1	116.0
Men's and boys' apparel	108.5	112.8	110.4	108.6	108.7	111.1	112.2	113.0	112.1	111.5	111.0	114.4	116.9	117.5	116.5
Women's and girls' apparel	110.3	114.5	112.6	108.2	107.9	114.9	118.8	116.7	113.5	109.5	109.5	117.6	121.5	119.9	116.2
Infants' and toddlers' apparel	114.0	118.6	116.4	115.2	113.3	116.0	119.1	119.7	118.8	118.6	120.4	121.5	120.6	120.1	120.3
Footwear	105.5	110.4	108.0	106.8	106.4	107.7	109.6	109.9	109.6	108.7	108.0	112.7	116.3	115.0	114.0
Other apparel commodities	107.4	114.9	110.6	112.2	112.0	112.8	113.9	114.0	113.5	115.2	114.9	116.2	117.9	118.2	117.8
Apparel services	119.2	123.0	120.9	121.1	121.5	121.6	122.0	122.2	122.4	122.7	123.3	123.7	124.7	125.4	125.8
Transportation	105.1	108.3	107.3	106.8	106.4	106.2	106.8	107.8	108.2	108.6	109.4	109.4	109.8	110.3	110.4
Private transportation	104.1	107.5	106.4	105.9	105.6	105.3	105.9	107.0	107.3	107.7	108.6	108.6	109.0	109.5	109.5
New vehicles	114.0	116.2	116.1	115.8	115.7	115.3	115.3	115.6	115.8	115.8	115.5	115.8	116.9	118.1	118.8
New cars	114.3	116.6	116.3	115.9	116.0	115.7	115.7	116.0	116.2	116.2	116.0	116.4	117.5	118.5	118.9
Used cars	113.1	117.9	116.2	115.9	116.0	116.1	116.6	116.9	117.5	117.8	119.0	119.2	119.8	119.5	120.1
Motor fuel	80.3	80.9	82.0	79.7	78.3	77.5	79.4	81.4	81.4	82.3	84.3	83.1	81.6	81.5	80.4
Gasoline	80.2	80.8	81.9	79.5	78.1	77.3	79.2	81.3	81.3	82.3	84.3	83.2	81.6	81.5	80.4
Maintenance and repair	115.1	119.8	117.0	117.4	117.8	118.6	118.9	119.4	119.8	120.1	120.5	121.0	121.3	121.5	121.5
Other private transportation	119.0	125.8	122.0	122.9	123.2	123.1	123.0	124.3	125.2	125.4	126.5	127.2	128.9	130.0	130.4
Other private transportation commodities	96.7	98.6	97.4	98.1	98.0	98.1	97.9	98.6	98.5	97.9	98.8	99.3	98.8	99.0	99.9
Other private transportation services	123.4	131.7	127.1	128.0	128.5	128.2	128.3	129.7	130.8	131.3	132.5	133.2	135.5	136.8	137.1
Public transportation	120.4	122.5	121.3	121.2	120.4	120.8	121.7	121.8	122.3	123.0	123.0	123.1	123.5	124.3	125.4
Medical care	130.2	139.0	133.4	134.6	135.8	136.5	137.1	137.8	138.5	139.6	140.3	140.8	141.7	142.2	142.8
Medical care commodities	130.2	139.0	134.1	134.7	135.4	136.1	137.2	138.0	138.3	139.4	140.0	141.0	142.1	142.2	143.1
Medical care services	130.3	139.0	133.2	134.6	135.8	136.6	137.1	137.7	138.5	139.6	140.3	140.8	141.6	142.2	142.7
Professional services	129.0	137.7	132.0	133.4	134.7	135.5	136.1	136.6	137.7	138.5	138.9	139.3	139.9	140.6	141.0
Hospital and related services	131.1	143.3	135.4	136.9	138.4	139.3	140.1	141.2	141.5	143.8	145.4	146.3	147.8	148.9	150.0
Entertainment	114.8	119.7	116.9	117.4	117.6	118.2	118.9	119.0	119.4	119.8	120.1	120.6	121.2	121.7	122.2
Entertainment commodities	110.6	115.1	112.6	112.8	112.9	113.5	114.2	114.6	114.9	115.4	115.5	116.0	116.5	117.3	117.6
Entertainment services	121.8	127.2	124.0	124.9	125.2	126.0	126.5	126.3	126.8	127.2	127.6	128.1	128.9	129.0	129.7
Other goods and services	127.8	136.5	131.3	132.7	133.6	134.0	134.2	134.5	135.0	136.3	137.2	139.3	139.9	140.3	140.6
Tobacco products	133.7	146.0	137.2	141.0	142.3	143.0	143.1	143.4	143.8	147.9	148.9	149.2	149.5	149.9	150.2
Personal care	115.0	119.3	116.4	117.1	117.5	117.7	118.1	118.5	118.8	119.1	119.0	120.3	120.9	121.7	122.3
Toilet goods and personal care appliances	113.9	118.0	115.1	116.0	116.2	116.5	117.0	117.1	117.4	117.8	117.4	118.8	119.9	120.6	121.5
Personal care services	116.1	120.5	117.8	118.3	118.9	119.0	119.3	119.9	120.2	120.4	120.7	121.9	122.0	122.7	123.0
Personal and educational expenses	138.2	147.4	143.0	143.4	144.3	144.6	144.7	145.2	145.8	146.0	147.4	151.1	151.7	152.0	152.3
School books and supplies	137.9	147.1	141.9	143.9	145.3	145.2	145.4	145.4	145.6	145.6	146.0	150.0	150.8	150.9	151.1
Personal and educational services	138.4	147.7	143.3	143.6	144.5	144.8	144.9	145.4	146.0	146.3	147.8	151.5	152.0	152.3	152.7
All items	112.5	117.0	114.2	114.5	114.7	115.1	115.7	116.2	116.7	117.2	117.7	118.5	118.9	119.0	119.2
Commodities	107.3	111.0	108.9	108.8	108.7	109.3	110.1	110.5	110.7	111.1	111.6	112.5	113.0	113.1	113.0
Food and beverages	113.3	117.9	114.5	115.4	115.5	115.7	116.3	116.8	117.4	118.5	119.1	119.8	120.0	119.9	120.3
Commodities less food and beverages	103.6	106.8	105.4	104.7	104.5	105.3	106.3	106.7	106.5	106.6	107.0	108.1	108.7	108.9	108.6
Nondurables less food and beverages	100.8	104.6	102.8	101.7	101.4	102.7	104.3	104.8	104.3	104.3	104.9	106.6	107.2	107.1	106.3
Apparel commodities	108.8	113.4	111.1	108.6	108.3	112.4	114.9	114.3	112.6	110.6	110.5	115.8	118.9	118.1	116.0
Nondurables less food, beverages, and apparel	99.2	102.9	101.2	100.8	100.5	100.4	101.6	102.6	102.8	103.7	104.7	104.7	104.1	104.3	104.1
Durables	106.6	108.9	108.0	107.9	107.9	108.0	108.1	108.4	108.7	108.8	108.8	109.1	109.7	110.4	110.7
Services	119.4	124.7	121.3	122.0	122.5	122.8	123.1	123.6	124.5	125.1	125.7	126.3	126.7	126.9	127.2
Rent of shelter (12/84=100)	114.0	119.4	116.4	117.1	117.5	118.0	118.2	118.5	119.0	119.6	120.3	120.7	121.1	121.4	121.5
Household services less rent of shelter (12/84=100)	104.0	105.9	103.1	103.5	103.9	103.8	104.4	104.9	107.2	107.4	107.6	108.0	107.2	106.2	106.8
Transportation services	120.8	127.1	123.6	124.1	124.4	124.5	124.8	125.8	126.6	127.1	127.8	128.4	129.9	130.9	131.2
Medical care services	130.3	139.0	133.2	134.6	135.8	136.6	137.1	137.7	138.5	139.6	140.3	140.8	141.6	142.2	142.7
Other services	124.7	131.4	127.9	128.5	129.0	129.5	129.8	130.0	130.5	130.8	131.6	133.6	134.2	134.5	135.0
Special indexes:															
All items less food	112.2	116.7	114.1	114.2	114.4	115.0	115.5	116.0	116.5	116.8	117.3	118.1	118.6	118.8	118.8
All items less shelter	111.0	115.2	112.5	112.7	112.8	113.2	113.9	114.4	115.0	115.4	115.9	116.8	117.2	117.3	117.4
All items less homeowners' costs (12/84=100)	106.4	110.4	107.8	108.0	108.1	108.6	109.2	109.7	110.2	110.7	111.1	111.9	112.2	112.3	112.4
All items less medical care	111.5	115.8	113.2	113.4	113.6	114.0	114.6	115.0	115.6	116.0	116.6	117.3	117.7	117.8	117.9
Commodities less food	103.9	107.2	105.6	105.0	104.9	105.7	106.6	107.0	106.9	107.0	107.3	108.4	109.0	109.2	108.9
Nondurables less food	101.4	105.3	103.3	102.4	102.2	103.4	104.9	105.4	105.0	105.1	105.6	107.2	107.8	107.6	106.9
Nondurables less food and apparel	100.0	103.7	101.8	101.5	101.4	101.4	102.5	103.6	104.5	105.3	105.3	104.9	105.1	104.9	104.9
Nondurables	107.2	111.5	108.8	108.8	108.7	109.4	110.5	111.0	111.1	111.6	112.3	113.4	113.8	113.7	113.5
Services less rent of shelter (12/84=100)	110.8	115.6	112.2	112.8	113.2	113.4	113.9	114.4	115.7	116.1	116.6	117.3	117.6	117.6	118.1
Services less medical care	118.2	123.3	120.1	120.7	121.1	121.4	121.7	122.2	123.1	123.6	124.3	124.9	125.2	125.3	125.6
Energy	88.0	88.6	87.8	86.8	86.3	85.8	86.7	88.1	90.3	90.7	91.8	91.3	89.3	88.4	88.1
All items less energy	116.0	121.0	118.0	118.5	118.7	119.3	119.9	120.2	120.5	121.0	121.5	122.4	123.1	123.4	123.6
All items less food and energy	116.8	121.9	119.0	119.3	119.6	120.3	120.8	121.1	121.4	121.7	122.2	123.1	124.0	124.3	124.4
Commodities less food and energy	110.8	114.7	112.6	112.3	112.4	113.5	114.3	114.4	114.3	114.2	114.3	115.8	116.9	117.1	117.0
Energy commodities	80.3	80.9	82.1	80.0	78.7	77.9	79.7	81.5	81.4	82.1	83.8	82.7	81.2	81.2	80.3
Services less energy	121.2	127.0	123.7	124.3	124.8	125.2	125.6	126.0	126.5	127.1	127.8	128.4	129.1	129.5	129.8
Purchasing power of the consumer dollar:															
1982-84=$1.00	89.0	85.5	87.5	87.3	87.2	86.8	86.4	86.1	85.7	85.3	84.9	84.4	84.1	84.0	83.9
1967=$1.00	29.9	28.7	29.4	29.3	29.3	29.2	29.0	28.9	28.8	28.6	28.5	28.3	28.2	28.2	28.2

30. Continued— Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

(1982-84 = 100, unless otherwise indicated)

Series	Annual average 1987	Annual average 1988	1987 Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
All items	113.6	118.3	115.4	115.7	116.0	116.5	117.1	117.5	118.0	118.5	119.0	119.8	120.2	120.3	120.5
Commodities	107.7	111.5	109.3	109.2	109.1	109.8	110.7	111.1	111.1	111.5	111.9	113.0	113.5	113.5	113.5
Food and beverages	113.5	118.2	114.8	115.7	115.8	116.0	116.7	117.1	117.6	118.8	119.4	120.1	120.3	120.2	120.6
Commodities less food and beverages	104.0	107.3	105.7	105.1	105.0	105.9	106.9	107.2	107.1	107.0	107.3	108.5	109.2	109.4	109.0
Nondurables less food and beverages	101.1	105.2	103.1	102.1	101.9	103.4	105.0	105.4	104.9	104.7	105.2	107.1	107.8	107.7	106.9
Apparel commodities	108.9	113.7	111.0	108.6	108.3	112.7	115.5	114.8	112.9	110.8	110.7	116.2	119.3	118.4	116.3
Nondurables less food, beverages, and apparel	99.5	103.2	101.5	101.2	101.0	101.0	102.0	103.0	103.2	104.0	104.8	104.9	104.5	104.6	104.5
Durables	108.2	110.4	109.5	109.4	109.4	109.5	109.7	109.9	110.2	110.3	110.3	110.6	111.1	111.8	112.2
Services	120.2	125.7	122.2	122.9	123.4	123.8	124.1	124.6	125.5	126.1	126.7	127.3	127.6	127.8	128.1
Rent of shelter (12/82 = 100)	125.9	132.0	128.5	129.4	129.8	130.4	130.6	131.0	131.5	132.3	133.1	133.4	133.8	134.1	134.3
Household services less rent of' shelter (12/82 = 100)	113.1	115.3	112.3	112.7	113.1	113.0	113.7	114.3	116.6	116.9	117.0	117.4	116.6	115.6	116.2
Transportation services	121.9	128.0	124.6	125.1	125.2	125.4	125.8	126.7	127.6	128.1	128.8	129.3	130.6	131.6	132.1
Medical care services	130.0	138.3	132.7	134.1	135.3	136.1	136.6	137.2	137.9	139.0	139.6	140.1	140.8	141.5	141.9
Other services	125.7	132.6	129.0	129.6	130.2	130.7	131.0	131.1	131.6	131.9	132.8	134.9	135.5	135.7	136.2
Special indexes:															
All items less food	113.6	118.3	115.5	115.7	116.0	116.6	117.2	117.6	118.1	118.4	118.9	119.7	120.2	120.3	120.4
All items less shelter	111.6	115.9	113.2	113.3	113.5	114.0	114.7	115.2	115.7	116.1	116.5	117.5	117.9	118.0	118.1
All items less homeowners' costs (12/82 = 100)	115.1	119.5	116.6	116.9	117.1	117.7	118.4	118.8	119.3	119.8	120.3	121.1	121.5	121.5	121.6
All items less medical care	112.6	117.0	114.3	114.6	114.8	115.3	115.9	116.3	116.8	117.2	117.8	118.6	118.9	119.0	119.1
Commodities less food	104.3	107.7	106.0	105.5	105.4	106.3	107.3	107.6	107.4	107.4	107.7	108.9	109.5	109.7	109.4
Nondurables less food	101.8	105.8	103.7	102.8	102.7	104.1	105.6	106.0	105.5	105.4	105.9	107.7	108.3	108.2	107.5
Nondurables less food and apparel	100.3	104.0	102.1	101.9	101.9	101.9	102.9	103.8	104.0	104.8	105.5	105.6	105.2	105.4	105.3
Nondurables	107.5	111.8	109.1	109.1	109.0	109.8	111.0	111.4	111.4	111.9	112.4	113.7	114.2	114.1	113.9
Services less rent of' shelter (12/82 = 100)	123.1	128.3	124.6	125.3	125.8	126.0	126.5	127.1	128.4	128.9	129.4	130.3	130.5	130.6	131.1
Services less medical care	119.1	124.3	121.0	121.7	122.1	122.4	122.8	123.2	124.1	124.7	125.3	125.9	126.2	126.3	126.6
Energy	88.6	89.3	88.3	87.4	87.0	86.5	87.3	88.7	91.0	91.4	92.3	91.9	89.9	88.9	88.7
All items less energy	117.2	122.3	119.2	119.7	120.0	120.6	121.2	121.5	121.8	122.3	122.8	123.8	124.4	124.7	124.8
All items less food and energy	118.2	123.4	120.4	120.8	121.1	121.9	122.4	122.7	123.0	123.3	123.8	124.7	125.5	125.8	126.0
Commodities less food and energy	111.8	115.8	113.5	113.2	113.3	114.6	115.5	115.5	115.4	115.2	115.2	116.9	118.0	118.2	118.0
Energy commodities	80.2	80.8	82.0	80.0	78.8	78.0	79.7	81.4	81.4	81.9	83.4	82.5	81.0	80.9	80.1
Services less energy	122.0	127.9	124.4	125.2	125.7	126.1	126.5	126.9	127.4	128.0	128.8	129.3	129.9	130.3	130.6
Purchasing power of the consumer dollar:															
1982-84 = $1.00	88.0	84.6	86.6	86.4	86.2	85.8	85.4	85.1	84.7	84.4	84.0	83.5	83.2	83.1	83.0
1967 = $1.00	29.4	28.2	28.9	28.8	28.8	28.7	28.5	28.4	28.3	28.2	28.0	27.9	27.8	27.7	27.7
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS:															
All items	112.5	117.0	114.2	114.5	114.7	115.1	115.7	116.2	116.7	117.2	117.7	118.5	118.9	119.0	119.2
All items (1967 = 100)	335.0	348.4	340.2	341.0	341.6	343.0	344.7	346.1	347.6	349.1	350.7	353.0	354.2	354.6	355.0
Food and beverages	113.3	117.9	114.5	115.4	115.5	115.7	116.3	116.8	117.4	118.5	119.1	119.8	120.0	119.9	120.3
Food	113.3	117.9	114.5	115.4	115.4	115.6	116.2	116.7	117.3	118.5	119.2	119.9	120.1	119.9	120.4
Food at home	111.7	116.2	112.5	113.7	113.5	113.5	114.2	114.7	115.5	116.9	117.8	118.7	118.7	118.4	118.8
Cereals and bakery products	114.8	122.2	116.9	118.1	118.8	118.9	119.9	120.4	120.8	122.1	124.1	124.8	125.7	126.0	126.7
Meats, poultry, fish, and eggs	110.4	114.1	110.1	110.8	110.5	111.1	111.4	112.0	114.5	116.3	117.1	117.3	116.6	116.1	115.8
Dairy products	105.7	108.1	106.4	107.1	107.0	106.9	106.9	107.2	107.0	107.3	107.9	108.6	109.7	110.4	111.2
Fruits and vegetables	118.8	127.6	123.0	125.7	124.0	122.2	125.2	126.4	125.5	128.4	129.6	132.8	131.4	129.1	130.8
Other foods at home	110.4	113.0	109.8	111.3	111.7	111.9	112.0	112.2	112.3	113.0	113.5	113.9	114.7	114.8	115.1
Sugar and sweets	110.9	113.9	110.9	112.1	112.1	112.4	112.2	112.4	113.1	113.9	114.8	115.6	115.9	115.7	116.7
Fats and oils	107.9	113.0	107.6	108.4	109.5	110.3	110.2	111.0	111.4	112.5	114.8	115.8	117.0	117.0	118.3
Nonalcoholic beverages	107.5	107.7	104.9	107.2	107.9	108.0	107.9	107.7	107.3	107.4	107.2	107.6	108.3	108.4	107.8
Other prepared foods	113.6	117.8	114.8	115.7	115.8	116.0	116.4	116.8	116.9	118.1	118.5	118.8	119.7	119.9	120.5
Food away from home	116.9	121.6	118.8	119.1	119.6	120.0	120.6	120.9	121.4	122.0	122.3	122.8	123.2	123.5	124.0
Alcoholic beverages	113.9	118.3	115.1	115.6	116.6	117.3	117.9	118.0	118.4	118.9	118.9	119.2	119.5	119.5	119.5
Housing	112.8	116.8	114.1	114.6	115.0	115.4	115.6	116.0	116.9	117.4	117.8	118.2	118.2	118.3	118.5
Shelter	118.8	124.3	121.2	121.9	122.4	122.9	123.0	123.4	123.9	124.5	125.3	125.6	126.0	126.4	126.5
Renters' costs (12/84 = 100)	114.6	119.2	115.9	116.9	117.3	118.4	118.4	118.6	119.3	120.0	120.7	120.2	120.4	120.1	120.0
Rent, residential	122.9	127.5	125.3	125.7	126.1	126.2	126.3	126.6	126.9	127.5	128.0	128.7	129.0	129.4	129.7
Other renters' costs	128.2	135.2	124.5	129.2	130.0	136.9	136.1	136.2	138.8	140.8	143.0	136.1	135.1	131.4	129.2
Homeowners' costs (12/84 = 100)	113.8	119.5	116.6	117.1	117.6	117.8	118.0	118.4	118.8	119.4	120.2	120.9	121.3	122.0	122.2
Owners' equivalent rent (12/84 = 100)	113.7	119.5	116.6	117.1	117.6	117.8	118.0	118.5	118.8	119.5	120.2	120.9	121.4	122.1	122.2
Household insurance (12/84 = 100)	114.1	118.2	116.1	116.7	116.7	117.2	117.3	117.3	118.0	118.6	119.0	119.1	119.3	119.2	119.6
Maintenance and repairs	111.3	114.0	112.5	113.0	113.6	112.8	114.7	113.7	113.9	113.8	114.2	114.4	114.1	114.6	115.2
Maintenance and repair services	114.7	117.7	115.9	117.1	117.6	116.6	119.8	117.6	117.9	117.6	118.0	117.7	117.0	117.6	117.8
Maintenance and repair commodities	106.0	108.3	107.1	106.9	107.5	107.1	107.5	107.9	107.9	108.0	108.3	109.1	109.2	109.7	110.6
Fuel and other utilities	102.7	104.1	101.7	102.0	102.5	102.3	102.5	103.0	105.5	105.6	106.0	106.1	105.1	104.1	104.8
Fuels	97.1	97.7	94.8	95.2	95.6	95.4	95.4	96.1	100.5	100.5	100.6	100.8	98.3	96.6	97.2
Fuel oil, coal, and bottled gas	77.6	77.9	80.2	80.4	80.6	80.2	79.9	79.7	78.9	76.7	76.2	75.9	74.6	75.0	76.7
Gas (piped) and electricity	103.6	104.4	100.7	101.2	101.6	101.4	101.4	102.2	107.5	107.8	108.0	108.2	105.5	103.5	103.9
Other utilities and public services	120.1	122.9	120.9	121.2	121.8	121.7	122.3	122.5	122.2	122.4	122.5	123.3	124.7	124.6	125.6
Household furnishings and operations	106.7	108.9	106.9	107.1	107.2	107.8	108.7	108.8	109.1	109.4	109.1	109.6	109.9	110.2	110.2
Housefurnishings	103.1	104.5	102.9	103.0	103.1	104.1	104.2	104.2	104.6	104.9	104.5	105.1	105.4	105.6	105.4
Housekeeping supplies	111.8	115.1	112.9	113.5	113.6	113.4	114.3	114.5	115.1	115.8	116.1	116.9	117.4
Housekeeping services	110.9	115.0	111.6	111.7	111.8	111.9	115.6	115.7	115.7	115.9	116.0	116.3	116.3	116.4	116.5
Apparel and upkeep	110.4	114.9	112.6	110.3	110.0	113.9	116.3	115.7	114.1	112.4	112.2	117.2	120.1	119.5	117.6

See footnotes at end of table.

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

(1982-84 = 100, unless otherwise indicated)

Area[1]	Pricing sche-dule[2]	Other index base	All Urban Consumers							Urban Wage Earners						
			1987	1988						1987	1988					
			Dec.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Dec.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.
U.S. city average	M	–	115.4	115.7	119.0	119.8	120.2	120.3	120.5	114.2	114.5	117.7	118.5	118.9	119.0	119.2
Region and area size[3]																
Northeast urban	M	–	118.3	118.9	122.5	123.9	124.1	124.4	124.5	117.4	117.9	121.3	122.7	122.9	123.2	123.3
Size A - More than 1,200,000	M	–	119.4	120.0	123.4	124.8	124.9	125.1	125.3	117.8	118.1	121.4	122.8	122.9	123.1	123.2
Size B - 500,000 to 1,200,000	M	–	115.6	116.2	120.9	122.2	122.5	122.9	122.2	114.5	115.1	119.7	120.8	121.2	121.6	121.0
Size C - 50,000 to 500,000	M	–	116.2	117.1	120.5	121.3	121.7	122.7	123.3	118.8	119.6	122.9	123.7	124.2	125.1	125.7
North Central urban	M	–	113.3	113.4	117.2	117.7	118.1	118.1	118.2	111.4	111.5	115.3	115.8	116.1	116.2	116.3
Size A - More than 1,200,000	M	–	113.9	114.1	118.3	119.0	119.1	119.1	119.2	111.4	111.6	115.7	116.3	116.4	116.5	116.6
Size B - 360,000 to 1,200,000	M	–	113.0	113.3	116.5	117.0	118.2	118.0	118.2	110.7	110.9	114.2	114.6	115.7	115.7	115.8
Size C - 50,000 to 360,000	M	–	113.6	113.4	117.2	117.4	117.7	118.4	118.2	112.6	112.4	116.1	116.3	116.5	117.3	117.1
Size D - Nonmetro-politan (less than 50,0000	M	–	110.9	110.6	113.9	114.2	114.2	114.1	114.0	110.7	110.4	113.7	113.9	113.9	113.9	113.8
South urban	M	–	114.0	114.1	117.0	117.7	118.2	118.3	118.5	113.5	113.6	116.5	117.2	117.7	117.8	118.0
Size A - More than 1,200,000	M	–	114.9	114.9	118.0	118.7	118.9	118.9	119.2	114.2	114.1	117.2	117.9	118.1	118.0	118.4
Size B - 450,000 to 1,200,000	M	–	114.5	114.8	117.6	118.6	119.5	119.6	119.7	112.7	112.9	115.8	116.6	117.5	117.7	117.8
Size C - 50,000 to 450,000	M	–	112.8	113.3	115.9	116.4	117.1	117.4	117.6	113.3	113.6	116.4	117.0	117.7	117.9	118.1
Size D - Nonmetro-politan (less than 50,000)	M	–	112.6	112.8	115.3	116.0	116.0	116.3	116.3	113.3	113.5	116.2	116.8	116.8	117.0	117.0
West urban	M	–	116.2	116.7	119.6	120.2	120.7	120.7	120.9	115.0	115.5	118.3	118.9	119.4	119.4	119.6
Size A - More than 1,250,000	M	–	117.2	117.9	121.1	121.7	122.2	122.3	122.5	114.8	115.3	118.4	119.0	119.6	119.6	119.7
Size B - 330,000 to 1,250,000	M	–	115.0	115.8	–	–	–	–	119.3	115.2	116.0	–	–	–	–	119.4
Size C - 50,000 to 330,000	M	–	116.0	116.0	118.1	118.5	119.4	119.0	119.0	115.4	115.3	117.5	117.8	118.7	118.4	118.4
Size classes:																
A	M	12/86	104.7	105.0	108.2	109.0	109.2	109.2	109.4	104.7	105.0	108.1	108.9	109.1	109.1	109.3
B	M	–	114.5	115.0	118.0	118.9	119.7	119.7	119.8	113.2	113.6	116.7	117.6	118.3	118.4	118.5
C	M	–	114.2	114.5	117.5	117.9	118.5	118.9	119.1	114.6	114.8	117.8	118.3	118.9	119.3	119.4
D	M	–	112.7	112.9	115.8	116.6	116.8	117.0	116.8	113.1	113.2	116.2	116.9	117.1	117.3	117.1
Selected local areas																
Chicago, IL-Northwestern IN	M	–	115.7	115.3	120.1	122.0	121.6	121.0	121.3	112.2	111.9	116.4	118.2	117.8	117.4	117.7
Los Angeles-Long Beach, Anaheim, CA	M	–	118.5	118.9	122.6	123.4	124.0	124.1	124.2	115.7	115.9	119.5	120.3	121.0	120.9	121.1
New York, NY-Northeastern NJ	M	–	120.6	121.3	124.2	126.0	126.2	125.9	126.0	119.1	119.6	122.2	124.1	124.3	124.1	124.1
Philadelphia, PA-NJ	M	–	118.9	119.3	123.9	125.2	124.6	125.3	125.6	119.0	119.3	123.6	124.9	124.4	125.0	125.2
San Francisco-Oakland, CA	M	–	117.4	118.4	122.0	122.1	122.3	122.2	122.6	116.4	117.5	120.5	121.1	121.3	121.1	121.5
Baltimore, MD	1	–	–	116.8	–	121.3	–	121.2	–	–	116.2	–	121.0	–	120.8	–
Boston, MA	1	–	–	120.1	–	126.2	–	127.4	–	–	120.2	–	126.1	–	127.4	–
Cleveland, OH	1	–	–	113.9	–	117.6	–	118.0	–	–	109.3	–	112.7	–	113.0	–
Miami, FL	1	–	–	114.5	–	118.8	–	118.3	–	–	113.8	–	117.8	–	117.2	–
St. Louis, MO-IL	1	–	–	113.4	–	117.3	–	118.3	–	–	113.0	–	117.1	–	117.8	–
Washington, DC-MD-VA	1	–	–	118.3	–	122.8	–	123.2	–	–	117.6	–	122.3	–	122.6	–
Dallas-Ft. Worth, TX	2	–	113.9	–	117.2	–	117.9	–	117.2	113.8	–	117.0	–	117.7	–	117.0
Detroit, MI	2	–	112.6	–	117.6	–	118.6	–	118.3	109.8	–	114.6	–	115.6	–	115.7
Houston, TX	2	–	107.3	–	110.3	–	111.1	–	111.3	107.4	–	110.6	–	111.4	–	111.4
Pittsburgh, PA	2	–	113.0	–	115.3	–	116.3	–	116.7	108.6	–	110.7	–	111.7	–	112.2

[1] Area is the Consolidated Metropolitan Statistical Area (CMSA), exclu-sive of farms and military. Area definitions are those established by the Of-fice of Management and Budget in 1983, except for Boston-Lawrence-Sa-lem, MA-NH Area (excludes Monroe County); and Milwaukee, WI Area (in-cludes only the Milwaukee MSA). Definitions do not include revisions made since 1983.

[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.
– Data not available.
NOTE: Local area CPI indexes are byproducts of the national CPI pro-gram. 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 Sta-tistics strongly urges users to consider adopting the national average CPI for use in escalator clauses.

32. Annual data: Consumer Price Index, U.S. city average, all items and major groups

(1982-84 = 100)

Series	1980	1981	1982	1983	1984	1985	1986	1987	1988
Consumer Price Index for All Urban Consumers:									
All items:									
Index	82.4	90.9	96.5	99.6	103.9	107.6	109.6	113.6	118.3
Percent change	13.5	10.3	6.2	3.2	4.3	3.6	1.9	3.6	4.1
Food and beverages:									
Index	86.7	93.5	97.3	99.5	103.2	105.6	109.1	113.5	118.2
Percent change	8.5	7.8	4.1	2.3	3.7	2.3	3.3	4.0	4.1
Housing:									
Index	81.1	90.4	96.9	99.5	103.6	107.7	110.9	114.2	118.5
Percent change	15.7	11.5	7.2	2.7	4.1	4.0	3.0	3.0	3.8
Apparel and upkeep:									
Index	90.9	95.3	97.8	100.2	102.1	105.0	105.9	110.6	115.4
Percent change	7.1	4.8	2.6	2.5	1.9	2.8	.9	4.4	4.3
Transportation:									
Index	83.1	93.2	97.0	99.3	103.7	106.4	102.3	105.4	108.7
Percent change	17.9	12.2	4.1	2.4	4.4	2.6	-3.9	3.0	3.1
Medical care:									
Index	74.9	82.9	92.5	100.6	106.8	113.5	122.0	130.1	138.6
Percent change	11.0	10.7	11.6	8.8	6.2	6.3	7.5	6.6	6.5
Entertainment:									
Index	83.6	90.1	96.0	100.1	103.8	107.9	111.6	115.3	120.3
Percent change	9.0	7.8	6.5	4.3	3.7	3.9	3.4	3.3	4.3
Other goods and services:									
Index	75.2	82.6	91.1	101.1	107.9	114.5	121.4	128.5	137.0
Percent change	9.1	9.8	10.3	11.0	6.7	6.1	6.0	5.8	6.6
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	82.9	91.4	96.9	99.8	103.3	106.9	108.6	112.5	117.0
Percent change	13.4	10.3	6.0	3.0	3.5	3.5	1.6	3.6	4.0

33. Producer Price Indexes, by stage of processing

(1982=100)

Grouping	Annual average		1988											
	1987	1988	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Finished goods	105.4	108.0	106.3	106.1	106.3	107.0	107.5	107.7	108.6	108.7	108.6	109.3	109.7	110.0
Finished consumer goods	103.6	106.2	104.5	104.1	104.4	105.1	105.7	105.9	107.0	107.1	107.0	107.5	107.9	108.2
Finished consumer foods	109.5	112.6	110.5	109.4	110.1	110.3	111.2	112.3	113.6	113.6	115.2	114.6	114.9	115.1
Finished consumer goods excluding foods	100.7	103.1	101.5	101.5	101.5	102.6	103.0	102.8	103.8	103.9	103.0	104.0	104.5	104.8
Nondurable goods less food	94.9	97.3	95.5	95.5	95.6	97.0	97.4	97.1	98.3	98.4	97.6	97.7	98.4	98.8
Durable goods	111.5	113.7	112.6	112.8	112.6	112.8	113.1	113.2	113.6	113.8	112.8	115.8	115.8	116.0
Capital equipment	111.7	114.3	112.9	113.2	113.2	113.6	113.8	113.9	114.2	114.5	114.3	115.8	116.0	116.3
Intermediate materials, supplies, and components	101.5	107.1	104.2	104.3	104.7	105.6	106.3	107.4	108.2	108.4	108.7	108.6	109.0	109.5
Materials and components for manufacturing	105.3	113.2	109.5	109.9	110.5	111.6	112.3	112.9	114.0	114.3	114.9	115.5	116.2	116.8
Materials for food manufacturing	100.8	105.9	101.9	102.0	101.6	102.6	104.0	106.9	109.9	108.9	109.6	108.2	107.4	108.3
Materials for nondurable manufacturing .	102.2	112.9	107.5	108.5	109.6	110.9	111.7	112.2	113.8	114.5	115.2	116.2	116.8	117.5
Materials for durable manufacturing	106.2	118.8	114.5	113.9	114.7	116.8	117.7	118.5	119.3	119.7	120.4	121.7	123.5	124.4
Components for manufacturing	108.8	112.3	110.5	110.8	111.1	111.5	111.9	112.1	112.4	112.8	113.1	113.5	113.8	114.1
Materials and components for construction	109.8	116.1	113.6	113.8	114.4	115.0	115.4	115.8	116.5	116.7	117.2	117.7	118.2	118.8
Processed fuels and lubricants	73.3	71.3	70.7	70.2	69.6	70.5	71.5	73.9	73.6	73.5	72.5	69.7	69.5	70.3
Containers	114.5	120.1	116.6	116.9	117.4	118.4	119.5	120.0	120.5	121.3	122.4	122.5	122.7	122.7
Supplies	107.7	113.7	110.5	110.6	111.1	111.7	112.3	113.8	115.2	115.1	115.7	116.1	116.2	116.1
Crude materials for further processing ...	93.7	95.9	93.7	94.7	94.1	95.6	97.2	97.9	97.3	96.9	96.6	95.8	94.0	97.0
Foodstuffs and feedstuffs	96.2	106.0	97.2	99.7	99.8	101.1	104.7	108.6	110.1	110.4	111.5	111.4	107.7	109.5
Crude nonfood materials	87.9	85.5	87.3	87.4	86.4	88.0	88.2	87.0	85.1	84.4	83.2	82.0	81.4	85.1
Special groupings														
Finished goods, excluding foods	104.0	106.5	104.9	105.0	105.1	105.9	106.2	106.1	106.9	107.1	106.4	107.6	108.0	108.3
Finished energy goods	61.8	59.8	59.2	58.5	58.2	60.9	61.6	60.3	61.3	61.1	58.8	58.7	59.8	59.3
Finished goods less energy	112.3	115.8	113.9	113.8	114.1	114.3	114.8	115.3	116.2	116.4	116.7	117.6	117.8	118.2
Finished consumer goods less energy	112.5	116.3	114.3	114.0	114.4	114.6	115.2	115.8	116.9	117.0	117.6	118.2	118.4	118.9
Finished goods less food and energy	113.3	117.0	115.2	115.5	115.7	115.9	116.2	116.4	117.1	117.4	117.2	118.7	118.9	119.4
Finished consumer goods less food and energy	114.2	118.5	116.5	116.8	117.1	117.3	117.6	117.9	118.8	119.1	118.9	120.3	120.5	121.2
Consumer nondurable goods less food and energy	116.3	122.0	119.5	119.9	120.4	120.6	120.9	121.3	122.7	123.0	123.4	123.7	124.0	125.0
Intermediate materials less foods and feeds	101.7	107.0	104.2	104.4	104.8	105.7	106.4	107.2	107.8	108.1	108.4	108.3	108.8	109.3
Intermediate foods and feeds	99.2	109.5	102.9	101.9	102.0	103.4	104.8	111.8	116.6	114.5	115.7	114.7	113.3	112.8
Intermediate energy goods	73.0	71.0	70.5	70.0	69.3	70.2	71.2	73.5	73.3	73.1	72.2	69.4	69.2	70.0
Intermediate goods less energy	107.3	114.6	111.2	111.4	112.1	113.0	113.6	114.4	115.5	115.7	116.3	116.9	117.4	117.8
Intermediate materials less foods and energy	107.8	115.2	111.8	112.2	112.9	113.8	114.4	114.9	115.7	116.1	116.7	117.4	118.0	118.6
Crude energy materials	75.0	67.8	70.8	70.4	68.7	70.6	71.4	70.0	67.3	66.1	64.9	63.5	62.6	66.7
Crude materials less energy	100.9	112.5	105.1	107.6	108.1	109.0	111.1	114.0	115.5	116.0	116.7	116.6	114.1	115.6
Crude nonfood materials less energy	115.7	132.7	129.2	131.6	133.4	133.1	131.3	131.2	132.9	133.9	133.4	133.3	134.0	134.9

34. Producer Price indexes, by durability of product

(1982=100)

Grouping	Annual average		1988											
	1987	1988	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total durable goods	109.9	114.7	112.8	113.0	113.3	113.8	114.1	114.4	114.8	115.1	115.2	116.2	116.7	117.1
Total nondurable goods	97.5	101.1	98.5	98.6	98.8	99.8	100.8	101.8	102.6	102.6	102.7	102.2	102.1	102.9
Total manufactures	104.4	109.1	106.6	106.8	107.1	107.9	108.6	109.0	109.8	110.0	110.1	110.5	111.0	111.3
Durable	109.6	114.0	112.2	112.4	112.6	113.2	113.5	113.7	114.1	114.4	114.5	115.5	116.0	116.3
Nondurable	99.2	104.1	101.1	101.3	101.7	102.7	103.7	104.3	105.4	105.6	105.7	105.5	106.0	106.3
Total raw or slightly processed goods	94.2	95.9	94.0	94.1	93.8	94.9	95.6	97.5	97.8	97.2	97.5	96.4	94.7	96.9
Durable	122.6	147.4	139.9	144.6	146.2	146.1	143.1	144.2	149.3	150.6	149.4	149.9	151.8	153.8
Nondurable	92.9	93.5	91.9	91.8	91.4	92.5	93.3	95.3	95.3	94.7	95.0	93.9	92.1	94.2

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

(1982=100)

Index	1979	1980	1981	1982	1983	1984	1985	1986	1987
Finished goods:									
Total	77.6	88.0	96.1	100.0	101.6	103.7	104.7	103.2	105.4
Consumer goods	77.5	88.6	96.6	100.0	101.3	103.3	103.8	101.4	103.6
Capital equipment	77.5	85.8	94.6	100.0	102.8	105.2	107.5	109.7	111.7
Intermediate materials, supplies, and components:									
Total	78.4	90.3	98.6	100.0	100.6	103.1	102.7	99.1	101.5
Materials and components for manufacturing	80.9	91.7	98.7	100.0	101.2	104.1	103.3	102.2	105.3
Materials and components for construction	84.2	91.3	97.9	100.0	102.8	105.6	107.3	108.1	109.8
Processed fuels and lubricants	61.6	85.0	100.6	100.0	95.4	95.7	92.8	72.7	73.3
Containers	79.4	89.1	96.7	100.0	100.4	105.9	109.0	110.3	114.5
Supplies	80.2	89.9	96.9	100.0	101.8	104.1	104.4	105.6	107.7
Crude materials for further processing:									
Total	85.9	95.3	103.0	100.0	101.3	103.5	95.8	87.7	93.7
Foodstuffs and feedstuffs	100.0	104.6	103.9	100.0	101.8	104.7	94.8	93.2	96.2
Nonfood materials except fuel	69.6	84.6	101.8	100.0	100.7	102.2	96.9	81.6	87.9
Fuel	57.3	69.4	84.8	100.0	105.1	105.1	102.7	92.2	84.1

36. U.S. export price indexes by Standard International Trade Classification

(1985 = 100 , unless otherwise indicated)

Category	1974 SITC	1986				1987				1988		
		Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
ALL COMMODITIES		99.4	99.1	97.9	99.0	99.9	102.2	102.8	104.9	106.5	109.5	111.7
Food	0	97.2	97.1	86.0	90.1	87.3	89.9	86.7	94.6	95.2	103.4	118.7
Meat	01	102.5	105.2	111.3	114.5	115.0	121.2	118.8	116.8	122.8	131.0	137.5
Fish	03	100.2	108.6	111.9	115.9	117.1	125.8	131.1	138.5	140.9	145.0	176.0
Grain and grain preparations	04	91.7	89.0	66.3	72.5	68.3	71.0	67.8	77.4	79.8	87.2	108.3
Vegetables and fruit	05	98.6	108.6	114.6	117.5	115.3	112.4	101.1	100.5	97.5	104.3	109.9
Feedstuffs for animals	08	120.0	114.8	123.9	119.7	117.0	123.8	123.1	145.2	134.6	158.1	160.9
Misc. food products	09	98.0	97.0	98.7	99.9	100.1	100.6	100.3	100.3	102.3	102.8	105.2
Beverages and tobacco	1	96.6	97.4	97.3	102.6	102.6	105.0	105.5	107.0	109.6	110.6	112.0
Beverages	11	–	–	–	–	–	–	–	–	–	–	–
Tobacco and tobacco products	12	96.3	97.1	97.0	102.6	102.6	105.0	105.5	107.0	109.8	110.7	112.1
Crude materials	2	101.4	102.2	99.6	102.4	105.7	114.5	118.7	125.2	130.0	139.9	140.7
Raw hides and skins	21	108.7	117.1	108.3	115.9	131.9	149.6	147.7	157.1	171.4	166.8	156.3
Oilseeds and oleaginous fruit	22	99.1	98.1	97.5	95.2	90.4	101.6	95.1	109.6	115.6	143.0	154.7
Crude rubber (including synthetic and reclaimed)	23	99.7	99.9	99.6	98.9	99.9	101.0	102.8	105.3	104.5	106.1	109.1
Wood	24	101.5	101.2	102.9	107.9	111.2	116.2	141.7	146.0	150.2	149.6	150.0
Pulp and waste paper	25	104.2	116.4	129.0	129.4	144.2	149.9	153.0	160.4	171.2	179.5	180.8
Textile fibers	26	100.2	98.0	73.0	90.9	97.8	112.4	116.5	111.6	107.5	109.9	100.8
Crude fertilizers and minerals	27	100.0	98.4	98.0	96.8	94.4	94.0	91.6	91.6	92.8	94.2	94.8
Metalliferous ores and metal scrap	28	100.3	98.0	100.4	96.8	98.8	107.0	117.4	125.9	131.8	146.0	145.0
Mineral fuels	3	83.6	76.8	77.4	77.8	81.3	82.8	84.6	82.5	79.3	82.0	79.5
Animal and vegetables oils, fats, and waxes	4	74.3	67.7	62.1	71.8	73.9	78.8	78.5	81.6	92.7	97.3	102.0
Fixed vegetable oils and fats	42	71.3	70.6	60.2	64.6	67.3	71.9	71.2	75.4	85.7	93.7	99.1
Chemicals	5	99.8	98.0	95.7	95.2	99.6	106.7	107.7	112.9	117.9	121.6	124.9
Organic cnemicals	51	98.5	93.1	91.6	92.4	101.9	118.4	116.1	123.5	135.1	144.6	153.5
Fertilizers, manufactured	56	98.9	93.0	85.1	77.4	85.6	91.6	100.9	106.5	110.6	109.8	116.2
Intermediate manufactured products	6	101.3	102.5	103.8	104.2	106.4	107.9	110.3	111.2	114.4	117.7	119.6
Leather and furskins	61	97.3	103.8	104.2	107.8	123.6	126.9	128.7	118.0	125.7	125.1	128.6
Rubber manufactures	62	100.7	100.1	100.5	100.9	102.0	102.5	103.9	104.1	105.2	108.8	109.2
Paper and paperboard products	64	100.5	104.7	109.1	110.8	114.7	117.0	120.1	122.4	126.2	129.0	130.2
Iron and steel	67	100.3	100.2	102.3	101.9	102.9	102.9	100.7	102.9	106.1	110.8	111.1
Nonferrous metals	68	104.2	103.1	105.3	102.6	106.6	113.0	123.0	124.4	134.0	143.5	148.9
Metal manufactures, n.e.s.	69	100.4	100.8	100.8	100.8	101.5	101.3	102.3	103.4	104.5	107.6	109.9
Machinery and transport equipment, excluding military and commercial aircraft	7	100.7	100.8	101.0	101.6	101.7	101.8	102.1	102.4	103.2	104.0	104.5
Power generating machinery and equipment	71	102.3	102.4	102.5	103.7	104.6	103.7	104.8	105.2	107.0	108.4	108.5
Machinery specialized for particular industries	72	100.6	100.3	100.4	100.6	100.0	100.1	100.5	100.9	102.1	103.6	104.7
Metalworking machinery	73	101.9	102.0	103.0	104.2	105.8	106.7	107.8	108.2	109.3	110.8	111.0
General industrial machines and parts n.e.s.	74	100.9	101.6	102.5	103.3	104.2	104.5	104.6	105.4	106.7	108.1	109.3
Office machines and automatic data processing equipment	75	99.9	99.0	98.8	98.2	96.0	96.1	95.7	95.5	95.8	95.7	96.7
Telecommunications, sound recording and reproducing equipment	76	99.2	98.9	99.7	101.3	101.9	101.4	101.4	101.9	102.8	104.6	104.1
Electrical machinery and equipment	77	99.5	99.2	99.7	100.3	101.7	102.1	102.5	101.8	103.1	103.4	103.1
Road vehicles and parts	78	101.0	101.7	101.9	103.3	103.1	103.5	103.8	104.6	104.5	104.9	105.4
Other transport equipment, excl. military and commercial aviation	79	102.1	103.1	102.8	103.5	104.5	105.5	105.8	106.6	107.4	109.6	109.7
Other manufactured articles	8	102.3	103.5	103.4	103.8	104.6	105.2	105.4	105.6	106.9	108.1	108.9
Apparel	84	–	–	–	–	–	–	–	–	–	–	–
Professional, scientific, and controlling instruments and apparatus	87	102.0	103.1	103.0	103.5	104.4	105.5	106.3	107.1	110.0	111.1	112.5
Photographic apparatus and supplies, optical goods, watches and clocks	88	101.9	102.6	102.4	102.1	102.7	102.5	99.0	97.9	97.6	100.1	99.3
Miscellaneous manufactured articles, n.e.s.	89	–	–	–	–	–	–	–	–	–	–	–
Gold, non-monetary	971	–	–	–	–	–	–	–	–	–	–	–

– Data not available.

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

(1985 = 100, unless otherwise indicated)

Category	1974 SITC	1986 Sept.	1986 Dec.	1987 Mar.	1987 June	1987 Sept.	1987 Dec.	1988 Mar.	1988 June	1988 Sept.
ALL COMMODITIES		101.1	102.3	106.5	110.0	110.9	112.5	113.8	116.8	115.5
Food	0	112.0	109.1	105.2	108.3	109.1	112.5	114.1	114.0	112.8
Meat	01	104.3	109.2	105.0	108.0	114.4	113.4	111.5	107.0	111.2
Dairy products and eggs	02	111.3	113.8	119.3	122.3	121.7	125.1	125.6	125.0	122.2
Fish	03	114.1	119.1	121.8	126.0	130.4	131.0	132.5	129.3	125.9
Bakery goods, pasta products, grain and grain preparations	04	117.8	118.8	122.3	126.2	124.8	130.7	135.8	139.8	137.4
Fruits and vegetables	05	106.0	104.3	101.9	110.1	110.0	116.2	115.4	120.3	124.0
Sugar, sugar preparations, and honey	06	106.2	106.5	107.4	109.6	109.0	107.0	109.6	110.0	113.6
Coffee, tea, cocoa	07	121.5	104.9	89.9	87.0	85.1	90.6	94.3	93.3	87.2
Beverages and tobacco	1	103.9	106.8	107.8	112.8	112.2	113.5	116.0	116.2	115.3
Beverages	11	107.5	109.5	112.1	114.2	114.8	116.2	118.7	120.0	118.9
Crude materials	2	109.5	109.1	115.1	116.2	120.3	122.1	129.2	137.8	135.3
Crude rubber (inc. synthetic & reclaimed)	23	97.7	98.4	98.4	103.7	110.7	120.1	121.7	151.1	133.3
Wood	24	107.6	104.8	113.5	110.2	117.4	108.8	112.4	111.4	109.7
Pulp and waste paper	25	108.0	116.9	127.0	132.0	133.4	141.0	151.0	160.5	169.6
Crude fertilizers and crude minerals	27	98.4	98.6	98.2	99.6	99.2	99.9	100.4	101.0	97.2
Metalliferous ores and metal scrap	28	124.8	118.3	122.8	124.5	128.7	137.9	151.2	167.6	172.2
Crude vegetable and animal materials, n.e.s.	29	112.4	111.9	113.0	109.0	107.6	118.3	135.8	148.2	121.8
Fuels and related products	3	52.2	55.9	67.4	74.1	74.3	67.2	60.6	63.4	58.9
Petroleum and petroleum products	33	50.0	55.0	67.4	74.4	75.2	67.8	60.4	63.6	58.9
Fats and oils	4	61.2	83.4	82.9	87.9	96.4	102.1	106.4	111.2	113.6
Vegetable oils	42	–	–	–	–	100.0	105.7	111.1	116.1	118.7
Chemicals	5	99.8	99.0	102.6	104.8	105.6	110.1	114.2	116.4	119.6
Medicinal and pharmaceutical products	54	115.9	113.6	120.1	123.4	124.3	126.3	135.3	140.3	147.4
Manufactured fertilizers	56	89.8	89.9	92.9	94.6	109.3	133.6	133.7	136.3	136.5
Chemical materials and products, n.e.s.	59	111.3	112.7	115.1	117.7	120.6	124.8	138.7	148.5	155.4
Intermediate manufactured products	6	105.8	106.7	108.6	112.5	116.3	119.8	124.4	132.2	132.1
Leather and furskins	61	108.8	107.2	110.9	116.6	117.8	124.4	131.8	137.0	136.6
Rubber manufactures, n.e.s.	62	102.0	101.8	104.3	104.6	103.2	104.6	106.0	107.7	109.1
Cork and wood manufactures	63	112.7	117.4	118.0	124.3	128.3	128.2	133.8	138.2	136.2
Paper and paperboard products	64	101.0	104.9	104.8	104.9	110.3	112.3	117.2	118.3	119.5
Textiles	65	107.4	107.9	110.4	111.8	114.6	118.6	120.0	120.6	118.9
Nonmetallic mineral manufactures, n.e.s.	66	116.6	117.9	120.5	126.7	130.4	133.4	137.4	142.5	139.6
Iron and steel	67	100.0	100.9	102.7	106.6	109.4	114.0	120.0	127.2	129.7
Nonferrous metals	68	103.3	101.5	102.5	112.4	120.9	125.8	132.7	159.7	158.3
Metal manufactures, n.e.s.	69	107.7	108.3	112.1	112.7	114.6	117.8	121.1	126.9	127.4
Machinery and transport equipment	7	113.0	114.4	117.5	119.9	119.9	123.1	125.4	127.3	126.6
Machinery specialized for particular industries	72	122.7	123.0	130.4	136.1	134.3	142.1	146.8	149.8	143.6
Metalworking machinery	73	117.7	120.9	126.4	128.1	130.2	135.5	139.9	142.4	139.4
General industrial machinery and parts, n.e.s.	74	119.9	120.9	127.9	130.8	130.1	137.0	140.4	143.6	139.7
Office machines and automatic data processing equipment	75	109.9	108.9	110.0	114.0	114.8	118.3	118.1	119.5	118.4
Telecommunications, sound recording and reproducing apparatus	76	109.2	108.9	110.5	110.3	110.2	112.1	112.8	113.8	113.8
Electrical machinery and equipment	77	108.8	109.8	112.4	115.8	115.1	118.2	122.2	124.2	125.7
Road vehicles and parts	78	112.9	116.1	118.6	120.5	120.6	122.6	125.5	127.6	127.1
Misc. manufactured articles	8	109.7	110.3	114.5	117.8	118.5	121.8	124.2	125.7	124.3
Plumbing, heating, and lighting fixtures	81	111.1	110.8	111.6	117.0	116.2	121.0	123.4	126.9	124.5
Furniture and parts	82	110.7	112.3	114.8	119.8	119.0	124.3	125.4	129.6	128.0
Clothing	84	101.7	102.6	106.4	109.2	111.9	112.3	115.6	114.9	116.8
Footwear	85	110.7	112.3	114.8	119.8	119.0	124.3	125.4	129.6	128.0
Professional, scientific, and controlling instruments and apparatus	87	122.6	122.5	131.3	135.9	132.7	138.7	140.0	142.5	135.8
Photographic apparatus and supplies, optical goods, watches, and clocks	88	118.0	119.0	123.7	126.0	122.1	127.3	129.2	129.3	125.5
Misc. manufactured articles, n.e.s.	89	–	–	–	–	–	–	–	–	–
Gold, non-monetary (6/82=100)	971	–	–	–	–	–	–	–	–	–

– Data not available.

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

(1985 = 100 unless otherwise indicated)

Category	1986		1987				1988		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Foods, feeds, and beverages	87.2	90.2	87.4	91.5	88.0	96.6	98.5	110.1	124.5
Raw materials	95.1	96.3	100.8	106.1	109.1	111.8	114.2	118.3	118.7
Capital goods	100.7	101.1	101.4	101.6	101.8	102.1	103.4	104.3	104.9
Automotive vehicles, parts and engines	102.3	103.5	103.4	103.6	104.0	104.5	104.3	104.8	105.3
Consumer goods	103.6	105.2	105.9	106.3	106.9	108.0	110.1	110.6	111.3
Nondurables	102.9	104.9	105.5	106.6	107.3	107.9	110.4	110.4	110.8
Durables	103.8	104.3	105.4	104.3	104.6	106.3	107.4	108.7	109.4

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

(1985 = 100)

Category	1986		1987				1988		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Foods, feeds, and beverages	109.8	108.4	105.2	107.8	109.0	112.1	113.7	113.7	112.8
Petroleum and petroleum products, excl. natural gas	50.0	54.7	67.2	74.1	74.7	67.6	60.3	63.5	58.7
Raw materials, excluding petroleum	–	–	–	–	–	–	–	–	–
Raw materials, nondurable	–	–	–	–	–	–	–	–	–
Raw materials, durable	–	–	–	–	–	–	–	–	–
Capital goods	113.5	114.2	118.7	122.2	121.9	126.6	128.6	131.0	128.8
Automotive vehicles, parts and engines	112.7	114.6	116.5	118.4	118.4	120.6	123.7	125.8	125.9
Consumer goods	110.1	110.5	114.2	116.9	118.2	121.4	124.2	126.3	124.8
Nondurable	–	–	–	–	–	–	–	–	–
Durable	–	–	–	–	–	–	–	–	–

– Data not available.

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

(1985 = 100)

Industry group	1986		1987				1988		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Manufacturing:									
Food and kindred products	97.4	100.2	102.0	107.4	107.1	116.3	120.8	125.1	128.9
Lumber and wood products, except furniture	104.8	108.8	112.8	116.2	138.9	142.5	146.1	145.4	146.1
Furniture and fixtures	104.0	104.1	108.0	108.6	108.7	111.2	112.5	112.9	112.9
Paper and allied products	102.3	104.9	109.3	112.3	115.5	119.3	124.6	129.8	132.7
Chemicals and allied products	95.8	95.8	100.5	107.6	108.7	113.8	118.4	122.3	125.5
Petroleum and coal products	65.1	67.6	73.5	80.5	81.4	78.8	73.0	77.8	73.5
Primary metal products	109.3	106.9	110.6	117.2	122.3	126.6	126.9	133.8	133.3
Machinery, except electrical	100.1	100.1	99.6	99.4	99.4	99.7	100.6	101.3	102.2
Electrical machinery	99.9	100.8	101.9	102.1	102.5	102.2	102.9	103.7	103.5
Transportation equipment	104.8	106.0	106.2	106.7	106.9	107.8	108.1	109.1	109.4
Scientific instruments; optical goods; clocks	104.7	105.3	105.8	106.8	106.6	107.1	109.2	110.8	112.1

[1] SIC - based classification.

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

(1985 = 100)

Industry group	1986 Sept.	1986 Dec.	1987 Mar.	1987 June	1987 Sept.	1987 Dec.	1988 Mar.	1988 June	1988 Sept.
Manufacturing:									
Food and kindred products	99.7	103.0	103.8	106.3	108.4	110.6	114.0	114.4	115.2
Textile mill products	109.2	110.6	114.1	116.1	119.4	124.3	127.4	128.9	126.5
Apparel and related products	102.4	103.0	107.0	109.4	112.3	113.4	116.6	115.8	117.2
Lumber and wood products, except furniture	109.0	109.0	114.8	115.0	120.3	115.4	119.5	120.3	118.6
Furniture and fixtures	111.4	111.6	116.1	117.0	118.3	118.9	122.2	124.0	124.8
Paper and allied products	98.6	103.3	105.1	105.9	110.9	113.6	119.1	121.3	123.8
Chemicals and allied products	104.3	102.6	105.7	106.2	107.2	112.2	116.8	121.3	123.8
Rubber and miscellaneous plastic products	106.6	107.9	110.6	113.6	112.3	115.7	117.2	119.0	117.8
Leather and leather products	105.3	106.4	109.3	113.3	113.3	118.4	120.8	124.6	123.7
Primary metal products	102.3	101.3	102.7	110.4	115.2	120.0	122.6	137.0	135.9
Fabricated metal products	111.1	111.7	116.7	117.5	119.8	123.2	127.3	133.3	132.9
Machinery, except electrical	118.2	118.9	123.4	127.4	127.8	133.9	135.9	138.2	134.9
Electrical machinery	106.9	107.0	109.4	110.7	110.2	112.5	114.7	116.1	116.5
Transportation equipment	114.7	117.3	119.9	122.1	122.5	124.6	127.3	129.5	129.2
Scientific instruments; optical goods; clocks	122.6	122.4	128.8	132.5	128.8	134.0	135.8	137.0	132.2
Miscellaneous manufactured commodities	110.7	112.2	115.1	118.1	121.4	123.8	127.7	133.1	130.7

[1] SIC - based classification.

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

(1977 = 100)

Item	1986 I	1986 II	1986 III	1986 IV	1987 I	1987 II	1987 III	1987 IV	1988 I	1988 II	1988 III
Business:											
Output per hour of all persons	110.5	110.4	110.0	109.8	109.9	110.6	111.7	111.8	112.8	111.8	112.2
Compensation per hour	180.4	182.0	184.0	186.2	187.3	189.0	191.1	194.0	195.8	198.1	201.0
Real compensation per hour	100.0	101.2	101.7	102.2	101.5	101.2	101.4	102.0	102.1	102.1	102.4
Unit labor costs	163.3	164.9	167.3	169.6	170.5	170.8	171.1	173.5	173.5	177.1	179.1
Unit nonlabor payments	164.5	165.2	166.6	163.7	165.6	168.7	171.5	168.9	170.0	170.4	172.4
Implicit price deflator	163.7	165.0	167.0	167.5	168.7	170.1	171.2	171.9	172.3	174.7	176.7
Nonfarm business:											
Output per hour of all persons	108.6	108.4	108.0	107.8	107.8	108.6	109.6	109.9	110.8	110.1	110.6
Compensation per hour	179.8	181.2	183.1	185.4	186.4	187.9	190.0	192.9	194.6	196.6	199.4
Real compensation per hour	99.6	100.7	101.2	101.8	101.0	100.6	100.8	101.4	101.5	101.3	101.5
Unit labor costs	165.5	167.1	169.5	172.1	172.9	173.0	173.3	175.6	175.7	178.6	180.2
Unit nonlabor payments	166.1	166.6	168.1	164.9	167.2	169.8	173.0	170.9	171.6	171.8	173.6
Implicit price deflator	165.7	167.0	169.0	169.5	170.9	171.9	173.2	174.0	174.2	176.2	177.9
Nonfinancial corporations:											
Output per hour of all employees	109.5	109.3	109.6	110.3	110.1	110.9	112.2	112.2	113.3	112.9	112.6
Compensation per hour	177.1	178.5	180.2	182.2	182.9	184.3	186.1	188.5	189.9	191.9	194.4
Real compensation per hour	98.1	99.2	99.6	100.1	99.1	98.7	98.7	99.1	99.0	98.9	99.0
Total unit costs	165.5	166.7	168.4	168.8	169.9	170.3	170.2	172.0	171.5	173.8	176.4
Unit labor costs	161.7	163.3	164.3	165.1	166.2	166.1	165.9	168.1	167.5	170.0	172.7
Unit nonlabor costs	176.7	176.9	180.3	179.6	180.8	182.6	183.0	183.6	183.4	185.1	187.6
Unit profits	133.7	132.7	133.6	129.7	128.5	129.8	136.4	128.3	132.5	132.6	129.5
Unit nonlabor payments	161.7	161.4	164.0	162.1	162.5	164.1	166.6	164.2	165.6	166.7	167.2
Implicit price deflator	161.7	162.6	164.2	164.1	164.9	165.4	166.1	166.7	166.9	168.8	170.8
Manufacturing:											
Output per hour of all persons	126.6	127.2	128.0	128.8	130.0	131.7	132.8	133.2	134.3	135.5	137.2
Compensation per hour	181.1	182.0	183.6	185.3	185.9	186.3	187.2	188.2	190.7	192.1	194.4
Real compensation per hour	100.3	101.2	101.5	101.7	100.8	99.7	99.3	99.0	99.4	99.0	99.0
Unit labor costs	143.0	143.2	143.4	143.8	143.1	141.4	141.0	141.3	142.1	141.8	141.6

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

(1977 = 100)

Item	1960	1970	1973	1977	1979	1981	1982	1983	1984	1985	1986	1987
Private business												
Productivity:												
Output per hour of all persons	67.3	88.4	95.9	100.0	99.5	100.6	100.3	103.0	105.6	107.9	110.3	111.2
Output per unit of capital services	103.7	102.7	105.6	100.0	99.7	92.3	86.6	88.3	92.7	92.9	93.0	93.7
Multifactor productivity	78.5	93.1	99.2	100.0	99.6	97.6	95.2	97.6	100.9	102.4	103.9	104.7
Output	55.3	80.2	93.0	100.0	107.9	108.9	105.4	109.9	119.2	124.3	128.7	133.4
Inputs:												
Hours of all persons	82.2	90.8	96.9	100.0	108.4	108.2	105.2	106.7	112.9	115.2	116.7	120.0
Capital services	53.3	78.1	88.0	100.0	108.2	117.9	121.8	124.4	128.6	133.8	138.5	142.4
Combined units of labor and capital input	70.5	86.1	93.7	100.0	108.3	111.5	110.7	112.6	118.1	121.4	123.9	127.4
Capital per hour of all persons	64.9	86.1	90.8	100.0	99.8	108.9	115.8	116.6	113.9	116.1	118.7	118.6
Private nonfarm business												
Productivity:												
Output per hour of all persons	70.7	89.2	96.4	100.0	99.2	99.6	99.1	102.5	104.7	106.2	108.3	109.1
Output per unit of capital services	104.9	103.5	106.3	100.0	98.9	91.0	85.1	87.3	91.3	91.0	90.8	91.5
Multifactor productivity	81.2	93.8	99.7	100.0	99.1	96.7	94.1	97.0	99.9	100.7	102.0	102.7
Output	54.4	79.9	92.9	100.0	107.9	108.4	104.8	110.1	119.3	124.0	128.3	133.2
Inputs:												
Hours of all persons	77.0	89.6	96.3	100.0	108.8	108.8	105.7	107.4	114.0	116.8	118.5	122.0
Capital services	51.9	77.2	87.3	100.0	109.1	119.1	123.3	126.1	130.6	136.3	141.3	145.5
Combined units of labor and capital input	67.1	85.2	93.2	100.0	108.9	112.2	111.4	113.5	119.4	123.1	125.8	129.6
Capital per hour of all persons	67.4	86.2	90.7	100.0	100.3	109.4	116.6	117.4	114.6	116.7	119.3	119.2
Manufacturing												
Productivity:												
Output per hour of all persons	62.2	80.8	93.4	100.0	101.4	103.6	105.9	112.0	118.1	123.6	127.7	131.9
Output per unit of capital services	103.0	99.1	112.0	100.0	99.5	89.0	81.6	86.7	95.5	97.3	98.4	102.0
Multifactor productivity	72.0	85.3	98.0	100.0	100.9	99.7	99.2	105.0	112.1	116.4	119.5	123.6
Output	52.5	78.6	96.3	100.0	108.1	104.8	98.4	104.7	117.5	122.0	124.7	130.1
Inputs:												
Hours of all persons	84.4	97.3	103.1	100.0	106.5	101.1	92.9	93.5	99.5	98.7	97.7	98.6
Capital services	51.0	79.3	86.0	100.0	108.6	117.8	120.5	120.8	123.0	125.4	126.8	127.6
Combined units of labor and capital inputs	72.9	92.1	98.3	100.0	107.1	105.1	99.2	99.7	104.8	104.8	104.4	105.3
Capital per hour of all persons	60.4	81.5	83.4	100.0	101.9	116.5	129.8	129.3	123.7	127.1	129.8	129.4

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

(1977=100)

Item	1960	1970	1973	1976	1978	1980	1981	1982	1983	1984	1985	1986	1987
Business:													
Output per hour of all persons	67.6	88.4	95.9	98.3	100.8	99.3	100.7	100.3	103.0	105.5	107.7	110.1	111.0
Compensation per hour	33.6	57.8	70.9	92.8	108.5	131.5	143.7	154.9	161.4	167.9	175.5	183.1	190.4
Real compensation per hour	68.9	90.3	96.8	98.8	100.9	96.7	95.8	97.3	98.2	97.9	98.8	101.2	101.5
Unit labor costs	49.7	65.4	73.9	94.3	107.6	132.5	142.7	154.5	156.7	159.1	162.9	166.3	171.5
Unit nonlabor payments	46.4	59.4	72.5	93.3	106.7	118.7	134.6	136.6	146.4	156.5	160.9	165.0	168.7
Implicit price deflator	48.5	63.2	73.4	94.0	107.3	127.6	139.8	148.1	153.0	158.2	162.2	165.8	170.5
Nonfarm business:													
Output per hour of all persons	71.0	89.3	96.4	98.5	100.8	98.8	99.8	99.2	102.5	104.6	106.1	108.2	109.0
Compensation per hour	35.3	58.2	71.2	92.8	108.6	131.3	143.6	154.8	161.5	167.8	174.9	182.3	189.4
Real compensation per hour	72.3	90.9	97.2	98.9	100.9	96.6	95.8	97.2	98.3	97.9	98.5	100.8	101.0
Unit labor costs	49.7	65.2	73.9	94.3	107.7	132.9	144.0	156.0	157.6	160.4	164.9	168.6	173.8
Unit nonlabor payments	46.3	60.0	69.3	93.0	105.6	118.5	133.5	136.5	148.3	156.3	161.9	166.4	170.2
Implicit price deflator	48.5	63.4	72.3	93.8	107.0	127.8	140.3	149.2	154.3	159.0	163.8	167.8	172.5
Nonfinancial corporations:													
Output per hour of all employees	73.4	91.1	97.5	98.4	100.6	99.1	99.6	100.4	103.5	106.0	107.7	109.7	111.3
Compensation per hour	36.9	59.2	71.6	92.9	108.4	131.1	143.3	154.3	159.9	165.8	172.5	179.5	185.5
Real compensation per hour	75.5	92.5	97.7	98.9	100.8	96.4	95.5	96.9	97.3	96.7	97.1	99.2	98.9
Total unit costs	49.4	64.8	72.7	94.8	107.3	133.4	147.7	159.5	159.5	160.8	164.1	167.3	170.6
Unit labor costs	50.2	65.0	73.4	94.3	107.8	132.3	143.8	153.8	154.5	156.5	160.2	163.6	166.6
Unit nonlabor costs	47.0	64.2	70.7	96.2	105.7	136.7	159.1	176.4	174.3	173.6	175.8	178.4	182.5
Unit profits	59.8	52.3	65.6	89.4	102.0	85.2	98.1	78.5	110.9	136.5	133.0	132.4	130.8
Unit nonlabor payments	51.5	60.1	68.9	93.8	104.4	118.6	137.8	142.1	152.1	160.6	160.8	162.3	164.4
Implicit price deflator	50.7	63.3	71.9	94.2	106.6	127.6	141.7	149.8	153.7	157.9	160.4	163.2	165.8
Manufacturing:													
Output per hour of all persons	62.2	80.8	93.4	97.1	101.5	101.4	103.6	105.9	112.0	118.1	123.6	127.7	132.0
Compensation per hour	36.5	57.4	68.8	92.1	108.2	132.4	145.2	157.5	162.4	168.0	176.4	183.0	186.9
Real compensation per hour	74.8	89.6	93.9	98.1	100.6	97.4	96.8	98.9	98.8	98.0	99.3	101.2	99.7
Unit labor costs	58.7	71.0	73.7	94.9	106.6	130.6	140.1	148.7	145.0	142.2	142.7	143.3	141.7
Unit nonlabor payments	60.0	64.1	70.7	93.5	101.9	97.8	111.8	114.0	128.5	138.6	130.4	136.3	139.2
Implicit price deflator	59.1	69.0	72.8	94.5	105.2	121.0	131.8	138.6	140.2	141.2	139.1	141.3	141.0

45. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted

Country	Annual average		1987				1988		
	1986	1987	I	II	III	IV	I	II	III
Total labor force basis									
United States	6.9	6.1	6.5	6.2	5.9	5.8	5.6	5.4	5.4
Canada	9.5	8.8	9.6	9.0	8.8	8.2	7.8	7.6	7.8
Australia	8.0	8.1	8.2	8.1	8.0	7.9	7.5	7.5	6.9
Japan	2.8	2.9	3.0	3.1	2.8	2.7	2.7	2.5	2.5
France	10.4	10.6	10.7	10.7	10.6	10.4	10.4	10.3	10.5
Germany	6.8	6.8	6.7	6.8	6.8	6.8	6.8	6.9	6.8
Italy [1], [2]	7.4	7.7	7.4	7.7	7.8	7.9	7.8	7.8	7.8
Sweden[3]	2.6	1.9	2.0	1.9	1.9	1.7	1.7	1.6	1.6
United Kingdom	11.2	10.2	10.9	10.5	10.0	9.4	9.0	8.6	8.0
Civilian labor force basis									
United States	7.0	6.2	6.6	6.3	6.0	5.9	5.7	5.5	5.5
Canada	9.6	8.9	9.6	9.1	8.8	8.2	7.9	7.7	7.9
Australia	8.1	8.1	8.3	8.2	8.0	8.0	7.6	7.6	7.0
Japan	2.8	2.9	3.0	3.1	2.8	2.7	2.7	2.5	2.5
France	10.6	10.8	10.9	10.9	10.8	10.6	10.6	10.6	10.7
Germany	7.0	6.9	6.8	6.9	7.0	7.0	6.9	7.0	6.9
Italy[1], [2]	7.5	7.9	7.6	7.8	8.0	8.1	7.9	7.9	8.0
Sweden[3]	2.6	1.9	2.0	1.9	1.9	1.7	1.7	1.6	1.6
United Kingdom	11.2	10.3	11.0	10.6	10.0	9.5	9.0	8.6	8.0

[1] Quarterly rates are for the first month of the quarter.
[2] Many Italians reported as unemployed did not actively seek work in the past 30 days, and they have been excluded for comparability with U.S. concepts. Inclusion of such persons would about double the Italian unemployment rate in 1985 and earlier years and increase it to 11-12 percent for 1986 onward.

[3] Break in series beginning in 1987. The 1986 rate based on the new series was 2.2 percent.

NOTE: Quarterly figures for France, Germany, and the United Kingdom 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, approximating U.S. concepts, 10 countries

(Numbers in thousands)

Employment status and country	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Labor force										
United States	102,251	104,962	106,940	108,670	110,204	111,550	113,544	115,461	117,834	119,865
Canada	10,895	11,231	11,573	11,904	11,958	12,183	12,399	12,639	12,870	13,121
Australia	6,443	6,519	6,693	6,810	6,910	6,997	7,133	7,272	7,562	7,736
Japan	54,610	55,210	55,740	56,320	56,980	58,110	58,480	58,820	59,410	60,050
France	22,460	22,660	22,800	22,950	23,160	23,140	23,300	23,360	23,450	23,520
Germany	26,000	26,250	26,520	26,650	26,700	26,650	26,770	26,970	27,110	27,290
Italy	20,570	20,850	21,120	21,320	21,410	21,590	21,670	21,800	22,280	22,340
Netherlands	5,010	5,100	5,310	5,520	5,570	5,600	5,620	5,710	5,760	5,810
Sweden	4,203	4,262	4,312	4,327	4,350	4,369	4,385	4,418	4,443	4,480
United Kingdom	26,260	26,350	26,520	26,590	26,740	26,790	27,180	27,370	27,540	27,760
Participation rate[1]										
United States	63.2	63.7	63.8	63.9	64.0	64.0	64.4	64.8	65.3	65.6
Canada	62.7	63.4	64.1	64.8	64.1	64.4	64.8	65.2	65.7	66.2
Australia	61.9	61.6	62.1	61.9	61.7	61.4	61.5	61.8	63.0	63.0
Japan	62.8	62.7	62.6	62.6	62.7	63.1	62.7	62.3	62.1	61.9
France	57.5	57.5	57.2	57.1	57.1	56.6	56.6	56.3	56.1	55.8
Germany	53.3	53.3	53.2	52.9	52.6	52.3	52.4	52.6	52.8	53.1
Italy	47.8	48.0	48.2	48.3	47.7	47.5	47.3	47.2	48.2	48.2
Netherlands	48.8	49.0	50.2	51.4	51.2	50.9	50.5	50.7	50.5	50.3
Sweden	66.1	66.6	66.9	66.8	66.8	66.7	66.6	66.9	67.1	67.4
United Kingdom	62.8	62.6	62.5	62.2	62.3	62.1	62.6	62.7	62.7	63.0
Employed										
United States	96,048	98,824	99,303	100,397	99,526	100,834	105,005	107,150	109,597	112,440
Canada	9,987	10,395	10,708	11,006	10,644	10,734	11,000	11,311	11,634	11,955
Australia	6,038	6,111	6,284	6,416	6,415	6,300	6,490	6,670	6,952	7,107
Japan	53,370	54,040	54,600	55,060	55,620	56,550	56,870	57,260	57,740	58,320
France	21,260	21,300	21,330	21,200	21,240	21,170	20,980	20,920	20,960	20,970
Germany	25,130	25,470	25,750	25,560	25,140	24,750	24,800	24,960	25,220	25,400
Italy	19,720	19,930	20,200	20,280	20,250	20,320	20,390	20,490	20,610	20,590
Netherlands	4,750	4,830	4,980	5,010	4,980	4,890	4,930	5,110	5,200	5,270
Sweden	4,109	4,174	4,226	4,219	4,213	4,218	4,249	4,293	4,326	4,396
United Kingdom	24,610	24,940	24,670	23,800	23,710	23,600	24,000	24,310	24,450	24,910
Employment-population ratio[2]										
United States	59.3	59.9	59.2	59.0	57.8	57.9	59.5	60.1	60.7	61.5
Canada	57.5	58.7	59.3	59.9	57.0	56.7	57.4	58.4	59.4	60.3
Australia	58.0	57.8	58.3	58.4	57.3	55.3	56.0	56.6	57.9	57.9
Japan	61.3	61.4	61.3	61.2	61.2	61.4	61.0	60.6	60.4	60.1
France	54.4	54.0	53.5	52.8	52.3	51.8	51.0	50.4	50.2	49.7
Germany	51.5	51.7	51.7	50.8	49.6	48.6	48.5	48.7	49.2	49.4
Italy	45.9	45.9	46.1	45.9	45.2	44.7	44.5	44.4	44.6	44.4
Netherlands	46.3	46.4	47.0	46.6	45.8	44.5	44.3	45.3	45.6	45.6
Sweden	64.6	65.3	65.6	65.1	64.7	64.4	64.5	65.0	65.4	66.2
United Kingdom	58.8	59.2	58.1	55.7	55.3	54.7	55.3	55.7	55.7	56.6
Unemployed										
United States	6,202	6,137	7,637	8,273	10,678	10,717	8,539	8,312	8,237	7,425
Canada	908	836	865	898	1,314	1,448	1,399	1,328	1,236	1,167
Australia	405	408	409	394	495	697	642	602	610	629
Japan	1,240	1,170	1,140	1,260	1,360	1,560	1,610	1,560	1,670	1,730
France	1,200	1,360	1,470	1,750	1,920	1,970	2,320	2,440	2,490	2,550
Germany	870	780	770	1,090	1,560	1,900	1,970	2,010	1,890	1,890
Italy	850	920	920	1,040	1,160	1,270	1,280	1,310	1,680	1,760
Netherlands	260	270	330	510	590	710	690	600	560	540
Sweden	94	88	86	108	137	151	136	125	117	84
United Kingdom	1,650	1,420	1,850	2,790	3,030	3,190	3,180	3,060	3,090	2,850
Unemployment rate										
United States	6.1	5.8	7.1	7.6	9.7	9.6	7.5	7.2	7.0	6.2
Canada	8.3	7.4	7.5	7.5	11.0	11.9	11.3	10.5	9.6	8.9
Australia	6.3	6.3	6.1	5.8	7.2	10.0	9.0	8.3	8.1	8.1
Japan	2.3	2.1	2.0	2.2	2.4	2.7	2.8	2.6	2.8	2.9
France	5.3	6.0	6.4	7.6	8.3	8.5	10.0	10.4	10.6	10.8
Germany	3.3	3.0	2.9	4.1	5.8	7.1	7.4	7.5	7.0	6.9
Italy	4.1	4.4	4.4	4.9	5.4	5.9	5.9	6.0	7.5	7.9
Netherlands	5.2	5.3	6.2	9.2	10.6	12.7	12.3	10.5	9.7	9.3
Sweden	2.2	2.1	2.0	2.5	3.1	–	3.1	2.8	2.6	1.9
United Kingdom	6.3	5.4	7.0	10.5	11.3	11.9	11.7	11.2	11.2	10.3

[1] Labor force as a percent of the civilian working-age population.
[2] Employment as a percent of the civilian working-age population.

– Data not available.

47. Annual indexes of manufacturing productivity and related measures, 12 countries

(1977 = 100)

Item and country	1960	1970	1973	1975	1976	1977	1979	1980	1981	1982	1983	1984	1985	1986	1987
Output per hour															
United States	62.2	80.8	93.4	92.9	97.1	100.0	101.4	101.4	103.6	105.9	112.0	118.1	123.6	127.7	132.0
Canada	50.7	75.6	90.3	88.6	94.8	100.0	102.0	98.2	102.9	98.3	105.4	114.4	117.3	117.7	120.5
Japan	23.2	64.8	83.1	87.7	94.3	100.0	114.8	122.7	127.2	135.0	142.3	152.5	161.1	163.8	170.5
Belgium	33.0	60.4	78.8	86.5	95.3	100.0	111.9	119.2	127.6	135.2	148.2	154.3	159.0	165.3	170.3
Denmark	37.2	65.6	83.3	94.6	98.2	100.0	106.5	112.3	114.2	114.6	120.2	119.6	117.6	113.5	114.9
France	37.4	71.4	83.8	88.7	94.4	100.0	109.7	110.6	113.9	122.0	125.1	127.6	131.0	134.9	139.2
Germany	40.3	71.2	84.0	90.1	96.4	100.0	108.2	108.6	111.0	112.6	119.2	123.7	128.4	128.4	130.3
Italy	35.4	72.7	90.9	91.1	98.9	100.0	110.5	116.9	124.8	129.6	138.6	147.8	151.7	152.9	157.8
Netherlands	32.4	64.3	81.5	86.2	95.8	100.0	112.3	113.9	116.9	119.4	127.5	140.5	145.5	144.8	145.5
Norway	54.3	81.3	94.4	97.7	100.4	100.0	107.3	107.4	108.0	109.2	117.2	124.1	126.8	125.9	134.9
Sweden	42.3	80.7	94.8	100.2	101.7	100.0	110.9	112.7	113.2	116.5	125.5	131.0	136.1	136.0	141.8
United Kingdom	55.9	80.4	95.5	94.9	99.1	100.0	102.5	101.9	107.0	113.5	123.2	130.0	134.7	138.3	147.8
Output															
United States	52.5	78.6	96.3	84.9	93.1	100.0	108.1	103.2	104.8	98.4	104.7	117.5	122.0	124.7	130.1
Canada	41.3	73.5	93.5	89.9	96.5	100.0	108.5	103.6	107.4	93.6	99.6	112.5	118.8	121.9	128.5
Japan	19.2	69.9	91.9	86.2	94.8	100.0	113.9	124.1	129.8	137.3	148.2	165.4	177.0	178.0	184.1
Belgium	41.9	78.6	96.4	92.7	99.7	100.0	104.1	106.8	105.7	110.1	114.8	117.5	119.9	122.0	123.1
Denmark	49.2	82.0	95.9	95.0	99.6	100.0	105.4	110.1	106.6	108.3	115.6	121.0	123.0	123.9	120.5
France	36.5	75.5	90.5	90.3	95.6	100.0	105.3	104.6	102.9	104.0	103.8	102.6	101.5	102.1	103.3
Germany	50.0	86.6	96.1	91.0	98.0	100.0	106.6	106.6	104.9	102.4	103.6	106.4	110.0	110.8	111.6
Italy	36.4	78.0	90.5	86.9	97.9	100.0	108.6	115.4	115.1	113.4	114.3	119.0	121.8	125.8	131.2
Netherlands	44.8	84.4	95.8	92.7	99.0	100.0	106.1	106.6	106.7	105.0	107.0	113.3	116.7	118.1	118.7
Norway	54.8	86.5	99.2	101.9	102.1	100.0	100.5	99.5	98.6	96.8	97.2	102.7	106.5	106.9	108.3
Sweden	52.6	92.5	100.3	106.1	106.1	100.0	103.6	104.0	100.6	100.1	105.2	111.5	115.3	114.7	119.2
United Kingdom	71.2	95.0	104.8	96.3	98.2	100.0	100.5	91.7	86.2	86.4	88.9	92.6	95.2	95.4	100.6
Total hours															
United States	84.4	97.3	103.1	91.4	95.9	100.0	106.5	101.7	101.1	92.9	93.5	99.5	98.7	97.7	98.6
Canada	81.4	97.2	103.6	101.5	101.8	100.0	106.3	105.5	104.3	95.2	94.5	98.3	101.2	103.6	106.6
Japan	82.7	107.9	110.7	98.2	100.6	100.0	99.3	101.2	102.0	101.7	104.2	108.5	109.8	108.7	108.0
Belgium	127.1	130.2	122.3	107.1	104.6	100.0	93.0	89.6	82.8	81.4	77.5	76.1	75.4	73.8	72.3
Denmark	132.4	125.1	115.2	100.4	101.4	100.0	99.0	98.0	93.4	94.5	96.2	101.2	104.6	109.2	104.9
France	97.6	105.7	107.9	101.8	101.3	100.0	95.9	94.6	90.3	85.2	83.0	80.4	77.5	75.7	74.2
Germany	123.8	121.7	114.4	101.0	101.6	100.0	98.5	98.1	94.6	91.0	86.9	86.1	85.7	86.3	85.7
Italy	102.8	107.4	99.6	95.4	99.0	100.0	98.2	98.7	92.2	87.5	82.5	80.5	80.3	82.3	83.2
Netherlands	138.4	131.2	117.6	107.6	103.3	100.0	94.4	93.6	91.2	88.0	83.9	80.6	80.2	81.5	81.6
Norway	101.0	106.4	105.1	104.3	101.7	100.0	93.6	92.6	91.3	88.6	82.9	82.8	84.0	84.9	80.3
Sweden	124.4	114.6	105.7	105.9	104.3	100.0	93.4	92.3	88.9	85.9	83.9	85.1	84.7	84.3	84.0
United Kingdom	127.3	118.1	109.8	101.5	99.0	100.0	98.0	90.1	80.6	76.2	72.2	71.2	70.7	69.0	68.0
Compensation per hour															
United States	36.5	57.4	68.8	85.1	92.1	100.0	118.6	132.4	145.2	157.5	162.4	168.0	176.4	183.0	186.9
Canada	27.5	47.9	60.0	78.9	90.3	100.0	118.6	131.3	151.1	167.0	177.2	185.6	194.4	203.5	214.0
Japan	8.9	33.9	55.1	84.2	90.7	100.0	113.4	120.7	129.8	136.6	140.7	144.9	151.4	158.8	161.1
Belgium	13.8	34.9	53.5	79.0	89.5	100.0	117.4	130.3	144.5	150.7	159.8	173.1	183.6	190.8	194.5
Denmark	12.6	36.3	56.1	81.0	90.4	100.0	123.1	135.9	149.7	162.9	174.2	184.1	196.2	202.7	226.3
France	15.0	36.3	51.9	76.1	87.8	100.0	128.4	148.5	172.0	204.0	225.1	245.0	265.4	277.2	285.7
Germany	18.8	48.0	67.5	84.5	91.2	100.0	116.1	125.6	134.5	141.0	148.3	155.5	164.6	171.7	178.6
Italy	8.4	26.1	43.7	70.2	84.2	100.0	134.7	160.2	198.4	238.3	282.9	316.5	348.0	359.4	380.5
Netherlands	12.5	39.0	60.5	82.2	91.9	100.0	117.0	123.6	129.1	137.5	144.0	150.0	157.4	162.2	166.5
Norway	15.8	37.9	54.5	77.2	88.8	100.0	116.0	128.0	142.8	156.0	173.5	188.3	204.3	224.2	262.6
Sweden	14.7	38.5	54.2	77.3	91.5	100.0	120.1	133.6	148.1	158.9	173.3	189.7	212.4	228.7	244.8
United Kingdom	15.2	31.4	47.9	76.4	88.4	100.0	139.0	168.6	193.4	211.7	226.6	242.3	258.8	277.9	297.6
Unit labor costs: National currency basis															
United States	58.7	71.0	73.7	91.7	94.9	100.0	117.0	130.6	140.1	148.7	145.0	142.2	142.7	143.3	141.7
Canada	54.2	63.4	66.5	89.1	95.3	100.0	116.2	133.7	146.7	170.0	168.1	162.3	165.7	172.8	177.5
Japan	38.4	52.3	66.4	96.0	96.2	100.0	98.8	98.4	102.0	101.2	98.9	95.0	94.0	97.0	94.5
Belgium	41.7	57.8	67.9	91.2	93.9	100.0	104.9	109.3	113.2	111.5	107.8	112.2	115.5	115.5	114.2
Denmark	33.8	55.4	67.4	85.6	92.1	100.0	115.7	121.0	131.1	142.2	144.9	153.9	166.8	178.7	197.0
France	40.2	50.8	62.0	85.8	93.0	100.0	117.0	134.3	151.0	167.2	179.9	192.0	202.7	205.4	205.2
Germany	46.6	67.4	80.3	93.8	94.6	100.0	107.3	115.7	121.2	125.2	124.4	125.8	128.3	133.7	137.1
Italy	23.7	36.0	48.1	77.1	85.1	100.0	121.9	137.0	158.9	184.0	204.1	214.1	229.4	235.1	241.2
Netherlands	38.5	60.7	74.3	95.4	96.0	100.0	104.1	108.5	110.4	115.2	113.0	106.8	108.1	112.0	114.4
Norway	29.2	46.6	57.8	79.0	88.5	100.0	108.1	119.1	132.2	142.9	148.0	151.8	161.1	178.1	194.7
Sweden	34.8	47.7	57.2	77.1	90.0	100.0	108.3	118.6	130.9	136.3	138.1	144.8	156.1	168.2	172.6
United Kingdom	27.2	39.1	50.2	80.5	89.2	100.0	135.6	165.5	180.7	186.5	184.0	186.4	192.1	200.9	201.3
Unit labor costs: U.S. dollar basis															
United States	58.7	71.0	73.7	91.7	94.9	100.0	117.0	130.6	140.1	148.7	145.0	142.2	142.7	143.3	141.7
Canada	59.4	64.5	70.6	93.1	102.7	100.0	105.4	121.5	130.0	146.3	144.9	133.2	128.9	132.1	142.3
Japan	28.5	39.1	65.6	86.7	86.9	100.0	121.3	116.8	123.8	108.8	111.5	107.2	105.6	154.2	175.0
Belgium	30.0	41.7	62.7	89.1	87.2	100.0	128.2	134.2	109.6	87.2	75.6	69.6	69.7	92.6	109.6
Denmark	29.5	44.4	67.2	89.6	91.5	100.0	132.0	129.0	110.3	102.3	95.1	89.3	94.5	132.5	172.7
France	40.3	45.2	68.6	98.5	95.8	100.0	135.2	156.4	136.4	124.9	116.1	108.1	111.0	145.8	167.8
Germany	25.9	42.9	70.4	88.7	87.3	100.0	135.9	147.9	124.9	119.7	113.1	102.6	101.2	143.0	177.0
Italy	33.7	50.6	73.1	104.3	90.5	100.0	129.5	141.4	123.2	119.9	118.6	107.6	106.1	139.2	164.2
Netherlands	25.1	41.2	65.6	92.8	89.1	100.0	127.4	134.1	108.9	105.8	97.1	81.6	80.0	112.2	138.6
Norway	21.8	34.7	53.5	80.6	86.4	100.0	113.6	128.4	122.5	117.8	107.9	99.0	99.8	128.1	153.7
Sweden	30.1	41.1	58.7	83.2	92.3	100.0	112.9	125.3	115.4	96.9	80.4	78.2	81.1	105.4	121.5
United Kingdom	43.7	53.7	70.5	102.5	92.2	100.0	165.0	220.6	209.6	186.9	159.8	142.8	142.9	169.0	189.2

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]								
	1979	1980	1981	1982	1983	1984	1985	1986	1987
PRIVATE SECTOR[3]									
Total cases	9.5	8.7	8.3	7.7	7.6	8.0	7.9	7.9	8.3
Lost workday cases	4.3	4.0	3.8	3.5	3.4	3.7	3.6	3.6	3.8
Lost workdays	67.7	65.2	61.7	58.7	58.5	63.4	64.9	65.8	69.9
Agriculture, forestry, and fishing[3]									
Total cases	11.7	11.9	12.3	11.8	11.9	12.0	11.4	11.2	11.2
Lost workday cases	5.7	5.8	5.9	5.9	6.1	6.1	5.7	5.6	5.7
Lost workdays	83.7	82.7	82.8	86.0	90.8	90.7	91.3	93.6	94.1
Mining									
Total cases	11.4	11.2	11.6	10.5	8.4	9.7	8.4	7.4	8.5
Lost workday cases	6.8	6.5	6.2	5.4	4.5	5.3	4.8	4.1	4.9
Lost workdays	150.5	163.6	146.4	137.3	125.1	160.2	145.3	125.9	144.0
Construction									
Total cases	16.2	15.7	15.1	14.6	14.8	15.5	15.2	15.2	14.7
Lost workday cases	6.8	6.5	6.3	6.0	6.3	6.9	6.8	6.9	6.8
Lost workdays	120.4	117.0	113.1	115.7	118.2	128.1	128.9	134.5	135.8
General building contractors:									
Total cases	16.3	15.5	15.1	14.1	14.4	15.4	15.2	14.9	14.2
Lost workday cases	6.8	6.5	6.1	5.9	6.2	6.9	6.8	6.6	6.5
Lost workdays	111.2	113.0	107.1	112.0	113.0	121.3	120.4	122.7	134.0
Heavy construction contractors:									
Total cases	16.6	16.3	14.9	15.1	15.4	14.9	14.5	· 14.7	14.5
Lost workday cases	6.7	6.3	6.0	5.8	6.2	6.4	6.3	6.3	6.4
Lost workdays	123.1	117.6	106.0	113.1	122.4	131.7	127.3	132.9	139.1
Special trade contractors:									
Total cases	16.0	15.5	15.2	14.7	14.8	15.8	15.4	15.6	15.0
Lost workday cases	6.9	6.7	6.6	6.2	6.4	7.1	7.0	7.2	7.1
Lost workdays	124.3	118.9	119.3	118.6	119.0	130.1	133.3	140.4	135.7
Manufacturing									
Total cases	13.3	12.2	11.5	10.2	10.0	10.6	10.4	10.6	11.9
Lost workday cases	5.9	5.4	5.1	4.4	4.3	4.7	4.6	4.7	5.3
Lost workdays	90.2	86.7	82.0	75.0	73.5	77.9	80.2	85.2	95.5
Durable goods									
Lumber and wood products:									
Total cases	20.7	18.6	17.6	16.9	18.3	19.6	18.5	18.9	18.9
Lost workday cases	10.8	9.5	9.0	8.3	9.2	9.9	9.3	9.7	9.6
Lost workdays	175.9	171.8	158.4	153.3	163.5	172.0	171.4	177.2	176.5
Furniture and fixtures:									
Total cases	17.6	16.0	15.1	13.9	14.1	15.3	15.0	15.2	15.4
Lost workday cases	7.1	6.6	6.2	5.5	5.7	6.4	6.3	6.3	6.7
Lost workdays	99.6	97.6	91.9	85.6	83.0	101.5	100.4	103.0	103.6
Stone, clay, and glass products:									
Total cases	16.8	15.0	14.1	13.0	13.1	13.6	13.9	13.6	14.9
Lost workday cases	8.0	7.1	6.9	6.1	6.0	6.6	6.7	6.5	7.1
Lost workdays	133.7	128.1	122.2	112.2	112.0	120.8	127.8	126.0	135.8
Primary metal industries:									
Total cases	17.3	15.2	14.4	12.4	12.4	13.3	12.6	13.6	17.0
Lost workday cases	8.1	7.1	6.7	5.4	5.4	6.1	5.7	6.1	7.4
Lost workdays	134.7	128.3	121.3	101.6	103.4	115.3	113.8	125.5	145.8
Fabricated metal products:									
Total cases	19.9	18.5	17.5	15.3	15.1	16.1	16.3	16.0	17.0
Lost workday cases	8.7	8.0	7.5	6.4	6.1	6.7	6.9	6.8	7.2
Lost workdays	124.2	118.4	109.9	102.5	96.5	104.9	110.1	115.5	121.9
Machinery, except electrical:									
Total cases	14.7	13.7	12.9	10.7	9.8	10.7	10.8	10.7	11.3
Lost workday cases	5.9	5.5	5.1	4.2	3.6	4.1	4.2	4.2	4.4
Lost workdays	83.6	81.3	74.9	66.0	58.1	65.8	69.3	72.0	72.7
Electric and electronic equipment:									
Total cases	8.6	8.0	7.4	6.5	6.3	6.8	6.4	6.4	7.2
Lost workday cases	3.4	3.3	3.1	2.7	2.6	2.8	2.7	2.7	3.1
Lost workdays	51.9	51.8	48.4	42.2	41.4	45.0	45.7	49.8	55.9
Transportation equipment:									
Total cases	11.6	10.6	9.8	9.2	8.4	9.3	9.0	9.6	13.5
Lost workday cases	5.5	4.9	4.6	4.0	3.6	4.2	3.9	4.1	5.7
Lost workdays	85.9	82.4	78.1	72.2	64.5	68.8	71.6	79.1	105.7
Instruments and related products:									
Total cases	7.2	6.8	6.5	5.6	5.2	5.4	5.2	5.3	5.8
Lost workday cases	2.8	2.7	2.7	2.3	2.1	2.2	2.2	2.3	2.4
Lost workdays	40.0	41.8	39.2	37.0	35.6	37.5	37.9	42.2	43.9
Miscellaneous manufacturing industries:									
Total cases	11.7	10.9	10.7	9.9	9.9	10.5	9.7	10.2	10.7
Lost workday cases	4.7	4.4	4.4	4.1	4.0	4.3	4.2	4.3	4.6
Lost workdays	67.7	67.9	68.3	69.9	66.3	70.2	73.2	70.9	81.5

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]								
	1979	1980	1981	1982	1983	1984	1985	1986	1987
Nondurable goods									
Food and kindred products:									
Total cases	19.9	18.7	17.8	16.7	16.5	16.7	16.7	16.5	17.7
Lost workday cases	9.5	9.0	8.6	8.0	7.9	8.1	8.1	8.0	8.6
Lost workdays	141.8	136.8	130.7	129.3	131.2	131.6	138.0	137.8	153.7
Tobacco manufacturing:									
Total cases	9.3	8.1	8.2	7.2	6.5	7.7	7.3	6.7	8.6
Lost workday cases	4.2	3.8	3.9	3.2	3.0	3.2	3.0	2.5	2.5
Lost workdays	64.8	45.8	56.8	44.6	42.8	51.7	51.7	45.6	46.4
Textile mill products:									
Total cases	9.7	9.1	8.8	7.6	7.4	8.0	7.5	7.8	9.0
Lost workday cases	3.4	3.3	3.2	2.8	2.8	3.0	3.0	3.1	3.6
Lost workdays	61.3	62.8	59.2	53.8	51.4	54.0	57.4	59.3	65.9
Apparel and other textile products:									
Total cases	6.5	6.4	6.3	6.0	6.4	6.7	6.7	6.7	7.4
Lost workday cases	2.2	2.2	2.2	2.1	2.4	2.5	2.6	2.7	3.1
Lost workdays	34.1	34.9	35.0	36.4	40.6	40.9	44.1	49.4	59.5
Paper and allied products:									
Total cases	13.5	12.7	11.6	10.6	10.0	10.4	10.2	10.5	12.8
Lost workday cases	6.0	5.8	5.4	4.9	4.5	4.7	4.7	4.7	5.8
Lost workdays	108.4	112.3	103.6	99.1	90.3	93.8	94.6	99.5	122.3
Printing and publishing:									
Total cases	7.1	6.9	6.7	6.6	6.6	6.5	6.3	6.5	6.7
Lost workday cases	3.1	3.1	3.0	2.8	2.9	2.9	2.9	2.9	3.1
Lost workdays	45.1	46.5	47.4	45.7	44.6	46.0	49.2	50.8	55.1
Chemicals and allied products:									
Total cases	7.7	6.8	6.6	5.7	5.5	5.3	5.1	6.3	7.0
Lost workday cases	3.5	3.1	3.0	2.5	2.5	2.4	2.3	2.7	3.1
Lost workdays	54.9	50.3	48.1	39.4	42.3	40.8	38.8	49.4	58.8
Petroleum and coal products:									
Total cases	7.7	7.2	6.7	5.3	5.5	5.1	5.1	7.1	7.3
Lost workday cases	3.6	3.5	2.9	2.5	2.4	2.4	2.4	3.2	3.1
Lost workdays	62.0	59.1	51.2	46.4	46.8	53.5	49.9	67.5	65.9
Rubber and miscellaneous plastics products:									
Total cases	17.1	15.5	14.6	12.7	13.0	13.6	13.4	14.0	15.9
Lost workday cases	8.2	7.4	7.2	6.0	6.2	6.4	6.3	6.6	7.6
Lost workdays	127.1	118.6	117.4	100.9	101.4	104.3	107.4	118.2	130.8
Leather and leather products:									
Total cases	11.5	11.7	11.5	9.9	10.0	10.5	10.3	10.5	12.4
Lost workday cases	4.9	5.0	5.1	4.5	4.4	4.7	4.6	4.8	5.8
Lost workdays	76.2	82.7	82.6	86.5	87.3	94.4	88.3	83.4	114.5
Transportation and public utilities									
Total cases	10.0	9.4	9.0	8.5	8.2	8.8	8.6	8.2	8.4
Lost workday cases	5.9	5.5	5.3	4.9	4.7	5.2	5.0	4.8	4.9
Lost workdays	107.0	104.5	100.6	96.7	94.9	105.1	107.1	102.1	108.1
Wholesale and retail trade									
Total cases	8.0	7.4	7.3	7.2	7.2	7.4	7.4	7.7	7.7
Lost workday cases	3.4	3.2	3.1	3.1	3.1	3.3	3.2	3.3	3.4
Lost workdays	49.0	48.7	45.3	45.5	47.8	50.5	50.7	54.0	56.1
Wholesale trade:									
Total cases	8.8	8.2	7.7	7.1	7.0	7.2	7.2	7.2	7.4
Lost workday cases	4.1	3.9	3.6	3.4	3.2	3.5	3.5	3.6	3.7
Lost workdays	59.1	58.2	54.7	52.1	50.6	55.5	59.8	62.5	64.0
Retail trade:									
Total cases	7.7	7.1	7.1	7.2	7.3	7.5	7.5	7.8	7.8
Lost workday cases	3.1	2.9	2.9	2.9	3.0	3.2	3.1	3.2	3.3
Lost workdays	44.7	44.5	41.1	42.6	46.7	48.4	47.0	50.5	52.9
Finance, insurance, and real estate									
Total cases	2.1	2.0	1.9	2.0	2.0	1.9	2.0	2.0	2.0
Lost workday cases	.9	.8	.8	.9	.9	.9	.9	.9	.9
Lost workdays	13.3	12.2	11.6	13.2	12.8	13.6	15.4	17.1	14.3
Services									
Total cases	5.5	5.2	5.0	4.9	5.1	5.2	5.4	5.3	5.5
Lost workday cases	2.5	2.3	2.3	2.3	2.4	2.5	2.6	2.5	2.7
Lost workdays	38.1	35.8	35.9	35.8	37.0	41.1	45.4	43.0	45.8

[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.

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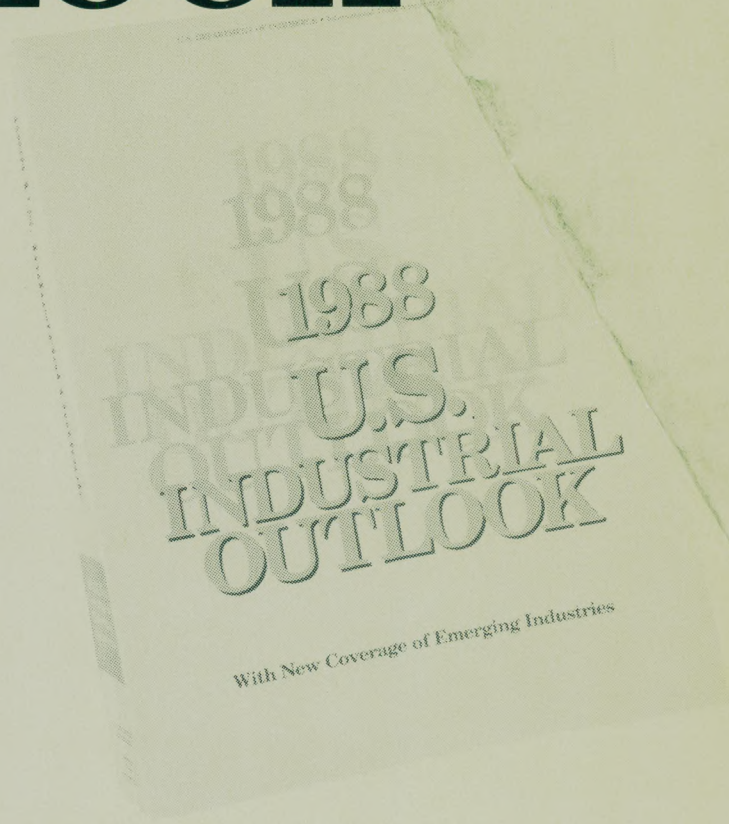
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