

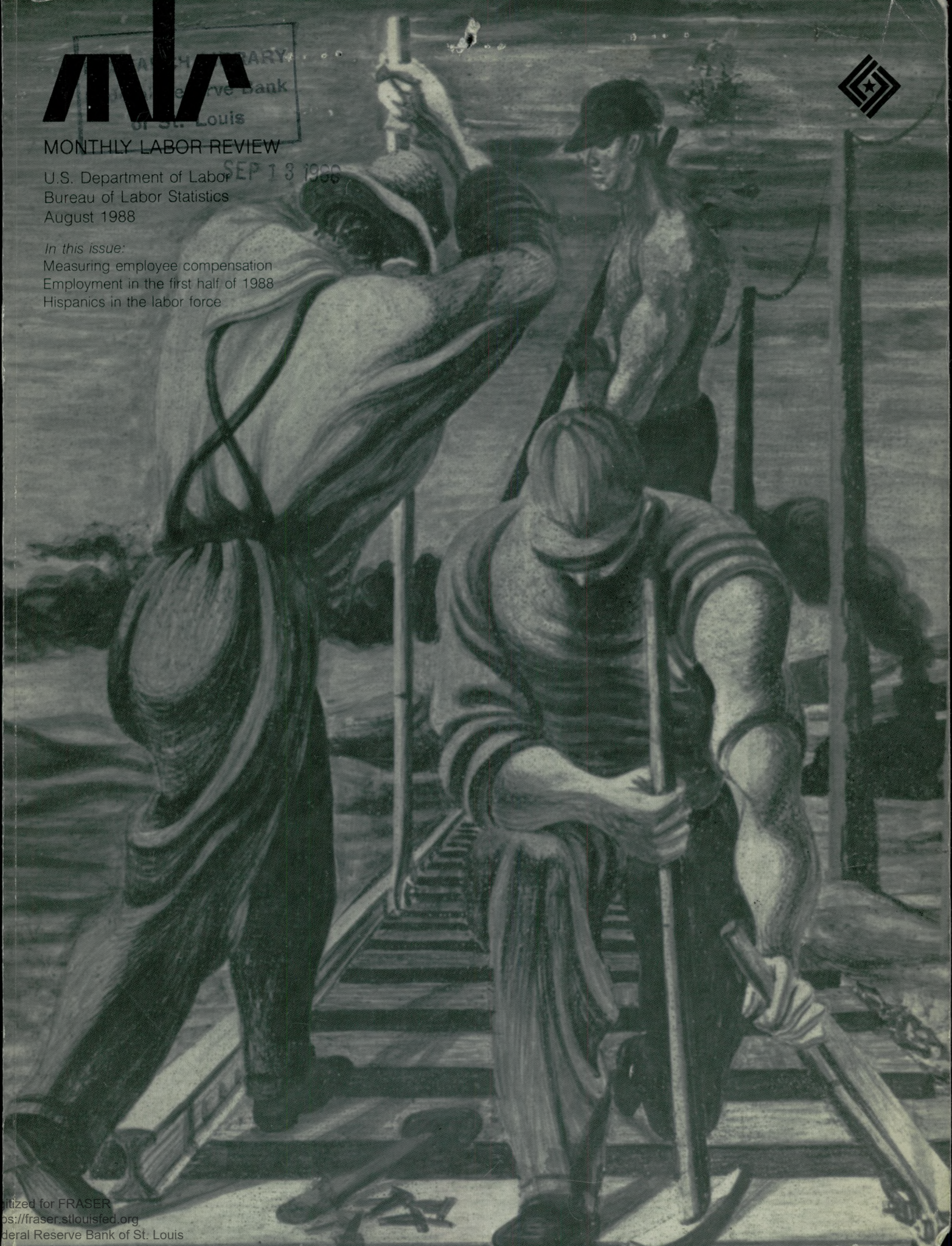


MONTHLY LABOR REVIEW

U.S. Department of Labor
Bureau of Labor Statistics
August 1988

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Measuring employee compensation
Employment in the first half of 1988
Hispanics in the labor force

SEP 13 1988





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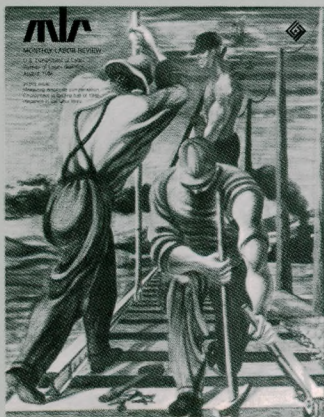
BUREAU OF LABOR STATISTICS
Janet L. Norwood, Commissioner

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MONTHLY LABOR REVIEW

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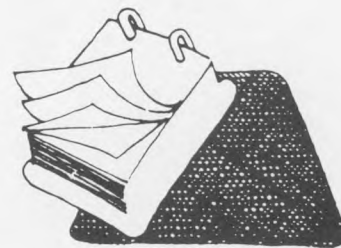
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Labor Month In Review



PENSION PORTABILITY. The Pension and Welfare Benefits Administration of the U.S. Department of Labor reported to Congress on a study examining potential losses of pension benefits when private sector employees move from one pension plan to another. The study identifies three major causes of such portability losses: (1) a worker's failure to vest in a nonforfeitable pension benefit; (2) certain pension plan design characteristics; and (3) pre-retirement consumption of plan distributions. Here are highlights from testimony by David M. Walker, assistant secretary for pension and welfare benefits, describing the Hay/Huggins Associates study to a House Ways and Means subcommittee:

Types of losses. Portability losses are incurred by 59 percent of workers, principally shorter-service workers, who are covered under defined benefit pension plans. In defined benefit plans, benefits are often tied to salaries or dollar amounts that increase over time (for workers who remain on the job); thus, workers can lose a substantial portion of their prospective benefits if they leave the plan before retirement.

Among those covered workers experiencing some portability loss, the average loss was 23 percent of the single career benefit. Of these workers, 8 percent had losses of less than 10 percent of the single career benefit, while 11 percent had losses of 40 to 49 percent of the single career benefit. Although portability losses above 50 percent are possible for unusual mobility and coverage patterns, losses of such magnitude are infrequent. Under most defined benefit pension plans, as much as 50 percent of a worker's benefit is earned in the 10 years prior to reaching eligibility for retirement. Thus, nearly half of a

worker's retirement benefit is likely to be provided by the last employer.

The remaining 41 percent of workers stay with the same employer for 35 years or more, or are covered by defined contribution plans during their entire career. As a result, they experience little or no portability losses. Under a defined contribution plan, the employer, and often the worker as well, contributes to the pension plan each year an amount based on a formula (for example, based on salary or profits). Contributions are held in an account in the worker's name and investment earnings on the account balance are credited to the worker's account. So long as the account balance is vested, there should be no portability loss from a defined contribution plan. The entire account balance and all past and future earnings should accumulate to provide retirement income for the worker even if the worker changes jobs.

Reducing losses. The study indicates that at least 75 percent of all portability losses are the result of design characteristics of defined benefit plans. Indexing vested benefits to inflation could eliminate up to two-thirds of total portability losses. Indexing to general wage growth would not only largely eliminate portability losses for most workers, but in some cases would produce portability windfalls. In other words, it is possible that under certain circumstances employees who changed jobs frequently could earn greater total benefits than a worker who stayed with a single employer.

Similarly, a requirement that employers credit all service under preceding plans (offsetting the benefit received from those plans) would effectively eliminate portability losses. This approach, like others that significantly reduce portability losses from

defined benefit plans, would be very costly to employers. This could add a significant barrier to hiring older workers.

Preserving benefits. The study also estimates the impact of pre-retirement involuntary cash-outs (in which a plan would pay an employee a lump-sum benefit when the value of his or her pension benefit is less than a given amount) currently less than \$3,500, as well as the pre-retirement elective cash-outs of amounts in excess of \$3,500. It found that involuntary cash-outs of amounts less than \$3,500 generally represent a small portion of total career benefits. Therefore, mandatory rollover of such amounts into an IRA or another plan would have only marginal effects on average portability losses, on the order of a 1-percentage point decrease. We do not know the precise proportion of workers actually exercising their options to receive benefits in the form of a lump sum, nor their likelihood to consume rather than save such cash-outs. Data from the Current Population Survey, now being collected, will soon provide us with better information about actual behavior. The results will also, for the first time, provide us with data regarding the degree to which cash-out behavior may have begun to change in response to the Tax Reform Act of 1986.

Currently, roughly 1 in 4 workers is covered by a primary pension plan that permits a full cash-out of benefits in excess of \$3,500 at separation prior to retirement (an estimated 10 percent of defined benefit plans and 81 percent of defined contribution plans).

The study, "The Effect of Job Mobility on Pension Benefits," is available from the National Technical Information Service, NTIS No. PB88232194 at \$19.95 plus \$3.00 for handling, (202) 487-4600. □

Measuring the cost and incidence of employee benefits

Demographic, social, and economic changes and employer cost-cutting efforts are combining to produce new, more flexible, more integrated benefits—which are more difficult to measure

JANET L. NORWOOD

Employee compensation has changed dramatically in recent years. As inflation has decelerated and industry has undergone restructuring, wage and salary increases have moderated. Increases in the employer cost of benefits also have slowed, but discussion about the range of benefits offered to workers has picked up significantly.¹

The generation of workers born after World War II now accounts for a substantial proportion of the labor force. Like their working parents, these workers are concerned about rising health care costs, job security, and future retirement income. In addition, more women than ever before in our history have entered the labor force, many of them mothers of small children. This development has focused national attention on the interaction of work and the family. The combination of these demographic, social, and economic changes has resulted in a reexamination of employee compensation, which now encompasses a number of emerging benefits.

As a result, the measurement of total compensation to workers has become not only more important but also more difficult. This article discusses some of the problems

in measuring the incidence and employer costs of benefits which are becoming more flexible, increasingly more integrated, and innovative at a time when employer cost-cutting initiatives are gaining momentum.

Two BLS surveys

The Bureau of Labor Statistics measures benefits by (1) obtaining the cost to the employer of providing them and (2) describing the details of the plans.²

BLS measures employer costs through the Employment Cost Index, a quarterly survey of employers that tracks the change in the cost to employers of compensation for their employees. The Employment Cost Index is a base-weighted index which shows the change in the cost to the employer of a market basket of occupations from a base period to the present. In constructing the index, BLS asks its data collectors to gather information on wages and salaries and on about two dozen types of employee benefits. In October 1987, BLS began publishing—in addition to indexes and percent changes—the dollar cost per hour worked of each of these elements of compensation.³ BLS measures employee benefits provisions through an annual Employee Benefits Survey, which provides such details as the prevalence of various health insurance deductibles, pension benefit formulas, and vacation accrual rates.

Janet L. Norwood is Commissioner of Labor Statistics. This article is drawn from a paper presented at the annual meeting of the Industrial Relations Research Association, December 28, 1987, Chicago, IL. Jordan Pfuntner of the Office of Compensation and Working Conditions, Bureau of Labor Statistics, provided valuable assistance.

Greater benefit plan flexibility

The needs of a changing work force have led to greater interest in flexible benefits plans, which permit workers to choose among different types of benefits and benefits options, depending on their family situation. For example, in a two-earner family, both members may not need health insurance, because one is covered by the other's policy. Instead, the worker may select employer-sponsored child care, additional life insurance, or a tax-deferred savings plan.

While such options accommodate the worker, they make benefit plans more complex for the employer to administer and complicate data collection. Instead of gathering information on a single health insurance plan covering all workers, it may be necessary to collect data for several plans, as well as for options within plans. Surveys like the Employment Cost Index and the Employee Benefits Survey, which measure employer cost or plan details for all the plans that cover workers, require more comprehensive information from the employer than would otherwise be the case.

Employee choice in selecting different types or levels of coverage sharpens the contrast between measures of worker participation and eligibility. In a flexible benefits plan, most employees will be eligible for all plans and options, but no one employee will be able to participate in all of them. Thus, when the plan provisions surveyed differ, as they nearly always do, participant counts will understate the proportion of employees offered a particular benefit provision. If employee choice becomes more prevalent, the gap between the number of eligible and participating employees will widen. For certain needs, such as gauging the number of workers with access to employer-financed health insurance, a count of eligibles may be more important than a count of participants. However, counts of eligible workers will overstate availability if participants cannot choose all benefits. To present the full picture, therefore, surveys of benefit provisions may require information on eligibility as well as participation.

Even in the absence of flexible benefits plans, the rise of alternatives to traditional fee-for-service health plans will continue to increase the options available to employees. As health maintenance organizations and preferred provider organizations proliferate, employees in more and more localities will be given a wider choice of health care plans.

Leave banks are a related development. These plans combine several forms of paid leave—for example, vacations, sick leave, and personal leave—into one overall leave category. By relaxing restrictions on the purposes for which leave may be used, these plans give employees more flexibility in arranging vacations, coping with personal emergencies, and managing other planned or

unplanned needs. But this flexibility makes it difficult or impossible to classify leave by type of plan. For example, questions like how much sick leave is available to cover disabilities due to childbirth are increasingly difficult to answer. One solution is to establish a separate classification for leave banks, but then data users must be warned that the prevalence and level of other types of paid leave are understated.

A similar practice, found primarily in public school districts, is the establishment of sick leave banks. These plans typically call for employees to donate a day or two of sick leave each year into a "bank." The bank can then be drawn upon by employees who have exhausted their sick leave due to lengthy illnesses or incapacitation. For employees under these plans, the regular sick leave provision overstates the accrual rate (because employees donate some leave) but understates the potential benefit. This, of course, adds a degree of complexity to the analysis and interpretation of sick leave data.

Integration of related benefits

Another trend that complicates measurement is the move to integrate benefit plans or programs. For example, to curb health care costs, plan sponsors are looking at programs designed to encourage healthier life styles (wellness programs) or to prevent personal problems from developing into catastrophic emergencies (assistance programs). Some employers are beginning to integrate these programs with their health care plans by linking plan provisions. An example of this is the practice of coordinating health insurance coverage of mental health care with services provided through an employee assistance program. Another example is that of physical examinations provided through an employee wellness program, rather than through health insurance plans. A related practice, for retirement plans, is found in "ad hoc" benefit increases to those on pensions. The increases are, in effect, benefits provided outside the plan.

These interrelationships have important consequences for benefits measures. Health insurance tabulations, for example, will understate both the coverage of physical examinations and the costs for health insurance if wellness programs are not accounted for.

The 1986 Employee Benefits Survey of medium and large firms showed that only 3 percent of pension plan participants were in plans with automatic cost-of-living increases. But 35 percent were in plans that had granted one or more "ad hoc" increases from 1981 to 1985. In this case, examining only provisions for automatic increases within the plan would have substantially underestimated the prevalence of post-retirement increases. To gather this information, however, we must ask our survey respondents additional questions, which increase data collection time and expense.

Continuation of these trends suggests that surveys will increasingly have to integrate data from related plans. Counting procedures also will have to be adapted to these new circumstances. The joint effect of this trend and the movement towards greater flexibility may create very complex data collection and compilation situations. For example, if employees have a choice of several health insurance plans coordinated with a wellness program and an assistance program, a large number of permutations could result. At the Bureau, we may have to rethink our counting methods. A mixture of participation and eligibility counts may be needed to illuminate these potentially complex relationships in the Employee Benefits Survey. In the Employment Cost Index, greater integration will undoubtedly make it difficult to measure benefit costs separately.

Less dramatic, but nonetheless important, issues have been raised by the creativity shown in defined contribution plan design. For a number of reasons, from cost control to fostering employee commitment to corporate goals, employers have mixed and matched savings, stock, and profit-sharing features into a variety of hybrid plans. How does one classify a plan that combines the characteristics of all three plan types with a pretax 401(k) provision? Is it one plan or three plans? If it is one plan, which type is it? Classification issues are not simply a problem for the surveyor of employee benefits; such issues also complicate the user's job in interpreting the data.

Cost control

The pressure on employers to curb rising benefit costs has made the 1980's a fertile period for innovative plan design. Simply keeping up with developments has been one of the greatest challenges in measuring employee benefits. But some of the developments spurred by cost control pose critical questions that will affect benefit measurement over the next few years. These questions range from how we analyze specific types of plans to what is a benefit and what is a form of pay.

Differing rates of reimbursement. The increasing use of cost containment techniques in health insurance plans has significant consequences for the way benefit provisions are analyzed. To encourage the use of certain medical services, while discouraging the use of others, health plans are increasingly applying different rates of reimbursement for medical services. The traditional major medical patterns (for example, 80 percent payment of covered services after satisfaction of a \$100 deductible) are being replaced by finely tuned reimbursement programs. Hospital room and board, physicians' visits, inpatient surgical fees, and outpatient surgical fees may all be reimbursed at different levels. As plan design becomes more finely tuned, so too must the analysis of plan provisions. Rather

than being examined in groups, each type of medical service must be analyzed separately. This movement from a paradigmatic to an atomized view of medical services increases the time and cost of data compilation, as well as the number and complexity of the tabulations required to describe plan provisions.

Contingent pay systems

Employers also have sought to control increasing compensation costs by altering the mix of variable to fixed costs. Boosting the ratio of variable to fixed compensation, in theory, will give employers more flexibility in adapting to changing economic conditions. Contingent pay systems, which make a portion of pay dependent upon such variables as performance or profitability, have decreased the importance of base salary or wages. This, in turn, increases the complexity of the computations used to cost out benefits. Computational procedures that were automatic a few years ago in the Employment Cost Index are no longer routine. As the role of hours worked and the hourly wage has a smaller weight in determining gross pay, an increasing number of customized calculations are required for benefits. This, of course, has implications for our current and future computer systems.

Lump-sum payments. Specific types of contingent pay and benefits raise other issues. Lump-sum payments granted in lieu of wage increases are increasingly common in collective bargaining settlements, while "at risk" pay has received much attention in compensation programs for salaried workers. These practices pose definitional issues. Lump-sum payments, for example, share many of the characteristics of both wages and benefits. In our surveys, we have identified these payments as one of several types to be collected with nonproduction bonuses, which are classified as benefits. The line, too, between profit-sharing plans and the new types of bonuses and pay based on profitability is becoming harder and harder to draw. These developments have caused the Bureau to embark on a thorough review of the concepts of compensation, wages, and benefits.

Stock options. Some forms of contingent compensation pose special measurement problems. Stock options, for example, are usually provided only to executives. While the overall incidence may be low, making it difficult to obtain reliable estimates, the benefit can be a substantial part of compensation to those who receive it. Stock options also pose measurement issues because it is difficult to determine the value of the options before they are exercised. Valuation methods for stock plans are currently under study as part of a comprehensive review of the Employment Cost Index.

Contributory plans. It is unclear whether the more rapid growth of defined contribution plans compared to defined benefit plans is a movement towards variable rather than fixed payments. But some plan sponsors have adopted defined contribution plans as a way of gaining more control, or at least predictability, over costs. Together with the development of salary reduction provisions, the growth of defined contribution plans can be viewed as involving more employee participation in plan funding. This occurs either directly through employee contributions or indirectly by linking employer contributions to profitability.

Salary reduction plans present definitional questions stemming from the employee involvement. Are amounts deferred by employees in 401(k) plans best classified as part of salary or as an employer-funded benefit? At the Bureau, we have considered these amounts to be pay. Flexible spending or reimbursement accounts, another form of salary reduction plan, muddy the waters even further. These accounts, which often accompany flexible benefits plans, are usually funded by both employer money and employee pretax contributions. In these circumstances, it is not only difficult to separate pay from benefits, but it is hard to tell whether money is coming from the employer or from the employee. For example, who pays for additional life insurance coverage if the employee's share of the premium is paid out of a jointly funded reimbursement account?

Contingent employment. There are signs, too, that the employment relationship itself may be becoming more contingent. Workers may be part time, temporary, leased, or based at home.

Benefits data for temporary and leased workers are obtainable from the temporary help service or leasing firm, but many of those who work through temporary help firms work sporadically, and their benefit programs reflect this. Paid leave, for example, may vary by hours worked, rather than by months or years of service. Other benefits may be provided as a monetary allowance for employees to allocate as they choose rather than as employer-sponsored insurance or retirement plans. Also, many workers are registered with more than one firm and therefore may receive benefits from more than one company.⁴

While these practices are not new, they are in sharp contrast to the traditional programs geared to full-time, permanent employees. Our measures of benefits provisions, especially, were designed for these traditional programs. If the contingent work force grows, our measures will have to be redesigned. What can be handled by a judicious footnote or two today may require a thorough overhaul in 1992.

Work at home. Work at home is another potentially expanding employment practice that could require modifying our traditional methods of measuring benefits. This practice is still relatively rare—a BLS survey found that in 1985 fewer than 770,000 wage and salary employees worked exclusively at home.⁵ But continued advances in communications technology suggest that telecommuting, in which employees work out of their homes and communicate electronically with a central site, could increase in future years. If this were to occur, our current concepts of paid leave and other benefits related to time worked may become irrelevant. In the Employment Cost Index, for example, cents per hour worked is the common denominator to which benefit costs are reduced. For telecommuters, however, it might be difficult to determine hours worked in an establishment-based survey. New collection methods or a new denominator for expressing benefit costs may be needed for these employees. Additionally, work at home includes auxiliary benefits, such as in-house family care, flexible work scheduling, and savings in work-related expenses, that are not usually measured in traditional benefits surveys.

New and emerging benefits

New benefits are emerging in response to changing demographic and social patterns. The rise of two-worker and single-parent families has increased the demand for employer-provided or subsidized child care. It has also focused interest on various kinds of parental and other family leave options. Some experts predict that demand for elder care benefits will intensify as the elderly population grows, especially in a society characterized by households where no one is at home to care for children or elderly parents.

Child care. The issues involved in measuring these socially oriented benefits vary. Child care is a benefit that commands much interest but its measured incidence so far is very low.⁶ With the size of our Employee Benefits Survey samples, our strategy is to publish only prevalence data until the benefit is common enough to warrant publication of details of plan provisions. Consequently, the growth of child care benefits will actually make it easier for us to publish reliable measures of plan provisions. The costing out of child care benefits is a different matter when care is provided in the employer's facilities or by employees of the firm. These problems center on valuing the labor, capital, and other inputs required to provide the benefit.

Maternity leave. Maternity leave poses a unique issue of its own—it is extraordinarily difficult to define. This is because it is closely related to other forms of leave, such as sick leave, sickness and accident insurance, vacations, and personal leave. Maternity leave, *per se*, is only part of the

picture, because these other forms of leave are nearly always available to (and in some cases legally mandated for) pregnant employees. Thus, in addition to being hard to separate from other types of leave, it involves many of the issues posed by integrated benefits discussed earlier.

Elder care. Elder care is so new that no definite patterns have emerged. If it grows and takes the form of paid or unpaid leave for employees who must care for their parents, it will involve many of the same issues as maternity leave. If it develops to include day care benefits, it will be similar to child care. And, if it evolves to provide medical care, it may pose some of the issues associated with retiree health insurance.

Retiree benefits. Retiree health insurance is not a new benefit, but the aging of the American population has given it new prominence.⁷ Concern in recent years over the long-term funding of the Medicare program and over the unfunded liabilities of employers for promised benefits has intensified this attention. Some experts assert that the availability of health coverage after retirement can be viewed, like a pension, as a potential benefit to active workers. But retiree benefits pose serious questions, particularly for measures of benefit costs. How should the cost of retiree insurance be allocated to current employees in the Employment Cost Index? Further, how should the costs be determined—as accruals over the active service of current employees, as expenses when paid, or some other approach? Certainly, the deliberations of the Financial Accounting Standards Board on these issues will be important to us in exploring alternatives.

Differing measurement approaches

The key point here is that each of these emerging or newly prominent benefits possesses unique characteristics that pose different measurement issues. In isolation, no one of these issues will significantly complicate survey design. In combination, however, they are bound to complicate a survey process already replete with special situations.

One approach is to augment our traditional employer surveys with other methods of data collection. For example, household surveys are an appropriate source of information on certain kinds of employee benefits. The Bureau has on occasion used supplements to the Current Population Survey—our monthly household survey that measures employment and unemployment—to develop some specific data on benefit coverage of household members. A special survey of displaced workers obtained information on whether workers had been covered by health insurance on the job they lost and whether they were currently covered either through a new job or through the job of a family member.⁸ This sort of

information is best obtained through a household survey, and we plan to use this approach when we can. This year, we are using the household survey to inquire about health insurance coverage for retirees.

Because it is often difficult to adjust ongoing surveys to obtain new information on a timely basis, the Bureau has conducted some quick-response employer surveys on new or emerging issues. One that we recently conducted obtained information specifically on the provision of child care benefits. A combination of mail and computer-assisted telephone interviewing assured a satisfactory response rate, and the procedure was able to elicit more detailed information than had been available to date from the traditional benefit survey.

The challenge ahead

All the signs point towards more complex benefits surveys. Survey designs and measurement methods will have to be reevaluated continuously to ensure that they are appropriate to a rapidly changing environment. Interpreting and understanding the data will be a tougher job for data users. More information, too, will be requested from survey respondents.

The issue of respondent burden is a crucial one in benefits survey design: One must continually balance the need for complete, high-quality data against the time and expertise required of survey respondents. Benefits data are supplied to the Bureau on a strictly voluntary basis. Particularly in larger companies, the same officials are contacted several times a year for compensation data. (Respondents are contacted each quarter for Employment Cost Index information.) If survey response rates fall, the quality of the data suffers. To face the demands of the future, new methods such as probability subsampling of particular types of benefits, benefit plans, occupations, or workers, will have to be developed to ease the burden on respondents.

Communicating the data clearly and accurately will also be a challenge. The more interrelated programs become and the more atomized plan design becomes, the greater will be the responsibility of the surveying organization to educate users on how to interpret the data. New and better ways to present the data will have to be found.

As data collection, compilation, and publication become more complex, quality control in all phases of the survey cycle will become even more important than it is today. Quality management will have to be outwardly, as well as inwardly, directed. When the specifications themselves are in flux, it will not be enough to ensure that the system is working according to specifications. More and more resources will have to be devoted to monitoring developments in the field. Survey measuring instruments and computer systems will have to be frequently retooled

to keep current. To keep pace, survey designers will have to prospect for themselves as well as for data users. □

—FOOTNOTES—

¹See Bradley R. Braden, "Increases in employers' benefit costs dampened dramatically in the 1980's," *Monthly Labor Review*, July 1988, pp. 3-7.

²One can also look at benefits from another aspect, the value to the worker, which does not always coincide with employer cost. This, however, has proved to be extremely difficult because a number of variables must be taken into account, many of them related to particular circumstances of the employee. In the case of employer cost, definition is easier, and accounting records to verify the data collected are at hand. Thus far, the only experience that the Bureau has had with value to the worker is limited to projections of pension replacement rates. See

Donald Schmitt, "Today's pension plans: how much do they pay?" *Monthly Labor Review*, December 1985, pp. 19-25.

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

⁴See "BLS Reports on Its First Survey of Pay and Employee Benefits in the Temporary Help Supply Industry," *USD L NEWS*, 88-260, May 24, 1988.

⁵See Francis W. Horvath, "Work at home: new findings from the Current Population Survey," *Monthly Labor Review*, November 1986, p. 31.

⁶See "BLS Reports on Employer Child Care Practices," *USD L NEWS*, 88-7, Jan. 15, 1988.

⁷See "Employer-sponsored health insurance for retirees: the need and the cost," *Monthly Labor Review*, May 1987, p. 38.

⁸See Michael Podgursky and Paul Swaim, "Health insurance loss: the case of the displaced worker," *Monthly Labor Review*, April 1987, pp. 30-33.

Waite and Herriot awarded Shiskin prize

Charles A. Waite and Roger A. Herriot, of the Bureau of the Census, received the ninth annual Julius Shiskin Award for Economic Statistics. Waite, Associate Director for Economic Programs, received the award for "his original and important contributions" to the Bureau of Economic Analysis and the Bureau of the Census. Herriot, Senior Demographic and Housing Analyst, received the honor for "his innovative work in improving income statistics." The presentation was made at the Washington Statistical Society's annual dinner in June, along with an honorarium of \$250. The award is named in honor of the ninth U.S. Commissioner of Labor Statistics.

The award program is designed to honor unusually original and important contributions in the development of economic statistics or in the use of economic statistics in interpreting the economy. Participating organizations in the program are the Bureau of Labor Statistics, Bureau of the Census, Bureau of Economic Analysis, Office of Management and Budget, National Bureau of Economic Research, National Association of Business Economists, and the Washington Statistical Society. The late Commissioner Shiskin was associated with all of these organizations in his long career.

The growing presence of Hispanics in the U.S. work force

Between 1980 and 1987, the number of Hispanic workers rose dramatically, accounting for almost a fifth of the Nation's employment growth; the increase for Hispanic women was especially sharp

PETER CATTAN

One of the outstanding features of the employment expansion during the 1980's has been the rapid growth of Hispanics in the U.S. labor market. This growth has been fueled by a large inflow of Hispanics from Mexico, Central and South America, and the Caribbean. Civil wars, economic problems, and poverty in some of these areas have induced large numbers of workers to migrate to the United States in search of jobs and better opportunities. Combined with the number of Hispanics currently living here, the continuing large inflow has made them the Nation's fastest growing labor force group. Thus, while the non-Hispanic work force rose by 10.4 percent between 1980 and 1987, the number of Hispanic workers increased by 39 percent, reaching 8.5 million in 1987.

In recent years, procedures have been developed which are designed to improve Hispanic population estimates from the Current Population Survey (CPS), the main source of the data in this report. This article is based on these revised data.¹

Although Hispanics made up slightly under 7 percent of total employment, they accounted for almost a fifth of the total increase in the Nation's jobs between 1980 and

1987. In all, Hispanic employment increased by 2.3 million during the period covered. (See table 1.) Mexican-Americans—by far the largest group of Hispanics—were also the fastest-growing group; their employment total rose by nearly 50 percent over the 1980–87 period, as shown in the following tabulation.²

Number in thousands	Change, 1980–87			
	1980	1987	Number	Percent
Total, Hispanic origin ..	5,457	7,790	2,333	43
Mexican	3,175	4,690	1,515	48
Puerto Rican	600	744	144	24
Cuban	409	518	109	27
Other Hispanics	1,273	1,838	565	44

The rate of Hispanic employment growth has been particularly impressive following the onset of the current expansion. Since 1983, Hispanic employment has increased by 28 percent, almost three times the rate for other workers. This resulted from the surge in the Hispanic population noted earlier. To a lesser extent, the sharper pace of Hispanic employment growth also resulted from somewhat greater increases in the percentage of this population that is employed—the employment-population ratio. As shown in the following tabulation, the ratio for Hispanics rose in spurts—by about 5½ percentage points between 1983 and 1987, compared with 3½ points for non-Hispanics. Also, the ratio had declined

Peter Cattan is an economist in the Division of Labor Force Statistics, Bureau of Labor Statistics.

more sharply for Hispanics than for non-Hispanics between 1980 and 1982, a period punctuated by two recessions.

Year	Employment-population ratios		
	Hispanic	Non-Hispanic	Difference
1980	57.6	59.3	-1.7
1981	57.4	59.1	-1.7
1982	54.9	58.0	-3.1
1983	55.1	58.1	-3.0
1984	57.9	59.6	-1.7
1985	57.8	60.3	-2.5
1986	58.5	60.9	-2.4
1987	60.5	61.6	-1.1

For both groups, much of the post-recession increase in employment-population ratios restored recession-induced declines. However, despite the greater increase in the ratio for Hispanics since 1983, the proportion of those who are

employed continues to be below that for other workers.

The dramatic increase in Hispanic employment is expected to continue for many years. According to BLS projections, the Hispanic civilian labor force will grow by 74 percent between 1986 and the end of the century, outdistancing other labor force subgroups. Projections indicate that by the year 2000, Hispanics will make up 10 percent of the Nation's labor force, up from 7 percent in 1986. This is expected to occur because of continued sharp population growth as well as increases in the percent of Hispanics in the work force.³

Employment growth by sex

Women. The continued sharp growth in employment among all women in this country has been well documented.⁴ Hispanic women have shown the most rapid gains. Paced by sharp population growth, their employment levels have shown an increase of almost 50 percent since 1980, about $2\frac{1}{2}$ times the rate for other women. (See

Table 1. Civilian noninstitutional population and employment by Hispanic origin, age, and sex, annual averages and change, 1980-87

(Numbers in thousands)

Population, employment, age, and sex	Hispanic				Non-Hispanic			
	1980	1987	Change, 1980-87		1980	1987	Change, 1980-87	
			Level	Percent			Level	Percent
Population								
Total, 16 years and older	9,598	12,867	3,269	34.1	158,148	169,885	11,739	7.4
16 to 19	1,281	1,332	51	4.0	15,262	13,274	-1,988	-13.0
20 to 24	1,564	1,910	346	22.1	19,072	17,061	-2,011	-10.5
25 to 44	4,083	6,178	2,095	51.3	58,052	69,873	11,821	20.4
45 and older	2,670	3,448	778	29.1	65,763	69,678	3,915	6.0
Men, 16 years and older	4,689	6,371	1,682	35.9	74,709	80,528	5,819	7.8
16 to 19	653	671	18	2.8	7,607	6,664	-943	-12.4
20 to 24	792	985	193	24.4	9,231	8,210	-1,021	-11.1
25 to 44	2,005	3,130	1,125	56.1	28,228	34,126	5,898	20.9
45 and older	1,238	1,586	348	28.1	29,644	31,528	1,884	6.4
Women, 16 years and older	4,909	6,496	1,587	32.3	83,439	89,357	5,918	7.1
16 to 19	628	661	33	5.3	7,655	6,610	-1,045	-13.7
20 to 24	771	925	154	20.0	9,841	8,851	-990	-10.1
25 to 44	2,078	3,048	970	46.7	29,824	35,747	5,923	19.9
45 and older	1,432	1,862	430	30.0	36,119	38,150	2,031	5.6
Employment								
Total, 16 years and older	5,527	7,790	2,263	40.9	93,776	104,651	10,874	11.6
16 to 19	500	474	-26	-5.2	7,211	6,167	-1,045	-14.5
20 to 24	998	1,273	275	27.6	13,089	12,251	-838	-6.4
25 to 44	2,749	4,444	1,695	61.7	43,976	55,839	11,863	27.0
45 and older	1,280	1,599	319	24.9	29,500	30,393	893	3.0
Men, 16 years and older	3,448	4,713	1,265	36.7	53,738	57,394	3,656	6.8
16 to 19	306	268	-38	-12.4	3,779	3,113	-666	-17.6
20 to 24	611	777	166	27.2	6,921	6,281	-640	-9.2
25 to 44	1,727	2,708	981	56.8	25,460	30,677	5,217	20.5
45 and older	803	959	156	19.4	17,579	17,323	-256	-1.5
Women, 16 years and older	2,079	3,077	998	48.0	40,038	47,257	7,219	18.0
16 to 19	193	206	13	6.7	3,432	3,054	-378	-11.0
20 to 24	387	496	109	28.2	6,168	5,970	-198	-3.2
25 to 44	1,022	1,736	714	69.9	18,516	25,162	6,646	35.9
45 and older	478	640	162	33.9	11,921	13,070	1,149	9.6

table 2.) In addition, the proportion of Hispanic women who were employed has increased faster than that of non-Hispanic women since 1983. As indicated in the following tabulation, employment-population ratios for Hispanic women rebounded from a low of 41 percent in 1983, rising to more than 47 percent in 1987. Hispanic women have historically been less likely to be employed than other women, and their employment-population ratio is still relatively low.

Year	Hispanic	Non-Hispanic	Difference
1980	42.4	48.0	-5.6
1981	43.0	48.3	-5.3
1982	41.3	48.1	-6.8
1983	41.1	48.5	-7.4
1984	44.2	49.8	-5.6
1985	43.8	50.9	-7.1
1986	44.7	51.9	-7.2
1987	47.4	52.9	-5.5

Some analysts emphasize cultural differences in sex-role attitudes to explain why Hispanic women have traditionally had lower likelihoods of employment.⁵ In an empirical examination of this view, Vilma Ortiz and Rosemary Santana Cooney find that differences in educational attainments are more important determinants of ethnic differences in labor force participation than traditional attitudes toward women's role in the labor force.⁶ Data from the March 1987 CPS confirm that ethnic differences in educational attainment need to be taken into account. As the following tabulation shows, Hispanic women 25 years and older are much less likely than other women to complete high school—a major determinant of employability. Indeed, among women with similar levels of schooling, Hispanics are *more* likely to work than their counterparts.⁷

	Hispanic	Non-Hispanic
Total	100	100
Less than 4 years of high school	50	23
4 years of high school	30	42
1 year or more of college	20	35

	Non-Hispanic	Hispanic	Difference
Less than 4 years of high school	30.5	24.7	5.8
4 years of high school	58.9	53.4	5.5
1 year or more of college	71.6	66.7	4.9

Men. Although the rate of job growth for Hispanic men during the 1980's was somewhat less than that of Hispanic women, it was sharply higher than that of non-Hispanic men. Even during the 1981-83 period when the employment of non-Hispanic men declined, employment of Hispanic men rose moderately, solely on the strength of population growth.

As the following tabulation shows, the trends in employment-population ratios between 1980 and 1987 have been similar for both Hispanic and non-Hispanic men. The percentages employed declined during the recessionary period of the early 1980's, but ratios for both groups continued to rise during the subsequent 5 years, as the upturn in the business cycle provided increased employment opportunities. To a lesser extent, demographics also may have been a factor behind the increase in proportions working. For example, during the past 5 years, a portion of the baby boom generation entered age categories with higher rates of labor force participation.

Year	Hispanic	Non-Hispanic	Difference
1980	73.5	71.9	1.6
1981	72.4	71.2	1.2
1982	68.9	69.0	-.1
1983	69.4	68.8	.6
1984	72.1	70.6	1.5
1985	72.1	70.8	1.3
1986	72.5	70.9	1.6
1987	74.0	71.3	2.7

The rise in the employment-population ratios of all working-age men during the most recent expansionary period occurred during a long-term decline. For more than 30 years, their employment-population ratio has been declining slowly but steadily, primarily because of earlier retirement among older men. In 1987, the ratio was 10 percentage points below those which prevailed in the late 1940's.⁸ Thus, the recent rise in the ratios for men only represents a return to 1980 rates and not a reversal of the secular trend.

The employment-population ratio for Hispanic men in 1987 was 74 percent, almost 3 points higher than for non-Hispanic men. As shown below, this is due, in part, to the fact that two-thirds of all working-age Hispanic men are 20 to 44 years old and are thus more concentrated than non-Hispanics in the age categories where labor force participation is at its highest.

The ratios for Hispanic men were higher than those of non-Hispanic men for two age groups: 20- to 24-year-olds and those age 45 and older. The ethnic differential for the younger age group may be due to the higher likelihood of enrollment of non-Hispanics in college, while the differen-

Table 2. Change in civilian noninstitutional population and employment by Hispanic origin and sex, 16 years and over, annual averages, 1980-87

Year	Change in population				Change in employment			
	Hispanic		Non-Hispanic		Hispanic		Non-Hispanic	
	Level (in thousands)	Percent	Level (in thousands)	Percent	Level (in thousands)	Percent	Level (in thousands)	Percent
Total								
1980 to 1987	3,269	34.1	11,739	7.4	2,263	40.9	10,874	11.6
1980-1981	522	5.4	1,863	1.2	286	5.2	808	.9
1981-1982	460	4.5	1,681	1.1	-8	-.1	-863	-.9
1982-1983	449	4.2	1,495	.9	267	4.6	1,041	1.1
1983-1984	449	4.1	1,719	1.1	579	9.5	3,592	3.8
1984-1985	437	3.8	1,386	.8	237	3.6	1,908	1.9
1985-1986	429	3.6	1,952	1.2	331	4.8	2,116	2.1
1986-1987	523	4.2	1,643	1.0	571	7.9	2,272	2.2
Men								
1980 to 1987	1,682	35.9	5,819	7.8	1,265	36.7	3,656	6.8
1980-1981	279	6.0	834	1.1	149	4.3	62	.1
1981-1982	235	4.7	777	1.0	-14	-.4	-1,112	-2.1
1982-1983	229	4.4	779	1.0	188	5.2	328	.6
1983-1984	229	4.2	845	1.1	312	8.3	1,992	3.8
1984-1985	224	4.0	640	.8	162	4.0	638	1.2
1985-1986	221	3.8	1,108	1.4	183	4.3	818	1.5
1986-1987	265	4.3	836	1.0	285	6.4	930	1.6
Women								
1980 to 1987	1,587	32.3	5,918	7.1	998	48.0	7,219	18.0
1980-1981	242	4.9	1,028	1.2	137	6.6	746	1.9
1981-1982	226	4.4	904	1.1	6	.3	250	.6
1982-1983	220	4.1	716	.8	79	3.6	712	1.7
1983-1984	219	3.9	875	1.0	267	11.6	1,601	3.8
1984-1985	213	3.7	745	.9	74	2.9	1,270	2.9
1985-1986	209	3.5	844	1.0	149	5.6	1,298	2.9
1986-1987	258	4.1	806	.9	286	10.2	1,342	2.9

tial for older workers may result from the tendency of non-Hispanics to retire younger.

	<i>Employment-population ratio of men, 1987</i>		<i>Percent of the population</i>	
	<i>Hispanic</i>	<i>Non-Hispanic</i>	<i>Hispanic</i>	<i>Non-Hispanic</i>
16 years and older	74.0	71.3	100.0	100.0
16 to 19	39.9	46.7	10.5	8.3
20 to 24	78.9	76.5	15.5	10.2
25 to 44	86.5	89.9	49.1	42.4
45 and older	60.5	54.9	24.9	39.2

Unemployment

Because much of the sharp rise in Hispanic employment since 1983 was accompanied by an increase in the labor force, the decline in the level and rate of unemploy-

ment among Hispanics was in line with that of the rest of the work force over the 1983-87 economic expansion. (See table 3.) Thus, at 8.8 percent in 1987, the Hispanic unemployment rate remained about 1½ times higher than that of the remainder of the population, a ratio that has been remarkably constant throughout the decade. However, the Hispanic rate was below that of black workers, who continue to have the highest jobless rate of any race or ethnic group.⁹

Reasons for the high rates among Hispanics include their relatively low levels of educational attainment; the large numbers who have immigrated to the United States in recent years, and thus their greater likelihood of being labor market entrants;¹⁰ and their concentrations in job categories which are especially vulnerable to business cycle downturns.¹¹ Among the individual Hispanic ethnic groups, Puerto Ricans and Mexicans had the highest jobless rates in 1987—about 10 percent—while the Cuban rate was about 5 percent.

Employment patterns by occupation, 1983-87

Although Hispanic men and women have had some degree of occupational upgrading during the decade, they are still somewhat more likely than the overall work force to be employed in lower skilled, lower paid occupations.¹² As expected, most of the increase in the employment of Hispanic women occurred in mid-level occupations where Hispanic women are predominantly employed—technical, sales, and administrative support—and the generally lower paid service occupations, which together account for three-fifths of the employment of Hispanic women. Another 22 percent of the gain was in higher paid jobs—as managers and professionals—who accounted for only 15 percent of Hispanic women's employment. (See table 4.) In contrast, almost half of the increase in the employment of non-Hispanic women was accounted for by managerial and professional positions, where one fourth of non-Hispanic women are employed. Jobs for both groups of women continue to be concentrated in the technical, sales, and administrative support category.

The occupational improvement among Hispanic men was not as marked. Job growth for Hispanic men was concentrated in occupations requiring intermediate skills—operators, fabricators, and laborers—which accounted for nearly a third of their employment. In contrast, job growth for non-Hispanic men—like that for women—was concentrated in managerial and professional positions, which accounted for more than one fourth of their employment.

Reflecting their concentration in occupations requiring lower levels of training and formal education, Hispanic wage and salary workers employed full time typically earned less than their non-Hispanic counterparts. Hispanic workers averaged \$284 a week in 1987, about three-fourths the earnings of all full-time wage and salary workers. □

Table 3. Unemployment levels and rates by Hispanic origin and sex, 16 years and over, annual averages, 1980-87

Year	Total		Men		Women	
	Hispanic	Non-Hispanic	Hispanic	Non-Hispanic	Hispanic	Non-Hispanic
Unemployment levels (in thousands)						
1980	620	7,017	370	3,897	249	3,121
1981	678	7,595	408	4,169	269	3,427
1982	929	9,749	565	5,614	364	4,135
1983	961	9,756	591	5,669	369	4,088
1984	800	7,739	480	4,264	320	3,474
1985	811	7,501	483	4,038	327	3,464
1986	857	7,380	520	4,010	337	3,370
1987	751	6,674	451	3,650	300	3,024
Unemployment rates						
1980	10.1	7.0	9.7	6.8	10.7	7.2
1981	10.4	7.4	10.2	7.2	10.8	7.8
1982	13.8	9.4	13.6	9.6	14.1	9.2
1983	13.7	9.3	13.6	9.7	13.8	8.9
1984	10.7	7.3	10.5	7.2	11.1	7.4
1985	10.5	7.0	10.2	6.8	11.0	7.2
1986	10.6	6.7	10.5	6.6	10.8	6.8
1987	8.8	6.0	8.7	6.0	8.9	6.0

—FOOTNOTES—

¹Hispanics refers to all persons who identify themselves as of Mexican, Puerto Rican (living on the mainland), Cuban, Central or South American, or of other Hispanic origin or descent. Non-Hispanics is a residual category referring to persons of all other origins or descents.

The Current Population Survey (CPS) is a monthly sample survey of about 125,000 persons in some 60,000 households representing the U.S. working-age population (16 years and over). (Beginning in April 1988, the size of the CPS sample was cut back to 55,800 households.) Conducted for the Bureau of Labor Statistics by the Bureau of the Census, the CPS provides information on the Nation's labor force, employment, and unemployment by economic and demographic characteristics. Beginning in January 1986, the Census Bureau introduced major changes into the independent population estimates used in the weighting procedure for the CPS. The new weights compensate for

Table 4. Occupational employment by Hispanic origin and sex, annual averages, 1983-87

Occupation	Hispanic			Non-Hispanic		
	Percent distribution, 1987	Share of total growth, 1983-87	Percent change, 1983-87	Percent distribution, 1987	Share of total growth, 1983-87	Percent change, 1983-87
Men, 16 years and older	100.0	100.0	25.0	100.0	100.0	8.3
Managerial and professional specialty	12.0	13.8	30.0	25.9	31.8	10.3
Technical, sales, and administrative support	15.7	21.4	37.5	20.3	25.1	10.4
Service occupations	13.9	10.5	17.0	9.2	6.7	5.9
Precision production, craft, and repair	20.5	17.9	21.0	19.9	21.0	8.7
Operators, fabricators, and laborers	29.1	25.4	21.1	20.2	21.2	8.7
Farming, forestry, and fishing	8.9	11.0	33.2	4.4	-5.9	-9.2
Women, 16 years and older	100.0	100.0	33.7	100.0	100.0	13.2
Managerial and professional specialty	14.7	22.2	61.2	25.0	44.5	26.2
Technical, sales, and administrative support	39.9	34.0	27.4	45.5	40.9	11.7
Service occupations	23.3	26.4	40.1	17.8	10.9	7.7
Precision production, craft, and repair	3.7	2.7	22.3	2.2	2.4	14.6
Operators, fabricators, and laborers	16.9	14.4	27.5	8.4	2.1	2.9
Farming, forestry, and fishing	1.5	.1	2.3	1.1	-.7	-7.1

underestimates of illegal immigrants and legal emigrants, and substantially raised the population and employment estimates of Hispanics. Major series (for example, numbers in the population and labor force by sex and age) were revised back to 1980, while more detailed data (for example, employment by occupation) are available in revised form only back to 1986.

For an overview of the recent changes and their effect on the CPS, see Jeffrey Passel, "Changes in the Estimation Procedure in the Current Population Survey Beginning in January 1986," *Employment and Earnings*, February 1986, pp. 7-10. For additional detail on procedures and findings concerning estimates of legal and illegal immigration and emigration, see Robert Warren and Jeffrey Passel, "A Count of the Uncountable: Estimates of Undocumented Aliens Counted in the 1980 United States Census," *Demography*, August 1987, pp. 375-94; and Karen Woodrow, Jeffrey Passel, and Robert Warren, "Recent Immigration to the United States—Legal and Undocumented: Analysis of Data from the June 1986 Current Population Survey," paper presented at the 1987 annual meetings of the Population Association of America, Chicago, IL, Apr. 29-May 2. For an overview of earlier changes in the CPS weights, see Philip Rones, "Revisions in Hispanic population and labor force data," *Monthly Labor Review*, March 1985, pp. 43-44.

²Data by country of origin for 1980 were derived from the 1980 census; 1987 figures are annual averages from the CPS.

³See Howard N Fullerton, Jr., "Labor force projections: 1986 to 2000," *Monthly Labor Review*, September 1987, pp. 19-29.

⁴See Susan E. Shank, "Women and the labor market: the link grows stronger," *Monthly Labor Review*, March 1988, pp. 3-8; Daniel T. Lichter and Janice A. Costanzo, "How do demographic changes affect the labor force participation of women?" *Monthly Labor Review*, November 1987, pp. 23-25; and Howard Hayghe, "Rise in mothers' labor force activity includes those with young children," *Monthly Labor Review*, February 1986, pp. 43-45.

⁵For a critical overview of this perspective, see Vilma Ortiz and Rosemary Santana Cooney, "Sex-Role Attitudes and Labor Force Participation among Young Hispanic Females and Non-Hispanic White Females," *Social Science Quarterly*, June 1984, pp. 392-400.

⁶*Ibid.*

⁷For a similar finding using the 1976 Survey of Income and Education, see George J. Borjas and Marta Tienda, *Hispanics in the U.S. Economy* (Orlando, FL, Academic Press, 1985), p. 8. For additional perspectives on the labor force participation of women, see Marta Tienda and Jennifer Glass, "Household Structure and Labor Force Participa-

tion of Black, Hispanic and White Mothers," *Demography*, August 1985, pp. 381-94; Shelley A. Smith and Marta Tienda, "The Doubly Disadvantaged: Women of Color in the U.S. Labor Force," in Ann Stromberg and Shirley Harkness, eds., *Working Women*, 2d ed. (Palo Alto, CA, Mayfield Publishing Co., 1987); Edna Acosta-Belen, *The Puerto Rican Woman: Perspectives on Culture, History and Society* (New York, Praeger, 1986); and Borjas and Tienda, *Hispanics in the U.S. Economy*, chs. 7 and 8.

⁸For an overview of the employment status of married men (the vast majority of all men in the labor force), see Howard Hayghe and Steven Haugen, "A profile of husbands in today's labor market," *Monthly Labor Review*, October 1987, pp. 12-17.

⁹CPS data on persons of Hispanic origin are tabulated separately without regard to race, which means they are also included in the data for white and black workers.

¹⁰Research has shown that the extent of unemployment among recent immigrants to the United States drops sharply over time, and about a decade after their arrival their unemployment rates are very similar to those of native-born workers. See Ellen Sehgal, "Foreign born in the U.S. labor market: the results of a special survey," *Monthly Labor Review*, July 1985, pp. 18-24.

¹¹As occurred in the 1980's, the Hispanic unemployment rate rose and fell more sharply during the 1970's than that of non-Hispanics. For an analysis of trends in Hispanic unemployment between 1973 and 1984, see Gregory DeFreitas, "A Time-Series Analysis of Hispanic Unemployment," *Journal of Human Resources*, Winter 1986, pp. 24-43.

¹²This analysis of Hispanic occupational employment is limited to the 1983-87 period because of a major revision of the 1980 census occupational classification system which was implemented in the 1983 CPS. See Gloria Peterson Green and others, "Revisions in the Current Population Survey Beginning in January 1983," *Employment and Earnings*, February 1983, pp. 7-15.

Estimates of occupational employment before 1986 were not revised to reflect the changes in weights introduced into the CPS. (See footnote 1.) The analysis presented here uses the original 1983 percent distributions of Hispanic men and women across the major occupational categories. To obtain levels of occupational employment consistent with the revised 1983 data on total employment of Hispanics by sex, the percentages in each occupation were multiplied by the revised totals. The underlying assumption was that if the revised estimation procedures for Hispanic employment levels were to be applied to occupational characteristics, the percentage distributions would not be significantly affected.

Employment and unemployment in the first half of 1988

Unemployment declined to a 14-year low by midyear; job growth slowed in the second quarter, and was not as widespread as in the previous year

RICHARD M. DEVENS, JR.

During the first half of 1988, job growth began to moderate from the rapid pace of 1987, but the civilian unemployment rate, which averaged 5.5 percent in the second quarter, was down considerably from 5.9 percent at the end of last year. In this article, these developments are viewed in the context of the wider economic background and also are compared to conditions at a similar period in recent business cycle history.

The economic context

As 1987 drew to an end, there were signs that the 5-year expansion in employment may have been in some danger of coming to a close. The collapse of stock prices in October 1987 cast a shadow over expectations for short-term economic developments as the new year began. Paced by the decline in stock prices, the Commerce Department's index of leading indicators fell in the last quarter of 1987—its first quarterly decline in more than 3 years. The slippage stopped in the first quarter of the new year, but the leading index was still lower than it was two quarters earlier.

There was a rapid runup in inventories in the last quarter of 1987, and, as firms began to correct that imbalance, inventory investment declined in early 1988.

The Commerce Department's index of coincident indicators, a measure of current economic activity, which had posted strong increases in the last half of 1987, slowed somewhat in the first quarter.

In contrast to these moderating factors, statistics on foreign trade showed that the export push that had fueled rapid gains in manufacturing employment in the last half of 1987 was continuing, and estimates of consumer spending rebounded quickly after dropping at the end of 1987. At the same time, however, imports were also rising, so that there was only slow progress toward a more balanced merchandise trade account.

Individual industries, of course, faced differing economic environments. Manufacturers, especially those with interests in international markets, were helped by a decline in the exchange rate for the dollar. Partly as a result of the rise in exports that the falling dollar encouraged, industrial production and capacity utilization figures remained fairly upbeat throughout the first half of 1988.

As consumer spending paused in the last quarter of 1987, the distribution system, especially at the wholesale level, saw inventory growing faster than sales, and the inventory-to-sales ratio for wholesalers rising sharply. The construction industry faced declining sales as interest rates rose both late in 1987 and in the second quarter of 1988. As a result, housing starts dipped and residential construction spending flattened.

Richard M. Devens, Jr., is an economist in the Division of Labor Force Statistics, Bureau of Labor Statistics.

Employment gains slower in second quarter

None of the worst scenarios for the labor market that had been generated by the financial turbulence of late 1987 came true in the first half of 1988. Unemployment continued to recede, and there was only a slight slowdown in payroll job growth from the rapid rate of 1987.¹ Gains in nonfarm payroll employment were still strong in early 1988, totaling nearly 1 million jobs in the first quarter, before slowing to an 875,000 increase in the second. (See table 1.) Goods-producing employment continued to expand, although at a slower pace than in late 1987, increasing by 375,000 in the first half of 1988. While construction gains were concentrated in the February-April period, they still totaled 170,000. There was, however, no slowdown in factory employment growth; 205,000 jobs were gained in the first half, about the same growth rate as in the previous year. Much of the rise was confined to a few of the industries that have higher than average ratios of exports to shipments, especially machinery and chemicals. The following tabulation shows the growth rate and percent distribution of job gains of selected industries with high ratios of exports to shipments:

Industry	Exports/ shipments ratio, 1987	Job growth, first-half 1988	Share of job growth, first-half 1988
Manufacturing	8.5	1.1	100.0
Machinery	18.9	2.8	28.4
Chemicals	12.0	1.8	9.3
Electrical equipment	10.8	.8	7.8

A measure of the extent to which employment gains are distributed across industries is the index of diffusion—the percentage of 185 private nonagricultural industries in which employment increased over a specified time (with half of nonchanging components counted as rising). During periods of economic growth and job gains, a rise in the index indicates a more broadly based expansion in employment, while a lower figure would indicate a more concentrated pattern of growth.

The monthly index of diffusion averaged 62 percent in the first half of 1988, down 5 percentage points from 67 percent during the fourth quarter of 1987. Thus, job growth was not as widespread during the first half of 1988 as it had been the previous year. One weakness of the diffusion index is its overrepresentation of manufacturing industries at a time when service-sector jobs are dominating the totals. Indeed, during the first half of 1988, the service sector grew by 1.5 million, more than 80 percent of net job gains. However, its rate of growth also started to fall during the second quarter. While growth in wholesale trade and health services continued to be relatively strong, gains in retail trade and business

services, two mainstays of the current expansion, slowed in the spring. And there were virtually no gains in the finance industry, reflecting a year-old retrenchment in banking and, by the second quarter, cutbacks among securities brokers.

Overall civilian employment, as measured by the Current Population Survey (CPS), rose 1.2 percent during the first half of 1988. (See table 2.) While this was below the pace of 1987, it was about equal to the growth rates of 1986 and the last half of 1985. While month-to-month movements were quite erratic, growth still averaged out to a 485,000 quarterly rise. As in the payroll survey, most of the increase occurred in the first quarter. The civilian employment-to-population ratio also rose fitfully during the first half, but edged up to 62.2 percent by midyear, a record level.

Declines in joblessness

The civilian unemployment rate averaged 5.5 percent in the second quarter of 1988. The rate had been on a downward trend since the previous fall and was lower than at any time since the second quarter of 1974. During the first half, declines in unemployment were most evident among whites and teenagers. In contrast, the unemployment rate for black workers did not improve at all.

The number of unemployed persons, which had fallen in absolute terms in every quarter since the second quarter of 1986, stood at 6.6 million at midyear, down 465,000 from late 1987. This was the lowest absolute level of unemployment since the fourth quarter of 1979. Despite continuing growth in the labor force, both the level and rate of unemployment had fallen below where they had been at the start of the recessions of the early 1980's.

The number of long-term unemployed—those jobless 27 weeks or more—fell by about 120,000 during the first half of 1988, to 810,000. Also, by the second quarter, the median duration of ongoing unemployment spells had fallen to 5.8 weeks, compared with 6.1 weeks at the end of the prior year. Workers who had lost their jobs accounted for virtually the same share of the unemployed, 46 percent, while those who had voluntarily left their jobs to search for new ones increased from 13 percent to 14 percent. A rise in the proportion of job leavers is often taken as a sign of workers' confidence in labor market conditions.

Other measures of distress

Not all indicators of labor market difficulty improved during the first half of the year. After declining throughout the expansion, the number of discouraged workers—persons not in the labor force who report that they would like a job but are not actively seeking one because they

Table 1. Employees on nonagricultural payrolls by industry, seasonally adjusted quarterly averages, 1979-88

[Numbers in thousands]

Industry	1979	1986			1987				1988	
	II	III	IV	I	II	III	IV	I	II	
Total	89,671	99,676	100,347	101,024	101,841	102,669	103,683	104,670	105,544	
Total private	73,781	82,987	83,496	84,130	84,869	85,643	86,518	87,406	88,221	
Goods-producing	26,529	24,454	24,443	24,523	24,644	24,847	25,116	25,260	25,489	
Mining	946	741	715	704	715	728	737	731	738	
Oil and gas extraction	464	418	396	389	400	412	419	416	424	
Construction	4,461	4,811	4,843	4,924	4,964	5,007	5,089	5,142	5,257	
General building contractors	1,282	1,285	1,302	1,317	1,317	1,325	1,347	1,375	1,401	
Manufacturing	21,122	18,902	18,885	18,895	18,965	19,112	19,290	19,388	19,494	
Durable goods	12,822	11,184	11,137	11,129	11,157	11,235	11,353	11,403	11,481	
Lumber and wood products	772	710	723	731	736	741	749	755	757	
Furniture and fixtures	498	500	501	504	513	525	531	535	537	
Stone, clay, and glass products	712	584	581	583	581	580	585	584	586	
Primary metal industries	1,264	737	729	730	744	756	768	770	777	
Blast furnaces and basic steel products	574	265	255	256	269	274	279	280	281	
Fabricated metal products	1,727	1,413	1,404	1,397	1,398	1,407	1,428	1,437	1,449	
Machinery, except electrical	2,491	2,036	2,002	1,995	2,007	2,030	2,062	2,092	2,120	
Electrical and electronic equipment	2,116	2,115	2,102	2,084	2,070	2,080	2,101	2,113	2,117	
Transportation equipment	2,108	2,026	2,037	2,048	2,048	2,049	2,048	2,031	2,048	
Motor vehicles and equipment	1,035	866	868	876	870	859	855	837	850	
Instruments and related products	689	703	698	694	693	696	703	705	708	
Miscellaneous manufacturing	444	359	360	362	366	372	378	381	382	
Non-durable goods	8,300	7,719	7,748	7,766	7,808	7,877	7,937	7,985	8,014	
Food and kindred products	1,734	1,605	1,616	1,614	1,620	1,627	1,635	1,648	1,647	
Tobacco manufactures	71	57	57	55	55	54	53	54	53	
Textile mill products	887	704	709	715	721	729	732	731	727	
Apparel and other textile products	1,314	1,095	1,094	1,091	1,095	1,106	1,107	1,105	1,099	
Paper and allied products	707	672	676	676	677	680	683	686	688	
Printing and publishing	1,231	1,463	1,475	1,487	1,501	1,514	1,527	1,543	1,559	
Chemical and allied products	1,109	1,020	1,017	1,016	1,017	1,029	1,041	1,049	1,060	
Petroleum and coal products	209	168	165	165	165	165	167	165	165	
Rubber and miscellaneous plastics products	788	789	797	806	815	827	845	857	869	
Leather and leather products	249	145	143	142	142	146	145	147	146	
Service-producing	63,142	75,222	75,904	76,500	77,196	77,822	78,567	79,410	80,054	
Transportation and public utilities	5,097	5,250	5,285	5,317	5,358	5,398	5,465	5,514	5,561	
Transportation	2,989	3,064	3,093	3,115	3,146	3,174	3,230	3,273	3,313	
Communication and public utilities	2,109	2,186	2,192	2,202	2,212	2,224	2,235	2,241	2,248	
Wholesale trade	5,191	5,765	5,761	5,794	5,843	5,893	5,959	6,035	6,116	
Durable goods	3,073	3,384	3,381	3,394	3,422	3,464	3,516	3,573	3,633	
Non-durable goods	2,118	2,382	2,380	2,400	2,421	2,430	2,443	2,462	2,483	
Retail trade	14,972	18,025	18,157	18,272	18,431	18,572	18,750	19,007	19,139	
General merchandise stores	2,282	2,377	2,379	2,373	2,411	2,448	2,493	2,543	2,544	
Food stores	2,283	2,930	2,945	2,931	2,958	2,960	2,979	3,029	3,060	
Automotive dealers and service stations	1,835	1,950	1,967	1,983	1,995	2,011	2,028	2,047	2,060	
Eating and drinking places	4,488	5,951	6,007	6,063	6,092	6,141	6,213	6,290	6,340	
Finance, insurance, and real estate	4,955	6,330	6,401	6,467	6,537	6,580	6,610	6,640	6,655	
Finance	2,356	3,178	3,210	3,238	3,273	3,290	3,298	3,306	3,301	
Insurance	1,625	1,955	1,978	1,999	2,016	2,028	2,045	2,055	2,067	
Real estate	974	1,197	1,214	1,230	1,248	1,262	1,267	1,279	1,287	
Services	17,038	23,162	23,448	23,756	24,056	24,352	24,618	24,949	25,262	
Business services	2,870	4,841	4,926	5,039	5,146	5,208	5,292	5,370	5,445	
Health services	4,964	6,571	6,632	6,703	6,778	6,868	6,962	7,054	7,158	
Government	15,890	16,689	16,851	16,894	16,972	17,027	17,165	17,264	17,322	
Federal	2,768	2,887	2,899	2,915	2,935	2,949	2,973	2,972	2,956	
State	3,519	3,891	3,925	3,941	3,952	3,970	3,991	4,017	4,040	
Local	9,604	9,911	10,026	10,037	10,085	10,108	10,200	10,275	10,327	

Table 2. Employment status by sex, age, race, and Hispanic origin, selected seasonally adjusted quarterly averages, 1979-88

[Numbers in thousands]

Characteristic	1979	1986		1987				1988	
	II	III	IV	I	II	III	IV	I	II
Total									
Civilian labor force	104,327	118,203	118,557	119,151	119,626	120,053	120,568	121,142	121,258
Percent of population	63.4	65.4	65.3	65.5	65.5	65.6	65.7	65.8	65.8
Employed	98,371	109,973	110,436	111,271	112,147	112,854	113,486	114,214	114,642
Agriculture	3,298	3,132	3,176	3,212	3,237	3,180	3,212	3,241	3,116
Nonagriculture	95,073	106,841	107,260	108,059	108,910	109,674	110,274	110,972	111,526
Employment-population ratio	59.8	60.8	60.9	61.1	61.4	61.7	6.9	62.1	62.2
Unemployed	5,956	8,230	8,121	7,880	7,479	7,199	7,082	6,928	6,616
Unemployment rate	5.7	6.9	6.8	6.6	6.3	6.0	5.9	5.7	5.5
Men, 20 years and over									
Civilian labor force	55,378	61,369	61,657	61,925	62,051	62,091	62,253	62,544	62,707
Percent of population	79.7	78.0	78.2	78.2	78.1	77.9	77.9	78.0	78.0
Employed	53,191	57,599	57,873	58,308	58,607	58,858	59,129	59,440	59,757
Employment-population ratio	76.5	73.2	73.4	73.6	73.8	73.9	74.0	74.1	74.3
Unemployed	2,188	3,771	3,784	3,617	3,444	3,233	3,124	3,105	2,950
Unemployment rate	4.0	6.1	6.1	5.8	5.6	5.2	5.0	5.0	4.7
Women, 20 years and over									
Civilian labor force	39,326	48,893	49,005	49,308	49,648	49,926	50,237	50,580	50,565
Percent of population	50.2	55.8	55.7	55.9	56.1	56.3	56.5	56.7	56.6
Employed	37,100	45,886	46,070	46,452	46,959	47,255	47,631	48,038	48,100
Employment-population ratio	47.4	52.3	52.4	52.6	53.1	53.3	53.6	53.9	53.8
Unemployed	2,226	3,007	2,935	2,856	2,689	2,671	2,615	2,542	2,465
Unemployment rate	5.7	6.2	6.0	5.8	5.4	5.3	5.2	5.0	4.9
Both sexes, 16 to 19 years									
Civilian labor force	9,623	7,941	7,895	7,919	7,927	8,036	8,078	8,018	7,986
Percent of population	57.7	54.8	54.3	54.4	54.3	54.9	55.2	55.0	54.8
Employed	8,081	6,488	6,492	6,511	6,581	6,740	6,736	6,736	6,786
Employment-population ratio	48.5	44.8	44.6	44.8	45.1	46.0	46.0	46.2	46.6
Unemployed	1,542	1,453	1,402	1,408	1,346	1,296	1,342	1,282	1,200
Unemployment rate	16.0	18.3	17.8	17.8	17.0	16.1	16.6	16.0	15.0
White									
Civilian labor force	91,351	102,125	102,425	102,777	103,179	103,374	103,769	104,317	104,491
Percent of population	63.6	65.6	65.7	65.7	65.8	65.8	65.9	66.1	66.1
Employed	86,887	96,005	96,350	96,941	97,622	98,056	98,529	99,264	99,660
Employment-population ratio	60.5	61.7	61.8	62.0	62.3	62.4	62.6	62.9	63.1
Unemployed	4,464	6,120	6,075	5,835	5,558	5,318	5,240	5,053	4,832
Unemployment rate	4.9	6.0	5.9	5.7	5.4	5.1	5.0	4.8	4.6
Black									
Civilian labor force	10,626	12,597	12,719	12,851	12,853	13,072	13,187	13,162	13,045
Percent of population	61.3	62.9	63.2	63.6	63.3	64.1	64.4	64.0	63.2
Employed	9,297	10,759	10,918	11,051	11,160	11,438	11,583	11,511	11,474
Employment-population ratio	53.6	53.7	54.3	54.7	54.9	56.1	56.6	56.0	55.6
Unemployed	1,329	1,838	1,800	1,800	1,693	1,634	1,603	1,652	1,571
Unemployment rate	12.5	14.6	14.2	14.0	13.2	12.5	12.2	12.5	12.0
Hispanic origin									
Civilian labor force	(1)	8,171	8,256	8,402	8,495	8,526	8,730	8,900	8,905
Percent of population	(1)	65.9	66.0	66.2	66.3	66.0	66.9	67.7	67.1
Employed	(1)	7,280	7,425	7,593	7,740	7,832	7,990	8,195	8,096
Employment-population ratio	(1)	58.7	59.4	59.8	60.4	60.6	61.3	62.3	61.0
Unemployed	(1)	891	831	809	755	694	739	705	809
Unemployment rate	(1)	10.9	10.1	9.6	8.9	8.1	8.5	7.9	9.1

(1) Data are not available on a revised basis that reflects the adjustment to the population totals introduced in January 1986.

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

NOTE: Detail for race and Hispanic-origin groups will not sum totals because

think it would be impossible to find one—rose by 100,000 to about 1 million in the first quarter before returning to its late-1987 level of 910,000.

The number of persons working part time even though they would prefer a full-time job—those on part-time schedules for economic reasons—continued to fluctuate within the 5.2- to 5.8-million range of the previous 4 years. While a dip to 4.8 million in May left the second quarter average below that of earlier quarters, the return to 5.3 million in June indicates that the May estimate was probably an outlier. Still, with the rapid growth of total employment, persons working part time for economic reasons made up a smaller proportion of American workers.

Comparisons to an earlier era

There was considerable comment when the monthly unemployment rate reached 5.4 percent in April 1988, the lowest rate since June 1974. However, a comparison of current labor conditions with the middle of 1974 is probably not valid because, in 1974, the economy was sliding into the second most severe recession since CPS-based unemployment statistics have been regularly published. A more useful comparison might be with the second quarter of 1979. At that point, the business cycle was well into a prolonged expansion, and the unemployment rate was 5.7 percent—conditions not much different from those in the second quarter of this year.

One of the most striking changes since mid-1979 has occurred in the relationship of the unemployment rates of men and women. In 1988, the jobless rate for adult men was 4.7 percent, well above the 4.0-percent rate posted in mid-1979. In comparison, the rate for women, at 4.9 percent, was almost a full percentage point lower in 1988 than in 1979. In effect, the unemployment rates of men and women have converged significantly since mid-1979. Among the reasons for women's relative improvement are their greater employment concentration in many high-growth service-sector industries, their increased tendency to work full time and year round, the growth and pattern of their labor force participation, and their dramatic improvements in educational attainment.

While there has been a significant shift in the relative incidence of joblessness between the sexes since 1979,

there has been little progress toward more even unemployment rates across racial and ethnic divisions. The ratio of black-to-white unemployment rates was 2.6-to-1 in mid-1988, the same ratio as in the second quarter of 1979. Unemployment among Hispanic workers averaged 9.1 percent in the second quarter of 1988, or 1.7 times the overall rate. This actually reflects some deterioration since 1979, when their jobless rate was 8.2 percent, or 1.4 times the national average.

On the employment side, the last 9 years have seen a continuation of the secular trend toward service-producing industries, while there has actually been a decline in goods-producing employment. Mining employment has fallen by 210,000, and manufacturing employment has gone down 1.6 million. Although the other goods-producing industry, construction, grew by about 800,000, it still left employment for the entire sector roughly a million less than it had been. Partly as a result of this decline, but more fundamentally as a function of its own new net gain of more than 17 million jobs, the service-producing share in payroll employment grew by about 5 percentage points to a bit over 75 percent.

THE FIRST HALF OF 1988 saw more moderate employment growth, following robust gains in 1987. However, the unemployment rate continued to fall, reaching a point clearly below that prevailing at the start of the recessions of the 1980's. Some problems persisted, such as relatively high numbers of involuntary part-time workers and discouraged workers and the high jobless rates for minority workers. But it is important to note that this was the first time since the prolonged expansion of the 1960's that the jobless rate fell below the lowest point reached in the previous business cycle. □

FOOTNOTES

¹The labor force and employment data used in this report are derived from the Current Population Survey (a monthly survey of households conducted by the Census Bureau on behalf of the Bureau of Labor Statistics) or the Current Employment Statistics program (a monthly survey of business establishment payrolls conducted by the Bureau of Labor Statistics in cooperation with State Employment Security Agencies). For additional information concerning these programs, see *Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988).

How has vesting changed since passage of Employee Retirement Income Security Act?

Since the enactment of ERISA in 1974, vesting status is attained sooner for most workers and is more easily obtained for mobile workers

AVY D. GRAHAM

Provisions of employer-financed retirement plans have been changed to reflect the statutory requirements of the Employee Retirement Income Security Act (ERISA), enacted in 1974, and several other laws passed since that time. These plans will experience further revisions as terms of the Tax Reform Act of 1986 become effective. The laws largely affect a retirement plan's vesting schedule—the rate at which a participant's future retirement benefits become guaranteed. Vesting provisions are very important in an economy with a mobile labor force; once specific requirements are met, these provisions essentially guarantee a worker the right to future benefits. These provisions allow a worker to terminate service before he or she is eligible for retirement without losing accrued benefits. In addition, vesting provisions can guarantee benefits to the spouse of an employee who dies before retiring. However, vesting increases the likelihood of eventual pension payments, thereby raising the cost to employers of providing employee benefits.

This article discusses the vesting provisions of two types of plans—defined benefit pension plans and defined contribution plans. A defined benefit pension plan contains a formula for determining retiree benefits (for example, the formula may designate a dollar amount or a

percentage of annual salary times years of service). A defined contribution plan specifies the employer's contribution to a retirement or savings fund (for example, a percentage of annual salary), but not the eventual benefit amount. Instead, benefits depend on amounts contributed to the fund plus the fund's investment earnings. The two major forms of defined contribution plans discussed in this article are savings and thrift plans (in which employees typically contribute a portion of their earnings to a fund, which is matched in whole or in part by the employer) and deferred profit-sharing plans (in which employers typically contribute a portion of profits to a fund, regardless of the level of employee contribution). Defined contribution plans often have more liberal vesting schedules, compared with defined benefit plans.

Changes in vesting provisions in defined benefit pension plans are traced in this article using results from two Bureau of Labor Statistics surveys, one conducted in 1974 before enactment of ERISA, and the other in early 1986, just before passage of the Tax Reform Act. Essentially, ERISA made vesting a universal feature of the plans studied here. For many plans which already had vesting provisions, ERISA called for revising the timing schedules to guarantee benefits after fewer years of service with the employer. The Tax Reform Act will likewise have a large impact on pension plans; most of the plans studied in the 1986 Employee Benefits Survey will have to be revised to conform to the vesting standards spelled out in that act.

Avy D. Graham is a social science research analyst in the Division of Occupational Pay and Employee Benefit Levels, Bureau of Labor Statistics.

Vesting provisions

Vesting schedules specify the rate at which employees earn rights to the employer contributions to a plan. Employees are always fully and immediately vested in their own contributions to the plan.¹ The four standard types of vesting schedules are:

- Immediate full—participants have immediate rights to all accrued benefits. This schedule may be found in either defined benefit or defined contribution plans.
- Deferred full (also known as “cliff vesting”)—participants are granted full (100-percent) rights to all accumulated benefits only after completing the necessary service period (such as 10 years). However, if employment is terminated before the required service is completed, the benefits are forfeited. This schedule may be found in either defined benefit or defined contribution plans.
- Deferred graded—participants gradually become vested, until 100-percent status is achieved. To illustrate: A schedule may call for 50-percent vesting after 5 years of service and then 10 additional percentage points in each of the next 5 years. An employee leaving the company after 5 years of service would have a guaranteed right to 50 percent of his or her accumulated benefits. This schedule may be found in either defined benefit or defined contribution plans.
- Class year—employer contributions for a particular year (or class) are vested after a certain time, say, 2 or 3 years. For example, if the class-year schedule calls for vesting after 2 years, contributions made in 1986 may become nonforfeitable in 1988. This schedule is found only in defined contribution plans.

Determining vesting rights. Also important is how pension plans count years of service toward satisfying vesting requirements. ERISA required all service accrued after age 22 to count for vesting purposes; the “vesting” age was reduced to 18 by the 1984 Retirement Equity Act.²

Regardless of how vesting rights are determined, they apply solely to benefits accumulated at termination of employment. If an employee leaves a job prior to retirement, the eventual benefits are, of course, usually much less than they would be if the employee had continued working until retirement. Also, vested benefits are not payable until a terminated employee has reached a pension plan’s early retirement age, at the least. For example, an employee who is vested in a plan permitting retirement at age 55, and who leaves the employer at age 35 after meeting the necessary service requirement, will have to wait 20 years for the benefits.

Other pension plan provisions may also affect how vested benefits are received. These provisions, such as rules governing breaks in service (when employees tempo-

Table 1. Earliest age and associated service requirement for vesting in defined benefit pension plans, private industry, early 1984.

Vesting provision	Percent of participants
Total participants	100
Plans with vesting provisions	87
Cliff vesting	69
Vesting at any age	39
Service requirement:	
Fewer than 10 years	2
10 years	24
11–14 years	(¹)
15–19 years	9
20 years or more	4
Vesting at age 40 or younger	16
Service requirement:	
5–9 years	(¹)
10–14 years	5
15–19 years	10
20 years or more	(¹)
Vesting at age 41–45	8
Service requirement:	
5–9 years	(¹)
10–14 years	2
15–19 years	5
20 years or more	(¹)
Vesting at age 50 or older	6
Service requirement:	
10–14 years	2
15–19 years	2
20 years or more	2
No specified service	(¹)
Other cliff vesting schedule	(¹)
Graduated vesting	18
Full vesting at any age	12
Service requirement:	
5–9 years	1
10–14 years	2
15–19 years	4
20 years or more	5
Full vesting after specified age	5
Service requirement:	
No specified service	(¹)
Fewer than 15 years	(¹)
15–19 years	4
20 years or more	1
Age and service requirement not determinable	(¹)
Full vesting not achieved	1
Immediate vesting	1
Plans without vesting provisions	13

¹Less than 0.5 percent.

NOTE: Because of rounding and the existence of multiple vesting schedules in a plan, sums of individual items may not equal totals.

rarily leave employment) and survivors’ right to annuities, are not examined in this article.

Vesting provisions in 1974

Before passage of ERISA 14 years ago, there were no statutory requirements for vesting.³ An employer who

provided a pension plan determined if, when, and under what conditions employees obtained vested rights to the accrued benefits.

The 1974 survey of defined benefit pension plans with 100 or more active workers provides information on vesting practices before the passage of ERISA.⁴ This survey covered plans with approximately 23 million private sector plan participants.

According to the survey, 13 percent of participants were in defined benefit plans without vesting provisions; 11 percent were in plans requiring 20 years or more of service before becoming eligible for full vesting; and 34 percent were in plans requiring 15 to 19 years. (See table 1.) Age restrictions also were common; for example, 1 of 5 participants under cliff vesting schedules was required to be 41 or older.

Impact of legislation

Employee Retirement Income Security Act (ERISA). Restrictive vesting provisions, such as those reported in the 1974 survey, were among the major concerns addressed in the Employee Retirement Income Security Act of 1974,⁵ which established comprehensive requirements for employee benefit plans, including minimum standards for vesting provisions. (See exhibit 1.) ERISA prescribed several minimum vesting schedules, including a 10-year cliff vesting standard and two graduated vesting alternatives. (See table 2.) In addition, a 5-year minimum class-year schedule was established for defined contribution plans.

Nearly three-fourths of the workers in the 1974 defined benefit pension survey were in plans that did not meet ERISA standards, either because the plans did not provide vesting or the vesting schedules were more restrictive than the ERISA standards, as shown in the following tabulation:

	Percent
All participants.....	100
Vesting provisions:	
Meeting ERISA standards	27
Cliff vesting.....	25
Graduated vesting	2
Not meeting ERISA standards	72
With vesting	60
Cliff vesting	44
Graduated vesting	15
Without vesting	12
Not determinable whether vesting schedule met ERISA standards	1

Slightly more than one-fourth of the workers were in plans that met ERISA's vesting schedule requirements. One of three workers under cliff vesting schedules was in a plan that met or exceeded the standards, compared to 1 of 8 workers under graduated schedules.

Information from the Current Population Survey (CPS)⁶ suggests that the proportion of retirement plan participants who were fully or partly vested in their plan increased after the passage of ERISA. According to the

Exhibit 1. Minimum vesting requirements prescribed by the Employee Retirement Income Security Act (ERISA) and the Tax Reform Act

Type of schedule	ERISA (1974)	Tax Reform Act (1986)
Cliff vesting	100 percent after 10 years.	100 percent after 5 years (10 years for multiemployer plans).
Graduated	100 percent after 15 years. 25 percent after 5 years, 5 percent additional in each of the next 5 years, 10 percent additional in each of the next 5 years. Alternative graded vesting: ¹ 50 percent if age and service total 45 with minimum 5 years' service, or after 10 years' service; 10 percent additional in each of the next 5 years.	100 percent after 7 years. 20 percent after 3 years, 20 percent additional in each of the next 4 years. Eliminated alternative grading vesting.
Class-year vesting	Each class must vest after 5 years.	Eliminated class year vesting.
Special vesting	(2)	(2)

¹This is known as the "rule of 45." The ERISA requirement that all service from age 22 be included in meeting vesting requirements did not apply to this form of graduated vesting.

²After the passage of ERISA, a special vesting schedule was added by the Internal Revenue Service for plans in professional service corporations. This "4-40" schedule requires full vesting after 11 years (40 percent after 4 years, 5

percent each in years 5 and 6, and 10 percent in each of years 7 through 11). Later, the Tax Equity and Fiscal Responsibility Act of 1982 added two additional stringent rules for plans that primarily benefited highly paid employees. The first was a 3-year cliff vesting schedule; the second was a 6-year graduated schedule (calling for 20 percent after 2 years, and 20 percent in each of years 3 to 6). The Tax Reform Act of 1986 lowered the cliff vesting requirement from 3 years to 2 years.

Table 2. Full-time workers participating in defined benefit pension plans in medium and large private sector firms, by vesting schedules and selected occupations, 1986

[In percent]

Type of schedule	All workers	Professional and administrative workers	Technical and clerical workers	Production workers
Total participants	100	100	100	100
Cliff vesting	89	85	85	91
ERISA standards:				
Full vesting after 10 years' service	87	84	84	89
Other standards:				
Full vesting after less than 10 years' service	2	1	1	2
Graduated vesting	13	17	17	9
ERISA standards:				
Full vesting after 15 years' service	3	3	4	2
"Rule of 45" ¹	3	4	3	2
"4-40" rule ²	1	1	1	1
Other standards:				
6-9 years' service	(³)	1	(³)	(³)
10 years' service	6	7	7	4
11-14 years' service	(³)	1	1	(³)
Immediate full vesting	(³)	(³)	(³)	(³)
Not determinable	(³)	(³)	(³)	(³)

¹Fifty percent if age and service total 45 with minimum 5 years service, or after 10 years service; 10 percent additional in each of the next 5 years.

²The "4-40" schedule requires full vesting after 11 years (40 percent after 4 years, 5 percent each in years 5 and 6, and 10 percent in each of the next 5 years).

³Less than 0.5 percent.

NOTE: Because of rounding and the existence of multiple vesting schedules in a plan, sums of individual items may not equal totals.

CPS, the proportion of retirement plan participants who said they were vested rose from 32 percent in 1972 (before ERISA) to 48 percent in 1979, and to 51 percent in 1983.⁷

More dramatic is the growth of vesting among covered workers with 5 to 9 years of service with their current employer. The 1972 CPS reported that 25 percent of these respondents said they had vested status; 59 percent were not vested. In 1979, 42 percent said they were vested, and 41 percent were not. (Among workers with 5 to 9 years of employment in both the 1972 and 1979 CPS, approximately one-sixth did not know if they were vested.)

Retirement Equity Act. Vesting standards were tightened when ERISA was revised 10 years later by the Retirement Equity Act of 1984. Although best known for provisions improving the accessibility of retirement benefits to spouses, this statute also lowered from 22 to 18 the age after which employees must be given credit toward vesting.

The BLS 1986 Employee Benefits Survey, which covered 21 million full-time workers, shows that 81 percent of the participants in defined benefit pension plans in

medium and large firms had schedules which counted all years of service toward vesting. The following tabulation shows the percent of the participants in defined benefit plans in medium and large firms providing cliff and graded vesting, and years of service included toward vesting requirements, 1986:

	Total	Cliff vesting	Graded vesting
All participants	100	100	100
Years of service credited:			
All years	81	80	95
All years after age 18	9	10	0
All years after specified age of 19 or older	10	10	5
Not applicable—immediate vesting	*	—	—
Vesting provision not determinable	*	—	—

*Less than 0.5 percent.

As shown, relatively few participants were in plans that did not follow the new Retirement Equity Act rules. For plans which stipulated an age requirement older than 18, the Retirement Equity Act standards did not become effective until after the date of the 1986 Employee Benefits Survey.⁸

Vesting provisions in 1986

Defined benefit plans. Data from the 1986 Employee Benefits Survey show the influence of ERISA on vesting schedules. According to the survey, 76 percent of full-time employees in medium and large firms were covered by a defined benefit pension plan in 1986. Nearly all of them were in plans that used the minimum time for vesting specified by ERISA. (See table 2.) The vast majority were in plans with cliff vesting schedules, nearly all of which specified the maximum time allowed by ERISA for this type of vesting, 10 years of service. Only 13 percent had graduated schedules; about half of them were in plans with vesting schedules more liberal than those prescribed by ERISA. Overall, 1 of 10 participants was in a plan providing vesting time schedules more liberal than those prescribed by ERISA.

Defined contribution plans. The 1986 Employee Benefits Survey also examined the characteristics of defined contribution plans, including provisions affecting vesting of employer contributions to savings and thrift and deferred profit-sharing plans. The survey found that 28 percent of employees participated in savings and thrift plans, and 21 percent in deferred profit-sharing plans.

The following tabulation compares vesting provisions of defined benefit pension plans with the two types of defined contribution plans studied. The data (in percent) relate to medium and large firms in the first half of 1986:

	Defined benefit pension plans	Defined contribution plans	
		Savings and thrift	Deferred profit-sharing
All participants	100	100	100
Vesting provision:			
Immediate	*	26	29
Cliff	89	20	2
Graduated	13	25	66
Class-year	0	29	4

*Less than 0.5 percent.

While the majority of the participants in defined benefit pension plans had cliff vesting, only a minority of those in savings and thrift and profit-sharing plans had such provisions. When the defined contribution plans had cliff vesting schedules, the provisions nearly always called for participants to be vested within 5 years. (See table 3.)

Table 3. Full-time workers participating in defined contribution plans in medium and large private sector firms, by vesting requirements, 1986

[In percent]

Type of schedule and service requirement	Savings and thrift plan	Profit-sharing plan
Total participants	100	100
Immediate full vesting	26	29
Cliff vesting	20	2
1-2 years	5	1
3-4 years	7	0
5 years	7	(¹)
6-9 years	1	1
Graduated vesting	25	66
Full vesting after:		
4 years or fewer	2	0
5 years	15	3
6 years	2	5
7 years	1	7
8 years	1	1
9 years	(¹)	1
10 years	4	24
11 years	(¹)	5
12-14 years	(¹)	14
15 years	(¹)	6
Other	0	(¹)
Class vesting	29	4
Each class is fully vested after:		
1 year	1	0
2 years	16	2
3 years	8	1
4 years	3	0
5 years	(¹)	1
Not determinable	(¹)	0

¹Less than 0.5 percent.

NOTE: Because of rounding and the existence of multiple schedules in plans, sums of individual items may not equal totals.

Although rare in defined benefit plans, immediate vesting accounted for slightly more than one-quarter of the participants in savings and thrift and deferred profit-sharing plans.

Graduated vesting schedules, ranging from 5 to 15 years, accounted for two-thirds of the workers in profit-sharing plans. In savings and thrift plans, graduated vesting schedules applied to one-fourth of the participants, most of whom achieved full vesting after 5 years of service.

Class-year vesting was a significant provision in savings and thrift plans, with most participants granted full vesting 2 or 3 years after the employers' contributions were made. This form of vesting schedule was rare in deferred profit-sharing plans.

In summary, defined contribution plans required generally shorter vesting periods than did defined benefit plans. In defined contribution plans, vesting schedules varied widely, but the large majority of participants in defined benefit plans were subject to a 10-year cliff vesting schedule. (As discussed later, many of the vesting variations between the two plans will be reduced as provisions of the 1986 Tax Reform Act become effective.)

Future vesting revisions

The 1986 Tax Reform Act provides for changes in vesting schedules created under ERISA. The changes become effective for plan years beginning after December 31, 1988, and apply to all accrued benefits earned before and after the effective date. The effect of the Tax Reform Act on both cliff and graduated schedules is to require fewer years of service for vesting.

Based on the 1986 Employee Benefits Survey, the vesting schedules of nearly all defined benefit plans in medium and large firms will have to be revised to comply with the Tax Reform Act. Many participants in defined contribution plans also will be affected by the more rapid vesting schedules required by the act. The following tabulation shows the proportion of participants in plans which do and do not meet the vesting requirements of the 1986 Tax Reform Act:

	Defined benefit pension plans	Defined contribution plans	
		Savings and thrift	Deferred profit-sharing
All participants	100	100	100
Vesting provisions:			
Meeting Tax Reform Act standards	5	65	40
Cliff vesting	5	19	1
Graduated vesting	*	20	10
Immediate vesting	*	26	29

Not meeting Tax Reform Act

standards	95	35	60
Cliff vesting	82	1	1
Graduated vesting	13	5	55
Class-year vesting	0	29	4

*Less than 0.5 percent.

As shown, 95 percent of defined benefit pension participants were in plans that will have to be revised. This is primarily because of the predominance of 10-year cliff vesting in 1986 plans, and also because of the number of participants who needed 10 years or more of service under graduated schedules.

Sixty percent of participants in deferred profit-sharing plans were under more restrictive schedules than those allowed by the Tax Reform Act. They were primarily participants who had graduated vesting provisions calling for more than 7 years of service before full vesting. In contrast, one-third of the savings and thrift plan participants had vesting requirements not meeting the Tax Act standards; they were primarily under class-year vesting schedules.

VESTED STATUS HAS BECOME EASIER TO OBTAIN over the last 15 years for a growing population of mobile workers. ERISA, in 1974, established years of service requirements specifying the time by which employees were to be vested in both defined benefit and defined contribution plans.

By 1986, nearly all plan participants studied in the BLS Employee Benefits Survey of medium and large private sector firms were in either a defined benefit pension plan or a defined contribution plan that met vesting standards set by ERISA and the Retirement Equity Act. Vesting schedules required fewer years of service than those schedules reported in the BLS 1974 survey, conducted before the enactment of ERISA.

The 1986 Employee Benefits Survey suggests that tax reform will have a substantial impact on vesting provisions. As with the earlier laws, the 1986 Tax Reform Act was intended to ensure that employees with pension plans vest sooner in their benefits.⁹ However, it is important to note that the accumulated pension benefits may not be large, particularly for workers who make many job changes during their careers. Also, many workers are not, and will never be, vested in private retirement plans because their employers do not offer one.

—FOOTNOTES—

¹Employee contributions were required of only 6 percent of defined benefit pension plan participants in 1986, according to the Bureau of Labor Statistics' Employee Benefits Survey. See *Employee Benefits in Medium and Large Firms, 1986*, Bulletin 2281 (Bureau of Labor Statistics, 1987). The survey studied approximately 1,500 private sector establishments with at least 50, 100, or 250 workers, depending on the industry, representing approximately 21 million full-time workers in the United States, excluding Alaska and Hawaii.

²These requirements are related to legislative standards for plan participation. Under ERISA, employees generally were eligible to participate when they reached age 25 and had 1 year of service. (Plans granting immediate vesting could require 3 years of service.) The Retirement Equity Act reduced the minimum age for participation to 21.

³See Harry E. Davis and Arnold Strasser, "Private pension plans 1960-1969: an overview," *Monthly Labor Review*, July 1970, p. 48. For a study of vesting provisions in the early and mid-1960's, see Donald M. Landay and Harry E. Davis, "Growth and vesting changes in private pension plans," *Monthly Labor Review*, May 1968, pp. 29-35.

⁴The 1974 survey, a joint project of two agencies of the U.S. Department of Labor—the Bureau of Labor Statistics and the Labor Management Services Administration—was designed to yield information on pension plan provisions prior to ERISA. Survey findings on benefit levels were used in James H. Schulz, Thomas D. Leavitt, and Leslie Kelly, "Private pensions fall far short of preretirement income levels," *Monthly Labor Review*, February 1979, pp. 28-32; findings concerning mandatory retirement provisions were published in Dorothy R. Kittner, "Forced retirement: how common is it?" *Monthly Labor Review*, December 1977, pp. 60-62.

⁵See, for example, Joint Committee on Finance, *Digest of Testimony on Proposals for Private Pension Plan Reform* (Washington, Government Printing Office, 1973), pp. 7-14; and *Recommendations for Pension Reform: A Message from the President of the United States* (Washington, Government Printing Office, 1973), pp. 2-3.

⁶The Current Population Survey (CPS) is a program of personal interviews conducted monthly by the Bureau of the Census to collect national statistics on employment and unemployment. The CPS data in this article were collected from special supplements to the 1972, 1979, and 1983 surveys.

⁷The 1972 study results are described in Walter W. Kolodrubetz and Donald M. Landay, "Coverage and Vesting of Full-time Employees Under Private Retirement Plans," *Social Security Bulletin*, November 1973, pp. 20-36. The 1979 results are described in Gayle Thompson Rogers, *Pension Coverage and Vesting among Private Wage and Salary Workers: Preliminary Estimates from the 1979 Survey of Pension Plan Coverage*, Working Paper No. 16 (Social Security Administration, Office of Research and Statistics, June 1980). The 1983 results are described in *New Survey Findings on Pension Coverage and Benefit Entitlement*, Issue Brief No. 33 (Washington, Employee Benefits Research Institute, August 1984). Although coverage and definitions were not the same in the 1972, 1979, and 1983 surveys, the differences are not sufficient to obliterate the broad trend. Furthermore, the scope of these surveys differs from the 1974 and 1986 BLS surveys analyzed in this article; the CPS covers a broader range of workers and includes data for deferred profit-sharing and other retirement plans along with data for defined benefit plans.

⁸The survey was conducted in the first half of 1986. Compliance with Retirement Equity Act provisions was required of noncollectively bargained plans by June 30, 1986, and of collectively bargained plans by the earlier of the expiration date of the collective bargaining agreement, or January 1, 1987.

⁹See, for example, Joint Economic Committee, *The Role of Older Women in the Work Force* (Washington, Government Printing Office, 1984), pp. 1-5.

¹⁰For a discussion of the public policy implications of vesting and related plan provisions, see *Pension Portability and What It Can Do for Retirement Income: A Simulation Approach*, EBRI Issue Brief No. 65 (Washington, Employee Benefits Research Institute, 1987).

Communications



The football strike of 1987: the question of free agency

PAUL D. STAUDOHAR

The 24-day strike by National Football League players in 1987 was one of the most interesting in recent years. The strike may have a significant impact on the future of not only football but other professional team sports. What caused the strike? Could it have been avoided? How did the dynamics of the strike affect the positions of the parties in their continuing negotiations? Can the players' union bounce back from its defeat at the bargaining table?

Background

The 1987 strike was a product of the past. As early as 1956, when the National Football League Players' Association was formed, the players were contemplating a strike against the owners. Expenses incurred during training camps were not compensated by owners, and players decided to strike the last preseason game between the Washington Redskins and Baltimore Colts. When the Redskins' owner, George Preston Marshall, said he would go ahead with the game without the strikers, the players capitulated and took the field. This scenario was to be repeated, with some variation, over the next several years.

In the fall of 1968, the players struck training camps over a variety of money and other issues. The NFL owners countered with a lockout of the training camps, and the dispute ended in compromise without much apparent enmity. Essentially, the same situation occurred in 1970, 1974, and 1975. During each of these training camp strikes the players' initial optimism gave way to frustration, as the owners held their ground or gave up little. The 42-day strike in 1974 was particularly discouraging for the union because solidarity crumbled with one-fourth of the veteran players crossing the picket lines. This strike marked the debut of Edward Garvey as the union's executive director.

Garvey, a lawyer who had formerly worked for the law firm representing the union, expressed determination to obtain concessions from the owners in 1982. A new television agreement had increased each owner's annual share of television revenue from \$5.8 million to \$14.2 million, and the players wanted a bigger share as well. Also, the United States Football League (USFL) was going to start play in the spring of 1983, which would create new employment opportunities for NFL players. The timing looked good for a generous settlement for the players' association, if it could maintain solidarity.

The 1982 strike, which lasted 57 days, produced unexpectedly good player solidarity but few gains for the players. Although average player salaries in the NFL rose from \$90,000 in 1982 to \$230,000 in 1987, most of this increase was due to opportunities for players to jump to USFL clubs for a higher salary or to be paid more by their NFL clubs to stay. A number of issues—free agency, pensions, severance pay, and artificial turf—remained in dispute. In 1987, the new television agreement was paying each owner \$17 million annually, inspiring a new struggle between players and owners over revenues.

The negotiators

The chief protagonists in the 1987 negotiations were Jack Donlan, a former negotiator for National Airlines, and Gene Upshaw, Football Hall of Fame guard for the Oakland Raiders. Neither Donlan nor Upshaw was new to football negotiations. Donlan, executive director of the NFL Management Council, had represented the owners in 1982. Upshaw, who succeeded Garvey as executive director in 1983, had been Garvey's chief assistant in the 1982 talks. In the years prior to the 1987 negotiations, Donlan and Upshaw became acquainted and were on friendly terms. This was quite a contrast from the apparent acrimony between Donlan and Garvey that tainted the 1982 talks. So it looked like a fresh start was possible.

But chief negotiators do not operate on their own. An unusual and particularly troublesome aspect of collective bargaining in sports is that negotiating within the organization presents as many (or perhaps even more) problems as negotiating with the adversary. This so-called "intraorganizational bargaining" is crucial in football

Paul Staudohar is a professor of business administration at California State University, Hayward.

Exhibit 1. National Football League Players' Association and owners' positions on various issues, 1987

Issue	Players' association	Owners
Free agency ¹	Unrestricted for players with 4 years in the league	Modest liberalization of current system of compensation for teams losing a player
Drugs.....	Testing for probable cause of drug use	Random testing
Contracts	Guaranteed for second-year players on up	Guaranteed for fourth-year players on up
Pensions.....	Annual \$25 million NFL contribution	Annual \$12.5 million NFL contribution
Minimum salaries	\$90,000 for rookies up to \$320,000 for 13-year players	\$60,000 for rookies to \$180,000 for 13-year players

¹Summarized from Bob Oates and Rich Roberts, "With No Talk of Settlement, NFL Players Taking a Walk," *Los Angeles Times*, Sept. 22, 1987, Part III, p. 1.

because there are 28 teams joined together in negotiations, each with separate ownership.

The NFL Management Council, consisting of one member from each of the 28 clubs, determines the league's labor policy. The Management Council is supervised and coordinated by its Council Executive Committee. The six-member committee consisted of Hugh Culverhouse of the Tampa Bay Buccaneers (chairman), Tex Schramm of the Dallas Cowboys, Joe Robbie of the Miami Dolphins, Michael Brown of the Cincinnati Bengals, Charles Sullivan of the New England Patriots, and Dan Rooney of the Pittsburgh Steelers. It is this group that supervises Donlan.

On the union side, each of the 28 teams has a player representative who handles union business with individual players. As chief negotiator for the union, the executive director, Upshaw, maintains close contact with the player representatives to remain up-to-date on member views. He also deals with the policymaking board for the players, a nine-member executive committee headed in 1987 by Marvin Powell. Complicating the executive director's role further is that he deals with other union executives, who have strong views. As is true of most strikes, in a football strike a key to winning is how well the owners and players are able to maintain solidarity.

The disputes

The disputes which the talks centered on were those brought forth by the players' association. To understand these disputes, it is helpful to look at the conditions that caused them. Football players have short and risky careers that last an average of 3.2 years, the shortest in professional team sports. Approximately half of the veteran players wind up with some kind of permanent disability, usually to the knee or back, that can cause

considerable pain throughout their lives. The NFL veteran is believed to have a life expectancy of about 55 years, far less than the average of 70 years for all American males.¹

While the average player salary in 1987 was \$230,000, the median salary was closer to \$170,000.² The average salary is deceptive because a few very highly paid players pulled it up.

It is therefore not surprising that players seek to maximize their incomes during such short careers. Although the players' association does not represent players in individual salary negotiations, there are several money issues—for example, minimum salaries and severance pay—that concern the union. In addition, there are other issues that can lead to higher salaries, such as free agency, and health issues that can reduce injuries and lead to longer careers, such as elimination of artificial turf. Exhibit 1 shows the key issues in dispute and the parties' positions at the time of the strike.

Negotiations

The old 5-year agreement expired on August 31, 1987. Even before this, there were several reasons to expect negotiations to falter and end in a strike. For one thing, the union has always struck in formal negotiations with the owners. Thus, a strike should have been considered likely. Secondly, there had been a strike in baseball in 1985. Although this strike lasted only 2 days, there is a certain imitative quality about the NFL players' association in following its baseball brethren. The long football strike of 1982 followed the long baseball strike of 1981. In addition, strike incidence is far higher under new leaders, and Upshaw was the new executive director of the players' association. Also, the USFL had discontinued operation the year before. Had the USFL kept playing, NFL owners probably would not have allowed a strike for

fear of losing players and public support to the rival league. Perhaps most important were the perceived inequities by the players—that they were not paid what they were worth, while the owners reaped large profits from the game.

Despite these ominous portents, a strike seemed unlikely. While important issues were on the table, there just didn't appear to be anything worth striking over. There had been too much suffering in 1982 and the level of acrimony in 1987 was down. Moreover, instead of bargaining in one place the negotiations moved around, with sessions in Tampa, San Francisco, Washington, DC, New York, and Philadelphia. The purpose of moving the negotiations was to get more privacy. Also, an attempt was made to avoid the glare of the media. The twice-daily news conferences of the 1982 strike were not held. Though perhaps entertaining for the public, they proved counterproductive as the two parties resorted to insulting each other. This caused attitudes to deteriorate and polarized the negotiators. In 1987, no public announcements were made ahead of negotiating sessions, and news stories emanating from the parties were kept to a minimum. (This policy later broke down.)

What became disquieting to observers, despite all the optimism about a strike-free settlement, was the lack of progress in negotiations. It is customary for negotiations to start well before the expiration of the agreement. The parties in football had several negotiating sessions in the early summer, but progress was negligible and it seemed that the sides were not going to enter serious discussions until late August. By this time, though, the contract had almost expired and the regular season was ready to start. By mid-September strike talk began to circulate. At this point, the union may have been well advised to make major concessions because it had never won a battle with the owners outside of court and there was little reason to expect it would do so in 1987 by striking.

Nevertheless, the players' association went forward with a vote to strike on September 22. Both Donlan and Upshaw appeared before television viewers to plead their case. At this time Donlan observed that Upshaw had not been to the bargaining table in two weeks and was instead out conferring with the players. The owners charged that the players were not bargaining in good faith and filed a complaint with the National Labor Relations Board. This pointed out the dilemma Upshaw was in. He had to try to maintain solidarity among the players by making personal appearances around the country, but in so doing had to sacrifice his duties as a negotiator with management. The prolonged absence by Upshaw may have allowed the owners to stiffen their negotiating position. When the union refused to accept a request by the owners to extend the strike deadline by 30 days, the strike became inevitable.

The owners' revised strategy seemed simple: (1) stonewall in negotiations, (2) use the NFL's public relations program to persuade the fans of the rightness of their position, and (3) divide and frustrate the players by proceeding with the regular schedule using strikebreakers.

This strategy, a throwback to the early 20th century, was calculated to wear down the union. The owners were taking a long-term view. This approach was effective because unlike 1982, the games went on. This, coupled with the breakdown in player solidarity, probably won the strike for the owners. But there was a bargaining issue that also contributed to the union's failure: free agency.

Free agency

Perhaps the most important labor-management dispute in professional sports is free agency. This issue is crucial because it gives players an opportunity to sell their services to several teams rather than only one. Players in baseball and basketball have reaped economic gains from free agency (average salaries in the sports are \$410,000 and \$500,000, respectively). Without significant free agency opportunities, football players could not obtain their free market value which they perceived to be higher than their current salaries because of the profits made by owners and high salaries earned by other professional athletes.

Prior to 1976, football exercised what was called the "Rozelle Rule" on free agency. This rule allowed NFL Commissioner Peter Rozelle to award compensation (players, draft choices, money) to a player's former team when he signed a contract with a new team. From 1963 to 1975, only four NFL players played out their options and signed as free agents with other clubs. Thus, the Rozelle Rule effectively chilled the market for free agents. In December 1975, however, the players' association won the *Mackey* case, filed on behalf of John Mackey of the Baltimore Colts. In this case, the Federal courts ruled that the Rozelle Rule was an unreasonable restraint of trade under the Sherman Antitrust Act of 1890, because it acted as a deterrent to player movement in the NFL.

With the decision in *Mackey*, NFL players could become free agents by playing out their option with the barrier of a compensation penalty to their team no longer in the way. However, in 1977, the union bargained away the rights won in the courtroom and agreed to a new method of determining compensation payments for signing free agents. Under this provision, which was slightly modified in the 1982 contract, only one free agent, Norm Thompson of the St. Louis Cardinals, signed with another club.³

The rationale for negotiating away the free agency won in court is that free agency may not be as meaningful in football as it is in other sports. The players gained increased pension and other benefits for giving up free agency, and felt it was a wise tradeoff. Why don't football

players receive higher salaries under free agency? One reason is that a single player doesn't make that much difference on a team. Football is played with 22 players—11 on offense and 11 on defense. By contrast, one player can have a big impact on a five-person basketball team, but is far less important in football. Second, the NFL owners already operate in stadiums that typically average 95 percent of capacity, so they would not be able to sell many more tickets to justify acquiring a star free agent player. Also, there are fewer games played in football than in other team sports. More important, most teams fill their stadiums regardless of their won-lost record. Third, because football careers are much shorter, there are fewer opportunities for players to become free agents. Finally, the owners proved determined not to fundamentally change the free agency system.

Supposing the players were able to achieve free agency, there may not be much they could make of it because the football owners would not likely fall victim to a bidding game for reasons stated above. It is true that the baseball owners from 1976 to 1984 spent millions on free agents. When they stopped signing free agents in 1985 and 1986, the Major League Baseball Players Association filed a grievance charging the owners with collusion. Arbitrator Tom Roberts agreed with the union.

Ironically, the Roberts' decision came out on September 22, the same day the players' association announced its intention to strike. The union indicated that the baseball decision reinforced its position. The football owners, however, had never signed free agents to any significant degree, thus making guilt of collusion more difficult to prove.

It is against this backdrop that the players' association pushed so hard for free agency. The owners agreed to change the current system so that a team would owe a first-round draft pick if it signed a player earning \$300,000 or more, up from \$140,000. This would have made it easier for some players to change teams. The owners also offered to raise the salary level at which teams could keep players by matching competitive bids under a right of first refusal, which would also have helped player mobility. The union dropped the demand for unlimited free agency without compensation for all players to only those players with 4 years' experience. Despite these concessions the parties remained far apart on free agency. Meanwhile, doubts were expressed by some of the striking players as to whether free agency was worth the sacrifices the strike entailed.

While making small concessions on free agency, the owners made an interesting offer to establish a bonus and salary scale for first-year players. (It should be recalled that it was the players' association that sought a wage scale for all players during the 1982 strike.) Salaries would be determined by the players' ranking in the NFL draft. For instance, rookie salaries would be set at \$60,000

plus uniform college draft bonuses of from \$500,000 for the first pick, \$400,000 for the second pick, on down to \$5,000 for the last player drafted. This offer was a response to veteran player complaints that rookies were making more money than they were. Money saved by the salary scale would be used to provide greater rewards for veterans. Another purported attraction of this proposal is that rookies would no longer need agents to represent them, which would eliminate illegal payments by agents to entice college students to sign with them. On the other hand, a salary scale for rookies might provide owners with an economic incentive to cut veteran players.

Strike impact

The owners were far better prepared for a strike than the players. About two-thirds of the teams signed replacement players who promised to continue the season in the event of a strike. Just two weeks prior to the start of the season there had been 100 players on each NFL team's training camp roster. Eager to play in the NFL, if only for a short time, they gladly took the \$1,000 proffered by the owners for standing by as potential replacements.

Although the players should have realized from the 1982 experience that they needed to take steps to insulate themselves from the impact of a strike, not much was done. There was no union strike fund from which to draw benefits. No line of credit was available for player loans. As a member of the executive council of the AFL-CIO, Upshaw was able to get support from organized labor in NFL cities. This support hurt the owners by reducing attendance at games, and by the embarrassment of AFL-CIO picketing, but did nothing to alleviate the players' financial plight.

Approximately 60 percent of income in the NFL comes from television and 40 percent from gate receipts.⁴ In the first week of the strike games, television ratings were down 3 to 4 rating points from the usual network average of 15. Most observers were surprised that the ratings were that high. Many viewers tuned in to the games out of curiosity. Interest declined, however, and television ratings dropped further as the strike continued. Gate receipts, on the other hand, went in the opposite direction. An average of 17,000 fans, 28 percent of usual, attended the first week of the strike games. Attendance climbed to 25,000 in the second week.⁵

What was the impact on players and owners? The strikers lost an average of \$15,000 per game, and approximately \$80 million altogether. All teams refunded monies to fans who had purchased tickets but did not attend strike games. Although gate receipts and television ratings were down, the owners saved on salaries by paying the replacement players comparatively little. The average owner's profit per game actually rose from \$800,000 before the strike to \$921,000 during the strike.⁶ This

profit was temporary, however, because the league has to refund \$60 million to the networks over the next two seasons for the one missed weekend of play, the reduced ratings, and the decline in advertising revenues.

The strike also affected public opinion of the union. A poll by ESPN, a cable television network, found that fans favored the owners over the players by about 3 to 1.⁷ Although the games were played mostly with unknown players, they had the appearance of major league football. NFL officials crossed the picket lines to referee games, and the regular television announcers were on hand to provide commentary. Although many of these announcers are former players, their sentiments appeared to be on the side of the owners.

Also harming the union position was the erosion of player solidarity. In the first week of the strike several veteran players crossed picket lines. The number of defectors increased as the strike continued. Although about 84 percent of the 1,585 regular players stayed out for the duration, at the time the strike was called off it looked like many players would be returning. The owners, on the other hand, maintained their solidarity. The NFL Management Council spoke with a unified voice and no owners negotiated separately.

The strike ends

On the 20th day of the strike Upshaw appeared on television during the Monday Night Football game to propose an end to the strike. This was a desperate effort by the union to settle because players on a majority of teams were poised to return to work if the strike wasn't settled before the upcoming weekend of October 18. The executive director's proposal contained three parts: (1) reinstatement of all strikers for the rest of the season, including protection of all player representatives and alternative player representatives, (2) the 1982 collective bargaining agreement would remain in effect, and (3) all current bargaining issues would be submitted to mediation for 6 weeks, and after that, all remaining unsettled issues would be submitted to arbitration.

The owners indicated a willingness to protect the player representatives, submit to mediation, and continue the 1982 agreement, but guaranteed the strikers' salaries for only two games and rejected arbitration. Historically, the owners have been wary of arbitration. Arbitration is commonly used in football for grievances and injury disputes, but the owners have never allowed arbitration of provisions that go into a collective bargaining agreement. This points up one of the reasons why arbitration of interests disputes is rare throughout American industry. In negotiations, one of the parties typically has a position of strength. That party would rather go to the bargaining table than allow an arbitrator to decide its fate.

Faced with the owners' rejection of its proposal, the union decided to end the strike on October 15. It is customary when a strike is over for management to welcome back the strikers and get on with business as usual. But the owners surprised the returnees. The owners had established October 14 as the deadline for players to return to be eligible for play in that weekend's games. Because the players ended the strike a day late the owners refused to allow them to play on October 18 and 19. This seemed a violation of trust to some players, and the union protested the legality of the action with the NLRB. However, the owners publicly reasoned that the players were out of condition and would risk injury. Additional motivation for the action may have been that the union had again chosen to use a weapon that had proved menacing to the owners in the past: an antitrust suit.

The lawsuit, filed the same day the strike ended, challenges the college draft, restraints on free agency, and other practices the union alleges are unfavorable to competition in the football labor market. Also, the union filed an unfair labor practice charge with the NLRB, contending that the owners failed to bargain in good faith. The union's lawsuit emulates one filed earlier in the month by the players' union in the National Basketball Association on antitrust issues.⁸ For the players' association, the suit represents an alternative to its frustrated attempts at collective bargaining as well as a way of saving face after the strike.

With the flurry of litigation, it will probably be a long time before everything is resolved. In December 1987, the NLRB's general counsel issued a complaint against the NFL, finding that striking players were discriminated against when they were not allowed to return for the games on October 18 and 19. The owners appealed this complaint with the NLRB, but if it is upheld it could cost them as much as \$25 million in backpay.

A priority with the union in the antitrust suit was to get free agency for players whose individual contracts with their clubs have expired. Judge David Doty, hearing the case in U.S. District Court in Minneapolis, refused the union's initial request for an injunction to release the players, because he was waiting for an NLRB ruling on good faith bargaining. Meanwhile, ruled Judge Doty, the 1982 agreement would remain in effect. When the NLRB dismissed the owners' charge that the union had failed to bargain in good faith, Judge Doty found that an impasse existed. This finding allowed for the chance that approximately 280 players without contracts would be declared free agents when the judge finally ruled on the union's injunction request in mid-July, just before the opening of training camps for the 1988 season. However, Judge Doty denied the injunctive relief, indicating that the potential change of teams by so many players could have had a devastating effect on the competitive balance of the NFL. The judge urged the parties to return to the bargaining

table. Nevertheless, if the bargaining stalemate continues, a decision on the antitrust dispute will eventually be reached by Judge Doty.

In retrospect, there was no real question about who would win the 1987 strike. The players struck reluctantly, without a significant issue to rally behind. When the union leaders were asked to identify their big issue they named free agency, for which few players had much enthusiasm. By striking when so many players preferred not to, the union may have harmed itself. As a result of the strike the players' association lost its dues checkoff privilege. So rather than having the clubs automatically deduct the \$2,400 in union dues, the union has the difficult task of collecting the monies from disgruntled players. But as incensed as some players may be with their union, they are also bitter toward the owners, especially for not letting them play after they had capitulated.

It seems unlikely that the union will die because the owners do not want this to happen. They have expressed preference for some kind of union, albeit a weak one, to no union at all. Were the union to die, the courts and Congress might take action against the owners, who need a collective bargaining agreement to continue to use the waiver system, the player draft, and other practices.

The bottom line on the strike may be that the owners and players will have to put aside their past warfare and try to reach agreement on issues like pensions, severance pay, and artificial turf. These issues are not only important to the players but their costs can be estimated readily. Unless the owners and players work out their problems themselves, the government may intervene in a manner that would be in neither party's interests. Unless a negotiated settlement is reached, the 1987 strike could become just the first step of the longest yard in NFL labor relations. □

—FOOTNOTES—

¹Ron Mix, "So Little Gain for the Pain," *Sports Illustrated*, Oct. 19, 1987, p. 55. Although the life expectancy of 55 is claimed by the players' association, this age is not based on scientific study of all deceased NFL players.

²The median salary is calculated by the players' association and is cited in Paul Zimmerman, "On the Outside Looking In," *Sports Illustrated*, Oct. 26, 1987, p. 56.

³In March 1988, Wilber Marshall of the Chicago Bears signed as a free agent with the Washington Redskins for a reported \$6 million over 5 years. Although the 1987 agreement had expired, the free agency provisions continued in effect pending the outcome of antitrust litigation. The Redskins gave up their first-round draft choice in 1988 and 1989 as compensation to the Bears. Thus, Marshall became the second free agent in 11 years to change teams.

⁴Paul D. Staudohar, *The Sports Industry and Collective Bargaining* (Ithaca, NY, ILR Press, Cornell University, 1986), p. 58.

⁵"In Week Two, Average Attendance Increases From 16,987 to 25,042," *Los Angeles Times*, Oct. 12, 1987, Part III, p. 3.

⁶Robert Johnson, "Team Owners Discover the Strike Brings a Big Benefit: An Improved Bottom Line," *The Wall Street Journal*, Oct. 14, 1987, p. 35.

⁷Poll reported in *Sports Illustrated*, Oct. 5, 1987, p. 17. See also Frederick C. Klein, "Joe Fan Sides With Owners," *The Wall Street Journal*, Aug. 8, 1987, p. 21.

⁸The basketball players' lawsuit was dropped when the union reached an agreement with the NBA in April 1988.

Conference Papers



Productivity and employment: the 1988 international symposium

HORST BRAND

Sponsored by the U.S. Department of Labor on the occasion of its 75th anniversary, an International Productivity Symposium, the third in 5 years, was held in Washington in April 1988.

The first of the three symposia had been sponsored by the Japan Productivity Center. Held in Tokyo in the spring of 1983, it had as its theme "Revitalizing the World Economy Through Improved Productivity." The second symposium met in Munich in the fall of 1986 under the auspices of Rationalisierungs-Kuratorium der Deutschen Wirtschaft, the German productivity organization which is a member of the European Association of National Productivity Centers. Here, the theme was "Productivity and the Future of Work."

The third International Productivity Symposium examined "Productivity and Employment." The symposium was attended by 650 participants from 28 countries, including 118 representatives from Japan alone. In addition to opening and concluding plenary sessions, at which the social and economic setting of productivity was discussed, the symposium was organized around three sets of panels, addressing (1) employment strategies; (2) organizational strategies; and (3) industrial relations strategies. "Strategies" were defined as ways of dealing with rapid technological change amidst growing international competition.

The employment panels dealt with employment policies, demographic effects, and educational and training responses dictated by technological change. The panels on organizational matters discussed changing forms of work design and work organization, and changes in work

schedules. They also featured case studies. The panels on industrial relations discussed changing roles of management and trade unions, changes in compensation and reward systems, and related matters. This report presents some of the highlights of the latest symposium.¹

U.S. Secretary of Labor Ann McLaughlin set the tone of the 1988 meetings by emphasizing the importance of the quality of labor in productivity growth:

Since 1929, the majority of this country's productivity improvements—and most of our growth in national income—have been directly linked to increased labor quality through education, training, and health care; and to the reallocation of labor through retraining.

By comparison, over the same period, machine capital has contributed a disappointing 20 percent, or less, to productivity. Clearly, machinery and technology alone don't improve productivity. People do.

The Secretary emphasized the need for labor force participants to continue their education beyond high school, and noted the probability of a "skills gap" in the future, as a shortage of skilled workers results, at least in part, from unfavorable demographics. She chided managers who cite workers as the chief culprits in causing quality problems. "Workers are not part of the problem. They're the source of the solution," she said, noting a number of examples of successful worker involvement in quality improvement.

Preparing for change

An analytical foundation for the symposium was provided by Janet L. Norwood, Commissioner of the U.S. Bureau of Labor Statistics. Norwood briefly reviewed what she held to be the central issues of adjustment to the changes in economic conditions now underway, stressing that not only working people but employers as well are being compelled to adjust. The issues she noted included new technology, foreign competition, economic and corporate restructuring, and a prospective rise in the rate of productivity growth. In her talk, she focused upon the recent and projected changes in the age and sex mix of the U.S. labor force, and what these changes signify for the Nation's productivity trend.

Horst Brand is an economist in the Office of Productivity and Technology, Bureau of Labor Statistics.

Dramatic increases in the country's labor force had occurred during the 1970's. Women, particularly married women, entered the work force in large numbers, and the teenage labor force rose at a nearly 5-percent annual rate. At the same time, close to 19 million new jobs opened up. The 1980's witnessed a more steady labor force expansion. While two recessions marked the early part of the decade, and the unemployment rate rose, the female labor force participation rate continued to increase, especially among women ages 25 to 34. Now, near the end of the decade, both partners hold jobs in one-half of all husband-wife families. By the year 2000, Norwood believes, some three-fifths of all women of working age are likely to be in the labor force. And the average age of workers will keep rising to the end of the century and beyond.

The effects of the changing age-sex structure of the labor force on productivity are likely to be positive, particularly if employers take account of child care and other family needs which both female and male workers must increasingly confront. Women will be better educated and more experienced; a growing proportion of them will hold technical and professional positions. Workers generally will be more mature, more committed, and may even wish to work more, rather than fewer, hours (recent surveys confirm this development).

Family stress, however, seems likely to intensify as more wives join their husbands in the labor force. Absenteeism may well increase unless employers deal with such stress issues. Many of them already recognize this, Norwood said: 60 percent of all establishments with 10 employees or more offer flexible work schedules; one-third permit part-time work; and 15 percent permit job sharing. In sum, companies of all sizes ought to reconsider their scheduling practices in light of the changing sex composition of the labor force, and the family (or stress) issues this presents.

Some panelists struck a cautious note concerning future productivity growth. Thus, John Martin of the Organization for Economic Development and Cooperation (OECD), broadly agreed with Norwood that favorable labor force demographics would likely promote productivity growth over the longer term, that broader employment opportunities would facilitate worker adjustment to economic change, and that rising spending for research and development foreshadows an improved productivity trend rate. He expressed concern, however, about the continued weak growth in total-factor (labor, capital, and other inputs) productivity, noting that while the trend for all OECD countries for the years 1960-73 averaged 2.9 percent per year, it slowed to 0.7 percent for the years 1973-79, and to 0.6 percent for 1979-85. The persistence of the slowdown, he thought, was all the more puzzling in view of the large investments during the last two decades in information-intensive technologies, especially in trade and finance. Only a small part of the slowdown can be

explicitly accounted for, he said—it may be partially attributable to a return to earlier trend patterns. At any rate, if the record of the recent past can be taken as a guide, then the outlook for strong gains in productivity is not bright. Hence, economic growth will be retarded, and living standards will improve much more slowly than in earlier periods.

Sketching likely employment effects

Sharply divergent points of view emerged concerning the employment effects of productivity growth, and the strategies to deal with them. Before some pertinent details are sketched, it should be noted that employment problems were discussed in terms not only of the direct effects of productivity and technological change but also of "restructuring," compelled by competition and the "globalization" of the U.S. economy. (Few panelists attempted to separate technological change and the resultant productivity gains from other factors impinging upon employment.)

Albert Rees, president of the Alfred P. Sloan Foundation, asserted that economic policy in the United States has in some respects changed over the last two decades: high unemployment rates have become politically more tolerable, unemployment compensation laws have become more restrictive, and the proportion of unemployed workers receiving such compensation has shrunk. However, the conventional business policy of laying off workers when demand slackens or when cost reduction becomes mandatory has not been modified, he said. In fact, insecurity of employment, a fact of life for blue-collar workers, has been rapidly extending to white-collar workers as well. Shorter hours on part-time schedules are unlikely to be widely accepted in industry, inasmuch as they have not traditionally been part of industrial relations in the United States.

Rees' thoughts were, in a sense, corroborated by the views offered by Frank Doyle, senior vice president of General Electric Co., as well as by Nathaniel Semple, vice president of the Committee for Economic Development (CED). Doyle in effect attributed the problem of slowed productivity growth to companies having been burdened by too many people, too many systems—and in so defining the problem, he implicitly defined its solution, at least within a company framework. The problem of import competition, which intensified during the early to mid-1980's because of the overvalued dollar, has become a fact of life in U.S. markets, particularly those for consumer products. Companies such as his, Doyle said, have thus been compelled to move production facilities offshore, to take advantage of the lower labor costs and organizational streamlining they need to remain cost-competitive in the U.S. and world markets.

Semple similarly portrayed the rigors of competitive pressures that business has confronted. To survive in today's volatile global markets, business must be able to reallocate resources quickly, and have maximum freedom to change technologies, plant location, and work conditions, including the rationalization of work organization, Semple maintained. He acknowledged the "destabilizing" effects such actions may have on workers—blue-, white-, and pink-collar—but saw no alternative.

Trade union representatives were troubled by just these human consequences of intensified competition, and the structural changes it already has brought about. Thus, Morton Bahr, president of the Communications Workers of America, pointed to the downgrading of tens of thousands of telecommunications workers after the breakup of American Telephone & Telegraph Co. in 1984. Sheldon Friedman, research director of the United Auto Workers, cited the recent BLS study on dislocated workers,² and discussed what he considered the poor corporate and government response to the problem. He noted that, between 1981 and 1986, 2 million workers had lost their jobs due to plant closings and mass layoffs, and that half of these workers remained jobless for more than 6 months. Friedman also stressed the income losses suffered by these workers when reemployed—losses that averaged 16 percent, and for one-third of them, more than 25 percent. At the same time, he said, Federal expenditures for employment and training have declined by 68 percent (in constant dollars) since 1978, so that activities under the Job Training Partnership Act (1982) have been so underfunded that only 5 percent of dislocated workers have been served.

Business generally has been likewise unresponsive to the dislocated worker problem, Friedman suggested. He cited a report by the U.S. General Accounting Office,³ according to which only about 1 in 10 blue-collar workers gets 90 days advance notice of plant closings or of mass layoffs; over the study period, the average for prenotification was 10 days. Severance pay was offered by only 44 percent of companies, and job search assistance by 30 percent. On the plus side, Friedman mentioned the Tuition Assistance Plan negotiated by his union and General Motors Corp., under which 12,000 laid-off workers each receive \$5,500 toward retraining for new careers.

In sum, representatives of labor and management agreed that productivity gains resulting from restructuring incident to sharpened competition in global and domestic markets might well cause employment losses.

Productivity gains from new technologies, however, were less likely to cause such losses. David Mowery, study director of the Panel on Technology and Employment at the National Academy on Engineering, argued that the combination of advancing technology and rising productivity has been associated historically with rising employ-

ment. ". . . [Reductions] in labor requirements per unit of output resulting from new process technologies have been and will continue to be outweighed by the beneficial employment effects of the expansion in total output that generally occurs."⁴

However, the favorable employment effects of technological advance have become conditioned upon the rapidity with which U.S. firms adopt and adapt to them, as well as the speed with which the innovations generate new knowledge. Lack of flexibility in these respects is likely to lead to employment losses, Mowery warned. He also stressed that the rate of technology transfer across international borders is accelerating, thus diminishing or altogether eliminating technology gaps between countries.

Notwithstanding the pressures to adjust to these relatively recent technological changes, the diffusion of new technology is likely to be gradual, thus easing adjustment of workers displaced by it. Moreover, retraining requirements posed by new technologies are not overly complex, Mowery stated. Job-related skill levels are unlikely to change very much. What workers need are strong basic skills—numerical reasoning, modest problem-solving abilities, literacy, and ability to communicate. Twenty to thirty percent of today's work force lacks some or all of these skills. Inasmuch as 75 percent of the current labor force still will be employed in the year 2000, intensive retraining efforts are a necessity.

Labor representatives took contradictory positions regarding the job effects (as opposed to the employment effects) of the new technologies. Bahr pointed to their oppressive potential, as when workers in telecommunications are closely monitored so as to ensure brevity in their responses to customer requests. While acknowledging that workers' basic skills do need upgrading, Bahr also held that, because the new technology extends brain power rather than brawn power, computer information systems tend to deskill rather than enhance job-related abilities.

By contrast, Karl Tapiola, director of the Confederation of Finnish Trade Unions, emphasized that the dependence of many production processes upon information technology that workers must master often enables employees to take a broader view of their work, and to have greater command over it. He stressed, however, that the required educational levels, the control over one's work, and the career opportunities that become available, are limited to but a minority of employees, a possible elite of workers—leaving a larger, second-class work force, the victims of "flexibility." To counteract such polarization, Tapiola proposed reductions in wage differentials, and called for resistance to discrimination against women, who traditionally were relegated without recourse to poorer-paying, low-status jobs.

Tapiola also dealt with issues of industrial relations that bear upon the productivity-enhancing effects of employee

participation in decisions that affect organizational operations. It is true, he said, that employees increasingly influence decisions about their immediate work conditions, but it is not true that they are helping to make the more fundamental strategic decisions that affect them. Management usually does not air questions of financing, research and development, and plant location and relocation within or beyond national borders with employee representatives. Tapiola urged consultative and exchange-of-information arrangements between trade unions and central management, at domestic and international levels, as well as continuous upgrading of labor standards and careful monitoring to prevent their erosion.⁵

Here, areas of tension between labor and management representatives once again could be perceived. Semple did propose labor-management communications programs (at a panel other than the one of which Tapiola was a member), focusing on the improvement of firms' market positions. But his advocacy of employee involvement as a means to productivity improvement was clearly confined to issues directly related to the work itself. He also advocated a shift away from fixed compensation in favor of flexible compensation structures which would link pay and benefits to profitability, and thus give employees a greater stake in a firm's performance. Such a practice might, of course, clash with the wage and labor standards policies which Tapiola urged.

There also were areas of agreement among symposium participants. Like the trade union spokespersons, Semple strongly favored notifying workers in advance concerning decisions affecting jobs—such as plant closings, work transfers, and automation. Also, he advocated that affected workers be supported with orderly job-transfer programs, whether inside or outside companies, as part of private-sector adjustment policies.

The worker's role

As indicated earlier, worker participation in decisions about work processes and the restructuring of work organization was one of the three themes of the symposium. Here, again, the discussion ranged far beyond the productivity effects. Advocacy of worker participation in organizational decision making had its inception at a time of profound changes in worker attitudes and the character of the labor force—the social unrest and widespread strikes that occurred in several industrialized nations between 1968 and 1971 being viewed as the onset of those changes. Thus, Roger Holtback, chief executive officer of the Volvo Corp., traced the shift during the early 1970's from assembly lines to small-team organization in building cars at his firm's Kalmar (Sweden) plant to the increasing difficulty of finding workers to staff assembly lines, rather than to considerations of higher output per hour (although this happened to be a result of the shift).

The Volvo assembly line—which itself had led to the breakdown or fragmentation of the worker craft organizations that had originally built the automobile—was replaced by small teams of about 20 workers, each charged with full responsibility for one of the systems (currently numbering 21) that make up a car—electrical, brake, instrument panel, and so forth. The work cycle has been lengthened so that the repetitiveness of given operations has been reduced to as little as one-tenth of what it had been on the assembly line. Corrections to finished work have been reduced by 40 percent.

The Volvo workers are trained in computer technology. The apprentice-journeyman system having been reintroduced, workers are regarded as being highly skilled, thus enhancing their self-esteem. Absenteeism and turnover are low, fewer health problems have arisen, and the age-sex mix of workers has become more broadly representative.

While Holtback's report, like other case studies presented at the symposium, summarized experience gained in manufacturing industry, another presentation dealt with a public service industry—here, the maintenance and repair of the New York City Department of Sanitation's truck fleet, with Ronald Cantino, deputy commissioner of the Department, reporting.

According to Cantino, one-half of the Department's 5,100 vehicles were out of service on an average daily basis as of late 1978, mostly because of ineffective management practices and poor use of labor resources. Large amounts of overtime had to be worked to ensure a modicum of daily sanitation services. Cantino, whose Bureau of Motor Equipment operates out of 73 locations scattered throughout the city, perceived that poor labor-management relations lay at the core of the problem. He proceeded to involve his employees and their union directly in all work-related decisions, focusing on raising efficiency. His guiding idea was that a pool of skills and knowledge existed among the work force of his bureau, which workers did not (or would not) share with an indifferent, often even callous, management.

The chief instrument devised by Cantino to gain the confidence and cooperation of the work force was a Labor Committee, consisting of the bureau's top staff and trade union and shop representatives. The committee was to report weekly to Cantino. Committee members were free to report all decisions to the trade union leadership.

The chief initial concern of the committee was not productivity improvement so much as working conditions, and this orientation gradually led to employees' perception that they were gaining control over their daily work lives. Pride in workmanship revived, and suggestions to make the job more efficient multiplied. Eventually, a system of 22 committees was set up to facilitate productivity improvement, the evaluation of the feasibility

ity of their specific suggestions being left to a specialized analyst.

Cantino also discussed the difficulties encountered with managers. Although the organizational structure of the motor equipment bureau was left in place, managers still resisted implementing many of the suggestions made by rank-and-file workers. Where managers proved unable to adapt, they were transferred, and replaced by persons trained in the worker participation system that Cantino had installed.

In addition to institutionalizing worker involvement in productivity change, a "profit center" concept was actuated, under which the cost incurred in repairing or replacing a given vehicular part (or in performing a given service) was compared to the cost of contracting out or purchasing from an outside company. The bureau's shops often were shown to outperform private contractors. Moreover, productivity improvements were thus transformed into readily understood dollars-and-cents terms, bolstering pride of workmanship and interest in the work.

The Japanese speak

Panelists representing Japanese business, labor, and government differed in orientation and emphases from their counterparts from other industrialized countries, reflecting national differences in employment policies, industrial relations, and work organization, as well as different long-term prospects brought on by radical changes in currency exchange values and their impact on Japanese industry.

Some of the Japanese speakers noted the U.S. origins of their economy's productivity growth over the postwar period. Thus, Masao Kamei, chairman of Sumitomo Electric Industries, cited the British productivity mission's report on its experience in the United States in the early 1950's, entitled *We Too Can Prosper*,⁶ as having greatly encouraged members of Japanese business circles to proceed with their own industrial buildup. Between 1955 and 1961, Kamei reported, Japan sent 459 teams with 4,403 members to the United States and Europe to learn about management techniques, manufacturing technology, workshop control, and labor-management relations. The teams published their reports upon their return, and these reports, being widely disseminated, very much contributed to revitalizing Japanese industry.

The Japanese "productivity movement," as described by Kamei, arose in the 1950's. It was based on the principles of labor-management cooperation and the recognition of workers' rights by management. Rising productivity was to generate rising employment over the longer term, and it was not to be left to the market alone to achieve this relationship. (As other Japanese panelists made clear, it also meant that no layoffs would occur because of technological advances.) Methods for productivity improvement were to be studied

and introduced in consultation with labor, the policy of "zero defects" and quality circles being among the results of such consultation.

Nobuo Kudo, managing director of the Japan Industrial Journal; Jinnosuke Miyai, president of the Japan Productivity Center; and Kannojo Kataiwa, acting president of the Federation of Electric Power Unions of Japan all confirmed that labor markets in Japan have been internal (to the firm) rather than open, that flexible personnel policies have rested on intracorporate transfers, and that management ordinarily has not felt free to lay off or dismiss workers. The seniority principle in wage and salary scales has been rather strictly adhered to, its premise being that length of service indicates degree of employee ability and vocational aptitude, reinforced by in-house training and retraining. Thus, Japanese management makes an "invisible investment" in its employees; employee experience and know-how in company-specific skills become management's "invisible assets," as one of the speakers pointed out. Much of the superior performance of Japanese business is attributable to this personnel system, the panelists believed.

Professor Tadao Kagono of Kobe University discussed additional features of this system—and he also outlined its limits. What he called the "paradigms of Japanese management" during the postwar period have been these:

- Motivate and commit your employees;
- Minimize status differences (Kagono stated that the highest salaries in Japanese corporations averaged 7.5 times the lowest)⁷;
- Minimize the number of separate job classifications;
- Spur internal mobility in the interest of skill versatility;
- Share all information with other managers and with employees and their representatives;
- Remember that implementing strategy is more difficult than formulating it;
- Share the fruits of productivity.

Japanese management overwhelmingly believes that its foremost obligation is to its employees rather than to shareholders, Kagono said. He believes that U.S. executives are too preoccupied with shareholder interests. It has been shareholder interests that have made for the recent waves of mergers and acquisitions; employees' equity in their job and in company-specific training has been almost entirely disregarded. If participative management is to be successful in the United States, shareholder powers must be curbed.

Kagono then discussed some of the limits of the Japanese management system; here, his thoughts were shared by some of the other Japanese panelists. Participative management works best in industries with assembly-line types of technology, where innovative production processes and new products are key success factors—for

example, automobiles, machinery, and computers. These are industries whose competitive positions have been strongly and adversely affected by the rising exchange rate of the yen. Intensive cost-cutting efforts have, to an extent, offset that disadvantage—only to contribute further to the Japanese trade surplus and hence the rising value of the yen. Therefore, to optimize productivity in these industries means to globalize them, most often by moving production facilities to other countries. That, in turn, spells a narrowing of the ambit of the participative management characteristic of Japanese organization.

Certain other Japanese manufacturing industries—steel and shipbuilding, in particular—are being compelled to “restructure” because of international competition. Their work forces must be reduced, and this goes against the grain of the Japanese tradition of no layoffs. Many other industries—food, chemicals, aerospace, agriculture—remain competitively weak but also cannot be restructured without giving up or greatly modifying time-honored management practices. The service sector, Kagano said, represents a newly emerging paradigm; here, greater priority is given to the hiring of younger workers, job classifications are often more detailed than in manufacturing, and compensation structures tend to reflect merit rather than seniority.

Miyai, of the Japan Productivity Center, further elaborated on the changes the industrial relations system in Japan will undergo. Contract labor, part-time work, and temporary hiring of professional and semiprofessional workers are becoming more prevalent. Retraining and reemployment of workers within the same enterprise is becoming more difficult. Thus, declining industries employ large numbers of redundant workers. Unemployment is not now a serious macroeconomic problem in Japan, but mismatches of employment on a regional or age basis are becoming more frequent. Job problems also arise from the increasingly permanent attachment of women to the labor force; the growing inability of agriculture to absorb redundant labor as international trade in agricultural products is liberalized; the stepped-up rationalization of services and distribution; office and plant automation; and the shift of economic activities to overseas locations. It was evident from such presentations as Kagano's, Miyai's, and Kamei's that Japan confronts profound changes in its employment and industrial relations structures, and that there is great uncertainty as to how these changes can be met without giving up traditions and conventions that have underlain her social stability and economic strength.

Summing up

In concluding the symposium, C. Jackson Grayson, chairman of the American Productivity Center, discussed the reasons why the growth of U.S. productivity has

slowed, and how the Nation's management must respond to reinvigorate it.

Macroeconomic policy solutions are no longer as effective in promoting productivity growth as they were in earlier postwar decades, he said. Nor will currency manipulation spur such growth, except over a short period.

Protectionism does not work, and so-called industrial policies are not very effective. In general, the belief that government can act as an engine of productivity advance is not well founded.

There is a more fundamental difficulty, Grayson asserted. The United States, like Great Britain and the Netherlands in earlier periods, has been a productivity growth leader. But leaders become complacent. Challengers copy them, adopt and adapt their ideas, work harder, pay more attention to education and training. Challengers are protectionists rather than free traders. Over time, economic leaders have trouble adjusting—their challengers are flexible. True, the United States still leads in terms of the level of productivity, but lags far behind in terms of productivity growth.

U.S. management must recognize and respond to the “economic tectonics” of global competition, Grayson warned. It must realize that production has become globalized, technological transfer has accelerated, and comparative advantage for a host of products is shifting rapidly among nations. It must adjust its practices to account for the rising importance of human capital, the growing emphasis on quality, and the rapid “commoditization” of innovations and inventions. It must organize for flexibility. Grayson listed 10 areas upon which productivity improvement must focus:

- Quality;
- Design of operating systems;
- Job design and organizational structures;
- Accounting systems;
- Employment security;
- Compensation and reward systems;
- Worker involvement;
- Investment in employee training;
- Elimination of status symbols;
- Trade union involvement in organizational decision-making.

The globalization of the U.S. economy, Grayson said, requires much more and much better international data, tailored for ready international comparability, by levels as well as by trend rates. He mentioned specifically the need for estimates of gross domestic product per capita, employment, and hours worked, each by nation, sector, and industry. He also called for improvements in the purchasing power parity method of converting exchange rates.⁸

Grayson's greatest concern remained with productivity growth. It determines a nation's rank in the global economy. It bridges macro- and micro-economic concerns. Notwithstanding his reservations about government intervention in matters economic, Grayson advocated a Marshall Plan for the poor nations, to be driven by productivity improvements. By the year 2100, he said, the Third World will account for 90 percent of the world's population. A world with a handful of rich nations and a vast majority of poor nations cannot survive peacefully. Productivity is the way out—a way to freedom.

The tension between productivity and employment, openly acknowledged by few speakers but implicit in most of the presentations, was thus more directly addressed by Grayson in his call for a vast expansion of global markets. And this recalled a note struck by Stephen Schlossberg, director of the Washington office of the International Labor Organization, at the beginning of the symposium: the United States and other industrial countries cannot prosper in the 21st century unless they open up new markets in developing nations. Schlossberg offered the International Labor Organization as a model for the tripartite action by employers, workers, and government. The statements by Grayson and Schlossberg essentially shifted responsibility for the solution to the productivity dilemma to the political arena, perhaps the most fitting summation for the symposium. □

—FOOTNOTES—

¹A summary of the symposium proceedings will be available at no cost in the early fall of 1988 from the Office of Labor Management Standards, U.S. Department of Labor.

²See Francis W. Horvath, "The pulse of economic change: displaced workers of 1981–85," *Monthly Labor Review*, June 1987, pp. 3–12. See also Paul O. Flaim and Ellen Sehgal, "Displaced workers of 1979–83: how well have they fared?" *Monthly Labor Review*, June 1985, pp. 3–16; Richard Devens, "Displaced workers: one year later," *Monthly Labor Review*, July 1986, pp. 40–43; and U.S. Congress, Office of Technology Assessment, *Technology and Structural Unemployment: Reemploying Displaced Adults*, OTA-ITE-250 (Washington, Government Printing Office, February 1986).

³See "GAO's Preliminary Analysis of U.S. Business Closures and Permanent Layoffs During 1983 and 1984, Apr. 30, 1986" (Washington, U.S. General Accounting Office). See also *Plant Closings: Information, Advance Notice and Assistance to Dislocated Workers*, GAO-HRD 87–86 BR (Washington, U.S. Government Printing Office, Apr. 17, 1987).

⁴Richard M. Cyert and David C. Mowery, eds., *Technology and Employment. Innovation and Growth in the U.S. Economy, Executive Summary* (Washington, National Academy Press, 1987), p. 2. See also Jerome A. Mark, "Technological change and employment: some results from BLS research," *Monthly Labor Review*, April 1987, pp. 26–29.

⁵See *World Labour Report*, vols. 1 and 2 (Geneva, International Labour Office, 1984).

⁶Graham Hutton, *We Too Can Prosper. The Promise of Productivity* (London, George Allen & Unwin, 1953).

⁷According to calculations by Lester Thurow, the after-tax income of the top 20 percent of income recipients in Japan averaged 5.2 times that of the bottom 20 percent for the years 1960–77; in the United States, it was 9.5 times. See Thurow, "Equity, Efficiency, Social Justice, and Redistribution," in Organization for Economic Cooperation and Development, *The Welfare State in Crisis* (Paris, 1981), p. 138.

⁸For a description at purchasing power parities, see John Dryden, Katrina Reut, and Barbara Slater, "Comparison of purchasing power parity between the United States and Canada," *Monthly Labor Review*, December 1987, pp. 7–24.

Consumer Expenditure Survey conference paper summaries

Economists in the Bureau of Labor Statistics' Division of Consumer Expenditure Surveys and Division of Price and Index Number Research analyze Consumer Expenditure data in a variety of ways. The following are summaries of this research that were presented at various professional conferences during 1987 and 1988. To receive a full copy of one or more of the papers, write the author, care of Bureau of Labor Statistics, 600 E Street, N.W. (4th floor), Washington, DC 20212.

* * * *

Thesia I. Garner, "Consumer Expenditure and Inequality: A Budget Components Analysis Using the Gini Coefficient," presented at the Southern Economic Association Meetings in Washington, DC, November 22–24, 1987.

In this paper, the material well-being of the population, as defined by consumption expenditures, is evaluated in terms of the inequality of consumption expenditures across consumer units representative of the U.S. urban population in 1982–83. The Gini coefficient is used as the measure of inequality: the higher the Gini value, the greater the inequality. Gini coefficients are produced for all consumer units as a group and for socioeconomic and demographic subgroups of the population. The Gini coefficient is decomposed by budget components to examine the effects by component on overall consumption expenditures inequality. The Lerman and Yitzhaki covariance method is employed to calculate Gini estimates; these estimates are more accurate than would have been possible with other methods, because microlevel, and not grouped, data are required.

An overall Gini value of .322 results from a population estimate of inequality based on consumption expenditures. This is comparable to, although slightly lower than, estimates based on income. Differences among subgroups of the population are examined. The most inequality in expenditures is experienced by one-person consumer units, consumer units with reference persons age 65 or

over, and those in which the reference person is of a race other than white or black. Consumers in the lowest quintile of income exhibit the most inequality in total expenditures.

The analysis by budget components reveals that certain expenditures contribute more to total inequality than do others. Results indicate that increases in expenditures for food, shelter, fuel and utilities, and medical care and services would lead to reductions in the overall inequality of consumption expenditures. An increase in private transportation expenditures would lead to the largest positive change in overall inequality.

The Lerman and Yitzhaki method is a valid procedure to use when evaluating the inequality of consumption expenditures across consumer units. Plans for future research include an expansion of this study to evaluate the effects of changes in taxes and in prices on overall inequality. In addition, a user-cost or flow-of-services method for defining vehicle purchase expenditures and homeowners' payments for "implicit rent" will be considered.

When evaluating the impact of changes in taxes and government subsidies, policymakers and researchers must keep in mind the differential impact on subgroups of the population and differences that can result when expenditures for individual budget components change. Otherwise, the policies proposed and programs enacted could lead to greater inequality in economic well-being across consumer units in the population—not the desired result for a society which is averse to inequality.

* * * *

Thesia I. Garner and Janet Wagner, "Gift-Giving Behavior: An Economic Perspective," presented at the Allied Social Science Associations Annual Meetings, Society of Government Economists, Chicago, IL, December 28–30, 1987.

The giving of gifts is a way of conferring material benefits on a recipient. Thus, whether a gift is given is in part an economic decision. Previous research has focused on various dimensions of gift giving; however, studies dealing from an economic perspective have not been fully developed.

The purpose of this paper is to explore the economic dimensions of gift giving. Engel curve analysis is used to study the socioeconomic and demographic determinants of household (consumer unit) expenditures for gifts given to individuals, households, and organizations outside the consuming unit. Total expenditures for gifts and expenditures for a selected product category, infants' clothing, are analyzed. The factors hypothesized to influence gift expenditures include the total expenditures or income of the household, family size, stage in the family life cycle,

ethnicity, region and degree of urbanization of residence, education of the reference person, and employment status of the spouse. Data are from the quarterly Interview component of the Consumer Expenditure Survey for 1984 and 1985. Only consumer units who report their expenditures for 12 consecutive months are included in the sample.

The results suggest that gifts, when evaluated as a total group, are luxuries for the household. The probability of gift giving and expenditures for total gifts are affected by socioeconomic and demographic variables including family size, stage in the family life cycle, ethnicity and education of the reference person, and degree of urbanization. Increases in family size are associated with a lower probability of gift giving outside the consumer unit. Results indicate that consumer units with "mature" or "older" reference persons are more likely to give gifts in general, while younger and mature parent consumer units are most likely to give gifts of infants' clothing. Consumer units of Anglo-Saxon ethnic origin are more likely to give gifts in general while Afro-Americans are less likely to have purchases for gifts of infants' clothing. Higher education is associated with a greater probability of gift giving when considered for total gifts, while higher education is negatively associated with the probability that the consumer unit will purchase gifts of infants' clothing. Consumer units living in cities or rural areas are less likely than those living in suburban areas to have gift expenditures. Information obtained from this research can be used to extend previously developed models of gift-giving to include economic concepts.

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Thesia I. Garner and Laura A. Blanciforti, "Reporting of Household Income: Complete Versus Incomplete Response," published in *Bureau of the Census Third Annual Research Conference, March 29–April 1, 1987 Proceedings* (Washington, Bureau of the Census, 1987). Another version of this paper was presented during the American Council on Consumer Interests 33rd Annual Conference, held April 1–4, 1987, in Denver, CO.

The purpose of this study is to examine the relationship between particular socioeconomic characteristics and the probability that a consumer unit reports income information. This is in contrast to earlier income/earnings reporting studies in which individual characteristics are related to response probabilities. Income reporting is defined in terms of the completeness of income information obtained from consumer units. The distinction between a complete income reporter and an incomplete income reporter is based on whether the respondent provides values for various sources of income. Socioeco-

conomic variables included in the model are the age, race, sex, education, and occupation of the reference person, and the housing tenure, degree of urbanization, and region of residence of the household. Binomial logit analysis is used to model the probability of income response completeness. Data from the Interview portion of the 1983 Consumer Expenditure Survey are analyzed.

If the reference person is self-employed or has a 4-year college degree, the consumer unit is likely to be an incomplete income respondent. Increases in the reference person's age, for the most part are related to decreases in the probability of complete income response. Owning one's home is negatively related to being a complete income reporter. Consumer units living in the Northeast and those living in the North Central regions of the country also are less likely than others to be complete income reporters. These results are consistent with related findings of previous researchers. For this analysis, no attempt is made to test whether the socioeconomic variables influence income completeness through their effect or whether the variables independently influence income completeness.

Results from the study have important implications for research. Analysts interested in using income from the Consumer Expenditure Survey need to be aware that complete and incomplete reporters of income are different; these differences may lead to biased estimation results if not accounted for in one's analytical procedure. Focusing on factors related to income report completeness is also important when the Bureau considers revising data collection procedures to improve data quality.

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Raymond Gieseman and Brent Moulton, "Income elasticities of expenditure for food," published in 1987 *Proceedings of the American Statistical Association, Business and Economics Section*.

Based on data from the 1985 Consumer Expenditure Survey, estimates of the income elasticities of expenditure for the several food groups included in the study are shown in the paper. These income elasticities of expenditure, evaluated at mean after-tax income levels, were found to be inelastic without exception. For total food, the expected change in consumer unit spending was .31 percent for each 1-percent change in income. Thus, a consumer unit with an income 10 percent above the mean could be expected to spend about 3 percent more per week on food than a comparable consumer unit at the mean after tax income.

This predicted incremental change in total spending for food, although small, may conceal different expenditure response patterns for food at home and away from home, and for individual food-at-home groups. Expenditures for

food away from home were considerably less inelastic (.55) than those for food at home (.17). This finding is consistent with the notion that consumer units with more money to spend eat out more often. Given the greater response to income change, food-away-from-home expenditures, which accounted for 36 percent on average of the total spending for food per consumer unit in 1985 (up from 33 percent in 1980-81), should continue to increase over time if incomes increase.

Among the food-at-home groups, expenditures most responsive to income change were those for fish and seafood (.36), other dairy products (.29), fresh and processed fruits (.23 and .29), and miscellaneous foods (.23). Food-at-home groups least responsive to income changes were pork (.10), other meats (.03), eggs (-.03), fresh milk and cream (.05), sugar and other sweets (.06), and fats and oils (.08).

The food requirements and eating habits of families differ, depending upon the number of persons in the family, the stage in the life cycle of family members, and the economic well-being of the household. These differences are reflected in the food expenditure patterns of consumer units. For example, with the same amount of income to spend, couples with one child are likely to spend their food dollar differently than couples without children. Older adults may eat out less often, and therefore spend less on food away from home.

From this same study, it was also possible to describe how expenditures for food and selected food groups vary when another person at a given stage in the life cycle was added to the consumer unit. For these calculations, the average size of a family was 2.6 persons and its after-tax income was approximately \$25,000 (\$480 weekly). Results are shown for persons in eight different age categories, and separately for girls and boys 10 through 19 years old.

According to the findings, adding a child under 5 years old to the consumer unit increased weekly food expenditures by \$2.61. However, expenditures for food at home went up by \$7.52 per week, and expenditures for food away from home declined by \$4.13.

Across age groups, expenditures for total food increased with the age of the consumer unit member, reaching a peak of \$20.98 for an adult 30 to 44 years old, and then declined to \$13.29 for an adult 65 years old or over, a drop of nearly 37 percent. However, adding an adult from any of the age groups 30 to 44 and over had about the same effect on food-at-home expenditures, but the effect on expenditures for food away from home differed. For example, adding a 30- to 44-year-old person to the unit increased food-at-home expenditures by \$18.44 and food-away-from-home expenditures by \$1.85. Adding an adult 65 years old increased at-home expenditures by \$18.17, but decreased expenditures on food away from home by \$5.44.

Boys tend to affect food expenditures more than girls. Adding a boy ages 10 to 14 years to the consumer unit increased the weekly food bill by \$7.75, compared to \$6.89 for girls in the same age category. Differences in the effects of adding boys and girls on unit food expenditures were even more pronounced for the 15- to 19-year-old category.

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Kirk Kaneer, "Housing Structure Attributes and Tenure Status," presented at the Allied Social Science Associations Annual Meetings, Society of Government Economists, Chicago, IL, December 28-30, 1987.

Are structural attributes of dwellings major factors related to whether a consumer owns or rents his or her housing? This is an important question because shelter costs form the largest budget item for most consumers and, from an econometric viewpoint, failing to account for structural attributes of dwellings found in the general housing stock may result in specification bias when estimating tenure model parameters. However, the primary purpose of this study was to examine the contribution of structural attributes as a group of explanatory variables in housing tenure models. It was found that housing tenure is significantly related to the structural attributes of the dwelling. This result was unexpected given that in standard economic models consumer characteristics alone explain housing tenure.

There are four major reasons why structural attributes should be included in a descriptive tenure model. First, the greater the housing density, the greater the need for controlling occupant abuse and congestion externalities. Given that renting provides means of controlling occupant behavior, a relationship exists between housing density and tenure. For example, a landlord may be more willing to rent out an adjoining duplex than to sell, preferring to retain greater control over its occupants. Second, maintenance cost may depend upon the tenure of the dwelling. It could be argued that the size of this maintenance cost would be a function of the kinds and amounts of structural attributes present—for example, the more rooms, the larger the maintenance cost differential between owning and renting the unit. If differences in maintenance costs between homeowners and renters are greater in single-unit structures than in multi-unit structures, one would expect the probability of ownership to be higher in the single-unit structures. Third, maintenance costs are tax deductions for landlords but not for homeowners. If maintenance costs vary by structural attributes, there is an added tax effect in the tenure relationship. Fourth, legal restrictions, such as local zoning laws limiting structure or tenure type, may prohibit certain structures from being rented or subdi-

vided and thereby affect the prevailing tenure status. Given these reasons, a model of observed tenure should include a vector of structural attributes describing the building as well as a vector of socioeconomic characteristics describing the occupants.

For the empirical analysis, the dwelling is characterized by a number of structural attributes, such as the number of rooms, structure type, structure age, housing density, and degree of urbanization. It was hypothesized that the structural attributes of a dwelling, with a vector of socioeconomic characteristics of its occupants serving as control variables, would be significantly related to the observed tenure of the dwelling. Three binomial logit models were specified and tested using 1984-85 Consumer Expenditure Survey data. The first model included both socioeconomic and structural attribute variables. The socioeconomic variables included the log of income, the log of income squared, age of the reference person, age of referenced person squared, and a set of dummy variables describing family type, log of a wealth variable, a set of education variables, and dummy regressors based upon new residences established within the past 3 months. These last three regressors were included to proxy consumer units' mobility, based upon distance moved from their previous locations. Race, observation quarter, and unemployment income dummy variables also were included as controls. The housing attribute variables were chosen to reflect housing density, economies of scale, congestion externalities, structural age, size, and degree of urbanization. The second model included only socioeconomic variables, while the third model included only structural attributes. The sample included only consumer units having their final interview conducted during 1984 and 1985. This eliminated multiple occurrences of the same consumer units brought about by rotating sample design, while also including income and asset data which were available only from the fifth interview questionnaire. The sample was further limited to consumer units giving valid income and wealth information, those not receiving government housing support, those not receiving housing on a noncash basis, and those giving valid structural attribute and mobility responses. This left 4,518 observations for analysis.

The null hypothesis that structural attributes do not make a contribution was strongly rejected. Log likelihood statistics indicated that the model that included both structural attributes and consumer characteristics significantly outperformed the models with consumer characteristics or structural attributes alone. This suggests that housing research, especially models utilizing occupant tenure, should further examine structural attribute influences.

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Julie A. Nelson, "Individual Consumption Within the Household: A Study of Expenditures on Clothing," BLS Working Paper No. 175, prepared in the Division of Price and Index Number Research, November 18, 1987.

Most studies of consumption behavior, including most studies of the consumption of clothing, investigate expenditures at the household level. The Interview portion of the Consumer Expenditure Survey, however, collects data on purchases of clothing according to the member for whom the purchase is made. These data, available on the Bureau's internal data base, provide a rare opportunity for direct investigation of the distribution of consumption within the household.

This paper uses multiple regression analysis to study the factors influencing the level of annual expenditure on clothing for individuals and to generate predicted mean values of expenditure based on these observable factors. The individuals studied are members of households which consist of two parents and their children under 17 years of age, for whom data were gathered for some 12-month period falling between January 1984 and December 1985. The factors hypothesized to influence clothing expenditure include the age, sex, and race of the household member, the total expenditures or income of the household unit, the age/sex composition of the remainder of the household, the educational levels and occupations of the parents, and geographic location.

The results suggest that expenditure on clothing for girls is generally higher than for boys, and expenditure on clothing for mothers higher than that for fathers. Expenditure elasticities with respect to permanent income are estimated as being near unity for children, but greater than unity for adults. Contrary to the usual assumption that expenditures increase with age, expenditures on children are estimated to be highest in infancy and in the mid-teen years, and lowest at early preschool ages.

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Jeffrey W. Smith and Mary F. Kokoski, "The Autocovariance of Expenditure Shares From Consumer Expenditure Survey Data," presented at the Allied Social Science Association Annual Meetings, Society of Government Economists, Chicago, IL, December 28-30, 1988.

The continuing Consumer Expenditure Survey uses a rotating panel sampling design. As a result of this design, approximately 80 percent of the households sampled in one (calendar) quarter will also be sampled in the following quarter. To the extent that the expenditure patterns of individual households are autocorrelated over time, quarterly estimates of aggregate expenditure shares will exhibit autocovariation. The presence of autocovariation

can be shown to create bias in the construction of quarterly chained indexes, and the magnitude of this bias is related to the magnitude of the covariance. The purpose of this paper is to determine this magnitude. The issue is addressed both analytically and empirically.

The analytical expression for the autocovariance is derived in a framework of random sampling from a superpopulation. The effects of sample size are considered, and it is shown that the magnitude of the covariance declines on the order of approximately $1/n$. In addition, two relevant features of expenditure share estimates are considered: the fact that each share must lie between zero and 1, and the fact that the shares must sum to unity. It is shown that both of these features imply that the magnitude of the covariance is very low.

The empirical part of the paper looks at the expenditure shares of households that are surveyed in adjacent quarters. For these households, the correlation between expenditure shares for various expenditure categories is calculated. It is found that shares for nondurables tend to exhibit positive autocorrelation and those for durables show negative autocorrelation. Typically, the magnitude of the estimated correlations is found to be small.

Overall, both the analytical and empirical parts of the paper show that, even though household expenditure shares may be autocorrelated, the autocovariance of estimates of aggregate expenditure shares is sufficiently small that it can be safely ignored.

* * * *

William D. Passero, "Goods vs. Services: From the Perspective of Consumer Spending," presented at the American Council on Consumer Interests Annual Meetings, Chicago, IL, April 6-9, 1988.

In recent years, one of the major themes which has emerged in tracing the course of the American economy has been the basic shift from the production of goods to the provision of services. This paper examines the phenomenon of the shift towards a service economy from the perspective of consumer spending. The first section analyzes aggregate data from the Consumer Expenditure Survey with other national sources of data for the period 1972-73 to 1984-85. The results show that purchase decisions of consumers painted a different picture of the economy—one much less services-oriented—than that portrayed by employment or output measures. In the aggregate, U.S. consumers have allocated an increasing share of their consumption dollar to services. Nonetheless, overall total consumption has been divided fairly evenly between goods and services.

Several factors contribute to the disparity between consumption estimates and the other data sources. The range of services that consumers can directly purchase is

markedly smaller than the range of services that workers produce. In fact, expenditures by consumers for goods actually reflect the costs of many of these services, which are incorporated into the prices of goods. In addition, the consumption data sources account for the disposition of savings differently than the employment and output data sources.

While the consumption data from the Consumer Expenditure Survey showed U.S. households in the aggregate spending slightly more on goods than services, various subgroups of the population may have exhibited different spending patterns for goods vis-a-vis services. The second section of the paper focuses on the allocation of spending between goods and services for subgroups of the population, defined by age and by income in 1985. It is found that, with some important exceptions, these subgroups have behaved much like the population as a whole. Subgroups located at the "ends" of the distribution for each characteristic—the youngest, the oldest, and the poorest—displayed distributions of expenditures between goods and services that deviated furthest from the distribution for all households. The relative absence or presence of purchases of "big ticket" items, such as cars, trucks, and homes, in their consumption profiles, seemed to account for these deviations.

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Stephanie Shipp, "Spending Patterns of Men and Women," published in *1987 Proceedings of the American Statistical Association, Business and Economics Section*.

Intuitively one expects men and women to spend their money differently. But do they? Little work has been done to date on this subject despite the growing significance of women in the economy. The reason for this, in part, is due to lack of data that includes observations of consumption for men and women separately.

The ongoing Consumer Expenditure Survey is one source of data that can be used to examine gender differences. The survey does not collect data on which member of the household purchased an item. Therefore, to isolate expenditure differences between men and women, data for single men and single women are used. Because singles account for more than 1 consumer unit in

4, the survey provides a sufficient amount of data to examine gender differences. It must be noted that gender differences between single men and single women may be different from those that exist between their counterparts in other types of households, such as married couples. Therefore, this analysis should be considered a first step in analyzing gender differences. Data for 1984–85 are used.

Demographics. One of the most notable differences when comparing single men and women in the expenditure survey is the difference in age. Over 50 percent of single men are under age 35, whereas more than 50 percent of single women are age 55 or over. The age difference between men and women narrows as income increases. However, three-fourths of the women earn less than \$15,000, compared to about half the men. The gap in average income is wide at all age groups.

Sources of income. Single men, on average, earn about \$7,000 more than single women. There are also large differences in their sources of income. On average, single women earn three-fifths of their income from wages and salaries, while single men earn almost four-fifths from this income source. Single women receive one-fourth of their income from Social Security, pensions, and government retirement. This is an important source of income because there are more women in the older age group. They also earn almost 10 percent from interest, dividends, and other property income. These two sources of income account for 35 percent of total income for single women but less than 15 percent of total income for single men.

Expenditure patterns: 1984–85. Single men spend an average of \$15,000 per year compared to about \$11,000 spent by single women. Because of this income difference and the large age difference, regression analysis is used to examine expenditure differences between single men and women after controlling for income, age, and race. The regression results show that women spend more for health care and life and other personal insurance while men spend more for alcoholic beverages, shelter, used vehicles, and gasoline and motor oil. The interaction of gender and income, age, and race is also examined and is found to be significant for several expenditures. □

Major Agreements Expiring Next Month



This list of selected collective bargaining agreements expiring in September 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	Western Field Construction Negotiating Committee (Interstate)	Boilermakers	4,000
	National Electrical Contractors Association, inside agreement (Miami, FL)	Electrical Workers (IBEW)	1,200
Textiles	Textile dyeing, printing, and finishing cos. (Interstate)	Clothing and Textile Workers	2,000
Apparel	Dress and Sportswear Manufacturers of St. Louis (Missouri)	Ladies' Garment Workers	1,150
Paper	Ecusta Paper Co. (North Carolina)	Paperworkers	1,350
Rubber	Kelly Springfield Tire Co. (Tyler, TX)	Rubber Workers	1,050
Leather	Brown Shoe Co. (Interstate)	Clothing and Textile Workers; Food and Commercial Workers	7,000
	Interco and Florsheim Shoe Cos. (Interstate)	Various unions	4,000
Fabricated metal products	Combustion Engineering Co., Inc. (Chattanooga, TN)	Boilermakers	1,050
Machinery	Deere & Co. (Interstate)	Auto Workers	12,000
	PT Components, Inc. (Indianapolis, IN)	Steelworkers	1,100
Transportation equipment	Chrysler Corp., hourly (Interstate)	Auto Workers	63,000
	Chrysler Corp., salaried (Interstate)	Auto Workers	6,300
	American Motors Corp. (Wisconsin)	Auto Workers	7,500
Instruments	Sperry Rand Corp. (New York)	Electrical Workers (IUE)	3,300
Trucking	Bowman Transportation, Inc. (Atlanta, GA)	Steelworkers	1,900
Retail trade	Food Employers Council, Inc., warehouse and drivers (Southern California)	Teamsters	10,800
	Bruno Food Stores (Alabama)	Food and Commercial Workers	4,600
	Eagle Food Stores (Illinois)	Food and Commercial Workers	2,500
	Dominicks Food Stores (Illinois)	Food and Commercial Workers	8,300
Real estate	Apartment Owners Advisory Council (Westchester, NY)	Service Employees	2,400
Services	American Protective Services Inc.	International Union of Security Officers (Ind.)	2,700
Amusements	Alliance of Motion Picture and Television Producers (Los Angeles, CA)	Office and Professional Employees..	1,900
Hospitals	Washington Hospital Center, nurses (Washington, DC)	Nurses Association (Ind.)	1,200

See footnote at end of table.

Continued—Major Agreements Expiring Next Month

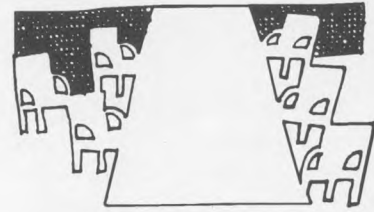
Industry or activity	Employer and location	Labor organization ¹	Number of workers
Public			
Education	California: Los Angeles Board of Education, clerical	California School Employees Association (Ind.)	4,500
General government	Los Angeles Department of Power and Water, clerical	Electrical Workers (IBEW)	1,750
	Los Angeles Department of Power and Water, operators, maintenance, service	Electrical Workers (IBEW)	4,950
	Florida: Dade County, general classified	State, County and Municipal Employees	10,000
Law enforcement	Dade County police, corrections officers	Police Benevolent Association	2,950
Transportation	Dade County Transit Authority, operators	Transport Workers	1,150
General government	Jacksonville, municipal unit	State, County and Municipal Employees	2,000
Services	Michigan: State human services support	Service Employees	1,200
Law enforcement	State correctional employees	Service Employees	4,500
Transportation	Oregon: Tri-County Metro Transit Authority, operating and maintenance	Transit Union	1,500
	Pennsylvania: Turnpike employees	Teamsters	1,500
Education	Pittsburgh Board of Education, teachers	Teachers	3,150
Fire protection	Texas: San Antonio Fire Department	Fire Fighters	1,150

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

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.

Developments in Industrial Relations



Pattern contracts in apparel manufacturing

More than 100,000 members of the Ladies Garment Workers in the Northeast were covered by settlements with 47 associations of apparel manufacturers and contractors. The round of bargaining led off with pattern-setting settlements by the New York Coat and Suit Association and the Infants', Children's, and Girls' Sportswear and Coat Association.

The 3-year contracts provide for a 4-percent wage increase each year bringing average pay to \$8.44 an hour, according to the union.

A feature of the settlements was establishment of provisions permitting male or female employees to take up to 6 months' unpaid leave for the birth or adoption of a child. At the end of the leave, the employee is entitled to return to a comparable job with the same employer. A union official called the provision "an important benefit for this group of workers, which include many two-earner families with children," further noting that 1987 settlements for 25,000 garment workers had provided for parental leave, presaging a possible trend toward widespread adoption of such provisions. About 85 percent of the union's members are women.

Other contract terms include an increase in employer financing of health and welfare and pension benefits, increased holiday pay, and a longer duration of paid funeral leave.

The settlements with the 45 associations that followed the lead of the pattern-setting cost accords were in the women's dress, sportswear, knit goods, children's wear, and rainwear industries.

Shipyard uses skills as basis for hiring, layoffs

In the shipbuilding industry, the initial contract between West State, Inc. of Portland, OR, and the Metal Trades Council sets skill and ability—rather than seniority—as the determinant in hiring and layoff actions. The shipyard, which has been in operation for 18 months, said

it signed a union contract because the pool of skilled labor in the 10 crafts represented by the Metal Trades Council enables it to quickly undertake and complete large projects. Under the new approach, which applies to eight of the crafts, West State will decide which employees to hire. If the company's list of preferred workers is exhausted, further hiring will be on a seniority basis. Similarly, when projects are completed, the company will decide which employees to lay off. Exceptions are crafts represented by the Machinists and Carpenters unions, which will continue under traditional seniority rules. In return, members of these two unions will be compensated at \$1 an hour less than the other crafts, whose wage rates will move to \$14 an hour plus \$3.31 for benefits during the 1-year contract term.

All of the crafts agreed to changes in work rules intended to increase efficiency. According to a union official, the crafts have about 3,000 members in the Portland area, who now work an average 9 months a year, compared with 5 or 6 months a few years ago. West State employs 200 to 800 workers, depending on business levels.

More settlements at The New York Times

The latest in a series of settlements between The New York Times and various unions covered 2,000 news, advertising, circulation, and business employees represented by the Newspaper Guild. Five unions had settled earlier and eight are still negotiating. Contracts for all 14 unions expired March 30, 1987, but operations continued under extensions while the parties concentrated on resolving the major issue: how to protect the jobs of those employees who might be affected by a \$400 million printing plant scheduled to be built in Edison, NJ, in 1990, contingent on the outcome of the various settlements.

All of the six settlements already attained were for 6-year terms, and provided for similar economic terms. One settlement, for mailers, provided for typical terms, including wage increases totaling \$215 a week over the term and a \$18.35 weekly increase in the newspaper's financing of benefits. The mailers also gained a lifetime job guaranty for current employees and new employees hired prior to 1990.

"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.

Another contract that provided for a job guaranty—of 10 years—covered press operators.

New York City janitors get new contract

In New York City, a settlement between the Realty Advisory Board and the Service Employees covered 30,000 janitorial employees in 4,000 apartment buildings. The union said that the terms would also serve as a pattern in its bargaining with independent apartment buildings in the area. Wage increases, paid in three annual steps over the 3-year term, total \$70 a week for superintendents, \$68 for handypersons, and \$62 for other employees. All employees will be eligible for possible cost-of-living pay adjustments equal to 4 cents an hour for each percentage-point rise above 8.5 percent in the Consumer Price Index for All Urban Consumers in New York City–Northeastern New Jersey between April of 1988 and 1989, and above 8 percent between April of 1989 and 1990. Each possible adjustment is limited to 20 cents.

The agreement, running to April 20, 1991, also provides for:

- A new long-term disability plan paying employees up to \$250 a month until they recover, become eligible for a pension, or reach age 65.
- A \$50 increase, to \$525 a month, in the maximum pension for future retirees and a 5-percent increase for current retirees.
- A \$500,000 increase, to \$1.5 million, in major medical insurance.
- A \$25 increase, to \$125, in the reimbursement for optical charges, available every other year.
- A new “well baby” provision covering various medical costs from birth to age 3.

Hawaiian Telephone, Electrical Workers settle

A settlement between the Hawaiian Telephone Co. and the International Brotherhood of Electrical Workers provides for an immediate lump-sum payment equal to 2.5 percent of each employee's earnings during the preceding 12 months. In the second and third years, the 3,000 workers will receive 2.5-percent specified wage increases. Prior to the settlement, average pay was \$12.63 an hour.

Other provisions of the 3-year contract include a \$3 increase in the \$22 a day payment for work outside the employee's normal base; a 35-cent-an-hour night shift differential, replacing 25- and 30-cent rates; new group universal life insurance, with a cash accumulation provision; and employee eligibility for the company's savings and investment plan, beginning in 1990.

Retroactive increases for port authority police

The Port Authority of New York and New Jersey settled with four unions for 1,800 police who patrol the New York City area's principal airports, marine terminals, tunnels, and other facilities. About 1,500 of the employees are represented by the Patrolmen's Benevolent Association; the remainder are represented by the Sergeant's Benevolent Association, the Detectives Endowment Association, and the Superior Officers Association, which bargain as a unit.

The 4-year contracts were retroactive to the July 1985 termination date of the prior contracts. They provided for 4-percent wage increases effective in July 1985 and in January and July of 1986, 3 percent in January 1987, 6 percent in July 1987, and 5.4 percent in July 1988.

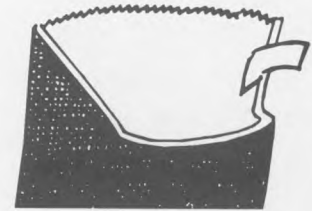
The increases bring the salaries for patrol officers to the \$22,500–\$42,050 range, up from \$17,500–\$32,500 prior to July 1985. Salaries for sergeants and detectives were increased to \$52,676 (formerly \$35,282), and for lieutenants, to \$60,554 (formerly \$42,692).

New contract for county police in Maryland

About 800 police officers were covered by a settlement between Montgomery County, MD, and Lodge 35 of the Fraternal Order of Police. The 3-year contract provides for a 5.5-percent pay increase in July of 1988 and 4.6-percent increases, varying with the movement of the Consumer Price Index, in July of 1989 and 1990. The agreement also provides for additional pay increases based on experience and for accelerated promotions to aid in competing for personnel with other jurisdictions in the Washington, DC, area.

Prior to the settlement, salaries ranged from \$22,895 to \$38,702.

Book Reviews



A concise reference for arbitrators

Arbitration for the Practitioner. By Walter E. Baer. Jefferson, NC, McFarland Co., 1988. 152 pp. \$24.95.

This excellent book's target audience and its paramount philosophy are succinctly stated in its Introduction. It is aimed at "management and union participants . . . [who] don't deal with the intricacies of the arbitration process on a day-to-day basis, but when an issue comes to arbitration, it becomes their responsibility to present their organizations's position effectively and successfully." They are cautioned: "There is no substitute for thorough, comprehensive, detailed preparation. There is no excuse for its lack. The conscientious, dedicated, and determined advocate has learned the importance—in fact, the absolute necessity—of thorough pretrial preparation . . . cases are seldom if ever won in . . . a hearing room. They are won by the side that has slaved to find all the facts in the case and all its corporal parts, and is fully prepared before any [hearing] begins." To those sentiments every arbitrator will respond: "Amen."

To assist the advocate achieve that goal, Walter E. Baer devotes two chapters to methods and criteria for selecting the arbitrator; one chapter to preparing the case, with emphasis on interviews and preparation of witnesses; a long chapter on "Arbitration and Advocacy," consisting mainly of the "do's" and "don'ts" of direct- and cross-examination; a short chapter entitled "Principles and Practices" covering a variety of questions having to do mostly with procedure and evidence; another long chapter called "Concepts-Theories-Issues," which discusses a number of basic substantive and procedural issues; a short chapter on arbitrability; and a page-and-a-half "Conclusion" in which, among other things, the author reiterates his advice, "The *sine qua non* for success in the field is unflinching industry, in advance and throughout the trial . . ." Finally, a list of "Citations" by chapter is included, along with a brief and inadequate index. There is no bibliography. Also conspicuous by its absence is any discussion of screening procedures, prior to arbitration, designed to identify and eliminate (through negotiation or withdrawal) cases which should not go to arbitration because they are susceptible to settlement or because they are unwinnable in arbitration. Many companies and

unions involve the same persons responsible for arbitration in such screening processes.

There are, of course, other books that cover much the same ground as this one. This book, however, is eminently readable and admirably concise, resulting, with the help of fine print, in a small volume that will travel well. It will probably go along to hearings, while standard reference works, such as Elkouri and Elkouri, remain home. This does not mean the aspiring advocate will not need more detailed reference sources, but if there is a better starting place than Baer's manual, I am not aware of it. It is an impressive effort for which many arbitration participants will be grateful.

—GEORGE B. HELIKER
Professor Emeritus, Economics
University of Montana

Interdisciplinary approach to labor relations

Labor Relations: Process and Outcomes. By Marcus H. Sandver. Boston, MA, Little, Brown and Co, 1987. 529 pp. \$29.50.

Why a new addition to the already ample supply of industrial relations textbooks (or books summarizing original research used for instructional purposes)? Professor Marcus H. Sandver tells us that his offering contributes to an " . . . interdisciplinary understanding . . ." derived from a "comprehensive review of the historical, legal and institutional aspects of labor relations . . ." However, the uniqueness of this approach is difficult to discern, since what we have is a text that, for the most part, covers the standard topics in a fairly conventional way. Regrettably, more often than not, it does not reach the level of treatment found in a number of texts currently in use.

For example, the discussion of the Taft-Hartley Act is limited to a recital of the key features of the law; no analysis or assessment of its effects is included. The same criticism applies to the treatment of the Landrum-Griffin Act, the emergency procedures of the Railway Labor Act, and the right-to-work controversy. A single chapter of 26

pages tries to cover contract provisions ranging from management rights to seniority, wages and fringe benefits, doing justice to none of them.

In a generally well-rounded chapter on collective bargaining in the public sector, the author states that "Congress was not allowed to pass laws dealing with the internal labor relations policies of the various State governments." One must assume that the author is referring to the 1976 Supreme Court decision in *National League of Cities v. Usery*, which has been widely interpreted as limiting the Federal Government's role in regulating State employees. However, this case was overruled in 1985, in *Garcia v. San Antonio Metropolitan Transit Authority*, thereby apparently leaving Congress free to act in this area should it decide to do so.

The above observations notwithstanding, there are several strong points in this volume, notably the chapters on collective bargaining structure, bargaining theory, and labor history. It is, on the whole, very readable, balanced, and extensively documented. There are well-founded expectations that future editions will increase the book's usefulness for instructional purposes and assure it wide acceptance.

One final comment: The author may want to rethink the heading of Chapter 12, "Outcomes of Bargaining: Strikes and Industrial Conflict," in light of the fact that approximately 95 percent of all contract negotiations are settled peacefully.

—HARRY P. COHANY
Department of Management
Towson State University

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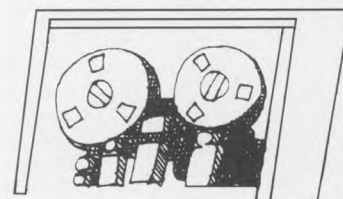
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Schedule of release dates for BLS statistical series

Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Productivity and costs:							
Nonfinancial corporations	August 4	2nd quarter	.....	.....	.....	.....	2; 42-44
Nonfarm business and manufacturing .....	.....	.....	September 1	2nd quarter	.....	.....	2; 42-44
Employment situation	August 5	July	September 2	August	October 7	September	1; 4-21
Producer Price Index	August 12	July	September 9	August	October 14	September	2; 33-35
Consumer Price Index	August 23	July	September 21	August	October 21	September	2; 30-32
Real earnings	August 23	July	September 21	August	October 21	September	14-17
Employment Cost Index .....	.....	.....	.....	.....	October 25	3rd quarter	1-3; 22-24
Major collective bargaining settlements .....	.....	.....	.....	.....	October 26	1st 9 months	3; 25-28
U.S. Import and Export Price Indexes .....	.....	.....	.....	.....	October 27	3rd quarter	36-41
Occupational illnesses and injuries .....	.....	.....	.....	.....	November 15	1987	48

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 1988 issue of the *Review*, to reflect experience through 1987.

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 \times 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 1987.

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 Data-book*, 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.

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

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).

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 homeowner-ship 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; 16 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 (1986). 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			1987				1988
			II	III	IV	I	II	III	IV	I
Employment data										
Employment status of the civilian noninstitutionalized population (household survey) ¹										
Labor force participation rate	65.3	65.6	65.2	65.4	65.4	65.5	65.5	65.6	65.7	65.8
Employment-population ratio	60.7	61.5	60.6	60.8	60.9	61.1	61.4	61.7	61.9	62.1
Unemployment rate	7.0	6.2	7.2	7.0	6.8	6.6	6.3	6.0	5.9	5.7
Men	6.9	6.2	7.0	7.0	6.9	6.6	6.3	5.9	5.8	5.7
16 to 24 years	13.7	12.6	14.1	13.9	13.4	13.3	12.9	12.2	11.9	11.9
25 years and over	5.4	4.8	5.4	5.4	5.4	5.1	4.9	4.6	4.4	4.4
Women	7.1	6.2	7.3	7.0	6.8	6.6	6.2	6.1	6.0	5.8
16 to 24 years	12.8	11.7	13.1	12.7	12.5	12.5	11.8	11.4	11.1	11.0
25 years and over	5.5	4.8	5.7	5.4	5.3	5.0	4.7	4.7	4.7	4.4
Unemployment rate, 15 weeks and over	1.9	1.7	1.9	1.9	1.9	1.8	1.7	1.6	1.5	1.4
Employment, nonagricultural (payroll data), in thousands: ¹										
Total	99,525	102,310	99,189	99,676	100,347	101,024	101,841	102,669	103,683	104,670
Private sector	82,832	85,295	82,559	82,987	83,496	84,130	84,869	85,643	86,518	87,406
Goods-producing	24,558	24,784	24,588	24,454	24,443	24,523	24,644	24,847	25,116	25,260
Manufacturing	18,965	19,065	18,993	18,902	18,885	18,895	18,965	19,112	19,290	19,388
Service-producing	74,967	77,525	74,601	75,222	75,904	76,500	77,196	77,782	78,567	79,410
Average hours:										
Private sector	34.8	34.8	34.8	34.7	34.7	34.8	34.7	34.7	34.8	34.7
Manufacturing	40.7	41.0	40.7	40.7	40.8	41.0	40.9	40.9	41.1	41.0
Overtime	3.4	3.7	3.4	3.5	3.5	3.6	3.7	3.8	3.9	3.8
Employment Cost Index										
Percent change in the ECI, compensation:										
All workers (excluding farm, household, and Federal workers)	3.6	3.6	.7	1.1	.6	.9	.7	1.2	.8	1.4
Private industry workers	3.2	3.3	.8	.7	.6	1.0	.7	1.0	.7	1.5
Goods-producing ²	3.1	3.1	.9	.6	.5	.5	.7	.8	1.0	1.8
Service-producing ²	3.2	3.7	.6	.8	.6	1.3	.7	1.0	.5	1.3
State and local government workers	5.2	4.4	.6	2.8	.8	.8	.3	2.3	.9	1.3
Workers by bargaining status (private industry):										
Union	2.1	2.8	.2	.5	.3	.5	.5	.6	1.1	1.6
Nonunion	3.6	3.6	.9	.8	.7	1.1	.7	1.1	.6	1.5

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			1987				1988	
			II	III	IV	I	II	III	IV	I	
Compensation data^{1, 2}											
Employment Cost Index--compensation (wages, salaries, benefits):											
Civilian nonfarm	3.6	3.6	0.7	1.1	0.6	0.9	0.7	1.2	0.8	1.4	
Private nonfarm	3.2	3.3	.8	.7	.6	1.0	.7	1.0	.7	1.5	
Employment Cost Index--wages and salaries											
Civilian nonfarm	3.5	3.5	.8	1.1	.6	1.0	.5	1.3	.7	1.0	
Private nonfarm	3.1	3.3	.9	.7	.5	1.0	.7	1.0	.6	1.0	
Price data¹											
Consumer Price Index (All urban consumers): All items	1.1	4.4	.6	.6	.3	1.4	1.2	1.3	.3	1.0	
Producer Price Index:											
Finished goods	-2.3	2.2	.5	-7	1.1	.8	1.2	.2	.1	.4	
Finished consumer goods	-3.5	2.6	.4	-7	.8	.9	1.6	.3	-2	.3	
Capital equipment	2.1	1.3	.6	-8	2.1	.1	.3	-2	1.1	.7	
Intermediate materials, supplies, components	-4.4	5.4	-9	-2	-3	1.3	1.9	1.2	.9	1.0	
Crude materials	-8.9	8.9	-1.5	-6	.6	4.2	5.3	.6	-1.4	-3	
Productivity data³											
Output per hour of all persons:											
Business sector	1.9	.9	.6	-3	-.1	.5	1.4	4.7	-1.5	3.2	
Nonfarm business sector	1.6	.8	.1	-6	.0	.4	1.4	4.2	-1.0	3.6	
Nonfinancial corporations ⁴	1.6	.3	-2	.9	2.1	-2.9	.7	3.3	-1.0	3.4	

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.

- Data not available.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ended--					
	1986	1987				1988	1986	1987				1988
	IV	I	II	III	IV	I	IV	I	II	III	IV	I
Average hourly compensation:¹												
All persons, business sector	3.6	1.4	3.3	3.8	3.2	3.6	3.3	2.8	2.8	3.0	2.9	3.5
All employees, nonfarm business sector	4.0	1.1	3.0	3.6	3.5	3.4	3.4	2.7	2.7	2.9	2.8	3.4
Employment Cost Index--compensation:												
Civilian nonfarm ² .....	.6	.9	.7	1.2	.8	1.4	3.6	3.4	3.3	3.4	3.6	4.1
Private nonfarm .....	.6	1.0	.7	1.0	.7	1.5	3.2	3.1	3.0	3.3	3.3	3.9
Union .....	.3	.5	.5	.6	1.1	1.6	2.1	1.6	1.9	2.0	2.8	3.9
Nonunion .....	.7	1.1	.7	1.1	.6	1.5	3.6	3.6	3.4	3.7	3.6	4.0
State and local governments .....	.8	.8	.3	2.3	.9	1.3	5.2	5.0	4.7	4.2	4.4	4.9
Employment Cost Index--wages and salaries:												
Civilian nonfarm ² .....	.6	1.0	.5	1.3	.7	1.0	3.5	3.5	3.2	3.4	3.5	3.5
Private nonfarm .....	.5	1.0	.7	1.0	.6	1.0	3.1	3.2	3.0	3.3	3.3	3.3
Union .....	.2	.4	.5	.6	1.1	.4	2.0	1.7	1.7	1.7	2.6	2.6
Nonunion .....	.7	1.2	.8	1.1	.5	1.0	3.5	3.5	3.3	3.8	3.6	3.5
State and local governments .....	.7	.8	.2	2.3	.9	.9	5.4	5.2	5.0	4.1	4.2	4.4
Total effective wage adjustments³												
From current settlements .....	.5	.4	1.0	.9	.8	.4	2.3	2.0	2.2	2.6	3.1	3.2
From prior settlements .....	.2	(⁴)	.2	.2	.3	.1	.5	.3	.3	.4	.7	.8
From cost-of-living provision .....	.2	.3	.7	.6	.3	.3	1.7	1.5	1.6	1.7	1.8	1.8
From cost-of-living provision .....	.1	.1	.2	.1	.2	.1	.2	.1	.3	.4	.5	.5
Negotiated wage adjustments from settlements:³												
First-year adjustments	2.0	.8	2.6	2.1	2.4	2.1	1.2	1.2	1.5	2.0	2.2	2.4
Annual rate over life of contract	2.1	1.6	2.9	2.0	1.8	2.3	1.8	1.8	2.0	2.2	2.1	2.2
Negotiated wage and benefit adjustments from settlements:⁵												
First-year adjustment	2.7	1.1	4.1	2.5	3.4	1.7	1.1	1.2	1.8	2.7	3.0	3.1
Annual rate over life of contract	2.4	2.1	3.9	2.1	2.4	1.8	1.6	1.7	2.1	2.6	2.6	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 Data round to zero.

⁵ 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							1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
TOTAL															
Noninstitutional population ^{1, 2}	182,293	184,490	184,421	184,605	184,738	184,904	185,052	185,225	185,370	185,571	185,705	185,847	185,964	186,088	186,247
Labor force ²	119,540	121,602	121,326	121,610	122,042	121,706	122,128	122,349	122,472	122,924	123,084	122,639	123,055	122,692	123,157
Participation rate ³	65.6	65.9	65.8	65.9	66.1	65.8	66.0	66.1	66.1	66.2	66.3	66.0	66.2	65.9	66.1
Total employed ²	111,303	114,177	114,018	114,359	114,786	114,615	114,951	115,259	115,494	115,878	116,145	115,839	116,445	115,909	116,703
Employment-population ratio ⁴	61.1	61.9	61.8	61.9	62.1	62.0	62.1	62.2	62.3	62.4	62.5	62.3	62.6	62.3	62.7
Resident Armed Forces ¹	1,706	1,737	1,718	1,720	1,736	1,743	1,741	1,755	1,750	1,749	1,736	1,736	1,732	1,714	1,685
Civilian employed	109,597	112,440	112,300	112,639	113,050	112,872	113,210	113,504	113,744	114,129	114,409	114,103	114,713	114,195	115,018
Agriculture	3,163	3,208	3,192	3,212	3,143	3,184	3,249	3,172	3,215	3,293	3,228	3,204	3,228	3,035	3,085
Nonagricultural industries	106,434	109,232	109,108	109,427	109,907	109,688	109,961	110,332	110,529	110,836	111,182	110,899	111,485	111,160	111,933
Unemployed	8,237	7,425	7,308	7,251	7,256	7,091	7,177	7,090	6,978	7,046	6,938	6,801	6,610	6,783	6,455
Unemployment rate ⁵	6.9	6.1	6.0	6.0	5.9	5.8	5.9	5.8	5.7	5.7	5.6	5.5	5.4	5.5	5.2
Not in labor force	62,752	62,888	63,095	62,995	62,696	63,198	62,924	62,876	62,898	62,647	62,621	63,208	62,909	63,396	63,090
Men, 16 years and over															
Noninstitutional population ^{1, 2}	87,349	88,476	88,442	88,534	88,598	88,683	88,756	88,849	88,924	89,033	89,099	89,168	89,225	89,287	89,367
Labor force ²	66,973	67,784	67,623	67,671	67,937	67,776	67,947	68,019	68,030	68,243	68,343	68,148	68,445	68,318	68,429
Participation rate ³	76.7	76.6	76.5	76.4	76.7	76.4	76.6	76.6	76.5	76.6	76.7	76.4	76.7	76.5	76.6
Total employed ²	62,443	63,684	63,543	63,711	63,916	63,949	64,048	64,174	64,245	64,396	64,636	64,332	64,892	64,583	64,934
Employment-population ratio ⁴	71.5	72.0	71.8	72.0	72.1	72.1	72.2	72.2	72.2	72.3	72.5	72.1	72.7	72.3	72.7
Resident Armed Forces ¹	1,551	1,577	1,559	1,561	1,575	1,581	1,580	1,593	1,589	1,588	1,577	1,573	1,569	1,553	1,523
Civilian employed	60,892	62,107	61,984	62,150	62,341	62,368	62,468	62,581	62,656	62,808	63,059	62,759	63,323	63,030	63,411
Unemployed	4,530	4,101	4,080	3,960	4,021	3,827	3,899	3,845	3,785	3,847	3,707	3,816	3,553	3,736	3,495
Unemployment rate ⁵	6.8	6.1	6.0	5.9	5.9	5.6	5.7	5.7	5.6	5.6	5.4	5.6	5.2	5.5	5.1
Women, 16 years and over															
Noninstitutional population ^{1, 2}	94,944	96,013	95,979	96,071	96,140	96,221	96,295	96,376	96,446	96,538	96,606	96,679	96,739	96,801	96,880
Labor force ²	52,568	53,818	53,703	53,939	54,105	53,930	54,181	54,330	54,442	54,681	54,740	54,491	54,610	54,374	54,728
Participation rate ³	55.4	56.1	56.0	56.1	56.3	56.0	56.3	56.4	56.4	56.6	56.7	56.4	56.5	56.2	56.5
Total employed ²	48,861	50,494	50,475	50,648	50,870	50,666	50,903	51,085	51,249	51,482	51,509	51,507	51,553	51,327	51,769
Employment-population ratio ⁴	51.5	52.6	52.6	52.7	52.9	52.7	52.9	53.0	53.1	53.3	53.3	53.3	53.3	53.0	53.4
Resident Armed Forces ¹	155	160	159	159	161	162	161	162	161	161	159	163	163	161	162
Civilian employed	48,706	50,334	50,316	50,489	50,709	50,504	50,742	50,923	51,088	51,321	51,350	51,344	51,390	51,166	51,607
Unemployed	3,707	3,324	3,228	3,291	3,235	3,264	3,278	3,245	3,193	3,200	3,231	2,985	3,057	3,047	2,960
Unemployment rate ⁵	7.1	6.2	6.0	6.1	6.0	6.1	6.1	6.0	5.9	5.9	5.9	5.5	5.6	5.6	5.4

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					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
TOTAL															
Civilian noninstitutional population ¹	180,587	182,753	182,703	182,885	183,002	183,161	183,311	183,470	183,620	183,822	183,969	184,111	184,232	184,374	184,562
Civilian labor force	117,834	119,865	119,608	119,890	120,306	119,963	120,387	120,594	120,722	121,175	121,348	120,903	121,323	120,978	121,472
Participation rate	65.3	65.6	65.5	65.6	65.7	65.5	65.7	65.7	65.7	65.9	66.0	65.7	65.9	65.6	65.8
Employed	109,597	112,440	112,300	112,639	113,050	112,872	113,210	113,504	113,744	114,129	114,409	114,103	114,713	114,195	115,018
Employment-population ratio ²	60.7	61.5	61.5	61.6	61.8	61.6	61.8	61.9	61.9	62.1	62.2	62.0	62.3	61.9	62.3
Unemployed	8,237	7,425	7,308	7,251	7,256	7,091	7,177	7,090	6,978	7,046	6,938	6,801	6,610	6,783	6,455
Unemployment rate	7.0	6.2	6.1	6.0	6.0	5.9	6.0	5.9	5.8	5.8	5.7	5.6	5.4	5.6	5.3
Not in labor force	62,752	62,888	63,095	62,995	62,696	63,198	62,924	62,876	62,898	62,647	62,621	63,208	62,909	63,396	63,090
Men, 20 years and over															
Civilian noninstitutional population ¹	78,523	79,565	79,536	79,625	79,668	79,740	79,807	79,885	80,002	80,120	80,203	80,260	80,326	80,402	80,526
Civilian labor force	61,320	62,095	62,054	62,106	62,083	62,085	62,211	62,299	62,248	62,440	62,696	62,497	62,791	62,662	62,667
Participation rate	78.1	78.0	78.0	78.0	77.9	77.9	78.0	78.0	77.8	77.9	78.2	77.9	78.2	77.9	77.8
Employed	57,569	58,726	58,632	58,783	58,825	58,967	59,037	59,164	59,185	59,287	59,625	59,407	59,883	59,590	59,797
Employment-population ratio ²	73.3	73.8	73.7	73.8	73.8	73.9	74.0	74.1	74.0	74.0	74.3	74.0	74.5	74.1	74.3
Agriculture	2,292	2,329	2,316	2,333	2,289	2,345	2,343	2,297	2,298	2,323	2,280	2,253	2,255	2,181	2,208
Nonagricultural industries	55,277	56,397	56,316	56,450	56,536	56,622	56,894	56,867	56,887	56,964	57,344	57,154	57,627	57,409	57,588
Unemployed	3,751	3,369	3,422	3,323	3,258	3,118	3,174	3,135	3,063	3,154	3,071	3,089	2,909	3,072	2,870
Unemployment rate	6.1	5.4	5.5	5.4	5.2	5.0	5.1	5.0	4.9	5.1	4.9	4.9	4.6	4.9	4.6
Women, 20 years and over															
Civilian noninstitutional population ¹	87,567	88,583	88,546	88,632	88,685	88,785	88,843	88,923	89,010	89,110	89,178	89,261	89,307	89,382	89,502
Civilian labor force	48,589	49,783	49,722	49,886	49,969	49,922	50,095	50,254	50,361	50,558	50,640	50,542	50,612	50,441	50,642
Participation rate	55.5	56.2	56.2	56.3	56.3	56.2	56.4	56.5	56.6	56.7	56.8	56.6	56.7	56.4	56.6
Employed	45,556	47,074	47,088	47,206	47,308	47,251	47,480	47,634	47,750	47,977	48,005	48,132	48,170	47,960	48,169
Employment-population ratio ²	52.0	53.1	53.2	53.3	53.3	53.2	53.4	53.6	53.6	53.8	53.8	53.9	53.9	53.7	53.8
Agriculture	614	622	619	620	609	600	636	636	643	646	654	656	692	587	616
Nonagricultural industries	44,943	46,453	46,469	46,586	46,699	46,651	46,844	46,998	47,107	47,331	47,351	47,476	47,478	47,373	47,553
Unemployed	3,032	2,709	2,634	2,680	2,661	2,671	2,615	2,620	2,611	2,581	2,635	2,411	2,442	2,481	2,473
Unemployment rate	6.2	5.4	5.3	5.4	5.3	5.4	5.2	5.2	5.2	5.1	5.2	4.8	4.8	4.9	4.9
Both sexes, 16 to 19 years															
Civilian noninstitutional population ¹	14,496	14,606	14,621	14,628	14,649	14,637	14,661	14,663	14,609	14,592	14,588	14,591	14,598	14,590	14,534
Civilian labor force	7,926	7,988	7,832	7,898	8,254	7,956	8,081	8,041	8,113	8,177	8,011	7,865	7,919	7,875	8,163
Participation rate	54.7	54.7	53.6	54.0	56.3	54.4	55.1	54.8	55.5	56.0	54.9	53.9	54.2	54.0	56.2
Employed	6,472	6,640	6,580	6,650	6,917	6,654	6,693	6,706	6,809	6,865	6,779	6,564	6,660	6,645	7,051
Employment-population ratio ²	44.6	45.5	45.0	45.5	47.2	45.5	45.7	45.7	46.6	47.0	46.5	45.0	45.6	45.5	48.5
Agriculture	258	258	257	259	245	239	270	239	274	323	293	295	280	267	260
Nonagricultural industries	6,215	6,382	6,323	6,391	6,672	6,415	6,423	6,467	6,535	6,542	6,486	6,269	6,380	6,378	6,791
Unemployed	1,454	1,347	1,252	1,248	1,337	1,302	1,388	1,335	1,304	1,312	1,232	1,301	1,259	1,230	1,112
Unemployment rate	18.3	16.9	16.0	15.8	16.2	16.4	17.2	16.6	16.1	16.0	15.4	16.5	15.9	15.6	13.6
White															
Civilian noninstitutional population ¹	155,432	156,958	156,930	157,058	157,134	157,242	157,342	157,449	157,552	157,676	157,773	157,868	157,943	158,034	158,166
Civilian labor force	101,801	103,290	103,150	103,248	103,516	103,357	103,669	103,731	103,907	104,252	104,530	104,171	104,574	104,209	104,691
Participation rate	65.5	65.8	65.7	65.7	65.9	65.7	65.9	65.9	66.0	66.1	66.3	66.0	66.2	65.9	66.2
Employed	95,660	97,789	97,698	97,917	98,181	98,069	98,317	98,492	98,779	99,044	99,474	99,270	99,751	99,297	99,932
Employment-population ratio ²	61.5	62.3	62.3	62.3	62.5	62.4	62.5	62.6	62.7	62.8	63.0	62.9	63.2	62.8	63.2
Unemployed	6,140	5,501	5,452	5,331	5,335	5,288	5,352	5,239	5,128	5,208	5,056	4,897	4,824	4,913	4,759
Unemployment rate	6.0	5.3	5.3	5.2	5.2	5.1	5.2	5.1	4.9	5.0	4.8	4.7	4.6	4.7	4.5
Black															
Civilian noninstitutional population ¹	19,989	20,352	20,341	20,373	20,396	20,426	20,453	20,482	20,508	20,539	20,569	20,596	20,622	20,650	20,683
Civilian labor force	12,654	12,993	12,892	13,039	13,150	13,028	13,152	13,193	13,215	13,222	13,168	13,098	13,078	13,069	12,989
Participation rate	63.3	63.8	63.4	64.0	64.5	63.8	64.3	64.4	64.4	64.4	64.0	63.6	63.4	63.3	62.8
Employed	10,814	11,309	11,238	11,381	11,513	11,421	11,556	11,589	11,605	11,608	11,504	11,420	11,482	11,452	11,489
Employment-population ratio ²	54.1	55.6	55.2	55.9	56.4	55.9	56.5	56.6	56.6	56.5	55.9	55.4	55.7	55.5	55.5
Unemployed	1,840	1,684	1,654	1,658	1,637	1,607	1,596	1,604	1,610	1,614	1,663	1,678	1,597	1,617	1,500
Unemployment rate	14.5	13.0	12.8	12.7	12.4	12.3	12.1	12.2	12.2	12.2	12.6	12.8	12.2	12.4	11.5

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							1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Hispanic origin															
Civilian noninstitutional population ¹	12,344	12,867	12,848	12,887	12,925	12,965	13,003	13,043	13,082	13,115	13,153	13,192	13,230	13,268	13,306
Civilian labor force	8,076	8,541	8,468	8,447	8,549	8,581	8,654	8,763	8,772	8,879	9,017	8,803	8,828	8,859	9,027
Participation rate	65.4	66.4	65.9	65.5	66.1	66.2	66.6	67.2	67.1	67.7	68.6	66.7	66.7	66.8	67.8
Employed	7,219	7,790	7,738	7,762	7,856	7,877	7,935	7,978	8,058	8,238	8,268	8,079	8,010	8,058	8,219
Employment-population ratio ²	58.5	60.5	60.2	60.2	60.8	60.8	61.0	61.2	61.6	62.8	62.9	61.2	60.5	60.7	61.8
Unemployed	857	751	730	685	693	704	719	785	714	642	749	724	818	801	809
Unemployment rate	10.6	8.8	8.6	8.1	8.1	8.2	8.3	9.0	8.1	7.2	8.3	8.2	9.3	9.0	9.0

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							1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
CHARACTERISTIC															
Civilian employed, 16 years and over	109,597	112,440	112,300	112,639	113,050	112,872	113,210	113,504	113,744	114,129	114,409	114,103	114,713	114,195	115,018
Men	60,892	62,107	61,984	62,150	62,341	62,368	62,468	62,581	62,656	62,808	63,059	62,759	63,323	63,030	63,411
Women	48,706	50,334	50,316	50,489	50,709	50,504	50,742	50,923	51,088	51,321	51,350	51,344	51,390	51,166	51,607
Married men, spouse present ..	39,658	40,265	40,120	40,262	40,308	40,404	40,556	40,645	40,711	40,404	40,475	40,481	40,459	40,267	40,485
Married women, spouse present	27,144	28,107	28,282	28,283	28,189	28,069	28,099	28,175	28,249	28,441	28,707	28,805	28,859	28,567	28,713
Women who maintain families ..	5,837	6,060	6,011	6,033	6,107	6,151	6,178	6,237	6,227	6,168	6,157	6,160	6,055	5,957	6,085
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,547	1,632	1,622	1,625	1,591	1,624	1,705	1,595	1,599	1,666	1,677	1,648	1,678	1,526	1,562
Self-employed workers	1,447	1,423	1,403	1,424	1,393	1,415	1,430	1,407	1,450	1,454	1,414	1,423	1,385	1,346	1,359
Unpaid family workers	169	153	162	153	155	139	140	155	156	138	114	142	155	159	167
Nonagricultural industries:															
Wage and salary workers	98,299	100,771	100,510	100,825	101,241	101,282	101,522	101,943	101,997	102,507	102,683	102,279	102,538	101,927	103,000
Government	16,342	16,800	16,920	16,876	16,794	16,928	17,033	17,118	17,064	17,197	16,948	16,908	17,015	16,887	17,064
Private industries	81,957	83,970	83,590	83,949	84,447	84,354	84,489	84,825	84,933	85,310	85,735	85,371	85,523	85,040	85,935
Private households	1,235	1,208	1,163	1,212	1,175	1,100	1,222	1,286	1,200	1,147	1,170	1,175	1,092	1,156	1,150
Other	80,722	82,762	82,427	82,737	83,272	83,254	83,267	83,539	83,733	84,163	84,565	84,196	84,431	83,884	84,786
Self-employed workers	7,881	8,201	8,293	8,216	8,214	8,204	8,274	8,222	8,280	8,150	8,312	8,366	8,637	8,917	8,577
Unpaid family workers	255	260	274	266	248	297	242	235	248	237	228	248	281	307	301
PERSONS AT WORK PART TIME¹															
All industries:															
Part time for economic reasons ..	5,588	5,401	5,254	5,428	5,283	5,261	5,353	5,534	5,262	5,367	5,566	5,343	5,194	4,844	5,317
Slack work	2,456	2,385	2,345	2,429	2,468	2,213	2,377	2,408	2,284	2,396	2,478	2,520	2,236	2,227	2,364
Could only find part-time work ..	2,800	2,672	2,623	2,683	2,526	2,683	2,655	2,696	2,638	2,640	2,598	2,535	2,502	2,315	2,637
Voluntary part time	13,935	14,395	14,836	14,437	14,573	14,415	14,488	14,523	14,711	14,571	14,572	14,603	15,016	14,790	14,507
Nonagricultural industries:															
Part time for economic reasons ..	5,345	5,122	4,979	5,154	5,016	4,986	5,067	5,241	5,004	5,145	5,254	5,106	4,924	4,623	5,076
Slack work	2,305	2,201	2,176	2,261	2,265	2,034	2,196	2,209	2,111	2,260	2,327	2,325	2,121	2,120	2,199
Could only find part-time work ..	2,719	2,587	2,530	2,599	2,463	2,603	2,557	2,597	2,552	2,566	2,457	2,475	2,397	2,236	2,566
Voluntary part time	13,502	13,928	14,334	13,953	14,099	13,987	14,011	14,064	14,222	14,096	14,123	14,141	14,592	14,338	14,083

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					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
CHARACTERISTIC															
Total, all civilian workers	7.0	6.2	6.1	6.0	6.0	5.9	6.0	5.9	5.8	5.8	5.7	5.6	5.4	5.6	5.3
Both sexes, 16 to 19 years	18.3	16.9	16.0	15.8	16.2	16.4	17.2	16.6	16.1	16.0	15.4	16.5	15.9	15.6	13.6
Men, 20 years and over	6.1	5.4	5.5	5.4	5.2	5.0	5.1	5.0	4.9	5.1	4.9	4.9	4.6	4.9	4.6
Women, 20 years and over	6.2	5.4	5.3	5.4	5.3	5.4	5.2	5.2	5.2	5.1	5.2	4.8	4.8	4.9	4.9
White, total	6.0	5.3	5.3	5.2	5.2	5.1	5.2	5.1	4.9	5.0	4.8	4.7	4.6	4.7	4.5
Both sexes, 16 to 19 years	15.6	14.4	13.9	13.3	14.1	14.3	14.5	14.1	13.6	14.0	12.4	14.1	14.1	13.1	12.0
Men, 16 to 19 years	16.3	15.5	14.8	13.5	15.2	15.1	15.1	14.8	14.9	14.4	12.2	15.7	14.5	13.8	12.8
Women, 16 to 19 years	14.9	13.4	13.0	13.1	12.9	13.4	13.8	13.3	12.3	13.6	12.7	12.4	13.7	12.4	11.1
Men, 20 years and over	5.3	4.8	4.9	4.7	4.6	4.4	4.6	4.4	4.3	4.4	4.1	4.2	4.0	4.2	4.0
Women, 20 years and over	5.4	4.6	4.4	4.5	4.4	4.5	4.3	4.4	4.4	4.2	4.5	3.9	3.9	4.0	4.0
Black, total	14.5	13.0	12.8	12.7	12.4	12.3	12.1	12.2	12.2	12.2	12.6	12.8	12.2	12.4	11.5
Both sexes, 16 to 19 years	39.3	34.7	33.4	32.7	30.6	30.8	33.8	33.9	33.4	35.0	38.3	36.9	31.4	34.8	28.4
Men, 16 to 19 years	39.3	34.4	31.4	32.4	33.7	31.5	32.5	32.2	33.5	35.1	42.0	39.0	27.6	33.3	30.4
Women, 16 to 19 years	39.2	34.9	35.4	33.1	27.1	30.0	35.2	35.8	33.4	34.9	34.7	35.0	35.5	36.6	25.9
Men, 20 years and over	12.9	11.1	11.4	11.2	10.7	10.1	9.8	10.2	10.1	10.1	11.3	11.4	10.6	10.8	10.0
Women, 20 years and over	12.4	11.6	11.3	11.4	11.3	11.7	11.0	10.8	10.9	11.1	10.4	10.9	11.3	10.6	10.7
Hispanic origin, total	10.6	8.8	8.6	8.1	8.1	8.2	8.3	9.0	8.1	7.2	8.3	8.2	9.3	9.0	9.0
Married men, spouse present	4.4	3.9	4.0	3.8	3.7	3.7	3.7	3.5	3.4	3.6	3.4	3.4	3.0	3.3	3.1
Married women, spouse present	5.2	4.3	4.0	4.2	4.3	4.2	4.2	4.2	4.3	4.2	4.1	4.0	3.8	3.9	3.7
Women who maintain families	9.8	9.2	9.5	9.3	9.0	8.8	8.9	8.5	8.4	8.9	8.3	7.5	8.7	8.4	7.8
Full-time workers	6.6	5.8	5.9	5.7	5.6	5.5	5.6	5.5	5.4	5.4	5.3	5.3	5.1	5.2	4.9
Part-time workers	9.1	8.4	7.3	8.1	8.2	8.4	8.3	8.2	8.0	8.3	7.9	7.7	7.4	7.7	7.8
Unemployed 15 weeks and over	1.9	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.2
Labor force time lost ¹	7.9	7.1	7.1	6.9	6.9	6.8	6.8	6.8	6.6	6.6	6.6	6.5	6.2	6.4	6.3
INDUSTRY															
Nonagricultural private wage and salary workers	7.0	6.2	6.1	6.1	6.0	5.9	5.9	5.8	5.7	5.8	5.7	5.6	5.3	5.7	5.4
Mining	13.5	10.0	9.5	7.9	8.6	7.4	8.3	7.0	8.0	7.7	7.8	7.9	8.4	10.4	6.7
Construction	13.1	11.6	11.7	10.8	11.3	11.9	11.2	10.6	10.6	12.2	11.0	10.7	10.6	10.5	10.2
Manufacturing	7.1	6.0	5.7	6.0	5.6	5.6	5.7	5.3	5.1	5.6	5.6	5.2	5.3	5.4	4.8
Durable goods	6.9	5.8	5.4	6.0	5.5	5.4	5.2	4.8	4.8	5.5	5.9	5.2	4.8	4.9	4.4
Nondurable goods	7.4	6.3	6.1	5.9	5.8	5.9	6.5	5.9	5.6	5.8	5.3	5.3	6.0	6.0	5.4
Transportation and public utilities	5.1	4.5	4.8	4.4	4.4	4.1	4.4	4.5	4.6	3.6	3.6	4.2	3.8	4.4	4.1
Wholesale and retail trade	7.6	6.9	7.1	6.8	7.0	6.4	6.5	6.8	6.2	6.1	6.4	6.8	5.9	6.3	5.9
Finance and service industries	5.5	4.9	4.9	5.1	4.7	4.8	4.7	4.8	4.8	4.9	4.5	4.2	4.1	4.6	4.6
Government workers	3.6	3.5	3.4	3.4	3.7	3.4	3.3	3.4	3.2	3.0	2.8	2.8	3.0	2.9	2.8
Agricultural wage and salary workers	12.5	10.5	9.3	10.9	10.6	8.6	10.6	11.1	10.9	11.5	10.2	11.0	10.6	13.9	9.7

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							1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	Total, 16 years and over	7.0	6.2	6.1	6.0	6.0	5.9	6.0	5.9	5.8	5.8	5.7	5.6	5.4	5.6	5.3
16 to 24 years	13.3	12.2	12.1	11.8	11.8	11.8	11.8	11.6	11.2	11.6	11.1	11.7	11.2	11.3	10.3
16 to 19 years	18.3	16.9	16.0	15.8	16.2	16.4	17.2	16.6	16.1	16.0	15.4	16.5	15.9	15.6	13.6
16 to 17 years	20.2	19.1	18.8	17.5	18.3	18.3	20.4	19.2	17.8	18.7	17.4	17.6	17.8	16.1	15.4
18 to 19 years	17.0	15.2	14.5	13.9	14.7	15.2	14.7	14.8	14.7	14.5	13.9	15.8	14.2	15.3	12.9
20 to 24 years	10.7	9.7	10.0	9.7	9.4	9.4	8.8	8.9	8.5	9.1	8.7	9.1	8.7	8.9	8.4
25 years and over	5.4	4.8	4.7	4.7	4.7	4.6	4.6	4.5	4.5	4.5	4.5	4.2	4.1	4.3	4.1
25 to 54 years	5.7	5.0	4.9	5.0	4.9	4.8	4.8	4.7	4.8	4.7	4.7	4.5	4.3	4.5	4.4
55 years and over	3.9	3.3	3.2	3.1	3.2	3.3	3.1	3.4	3.2	3.5	3.3	2.9	2.9	3.5	2.9
Men, 16 years and over	6.9	6.2	6.2	6.0	6.1	5.8	5.9	5.8	5.7	5.8	5.6	5.7	5.3	5.6	5.2
16 to 24 years	13.7	12.6	12.4	11.9	12.5	12.1	12.1	11.7	12.2	11.3	12.1	11.2	11.6	10.5	10.3
16 to 19 years	19.0	17.8	16.4	15.9	17.8	17.3	17.4	17.2	17.2	16.4	15.6	17.8	15.8	16.2	14.7
16 to 17 years	20.8	20.2	19.1	17.1	20.5	19.7	20.9	20.4	19.3	19.4	16.9	18.5	17.2	16.7	17.0
18 to 19 years	17.7	16.0	15.4	13.7	15.9	15.9	14.8	14.8	15.3	14.9	14.7	17.3	14.7	15.8	14.2
20 to 24 years	11.0	9.9	10.4	9.9	9.6	9.3	9.2	9.2	8.7	9.9	9.0	9.1	8.8	9.1	8.2
25 years and over	5.4	4.8	4.8	4.7	4.7	4.5	4.5	4.4	4.4	4.4	4.3	4.3	4.1	4.3	4.1
25 to 54 years	5.6	5.0	5.0	4.9	4.9	4.7	4.8	4.6	4.6	4.5	4.5	4.5	4.2	4.4	4.2
55 years and over	4.1	3.5	3.4	3.4	3.4	3.2	3.1	3.5	3.2	4.0	3.4	3.4	3.1	3.7	3.2
Women, 16 years and over	7.1	6.2	6.0	6.1	6.0	6.1	6.1	6.0	5.9	5.9	5.9	5.5	5.6	5.6	5.4
16 to 24 years	12.8	11.7	11.7	11.7	11.0	11.5	11.5	11.2	10.7	10.9	10.8	11.3	11.3	11.0	10.0
16 to 19 years	17.6	15.9	15.5	15.7	14.4	15.4	16.9	16.0	14.8	15.6	15.1	15.2	16.0	15.0	12.4
16 to 17 years	19.6	18.0	18.4	18.0	16.0	16.9	19.9	17.9	16.2	17.9	18.0	16.6	18.4	15.5	13.7
18 to 19 years	16.3	14.3	13.6	14.1	13.4	14.4	14.6	14.7	14.1	14.1	13.1	14.2	13.7	14.7	11.6
20 to 24 years	10.3	9.4	9.6	9.5	9.0	9.4	8.5	8.6	8.4	8.2	8.4	9.1	8.7	8.8	8.7
25 years and over	5.5	4.8	4.5	4.7	4.7	4.7	4.7	4.7	4.7	4.6	4.7	4.1	4.2	4.3	4.2
25 to 54 years	5.9	5.1	4.9	5.0	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.4	4.5	4.5	4.6
55 years and over	3.6	3.0	2.8	2.6	2.9	3.5	3.1	3.2	3.3	2.8	3.1	2.3	2.7	3.2	2.6

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

(Numbers in thousands)

Reason for unemployment	Annual average		1987							1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	Job losers	4,033	3,566	3,554	3,529	3,389	3,313	3,388	3,307	3,200	3,209	3,207	3,139	2,916	3,236	3,059
On layoff	1,090	943	919	916	874	820	944	878	856	888	884	899	821	793	863
Other job losers	2,943	2,623	2,635	2,613	2,515	2,493	2,444	2,429	2,344	2,320	2,323	2,240	2,095	2,443	2,196
Job leavers	1,015	965	959	989	992	981	960	926	946	1,082	961	1,075	993	926	944
Reentrants	2,160	1,974	1,980	1,930	1,969	1,908	1,845	1,974	1,945	1,917	1,951	1,756	1,784	1,789	1,723
New entrants	1,029	920	854	844	855	882	914	855	909	885	864	887	915	807	777
PERCENT OF UNEMPLOYED															
Job losers	48.9	48.0	48.4	48.4	47.0	46.8	47.7	46.8	45.7	45.2	45.9	45.8	44.1	47.9	47.0
On layoff	13.2	12.7	12.5	12.6	12.1	11.6	13.3	12.4	12.2	12.5	12.7	13.1	12.4	11.7	13.3
Other job losers	35.7	35.3	35.9	35.8	34.9	35.2	34.4	34.4	33.5	32.7	33.3	32.7	31.7	36.2	33.8
Job leavers	12.3	13.0	13.1	13.6	13.8	13.8	13.5	13.1	13.5	15.3	13.8	15.7	15.0	13.7	14.5
Reentrants	26.2	26.6	26.9	26.5	27.3	26.9	26.0	28.0	27.8	27.0	27.9	25.6	27.0	26.5	26.5
New entrants	12.5	12.4	11.6	11.6	11.9	12.5	12.9	12.1	13.0	12.5	12.4	12.9	13.8	11.9	11.9
PERCENT OF CIVILIAN LABOR FORCE															
Job losers	3.4	3.0	3.0	2.9	2.8	2.8	2.8	2.7	2.7	2.6	2.6	2.6	2.4	2.7	2.5
Job leavers	.9	.8	.8	.8	.8	.8	.8	.8	.8	.9	.8	.9	.8	.8	.8
Reentrants	1.8	1.6	1.7	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.4
New entrants	.9	.8	.7	.7	.7	.7	.8	.7	.8	.7	.7	.7	.8	.7	.6

10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

Weeks of unemployment	Annual average		1987							1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	Less than 5 weeks	3,448	3,246	3,138	3,186	3,203	3,220	3,223	3,218	3,229	3,089	3,084	3,009	3,125	3,075	3,066
5 to 14 weeks	2,557	2,196	2,151	2,144	2,142	1,949	2,093	2,029	1,968	2,263	2,145	2,101	1,956	2,110	1,890
15 weeks and over	2,232	1,983	2,029	1,920	1,896	1,904	1,801	1,834	1,791	1,733	1,740	1,722	1,540	1,609	1,512
15 to 26 weeks	1,045	943	973	945	834	917	844	899	892	839	841	887	725	784	727
27 weeks and over	1,187	1,040	1,056	975	1,062	987	957	935	899	894	899	835	816	825	785
Mean duration in weeks	15.0	14.5	14.7	14.2	14.3	14.2	14.1	14.0	14.2	14.4	14.4	13.7	13.4	13.8	12.9
Median duration in weeks	6.9	6.5	6.6	6.6	6.4	5.8	6.2	6.1	6.0	6.4	6.4	6.6	5.6	5.9	6.0

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

State	May 1987	May 1988	State	May 1987	May 1988
Alabama	7.5	6.8	Montana	7.1	6.9
Alaska	11.5	9.4	Nebraska	4.9	3.3
Arizona	6.2	5.8	Nevada	6.2	5.4
Arkansas	7.8	7.8	New Hampshire	2.5	2.1
California	5.6	5.8	New Jersey	4.2	3.8
Colorado	7.9	6.4	New Mexico	9.1	8.0
Connecticut	3.2	2.4	New York	4.6	4.1
Delaware	2.8	2.9	North Carolina	4.2	3.3
District of Columbia	6.2	4.9	North Dakota	4.6	3.7
Florida	5.1	4.7	Ohio	7.1	5.8
Georgia	5.6	6.1	Oklahoma	7.7	6.1
Hawaii	4.0	3.0	Oregon	5.8	5.9
Idaho	7.8	6.2	Pennsylvania	5.4	5.0
Illinois	8.2	6.9	Rhode Island	3.8	2.7
Indiana	6.3	4.5	South Carolina	5.6	4.6
Iowa	5.2	3.9	South Dakota	3.6	3.0
Kansas	4.7	4.0	Tennessee	6.3	5.0
Kentucky	8.6	7.8	Texas	8.6	7.3
Louisiana	12.5	10.5	Utah	6.6	5.0
Maine	4.3	3.8	Vermont	3.6	2.7
Maryland	4.1	4.1	Virginia	4.1	3.6
Massachusetts	3.4	2.7	Washington	7.3	5.9
Michigan	8.2	6.5	West Virginia	10.7	8.8
Minnesota	5.2	3.2	Wisconsin	5.8	4.1
Mississippi	9.9	7.1	Wyoming	8.4	5.6
Missouri	6.2	4.6			

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	May 1987	Apr. 1988	May 1988 ^P	State	May 1987	Apr. 1988	May 1988 ^P
Alabama	1,504.8	1,519.7	1,527.1	Nebraska	662.5	668.5	672.9
Alaska	212.6	204.3	208.7	Nevada	498.9	520.2	526.6
Arizona	1,389.6	1,423.2	1,421.3	New Hampshire	509.9	524.4	530.4
Arkansas	837.8	858.0	860.1	New Jersey	3,584.5	3,648.4	3,672.3
California	11,621.7	11,989.7	12,052.2	New Mexico	531.5	537.3	539.3
Colorado	1,400.1	1,397.6	1,393.5	New York	8,050.2	8,162.7	8,223.6
Connecticut	1,644.6	1,666.1	1,674.3	North Carolina	2,856.4	2,934.7	2,941.5
Delaware	319.4	329.1	332.3	North Dakota	255.1	252.9	257.5
District of Columbia	651.6	667.5	669.5	Ohio	4,591.6	4,653.9	4,705.8
Florida	4,835.3	5,095.7	5,094.5	Oklahoma	1,109.9	1,095.6	1,100.6
Georgia	2,764.5	2,787.9	2,792.8	Oregon	1,094.1	1,121.8	1,131.5
Hawaii	458.6	467.7	468.1	Pennsylvania	4,919.5	5,006.4	5,038.8
Idaho	332.9	337.8	342.9	Rhode Island	453.9	456.3	459.6
Illinois	4,895.1	4,980.1	5,005.8	South Carolina	1,400.3	1,440.1	1,450.7
Indiana	2,315.3	2,377.9	2,403.1	South Dakota	257.0	256.3	262.9
Iowa	1,118.2	1,140.1	1,149.2	Tennessee	2,007.7	2,056.5	2,064.1
Kansas	1,002.9	1,017.8	1,023.7	Texas	6,497.0	6,552.9	6,574.0
Kentucky	1,312.3	1,349.0	1,358.9	Utah	639.4	646.7	650.0
Louisiana	1,487.0	1,496.3	1,498.4	Vermont	241.8	245.8	247.9
Maine	497.6	513.1	520.6	Virginia	2,681.3	2,763.1	2,786.8
Maryland	2,025.5	2,028.8	2,038.4	Washington	1,836.6	1,903.2	1,919.5
Massachusetts	3,056.1	3,099.7	3,124.4	West Virginia	600.5	600.2	616.4
Michigan	3,726.7	3,734.5	3,770.8	Wisconsin	2,078.6	2,123.2	2,147.0
Minnesota	1,967.5	1,993.1	2,025.5	Wyoming	180.2	174.7	177.6
Mississippi	865.5	885.7	888.0	Puerto Rico	751.7	773.8	776.6
Missouri	2,198.4	2,217.4	2,229.9	Virgin Islands	38.8	40.8	40.3
Montana	277.5	272.3	275.2				

^P = preliminary

NOTE: Some data in this table may differ from data published elsewhere

because of the continual updating of the database.

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

Industry	Annual average		1987								1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ^p	June ^p	
PRIVATE SECTOR	34.8	34.8	34.7	34.8	34.8	34.6	34.9	34.8	34.6	34.7	34.8	34.6	34.9	34.7	34.8	
MANUFACTURING	40.7	41.0	41.0	41.0	41.0	40.6	41.2	41.2	41.0	41.1	41.0	40.9	41.2	41.0	41.0	
Overtime hours	3.4	3.7	3.7	3.8	3.8	3.7	3.9	3.9	3.8	3.9	3.7	3.7	3.9	3.9	3.9	
Durable goods	41.3	41.5	41.5	41.6	41.5	41.0	41.8	41.8	41.5	41.6	41.5	41.5	42.0	41.8	41.7	
Overtime hours	3.5	3.8	3.8	3.8	3.9	3.7	4.0	4.0	3.9	4.0	3.8	3.8	4.2	4.2	4.1	
Lumber and wood products	40.3	40.6	40.6	40.6	40.5	39.6	40.4	40.7	40.4	40.2	40.3	40.1	40.6	40.0	40.0	
Furniture and fixtures	39.8	40.0	40.0	40.0	40.0	39.5	40.1	40.2	39.8	39.6	39.5	39.3	39.5	39.4	39.2	
Stone, clay, and glass products	42.2	42.3	42.0	42.3	42.2	42.0	42.5	42.4	42.5	42.0	42.3	42.3	42.5	42.3	42.3	
Primary metal industries	41.9	43.1	43.0	43.2	43.3	43.2	43.6	43.5	43.4	43.4	43.1	43.3	43.5	43.7	43.8	
Blast furnaces and basic steel products	41.7	43.4	43.2	43.7	43.7	44.6	43.9	43.8	44.0	44.0	43.8	43.7	43.8	43.9	44.9	
Fabricated metal products	41.3	41.5	41.6	41.5	41.5	40.9	41.9	42.1	41.7	41.8	41.6	41.6	42.0	41.9	41.9	
Machinery except electrical	41.6	42.2	42.3	42.5	42.3	41.7	42.6	42.7	42.6	42.7	42.6	42.5	42.8	42.6	42.4	
Electrical and electronic equipment	41.0	40.9	40.9	40.9	40.9	40.4	41.0	41.0	40.9	41.1	40.9	40.9	41.2	41.0	41.0	
Transportation equipment	42.3	42.0	41.9	41.8	41.8	41.4	42.4	42.3	41.5	42.0	42.0	42.1	43.0	43.1	42.8	
Motor vehicles and equipment	42.6	42.2	42.0	41.8	41.9	41.5	42.8	42.9	41.4	42.1	42.3	42.3	44.1	44.0	44.0	
Instruments and related products	41.0	41.4	41.4	41.5	41.6	41.0	41.9	41.4	41.2	41.8	41.3	41.4	41.8	41.4	41.3	
Miscellaneous manufacturing	39.6	39.4	39.4	39.5	39.7	38.9	39.5	39.2	39.2	39.1	39.3	39.2	39.4	39.2	39.2	
Nondurable goods	39.9	40.2	40.2	40.3	40.3	40.1	40.4	40.3	40.3	40.3	40.2	40.1	40.3	40.0	40.1	
Overtime hours	3.3	3.6	3.6	3.7	3.7	3.6	3.8	3.7	3.7	3.8	3.6	3.6	3.6	3.6	3.6	
Food and kindred products	40.0	40.2	40.1	40.1	40.2	40.2	40.4	40.4	40.5	40.6	40.3	40.1	40.1	40.2	40.4	
Textile mill products	41.1	41.8	42.1	42.3	42.0	41.4	41.8	41.6	41.5	41.5	41.6	41.2	41.6	40.7	40.6	
Apparel and other textile products	36.7	37.0	37.0	37.2	37.2	36.4	37.3	37.1	37.1	36.8	37.0	37.0	37.4	36.8	36.9	
Paper and allied products	43.2	43.4	43.4	43.5	43.4	43.7	43.6	43.5	43.3	43.4	43.3	43.2	43.3	43.3	43.1	
Printing and publishing	38.0	38.0	38.0	38.1	38.1	38.1	38.1	38.0	38.0	38.1	38.1	38.1	38.2	37.7	38.1	
Chemicals and allied products	41.9	42.3	42.2	42.2	42.4	42.5	42.5	42.5	42.5	42.5	42.4	42.5	42.1	41.9	42.4	
Rubber and miscellaneous plastics products	41.3	41.6	41.7	41.6	41.6	41.3	41.8	41.8	41.6	41.7	41.6	41.7	42.0	41.7	41.6	
Leather and leather products	36.9	38.2	38.5	38.4	38.9	37.8	38.8	38.3	38.0	38.0	37.8	37.9	37.3	37.4	36.9	
TRANSPORTATION AND PUBLIC UTILITIES	39.2	39.2	39.0	39.3	39.3	39.1	39.3	39.2	39.1	39.5	39.1	38.8	39.5	39.2	39.3	
WHOLESALE TRADE	37.7	37.5	38.1	38.1	38.2	38.0	38.2	38.2	38.0	38.1	38.2	38.1	38.3	38.0	38.0	
RETAIL TRADE	29.2	29.2	29.2	29.3	29.4	29.5	29.2	29.2	28.8	29.0	29.1	29.0	29.2	29.0	29.2	
SERVICES	32.5	32.5	32.5	32.5	32.5	32.5	32.6	32.6	32.5	32.6	32.7	32.4	32.7	32.5	32.5	

^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							1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ^p	June ^p
PRIVATE SECTOR	\$8.76	\$8.98	\$8.91	\$8.90	\$8.94	\$9.05	\$9.08	\$9.13	\$9.13	\$9.18	\$9.17	\$9.18	\$9.23	\$9.25	\$9.23
Seasonally adjusted	-	-	8.95	8.96	9.01	9.02	9.07	9.10	9.11	9.14	9.13	9.16	9.23	9.27	9.27
MINING	12.46	12.52	12.52	12.41	12.40	12.50	12.42	12.54	12.60	12.77	12.71	12.59	12.60	12.52	12.54
CONSTRUCTION	12.48	12.69	12.66	12.60	12.68	12.79	12.82	12.83	12.81	12.99	12.82	12.87	12.88	12.88	12.90
MANUFACTURING	9.73	9.91	9.87	9.87	9.86	9.99	9.95	10.01	10.07	10.07	10.05	10.07	10.12	10.14	10.16
Durable goods	10.29	10.43	10.40	10.38	10.39	10.49	10.48	10.54	10.60	10.60	10.58	10.59	10.65	10.67	10.69
Lumber and wood products	8.34	8.40	8.43	8.45	8.48	8.46	8.42	8.47	8.43	8.51	8.53	8.45	8.50	8.53	8.57
Furniture and fixtures	7.46	7.67	7.66	7.66	7.74	7.74	7.71	7.71	7.78	7.80	7.74	7.76	7.81	7.87	7.89
Stone, clay, and glass products	10.04	10.25	10.28	10.30	10.28	10.37	10.27	10.30	10.29	10.35	10.33	10.36	10.41	10.44	10.45
Primary metal industries	11.86	11.94	11.91	11.93	11.93	12.19	12.00	12.04	12.11	12.06	12.03	12.07	12.11	12.14	12.14
Blast furnaces and basic steel products	13.73	13.78	13.75	13.63	13.74	14.12	13.88	13.89	13.93	13.82	13.89	13.89	13.94	13.96	13.88
Fabricated metal products	9.88	10.00	9.98	9.93	9.94	10.00	10.06	10.10	10.19	10.12	10.13	10.14	10.22	10.23	10.25
Machinery, except electrical	10.57	10.70	10.68	10.67	10.70	10.74	10.79	10.83	10.89	10.85	10.82	10.84	10.88	10.90	10.93
Electrical and electronic equipment	9.65	9.88	9.83	9.86	9.88	9.94	9.92	9.98	10.03	10.02	10.02	10.04	10.09	10.12	10.13
Transportation equipment	12.81	12.95	12.87	12.82	12.88	13.04	13.07	13.18	13.25	13.22	13.17	13.20	13.28	13.32	13.38
Motor vehicles and equipment	13.45	13.55	13.47	13.35	13.40	13.64	13.69	13.79	13.87	13.94	13.85	13.93	14.09	14.10	14.18
Instruments and related products	9.47	9.71	9.66	9.71	9.74	9.76	9.78	9.83	9.84	9.93	9.92	9.88	9.89	9.88	9.91
Miscellaneous manufacturing	7.55	7.75	7.75	7.72	7.72	7.78	7.79	7.80	7.91	7.97	7.90	7.91	7.92	7.95	7.96
Nondurable goods	8.95	9.18	9.13	9.18	9.14	9.30	9.20	9.26	9.32	9.32	9.31	9.33	9.37	9.37	9.40
Food and kindred products	8.75	8.94	8.92	8.88	8.82	8.95	8.88	8.98	9.07	9.06	9.06	9.07	9.14	9.15	9.15
Tobacco manufactures	12.88	14.03	15.85	15.17	14.55	13.34	13.18	13.75	13.69	13.79	14.01	14.42	14.98	15.26	15.97
Textile mill products	6.93	7.17	7.13	7.13	7.16	7.23	7.24	7.29	7.31	7.34	7.30	7.31	7.35	7.31	7.32
Apparel and other textile products	5.84	5.93	5.89	5.87	5.88	5.99	5.97	5.98	6.00	6.02	6.02	6.03	6.04	6.04	6.08
Paper and allied products	11.18	11.43	11.42	11.49	11.41	11.66	11.46	11.49	11.53	11.54	11.50	11.52	11.60	11.63	11.60
Printing and publishing	9.99	10.28	10.19	10.24	10.32	10.48	10.41	10.39	10.43	10.38	10.40	10.45	10.40	10.43	10.43
Chemicals and allied products	11.98	12.37	12.28	12.37	12.33	12.56	12.50	12.55	12.61	12.55	12.55	12.53	12.57	12.57	12.62
Petroleum and coal products	14.19	14.59	14.44	14.51	14.54	14.74	14.66	14.77	14.73	14.89	14.96	14.98	15.00	14.90	15.07
Rubber and miscellaneous plastics products	8.73	8.91	8.89	8.96	8.93	9.01	8.93	8.98	9.04	9.00	9.00	9.00	9.04	9.05	9.09
Leather and leather products	5.92	6.08	6.09	5.99	6.04	6.13	6.12	6.15	6.16	6.16	6.19	6.23	6.29	6.26	6.27
TRANSPORTATION AND PUBLIC UTILITIES	11.70	12.03	11.94	12.00	12.06	12.11	12.12	12.21	12.24	12.16	12.23	12.19	12.27	12.25	12.20
WHOLESALE TRADE	9.35	9.59	9.54	9.56	9.60	9.64	9.65	9.72	9.73	9.78	9.78	9.78	9.88	9.87	9.85
RETAIL TRADE	6.03	6.11	6.08	6.07	6.07	6.20	6.16	6.18	6.19	6.24	6.23	6.24	6.26	6.27	6.27
FINANCE, INSURANCE, AND REAL ESTATE	8.36	8.73	8.63	8.63	8.74	8.73	8.76	8.89	8.81	8.96	9.02	8.97	9.03	9.09	8.95
SERVICES	8.18	8.48	8.37	8.34	8.40	8.54	8.61	8.71	8.73	8.81	8.81	8.80	8.82	8.84	8.78

- 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								1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ^P	June ^P	
PRIVATE SECTOR																
Current dollars	\$304.85	\$312.50	\$311.85	\$311.50	\$314.69	\$314.04	\$316.89	\$317.72	\$317.72	\$315.79	\$316.37	\$315.79	\$320.28	\$320.05	\$323.05	
Seasonally adjusted	-	-	310.57	311.81	313.55	312.09	316.54	316.68	315.21	317.16	317.72	316.94	322.13	321.67	322.60	
Constant (1977) dollars	171.07	169.28	169.02	168.47	169.28	168.12	169.19	169.45	169.54	167.97	168.01	167.08	168.57	167.74	-	
MINING	525.81	530.85	529.60	521.22	529.48	528.75	532.82	534.20	543.06	537.62	531.28	527.52	539.28	527.09	530.44	
CONSTRUCTION	466.75	479.68	482.35	486.36	489.45	466.84	497.42	475.99	481.66	466.34	462.80	481.34	488.15	493.30	499.23	
MANUFACTURING																
Current dollars	396.01	406.31	405.66	400.72	403.27	407.59	410.94	414.41	420.93	412.87	409.04	411.86	414.92	414.73	417.58	
Constant (1977) dollars	222.23	220.10	219.87	216.72	216.93	218.20	219.40	221.02	224.62	219.61	217.23	217.92	218.38	217.36	-	
Durable goods	424.98	432.85	433.68	425.58	429.11	431.14	438.06	442.68	449.44	440.96	436.95	440.54	444.11	444.94	447.91	
Lumber and wood products	336.10	341.04	348.16	341.38	345.98	337.55	341.85	342.19	341.42	336.15	339.49	337.16	345.10	344.61	348.80	
Furniture and fixtures	296.91	306.80	306.40	301.04	311.92	309.60	314.57	319.76	303.42	301.09	302.64	305.37	306.93	309.29		
Stone, clay, and glass products	423.69	433.58	436.90	438.78	437.93	440.73	441.61	436.72	435.27	423.32	426.63	435.12	442.43	446.83	446.22	
Primary metal industries	496.93	514.61	513.32	510.60	511.80	526.61	520.80	526.15	534.05	524.61	519.70	523.84	526.79	529.30	532.95	
Blast furnaces and basic steel products	572.54	598.05	596.75	595.63	594.94	631.16	603.78	608.38	618.49	606.70	609.77	606.99	613.36	612.84	625.99	
Fabricated metal products	408.04	415.00	416.17	405.14	410.52	410.00	422.52	428.24	435.11	423.02	418.37	421.82	426.17	426.59	430.50	
Machinery, except electrical	439.71	451.54	452.83	446.01	448.33	447.86	458.58	465.69	475.89	464.38	459.85	462.87	463.49	462.16	464.53	
Electrical and electronic equipment	395.65	404.09	403.03	397.36	402.12	401.58	406.72	413.17	421.26	413.83	406.81	410.64	411.87	411.88	415.33	
Transportation equipment	541.86	543.90	539.25	525.62	528.08	535.94	551.55	560.15	565.78	560.53	553.14	561.00	569.71	574.09	572.66	
Motor vehicles and equipment	572.97	571.81	565.74	546.02	545.38	560.60	583.19	591.59	593.64	592.45	587.24	598.99	621.37	624.63	623.92	
Instruments and related products	388.27	401.99	400.89	396.17	402.26	400.16	407.83	410.89	415.25	415.07	408.70	411.01	410.44	407.06	410.27	
Miscellaneous manufacturing	298.98	305.35	305.35	299.54	304.94	304.20	311.60	309.66	316.40	310.03	307.31	310.07	309.67	310.05	312.03	
Nondurable goods	357.11	369.04	367.94	367.20	369.26	374.79	372.60	375.96	381.19	374.66	370.54	373.20	373.86	373.86	376.94	
Food and kindred products	350.00	359.39	357.69	355.20	358.09	365.16	360.53	365.49	372.78	366.93	358.78	359.17	361.03	367.83	369.66	
Tobacco manufactures	481.71	547.17	653.02	565.84	549.99	534.93	545.65	562.38	554.45	540.57	540.79	566.71	576.73	601.24	632.41	
Textile mill products	284.82	299.71	302.31	296.61	302.15	301.49	304.08	306.18	307.75	303.14	301.49	299.71	301.35	296.79	299.39	
Apparel and other textile products	214.33	219.41	219.70	216.60	219.32	217.44	223.88	223.65	225.60	220.33	220.93	223.11	222.27	222.27	226.18	
Paper and allied products	482.98	496.06	494.49	496.37	492.91	514.21	500.80	503.26	509.63	501.99	494.50	494.21	498.80	501.25	498.80	
Printing and publishing	379.62	390.64	383.14	388.10	394.22	403.48	397.66	397.94	403.64	392.36	393.12	399.19	395.20	391.13	393.21	
Chemicals and allied products	501.96	523.25	518.22	518.30	519.09	536.31	528.75	535.89	542.23	533.38	530.87	532.53	529.20	526.68	535.09	
Petroleum and coal products	621.52	641.96	629.58	651.50	633.94	648.56	645.04	651.36	655.49	658.14	647.77	654.63	666.00	652.62	667.60	
Rubber and miscellaneous plastics products	360.55	370.66	371.60	367.36	369.70	372.11	374.17	377.16	383.30	376.20	372.60	375.30	377.87	376.48	379.05	
Leather and leather products	218.45	232.26	240.56	231.81	235.56	231.71	237.46	236.16	237.78	231.62	227.79	233.00	232.73	236.00	237.63	
TRANSPORTATION AND PUBLIC UTILITIES	458.64	471.58	468.05	475.20	478.78	474.71	477.53	479.85	479.81	474.24	475.75	470.53	480.98	477.75	481.90	
WHOLESALE TRADE	358.11	365.38	365.38	365.19	367.68	366.32	369.60	371.30	371.69	370.66	370.66	370.66	377.42	375.06	376.27	
RETAIL TRADE	176.08	178.41	179.97	182.10	183.31	182.90	179.26	179.22	181.37	176.59	177.56	178.46	180.91	181.20	184.97	
FINANCE, INSURANCE, AND REAL ESTATE	304.30	316.90	314.13	312.41	318.14	314.28	317.11	322.71	317.16	324.35	328.33	321.13	326.89	324.51	320.41	
SERVICES	265.85	275.60	273.70	273.55	276.36	276.70	279.83	283.08	282.85	285.44	287.21	284.24	287.53	286.42	287.11	

- 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					
	June 1987	Apr. 1988	May 1988 ^P	June 1988 ^P	June 1987	Feb. 1988	Mar. 1988	Apr. 1988	May 1988 ^P	June 1988 ^P
PRIVATE SECTOR (in current dollars)	172.6	178.1	178.6	178.1	172.9	176.7	177.0	178.0	178.6	178.5
Mining ¹	181.9	184.6	184.1	185.0	-	-	-	-	-	-
Construction	154.8	157.4	157.7	157.9	155.4	156.8	157.5	157.8	157.7	158.3
Manufacturing	174.5	178.2	178.5	178.7	174.5	177.0	177.3	177.9	178.3	178.8
Transportation and public utilities	174.7	180.2	180.0	179.2	175.6	179.1	179.4	180.6	181.1	180.1
Wholesale trade ¹	176.3	182.3	182.3	181.6	-	-	-	-	-	-
Retail trade	160.4	165.2	165.7	165.7	160.6	163.4	163.8	164.8	165.4	165.9
Finance, insurance, and real estate ¹	185.4	194.8	196.0	193.6	-	-	-	-	-	-
Services	179.3	188.5	189.4	188.3	180.2	186.3	186.9	188.3	189.8	189.2
PRIVATE SECTOR [in constant (1977) dollars]	93.5	93.8	93.6	-	93.7	93.7	93.5	93.6	93.5	-

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.

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	57.6	65.4	-	-	-	-	-	-
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	67.0	67.6	-	-	-	-	-	-	-
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	70.0	68.4	-	-	-	-	-	-	-	-	-
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	78.1	80.8
1988	-	-	-	-	-	-	-	-	-	-	-	-

- 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	1979	1980	1981	1982	1983	1984	1985	1986	1987
Noninstitutional population	166,460	169,349	171,775	173,939	175,891	178,080	179,912	182,293	184,490
Labor force:									
Total (number)	106,559	108,544	110,315	111,872	113,226	115,241	117,167	119,540	121,602
Percent of population	64.0	64.1	64.2	64.3	64.4	64.7	65.1	65.6	65.9
Employed:									
Total (number)	100,421	100,907	102,042	101,194	102,510	106,702	108,856	111,303	114,177
Percent of population	60.3	59.6	59.4	58.2	58.3	59.9	60.5	61.1	61.9
Resident Armed Forces	1,597	1,604	1,645	1,668	1,676	1,697	1,706	1,706	1,737
Civilian									
Total	98,824	99,303	100,397	99,526	100,834	105,005	107,150	109,597	112,440
Agriculture	3,347	3,364	3,368	3,401	3,383	3,321	3,179	3,163	3,208
Nonagricultural industries	95,477	95,938	97,030	96,125	97,450	101,685	103,971	106,434	109,232
Unemployed:									
Total (number)	6,137	7,637	8,273	10,678	10,717	8,539	8,312	8,237	7,425
Percent of labor force	5.8	7.0	7.5	9.5	9.5	7.4	7.1	6.9	6.1
Not in labor force (number)	59,900	60,806	61,460	62,067	62,665	62,839	62,744	62,752	62,888

20. Annual data: Employment levels by industry

(Numbers in thousands)

Industry	1979	1980	1981	1982	1983	1984	1985	1986	1987
Total employment	89,823	90,406	91,156	89,566	90,200	94,496	97,519	99,525	102,310
Private sector	73,876	74,166	75,126	73,729	74,330	78,472	81,125	82,832	85,295
Goods-producing	26,461	25,658	25,497	23,813	23,334	24,727	24,859	24,558	24,784
Mining	958	1,027	1,139	1,128	952	966	927	777	721
Construction	4,463	4,346	4,188	3,905	3,948	4,383	4,673	4,816	4,998
Manufacturing	21,040	20,285	20,170	18,781	18,434	19,378	19,260	18,965	19,065
Service-producing	63,363	64,748	65,659	65,753	66,866	69,769	72,660	74,967	77,525
Transportation and public utilities	5,136	5,146	5,165	5,082	4,954	5,159	5,238	5,255	5,385
Wholesale trade	5,204	5,275	5,358	5,278	5,268	5,555	5,717	5,753	5,872
Retail trade	14,989	15,035	15,189	15,179	15,613	16,545	17,356	17,930	18,509
Finance, insurance, and real estate	4,975	5,160	5,298	5,341	5,468	5,689	5,955	6,283	6,549
Services	17,112	17,890	18,619	19,036	19,694	20,797	22,000	23,053	24,196
Government	15,947	16,241	16,031	15,837	15,869	16,024	16,394	16,693	17,015
Federal	2,773	2,866	2,772	2,739	2,774	2,807	2,875	2,899	2,943
State	3,541	3,610	3,640	3,640	3,662	3,734	3,832	3,893	3,963
Local	9,633	9,765	9,619	9,458	9,434	9,482	9,687	9,901	10,109

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

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

Industry	1979	1980	1981	1982	1983	1984	1985	1986	1987
Private sector									
Average weekly hours	35.7	35.3	35.2	34.8	35.0	35.2	34.9	34.8	34.8
Average hourly earnings (in dollars)	6.16	6.66	7.25	7.68	8.02	8.32	8.57	8.76	8.98
Average weekly earnings (in dollars)	219.91	235.10	255.20	267.26	280.70	292.86	299.09	304.85	312.50
Mining									
Average weekly hours	43.0	43.3	43.7	42.7	42.5	43.3	43.4	42.2	42.4
Average hourly earnings (in dollars)	8.49	9.17	10.04	10.77	11.28	11.63	11.98	12.46	12.52
Average weekly earnings (in dollars)	365.07	397.06	438.75	459.88	479.40	503.58	519.93	525.81	530.85
Construction									
Average weekly hours	37.0	37.0	36.9	36.7	37.1	37.8	37.7	37.4	37.8
Average hourly earnings (in dollars)	9.27	9.94	10.82	11.63	11.94	12.13	12.32	12.48	12.69
Average weekly earnings (in dollars)	342.99	367.78	399.26	426.82	442.97	458.51	464.46	466.75	479.68
Manufacturing									
Average weekly hours	40.2	39.7	39.8	38.9	40.1	40.7	40.5	40.7	41.0
Average hourly earnings (in dollars)	6.70	7.27	7.99	8.49	8.83	9.19	9.54	9.73	9.91
Average weekly earnings (in dollars)	269.34	288.62	318.00	330.26	354.08	374.03	386.37	396.01	406.31
Transportation and public utilities									
Average weekly hours	39.9	39.6	39.4	39.0	39.0	39.4	39.5	39.2	39.2
Average hourly earnings (in dollars)	8.16	8.87	9.70	10.32	10.79	11.12	11.40	11.70	12.03
Average weekly earnings (in dollars)	325.58	351.25	382.18	402.48	420.81	438.13	450.30	458.64	471.58
Wholesale trade									
Average weekly hours	38.8	38.5	38.5	38.3	38.5	38.5	38.4	38.3	38.1
Average hourly earnings (in dollars)	6.39	6.96	7.56	8.09	8.55	8.89	9.16	9.35	9.59
Average weekly earnings (in dollars)	247.93	267.96	291.06	309.85	329.18	342.27	351.74	358.11	365.38
Retail trade									
Average weekly hours	30.6	30.2	30.1	29.9	29.8	29.8	29.4	29.2	29.2
Average hourly earnings (in dollars)	4.53	4.88	5.25	5.48	5.74	5.85	5.94	6.03	6.11
Average weekly earnings (in dollars)	138.62	147.38	158.03	163.85	171.05	174.33	174.64	176.08	178.41
Finance, insurance, and real estate									
Average weekly hours	36.2	36.2	36.3	36.2	36.2	36.5	36.4	36.4	36.3
Average hourly earnings (in dollars)	5.27	5.79	6.31	6.78	7.29	7.63	7.94	8.36	8.73
Average weekly earnings (in dollars)	190.77	209.60	229.05	245.44	263.90	278.50	289.02	304.30	316.90
Services									
Average weekly hours	32.7	32.6	32.6	32.6	32.7	32.6	32.5	32.5	32.5
Average hourly earnings (in dollars)	5.36	5.85	6.41	6.92	7.31	7.59	7.90	8.18	8.48
Average weekly earnings (in dollars)	175.27	190.71	208.97	225.59	239.04	247.43	256.75	265.85	275.60

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

(June 1981 = 100)

Series	1986				1987				1988	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
										Mar. 1988	
Civilian workers ²	130.6	131.5	133.0	133.8	135.0	135.9	137.5	138.6	140.6	1.4	4.1
Workers, by occupational group:											
White-collar workers	133.1	134.2	136.0	136.9	138.5	139.3	141.2	142.2	144.2	1.4	4.1
Blue-collar workers	126.2	126.8	127.8	128.4	129.1	130.1	131.3	132.5	134.7	1.7	4.3
Service occupations	133.1	133.7	135.4	136.6	138.0	138.5	139.9	140.8	142.9	1.5	3.6
Workers, by industry division:											
Goods-producing	126.9	128.1	128.8	129.5	130.2	131.1	132.2	133.5	135.8	1.7	4.3
Manufacturing	127.7	128.7	129.3	130.1	130.7	131.5	132.7	134.1	136.8	2.0	4.7
Service-producing	132.9	133.7	135.6	136.5	138.1	138.9	140.8	141.7	143.6	1.3	4.0
Services	138.8	139.4	142.4	143.6	145.2	145.8	149.2	150.6	152.8	1.5	5.2
Health services	-	-	-	-	-	-	-	-	-	1.2	4.3
Hospitals	-	-	-	-	-	-	-	-	-	1.3	5.1
Public administration ³	136.8	138.0	140.6	141.6	144.1	144.7	146.4	148.1	150.3	1.5	4.3
Nonmanufacturing	131.9	132.8	134.6	135.4	136.9	137.8	139.6	140.5	142.3	1.3	3.9
Private industry workers	128.9	129.9	130.8	131.6	132.9	133.8	135.1	136.0	138.1	1.5	3.9
Workers, by occupational group:											
White-collar workers	131.3	132.5	133.5	134.3	136.1	137.0	138.5	139.3	141.2	1.4	3.7
Professional specialty and technical occupations	-	-	-	-	-	-	-	-	-	1.5	4.4
Executive, administrative, and managerial occupations	-	-	-	-	-	-	-	-	-	.9	3.5
Sales occupations	-	-	-	-	-	-	-	-	-	1.4	1.5
Administrative support occupations, including clerical	-	-	-	-	-	-	-	-	-	1.9	4.9
Blue-collar workers	125.7	126.3	127.2	127.8	128.4	129.5	130.6	131.8	134.1	1.7	4.4
Precision production, craft, and repair occupation	-	-	-	-	-	-	-	-	-	1.4	4.1
Machine operators, assemblers, and inspectors	-	-	-	-	-	-	-	-	-	2.1	5.0
Transportation and material moving occupations	-	-	-	-	-	-	-	-	-	1.6	4.0
Handlers, equipment cleaners, helpers, and laborers	-	-	-	-	-	-	-	-	-	2.2	4.6
Service occupations	130.9	131.1	132.3	133.5	134.7	135.2	135.9	136.7	138.6	1.4	2.9
Workers, by industry division:											
Goods-producing	126.7	127.8	128.6	129.2	129.9	130.8	131.9	133.2	135.6	1.8	4.4
Construction	-	-	-	-	-	-	-	-	-	1.2	4.0
Manufacturing	127.7	128.7	129.3	130.1	130.7	131.5	132.7	134.1	136.8	2.0	4.7
Durables	-	-	-	-	-	-	-	-	-	2.3	4.7
Nondurables	-	-	-	-	-	-	-	-	-	1.5	4.5
Service-producing	130.8	131.6	132.7	133.5	135.3	136.3	137.7	138.4	140.2	1.3	3.6
Transportation and public utilities	-	-	-	-	-	-	-	-	-	1.1	3.2
Transportation	-	-	-	-	-	-	-	-	-	1.4	3.2
Public utilities	-	-	-	-	-	-	-	-	-	.7	3.1
Wholesale and retail trade	-	-	-	-	-	-	-	-	-	1.3	3.6
Wholesale trade	-	-	-	-	-	-	-	-	-	.9	3.6
Retail trade	-	-	-	-	-	-	-	-	-	1.5	3.5
Finance, insurance, and real estate	-	-	-	-	-	-	-	-	-	1.2	.6
Service	-	-	-	-	-	-	-	-	-	1.5	5.2
Health services	-	-	-	-	-	-	-	-	-	1.2	4.2
Hospitals	-	-	-	-	-	-	-	-	-	1.3	5.1
Nonmanufacturing	129.7	130.6	131.7	132.4	134.1	135.1	136.4	137.1	138.9	1.3	3.6
State and local government workers	138.9	139.7	143.6	144.7	145.9	146.3	149.7	151.1	153.1	1.3	4.9
Workers, by occupational group:											
White-collar workers	140.0	140.5	145.0	146.0	147.2	147.5	151.2	152.7	154.8	1.4	5.2
Blue-collar workers	134.7	136.3	138.5	139.5	140.8	141.3	143.3	144.3	145.9	1.1	3.6
Workers, by industry division:											
Services	140.4	140.8	145.5	146.6	147.3	147.6	151.8	153.1	155.2	1.4	5.4
Hospitals and other services ⁴	136.8	137.9	139.4	141.1	142.5	143.3	145.1	146.3	150.3	2.7	5.5
Health services	-	-	-	-	-	-	-	-	-	1.1	5.0
Schools	141.5	141.7	147.6	148.4	148.9	149.1	154.1	155.5	156.8	.8	5.3
Elementary and secondary	143.0	143.2	149.4	150.3	150.5	150.7	156.5	157.8	158.9	.7	5.6
Public administration ³	136.8	138.0	140.6	141.6	144.1	144.7	146.4	148.1	150.3	1.5	4.3

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				1987				1988	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
										Mar. 1988	
Civilian workers ¹	128.3	129.3	130.7	131.5	132.8	133.5	135.2	136.1	137.4	1.0	3.5
Workers, by occupational group:											
White-collar workers	131.2	132.4	134.1	135.0	136.6	137.3	139.4	140.2	141.5	.9	3.6
Blue-collar workers	123.4	124.1	125.0	125.6	126.2	127.1	128.3	129.4	130.4	.8	3.3
Service occupations	129.8	130.0	131.7	132.8	134.2	134.7	136.0	136.6	138.0	1.0	2.8
Workers, by industry division:											
Goods-producing	124.4	125.6	126.3	127.0	127.8	128.5	129.8	131.0	132.2	.9	3.4
Manufacturing	125.3	126.5	127.2	127.9	128.7	129.5	130.8	132.2	133.3	.8	3.6
Service-producing	130.7	131.5	133.4	134.2	135.8	136.5	138.5	139.2	140.5	.9	3.5
Services	136.4	137.0	139.9	141.1	142.7	143.4	146.8	148.2	149.5	.9	4.8
Health services	-	-	-	-	-	-	-	-	-	.7	4.0
Hospitals	-	-	-	-	-	-	-	-	-	1.0	4.8
Public administration ²	133.8	134.6	137.5	138.1	140.5	141.0	142.6	143.8	145.5	1.2	3.6
Nonmanufacturing	129.6	130.4	132.2	133.0	134.5	135.2	137.1	137.8	139.0	.9	3.3
Private industry workers	126.8	127.9	128.8	129.5	130.8	131.7	133.0	133.8	135.1	1.0	3.3
Workers, by occupational group:											
White-collar workers	129.6	131.1	132.0	132.7	134.6	135.4	137.0	137.6	139.0	1.0	3.3
Professional specialty and technical occupations	132.7	134.0	135.4	136.4	138.4	139.1	141.2	142.6	144.0	1.0	4.0
Executive, administrative, and managerial occupations	130.5	132.1	132.4	133.5	135.6	136.4	138.6	139.2	139.9	.5	3.2
Sales occupations	122.4	124.3	125.2	124.9	126.7	127.1	127.0	126.1	127.5	1.1	.6
Administrative support occupations, including clerical	129.6	130.8	131.7	132.7	134.3	135.5	137.1	138.1	140.2	1.5	4.4
Blue-collar workers	123.1	123.7	124.5	125.1	125.6	126.6	127.7	128.9	129.9	.8	3.4
Precision production, craft, and repair occupations	125.3	125.7	126.7	127.4	127.9	128.8	130.2	131.1	132.1	.8	3.3
Machine operators, assemblers, and inspectors	122.6	123.6	124.1	124.9	125.5	126.7	127.5	129.2	129.9	.5	3.5
Transportation and material moving occupations	118.0	118.9	119.8	120.1	120.5	121.5	122.3	122.9	123.7	.7	2.7
Handlers, equipment cleaners, helpers, and laborers	120.0	120.3	120.9	121.4	121.9	122.6	123.7	125.0	126.7	1.4	3.9
Service occupations	128.0	128.0	128.9	130.1	131.4	131.9	132.6	133.2	134.5	1.0	2.4
Workers, by industry division:											
Goods-producing	124.2	125.4	126.1	126.8	127.5	128.3	129.6	130.8	132.0	.9	3.5
Construction	118.3	119.8	120.5	120.8	121.7	122.7	123.8	124.7	125.9	1.0	3.5
Manufacturing	125.3	126.5	127.2	127.9	128.7	129.5	130.8	132.2	133.3	.8	3.6
Durables	124.8	125.8	126.4	127.2	127.7	128.7	129.7	131.1	132.1	.8	3.4
Nondurables	126.1	127.9	128.5	129.3	130.5	131.0	132.8	134.1	135.6	1.1	3.9
Service-producing	129.0	129.9	130.9	131.6	133.4	134.3	135.7	136.2	137.5	1.0	3.1
Transportation and public utilities	126.3	126.6	127.3	127.5	128.1	129.3	130.0	130.2	131.3	.8	2.5
Transportation	-	-	-	-	-	-	-	-	-	.9	2.3
Public utilities	-	-	-	-	-	-	-	-	-	.8	2.7
Wholesale and retail trade	124.5	125.8	126.5	126.9	127.9	129.9	130.6	130.7	131.9	.9	3.1
Wholesale trade	129.7	131.2	131.8	133.1	134.8	137.2	137.8	138.5	139.0	.4	3.1
Retail trade	122.5	123.7	124.4	124.5	125.2	127.1	127.8	127.7	129.2	1.2	3.2
Finance, insurance, and real estate	126.6	128.0	129.0	130.0	133.5	131.5	131.8	131.6	132.9	1.0	-4
Services	136.2	136.9	138.2	139.5	141.8	142.8	145.9	147.1	148.6	1.0	4.8
Health services	-	-	-	-	-	-	-	-	-	.7	3.9
Hospitals	-	-	-	-	-	-	-	-	-	1.1	4.9
Nonmanufacturing	127.7	128.7	129.7	130.4	131.9	132.8	134.2	134.8	136.0	.9	3.1
State and local government workers	135.5	136.0	140.4	141.4	142.5	142.8	146.1	147.4	148.7	.9	4.4
Workers, by occupational group:											
White-collar workers	136.6	137.0	141.8	142.8	143.9	144.1	147.7	149.3	150.5	.8	4.6
Blue-collar workers	130.4	131.9	134.5	135.1	136.3	136.9	139.0	139.6	141.1	1.1	3.5
Workers, by industry division:											
Services	136.8	137.1	142.1	143.3	143.9	144.2	148.2	149.5	150.7	.8	4.7
Hospitals and other services ³	132.4	133.3	135.8	137.3	138.6	139.4	141.2	142.2	144.5	1.6	4.3
Health services	-	-	-	-	-	-	-	-	-	.6	4.3
Schools	138.0	138.2	144.1	145.1	145.5	145.6	150.3	151.8	152.6	.5	4.9
Elementary and secondary	139.4	139.4	145.7	146.4	146.5	146.6	152.0	153.4	154.0	.4	5.1
Public administration ²	133.8	134.6	137.5	138.1	140.5	141.0	142.6	143.8	145.5	1.2	3.6

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	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
	Mar. 1988										
COMPENSATION											
Workers, by bargaining status¹											
Union	128.4	128.7	129.4	129.8	130.5	131.2	132.0	133.4	135.6	1.6	3.9
Goods-producing	126.4	126.7	127.3	127.5	128.0	128.7	129.5	131.3	134.1	2.1	4.8
Service-producing	131.6	131.9	132.8	133.4	134.4	135.2	135.9	136.7	138.0	1.0	2.7
Manufacturing	127.0	126.9	127.5	127.9	128.0	128.7	129.5	131.5	135.0	2.7	5.5
Nonmanufacturing	129.7	130.4	131.2	131.5	132.6	133.5	134.3	135.1	136.2	.8	2.7
Nonunion	129.0	130.2	131.2	132.1	133.6	134.6	136.1	136.9	138.9	1.5	4.0
Goods-producing	126.7	128.2	129.1	130.0	130.8	131.8	133.1	134.1	136.2	1.6	4.1
Service-producing	130.4	131.4	132.5	133.4	135.3	136.4	137.9	138.6	140.5	1.4	3.8
Manufacturing	128.1	129.7	130.4	131.4	132.2	133.2	134.6	135.6	137.8	1.6	4.2
Nonmanufacturing	129.5	130.4	131.6	132.5	134.3	135.3	136.8	137.5	139.4	1.4	3.8
Workers, by region¹											
Northeast	131.6	133.3	134.2	135.2	137.4	138.6	140.3	141.9	143.7	1.3	4.6
South	128.7	129.6	130.7	131.4	132.1	133.2	134.2	135.4	137.1	1.3	3.8
Midwest (formerly North Central)	125.9	126.2	127.3	128.1	129.1	130.2	131.2	131.7	134.4	2.1	4.1
West	130.8	131.6	132.1	132.8	134.1	134.2	135.8	136.3	138.3	1.5	3.1
Workers, by area size¹											
Metropolitan areas	129.5	130.5	131.4	132.2	133.5	134.4	135.8	136.7	138.9	1.6	4.0
Other areas	125.5	126.4	127.2	127.9	129.0	130.2	131.3	132.0	133.6	1.2	3.6
WAGES AND SALARIES											
Workers, by bargaining status¹											
Union	125.6	126.1	126.9	127.2	127.7	128.3	129.1	130.5	131.0	.4	2.6
Goods-producing	123.4	124.1	124.5	124.8	125.0	125.8	126.5	128.5	128.7	.2	3.0
Service-producing	129.0	129.3	130.5	130.9	131.7	132.2	132.9	133.6	134.4	.6	2.1
Manufacturing	124.2	124.6	125.0	125.5	125.6	126.2	127.0	129.3	129.6	.2	3.2
Nonmanufacturing	126.9	127.4	128.5	128.7	129.5	130.1	130.8	131.5	132.1	.5	2.0
Nonunion	127.3	128.5	129.4	130.3	131.8	132.8	134.3	135.0	136.4	1.0	3.5
Goods-producing	124.5	126.1	127.0	127.8	128.8	129.6	131.1	132.1	133.6	1.1	3.7
Service-producing	128.9	129.9	130.8	131.7	133.6	134.6	136.2	136.7	138.0	1.0	3.3
Manufacturing	126.1	127.7	128.5	129.5	130.6	131.5	133.0	133.9	135.5	1.2	3.8
Nonmanufacturing	127.8	128.9	129.8	130.6	132.4	133.4	134.9	135.4	136.8	1.0	3.3
Workers, by region¹											
Northeast	129.2	131.3	132.3	133.1	135.4	136.6	138.3	139.7	140.9	.9	4.1
South	126.8	127.8	128.8	129.4	130.1	131.1	132.1	133.0	134.0	.8	3.0
Midwest (formerly North Central)	124.2	124.4	125.3	126.2	127.4	128.5	129.6	129.9	131.3	1.1	3.1
West	128.1	128.9	129.3	130.1	131.2	131.1	133.1	133.5	134.9	1.0	2.8
Workers, by area size¹											
Metropolitan areas	127.4	128.5	129.4	130.2	131.6	132.4	133.7	134.6	135.8	.9	3.2
Other areas	123.6	124.5	125.0	125.6	126.6	127.8	129.1	129.8	130.9	.8	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			1987				1988
			II	III	IV	I	II	III	IV	
Specified adjustments:										
Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:										
First year of contract	1.1	3.0	0.7	0.7	2.7	1.1	4.1	2.5	3.4	1.8
Annual rate over life of contract	1.6	2.6	1.6	1.2	2.4	2.1	3.9	2.1	2.4	1.8
Wage adjustments, settlements covering 1,000 workers or more:										
First year of contract	1.2	2.2	1.3	.8	2.0	.8	2.6	2.1	2.4	2.2
Annual rate over life of contract	1.8	2.1	2.0	1.5	2.1	1.6	2.9	2.0	1.8	2.3
Effective adjustments:										
Total effective wage adjustment ³	2.3	3.1	.7	.5	.5	.4	1.0	.9	.8	.4
From settlements reached in period .....	.5	.7	.2	.1	.2	(⁴)	.2	.2	.3	.1
Deferred from settlements reached in earlier periods	1.7	1.8	.6	.5	.2	.3	.7	.6	.3	.3
From cost-of-living-adjustments clauses .....	.2	.5	(⁴)	(⁴)	.1	.1	.2	.1	.2	.1

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 -.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			1987				1988
	II	III	IV	I	II	III	IV	I ^P
Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:								
First year of contract	1.4	0.9	1.1	1.2	1.8	2.7	3.0	3.1
Annual rate over life of contract	2.0	1.4	1.6	1.7	2.1	2.6	2.6	2.5
Specified wage adjustments, settlements covering 1,000 workers or more:								
All industries								
First year of contract	1.6	1.2	1.2	1.2	1.5	2.0	2.2	2.4
Contracts with COLA clauses	1.8	2.2	1.9	2.0	1.8	2.1	2.3	2.2
Contracts without COLA clauses	1.5	.8	.9	.8	1.3	2.0	2.1	2.5
Annual rate over life of contract	2.2	1.7	1.8	1.8	2.0	2.2	2.1	2.2
Contracts with COLA clauses	2.5	2.0	1.7	1.8	1.7	1.7	1.5	1.4
Contracts without COLA clauses	2.1	1.6	1.8	1.8	2.1	2.5	2.5	2.7
Manufacturing								
First year of contract .....	.1	-1.0	-1.2	-1.5	-.8	1.1	2.1	2.4
Contracts with COLA clauses .....	.7	1.1	1.3	1.3	1.3	2.1	2.4	2.4
Contracts without COLA clauses	-.4	-2.0	-2.8	-3.5	-2.7	-.1	1.3	2.4
Annual rate over life of contract	1.4	.3	.2	(²)	.3	1.0	1.3	1.5
Contracts with COLA clauses	2.0	1.1	.9	.8	.8	1.0	1.0	1.0
Contracts without COLA clauses .....	.9	-.1	-.2	-.6	-.2	1.2	2.1	2.7
Nonmanufacturing								
First year of contract	2.6	2.1	2.0	2.2	2.3	2.4	2.3	2.3
Contracts with COLA clauses	3.4	2.7	2.1	2.2	2.1	2.1	1.9	1.6
Contracts without COLA clauses	2.4	1.9	2.0	2.1	2.3	2.6	2.4	2.5
Annual rate over life of contract	2.8	2.3	2.3	2.4	2.6	2.8	2.7	2.7
Contracts with COLA clauses	3.3	2.5	2.1	2.2	2.2	2.4	2.7	2.4
Contracts without COLA clauses	2.6	2.2	2.4	2.5	2.7	2.9	2.7	2.7
Construction								
First year of contract	2.3	2.3	2.2	2.4	2.7	3.0	2.9	2.9
Contracts with COLA clauses	1.1	1.4	1.4	1.6	3.7	(¹)	(¹)	(¹)
Contracts without COLA clauses	2.4	2.4	2.3	2.4	2.7	(¹)	(¹)	(¹)
Annual rate over life of contract	2.5	2.6	2.5	2.5	2.9	3.2	3.1	3.1
Contracts with COLA clauses	1.2	1.6	1.6	1.4	3.8	(¹)	(¹)	(¹)
Contracts without COLA clauses	2.6	2.6	2.5	2.6	2.9	(¹)	(¹)	(¹)

¹ Data do not meet publication standards.

^P = preliminary.

² Between -.05 and 0.05 percent.

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--						
	1986		1987				1988
	III	IV	I	II	III	IV	I ^P
For all workers:¹							
Total	2.3	2.3	2.0	2.2	2.6	3.1	3.2
From settlements reached in period .....	.5	.5	.3	.3	.4	.7	.8
Deferred from settlements reached in earlier period	1.6	1.7	1.5	1.6	1.7	1.8	1.8
From cost-of-living-adjustments clauses .....	.2	.2	.1	.3	.4	.5	.5
For workers receiving changes:							
Total	3.1	2.8	2.4	2.8	3.2	3.6	3.8
From settlements reached in period	1.7	1.6	1.1	.9	1.8	2.9	2.9
Deferred from settlements reached in earlier period	3.8	3.9	3.7	3.5	3.3	3.3	3.3
From cost-of-living-adjustments clauses	1.0	1.0	.6	1.8	2.3	2.6	2.7

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		
	1986	1987	First 6 months 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							1988					
	1986	1987	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. ^P	Feb. ^P	Mar. ^P	Apr. ^P	May ^P	June ^P
Number of stoppages:															
Beginning in period	69	46	8	6	3	7	1	6	0	3	5	1	0	3	3
In effect during period	72	51	12	14	11	15	12	11	5	6	8	6	6	8	10
Workers involved:															
Beginning in period (in thousands)	533.0	174.4	16.1	14.1	18.4	45.9	1.3	11.8	.0	7.2	17.5	6.7	.0	10.3	7.8
In effect during period (in thousands)	899.5	377.7	25.8	31.1	36.0	71.9	53.7	22.2	8.9	10.8	21.1	24.2	14.9	18.2	20.0
Days idle:															
Number (in thousands)	11,861.0	4,455.6	278.1	457.8	361.4	1,143.1	353.3	222.9	159.4	36.6	337.0	203.6	207.9	271.4	264.5
Percent of estimated working time ¹ .....	.05	.02	.01	.02	.02	.05	.02	.01	.01	.01	.01	.01	.01	.01	.01

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.

^P = preliminary

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

(1982-84 = 100, unless otherwise indicated)

Area ¹	Pricing schedule ²	Other index base	All Urban Consumers							Urban Wage Earners						
			1987		1988					1987		1988				
			June	July	Feb.	Mar.	Apr.	May	June	June	July	Feb.	Mar.	Apr.	May	June
U.S. city average	M	-	113.5	113.8	116.0	116.5	117.1	117.5	118.0	112.4	112.7	114.7	115.1	115.7	116.2	116.7
Region and area size³																
Northeast urban	M	-	115.8	116.0	119.2	119.6	120.4	120.7	121.4	114.9	115.2	118.1	118.4	119.2	119.5	120.2
Size A - More than 1,200,000	M	-	116.8	116.9	119.9	120.4	121.3	121.6	122.0	115.2	115.4	118.0	118.5	119.3	119.5	120.0
Size B - 500,000 to 1,200,000	M	-	113.1	113.5	117.0	117.5	118.2	118.9	119.9	112.2	112.5	116.0	116.4	117.0	117.7	118.7
Size C - 50,000 to 500,000	M	-	114.3	115.0	117.2	117.2	118.2	118.7	119.8	116.7	117.3	119.8	119.8	120.7	121.2	122.2
North Central urban	M	-	112.1	112.3	113.7	114.3	114.9	115.5	116.0	110.2	110.4	111.8	112.3	113.0	113.6	114.1
Size A - More than 1,200,000	M	-	113.0	113.2	114.7	115.1	115.7	116.0	117.0	110.6	110.7	112.1	112.5	113.1	113.5	114.4
Size B - 360,000 to 1,200,000	M	-	111.5	111.5	113.5	114.2	115.0	115.7	115.6	109.0	109.0	111.1	111.8	112.6	113.4	113.3
Size C - 50,000 to 360,000	M	-	111.7	111.9	113.4	114.6	115.2	116.1	116.1	110.7	110.8	112.3	113.4	114.0	114.9	114.9
Size D - Nonmetropolitan (less than 50,000)	M	-	109.9	110.2	110.5	111.1	111.8	112.2	112.8	109.5	110.0	110.2	110.6	111.3	111.9	112.4
South urban	M	-	112.2	112.6	114.4	114.8	115.4	115.6	116.1	111.8	112.1	113.8	114.2	114.7	114.9	115.5
Size A - More than 1,200,000	M	-	113.1	113.5	115.2	115.5	116.0	116.7	117.2	112.4	112.8	114.4	114.7	115.1	115.7	116.4
Size B - 450,000 to 1,200,000	M	-	112.5	112.7	115.1	115.8	116.3	116.2	116.7	110.8	111.1	113.0	113.6	114.1	114.0	114.7
Size C - 50,000 to 450,000	M	-	111.7	112.1	113.4	114.0	114.5	114.6	114.9	112.2	112.5	113.8	114.3	114.9	115.0	115.3
Size D - Nonmetropolitan (less than 50,000)	M	-	110.3	110.8	112.7	112.7	113.6	113.7	114.5	111.0	111.6	113.4	113.4	114.2	114.4	115.3
West urban	M	-	114.2	114.3	116.9	117.5	117.9	118.5	118.7	113.1	113.2	115.6	116.2	116.6	117.2	117.4
Size A - More than 1,250,000	M	-	115.2	115.4	118.2	118.9	119.2	120.1	120.2	112.9	113.0	115.6	116.2	116.6	117.4	117.5
Size B - 330,000 to 1,250,000	M	-	113.0	113.1	115.6	115.9	-	-	-	113.3	113.4	115.7	116.0	-	-	-
Size C - 50,000 to 330,000	M	-	113.7	113.8	115.9	116.2	116.8	116.5	117.2	113.0	113.2	115.3	115.6	116.2	115.9	116.6
Size classes:																
A	M	12/86	103.0	103.2	105.3	105.7	106.3	106.7	107.2	103.1	103.3	105.2	105.6	106.1	106.6	107.1
B	M	-	112.5	112.7	115.2	115.8	116.4	116.7	117.2	111.3	111.5	113.8	114.3	114.9	115.3	115.8
C	M	-	112.6	112.9	114.6	115.1	115.8	116.1	116.5	112.9	113.2	114.9	115.4	116.1	116.4	116.8
D	M	-	110.9	111.3	113.1	113.5	114.1	114.3	115.0	111.1	111.6	113.4	113.7	114.3	114.6	115.3
Selected local areas																
Chicago, IL- Northwestern IN	M	-	115.5	115.9	116.6	116.9	117.1	117.0	118.9	112.0	112.4	112.9	113.2	113.3	113.3	115.2
Los Angeles-Long Beach, Anaheim, CA	M	-	116.5	116.5	119.7	120.6	121.1	122.0	122.0	113.8	113.8	116.6	117.5	118.0	118.9	118.9
New York, NY- Northeastern NJ	M	-	117.8	117.9	121.1	121.5	122.6	122.7	123.1	116.5	116.5	119.3	119.7	120.6	120.7	121.2
Philadelphia, PA-NJ	M	-	117.4	117.4	119.3	119.6	120.0	120.9	121.9	117.2	117.3	119.0	119.5	119.8	120.8	121.8
San Francisco- Oakland, CA	M	-	115.0	115.8	117.9	119.1	118.7	119.7	120.1	114.0	114.7	117.0	117.9	117.8	118.7	119.0
Baltimore, MD	1	-	-	115.0	-	117.7	-	117.8	-	-	114.7	-	117.3	-	117.4	-
Boston, MA	1	-	-	116.3	-	122.1	-	123.1	-	-	116.4	-	121.8	-	123.1	-
Cleveland, OH	1	-	-	112.8	-	115.1	-	116.6	-	-	108.1	-	110.2	-	111.7	-
Miami, FL	1	-	-	112.0	-	115.1	-	116.2	-	-	111.3	-	114.3	-	115.1	-
St. Louis, MO-IL	1	-	-	112.7	-	114.2	-	114.1	-	-	112.5	-	113.8	-	113.7	-
Washington, DC-MD-VA	1	-	-	116.2	-	119.2	-	120.1	-	-	115.3	-	118.5	-	119.3	-
Dallas-Ft. Worth, TX	2	-	112.9	-	114.0	-	115.4	-	115.6	112.6	-	113.8	-	114.8	-	115.4
Detroit, MI	2	-	111.1	-	113.7	-	114.4	-	115.4	108.6	-	110.9	-	111.9	-	112.7
Houston, TX	2	-	106.5	-	108.0	-	108.2	-	109.4	106.4	-	108.1	-	108.1	-	109.4
Pittsburgh, PA	2	-	111.1	-	113.3	-	114.5	-	114.3	106.8	-	108.9	-	110.1	-	110.0

¹ Area is the Consolidated Metropolitan Statistical Area (CMSA), exclusive of farms and military. Area definitions are those established by the Office of Management and Budget in 1983, except for Boston-Lawrence-Salem, MA-NH Area (excludes Monroe County); and Milwaukee, WI Area (includes 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 program. Because each local index is a small subset of the national index, it has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error than the national index. As a result, local area indexes show greater volatility than the national index, although their long-term trends are quite similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in escalator clauses.

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

(1982-84=100)

Series	1979	1980	1981	1982	1983	1984	1985	1986	1987
Consumer Price Index for All Urban Consumers:									
All items:									
Index	72.6	82.4	90.9	96.5	99.6	103.9	107.6	109.6	113.6
Percent change	11.3	13.5	10.3	6.2	3.2	4.3	3.6	1.9	3.6
Food and beverages:									
Index	79.9	86.7	93.5	97.3	99.5	103.2	105.6	109.1	113.5
Percent change	10.7	8.5	7.8	4.1	2.3	3.7	2.3	3.3	4.0
Housing:									
Index	70.1	81.1	90.4	96.9	99.5	103.6	107.7	110.9	114.2
Percent change	12.3	15.7	11.5	7.2	2.7	4.1	4.0	3.0	3.0
Apparel and upkeep:									
Index	84.9	90.9	95.3	97.8	100.2	102.1	105.0	105.9	110.6
Percent change	4.3	7.1	4.8	2.6	2.5	1.9	2.8	.9	4.4
Transportation:									
Index	70.5	83.1	93.2	97.0	99.3	103.7	106.4	102.3	105.4
Percent change	14.3	17.9	12.2	4.1	2.4	4.4	2.6	-3.9	3.0
Medical care:									
Index	67.5	74.9	82.9	92.5	100.6	106.8	113.5	122.0	130.1
Percent change	9.2	11.0	10.7	11.6	8.8	6.2	6.3	7.5	6.6
Entertainment:									
Index	76.7	83.6	90.1	96.0	100.1	103.8	107.9	111.6	115.3
Percent change	6.7	9.0	7.8	6.5	4.3	3.7	3.9	3.4	3.3
Other goods and services:									
Index	68.9	75.2	82.6	91.1	101.1	107.9	114.5	121.4	128.5
Percent change	7.2	9.1	9.8	10.3	11.0	6.7	6.1	6.0	5.8
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	73.1	82.9	91.4	96.9	99.8	103.3	106.9	108.6	112.5
Percent change	11.4	13.4	10.3	6.0	3.0	3.5	3.5	1.6	3.6

33. Producer Price Indexes, by stage of processing

(1982=100)

Grouping	Annual average		1987						1988					
	1986	1987	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Finished goods	103.2	105.4	106.0	105.9	105.7	106.2	106.3	105.8	106.3	106.1	106.2	106.9	107.5	107.9
Finished consumer goods	101.4	103.6	104.4	104.3	104.2	104.4	104.5	104.0	104.5	104.1	104.3	105.1	105.7	106.1
Finished consumer goods	107.3	109.5	110.9	109.5	110.5	109.7	109.8	108.9	110.5	109.4	110.0	110.2	111.3	112.5
Finished consumer goods excluding														
foods	98.5	100.7	101.2	101.8	101.1	101.9	101.9	101.6	101.5	101.5	101.4	102.5	102.9	103.0
Nondurable goods less food	93.3	94.9	95.7	96.6	96.1	95.8	95.9	95.9	95.5	95.5	95.4	96.9	97.4	97.3
Durable goods	108.9	111.5	111.3	110.9	110.0	113.4	113.0	112.2	112.6	112.8	112.7	112.8	112.9	113.3
Capital equipment	109.7	111.7	111.6	111.7	111.2	112.5	112.5	112.4	112.9	113.2	113.2	113.6	113.9	114.2
Intermediate materials, supplies, and														
components	99.1	101.5	102.1	102.5	102.7	103.1	103.4	103.6	104.2	104.3	104.6	105.5	106.2	107.4
Materials and components for														
manufacturing	102.2	105.3	105.5	105.8	106.3	107.2	107.5	108.1	109.5	109.9	110.4	111.5	112.2	113.0
Materials for food manufacturing	98.4	100.8	102.7	101.5	102.8	101.9	100.6	99.9	101.9	102.0	101.7	102.8	104.2	107.0
Materials for nondurable manufacturing	98.1	102.2	102.6	102.9	103.4	104.5	104.9	105.5	107.5	108.5	109.5	110.9	111.6	112.2
Materials for durable manufacturing	101.2	106.2	106.2	107.1	108.1	110.2	111.1	112.9	114.5	113.9	114.5	116.6	117.5	118.4
Components for manufacturing	107.5	108.8	108.7	108.8	109.0	109.3	109.5	109.8	110.5	110.8	111.1	111.4	111.7	112.3
Materials and components for														
construction	108.1	109.8	109.8	110.2	110.7	111.2	111.9	112.4	113.6	113.8	114.2	115.0	115.2	115.9
Processed fuels and lubricants	72.7	73.3	76.0	77.3	75.9	74.6	74.4	72.9	70.7	70.2	69.7	70.5	71.5	73.3
Containers	110.3	114.5	114.2	114.4	115.4	116.1	116.5	116.1	116.6	116.9	117.5	118.2	119.3	119.9
Supplies	105.6	107.7	107.8	107.8	108.2	108.8	109.5	109.9	110.5	110.6	111.1	111.7	112.3	114.0
Crude materials for further processing ...	87.7	93.7	96.0	96.5	95.7	95.3	94.7	94.4	93.7	94.7	94.1	95.7	97.1	98.2
Foodstuffs and feedstuffs	93.2	96.2	98.4	97.1	96.6	96.1	95.3	95.9	97.2	99.7	99.7	101.2	104.5	108.4
Crude nonfood materials	81.6	87.9	90.3	91.8	90.8	90.5	90.1	89.2	87.3	87.4	86.4	88.0	88.2	87.5
Special groupings														
Finished goods, excluding foods	101.9	104.0	104.3	104.7	104.2	105.1	105.1	104.9	104.9	105.0	105.0	105.8	106.2	106.4
Finished energy goods	63.0	61.8	63.4	64.9	63.4	62.4	62.5	61.4	59.2	58.5	58.1	60.9	61.5	60.8
Finished goods less energy	109.7	112.3	112.7	112.3	112.4	113.1	113.2	112.9	113.9	113.8	114.0	114.3	114.9	115.5
Finished consumer goods less energy	109.7	112.5	113.1	112.6	112.8	113.4	113.4	113.1	114.3	114.0	114.3	114.5	115.2	115.9
Finished goods less food and energy	110.6	113.3	113.3	113.4	113.1	114.5	114.5	114.5	115.2	115.5	115.6	115.9	116.2	116.5
Finished consumer goods less food and														
energy	111.1	114.2	114.2	114.3	114.1	115.6	115.6	115.7	116.5	116.8	117.0	117.2	117.5	117.9
Consumer nondurable goods less food and														
energy	113.1	116.3	116.5	116.9	117.3	117.4	117.6	118.4	119.5	119.9	120.2	120.5	120.9	121.3
Intermediate materials less foods and														
feeds	99.3	101.7	102.2	102.7	102.8	103.2	103.6	103.7	104.2	104.4	104.8	105.7	106.3	107.1
Intermediate foods and feeds	96.2	99.2	100.7	99.6	101.0	100.6	101.4	102.0	102.9	101.9	102.0	103.5	104.9	112.0
Intermediate energy goods	72.6	73.0	75.7	77.0	75.6	74.4	74.1	72.7	70.5	70.0	69.4	70.2	71.2	73.0
Intermediate goods less energy	104.5	107.3	107.4	107.7	108.3	109.1	109.5	110.1	111.2	111.4	111.8	112.8	113.5	114.5
Intermediate materials less foods and														
energy	104.9	107.8	107.9	108.2	108.7	109.6	110.1	110.6	111.8	112.2	112.8	113.7	114.3	114.9
Crude energy materials	71.8	75.0	77.8	78.9	76.7	75.4	74.7	73.6	70.8	70.4	68.8	70.5	71.4	70.7
Crude materials less energy	95.4	100.9	102.4	102.3	103.0	103.6	103.1	103.7	105.1	107.6	107.9	109.2	110.9	113.8
Crude nonfood materials less energy	103.1	115.7	115.7	118.7	122.9	126.4	127.1	127.3	129.2	131.6	132.8	133.6	131.1	131.0

34. Producer Price indexes, by durability of product

(1982 = 100)

Grouping	Annual average		1987						1988					
	1986	1987	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Total durable goods	107.5	109.9	109.7	110.0	110.2	111.4	111.7	112.0	112.8	113.0	113.2	113.8	114.0	114.5
Total nondurable goods	94.8	97.5	98.8	99.0	98.8	98.5	98.6	98.3	98.5	98.6	98.7	99.8	100.8	101.9
Total manufactures	101.7	104.4	104.8	105.1	105.1	105.8	106.0	106.0	106.6	106.8	107.0	107.8	108.5	109.1
Durable	107.5	109.6	109.4	109.7	109.7	110.9	111.1	111.4	112.2	112.4	112.5	113.1	113.4	113.9
Nondurable	96.0	99.2	100.1	100.5	100.4	100.7	100.9	100.6	101.1	101.3	101.6	102.6	103.7	104.4
Total raw or slightly processed goods	92.3	94.2	96.2	96.2	95.9	94.9	94.7	94.5	94.0	94.1	93.8	94.9	95.6	97.7
Durable	107.8	122.6	121.8	125.7	130.9	137.3	138.0	138.3	139.9	144.6	145.7	146.6	142.9	144.0
Nondurable	91.5	92.9	95.0	94.7	94.3	92.9	92.6	92.4	91.9	91.8	91.4	92.5	93.4	95.5

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

(June 1977=100, unless otherwise indicated)

Category	1974 SITC	1985		1986				1987				1988
		Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.
ALL COMMODITIES (9/83=100)		99.6	99.7	99.4	99.1	97.9	99.0	99.9	102.2	102.8	104.9	106.5
Food (3/83=100)	0	97.3	100.7	97.2	97.1	86.0	90.1	87.3	89.9	86.7	94.6	95.2
Meat (3/83=100)	01	99.7	103.6	102.5	105.2	111.3	114.5	115.0	121.2	118.8	116.8	122.8
Fish (3/83=100)	03	100.7	100.6	100.2	108.6	111.9	115.9	117.1	125.8	131.1	138.5	140.9
Grain and grain preparations (3/80=100)	04	93.8	98.8	91.7	89.0	66.3	72.5	68.3	71.0	67.8	77.4	79.8
Vegetables and fruit (3/83=100)	05	104.8	98.2	98.6	108.6	114.6	117.5	115.3	112.4	101.1	100.5	97.5
Feedstuffs for animals (3/83=100)	08	101.7	114.0	120.0	114.8	123.9	119.7	117.0	123.8	123.1	145.2	134.6
Misc. food products (3/83=100)	09	99.9	99.5	98.0	97.0	98.7	99.9	100.1	100.6	100.3	100.3	102.3
Beverages and tobacco (6/83=100)	1	100.2	99.4	96.6	97.4	97.3	102.6	102.6	105.0	105.5	107.0	109.6
Beverages (9/83=100)	11	-	-	-	-	-	-	-	-	-	-	-
Tobacco and tobacco products (6/83=100)	12	100.2	99.5	96.3	97.1	97.0	102.6	102.6	105.0	105.5	107.0	109.8
Crude materials (6/83=100)	2	98.3	98.1	101.4	102.2	99.6	102.4	105.7	114.5	118.7	125.2	130.0
Raw hides and skins (6/80=100)	21	100.8	110.0	108.7	117.1	108.3	115.9	131.9	149.6	147.7	157.1	171.4
Oilseeds and oleaginous fruit (9/77=100)	22	94.9	94.7	99.1	98.1	97.5	95.2	90.4	101.6	95.1	109.6	115.6
Crude rubber (including synthetic and reclaimed) (9/83=100)	23	100.6	99.7	99.7	99.9	99.6	98.9	99.9	101.0	102.8	105.3	104.5
Wood	24	98.0	101.9	101.5	101.2	102.9	107.9	111.2	116.2	141.7	146.0	150.2
Pulp and waste paper (6/83=100)	25	97.3	96.7	104.2	116.4	129.0	129.4	144.2	149.9	153.0	160.4	171.2
Textile fibers	26	101.7	96.4	100.2	98.0	73.0	90.9	97.8	112.4	116.5	111.6	107.5
Crude fertilizers and minerals	27	100.8	99.2	100.0	98.4	98.0	96.8	94.4	94.0	91.6	91.6	92.8
Metalliferous ores and metal scrap	28	97.4	94.8	100.3	98.0	100.4	96.8	98.8	107.0	117.4	125.9	131.8
Mineral fuels	3	99.5	97.0	83.6	76.8	77.4	77.8	81.3	82.8	84.6	82.5	79.3
Animal and vegetable oils, fats, and waxes	4	91.2	82.5	74.3	67.7	62.1	71.8	73.9	78.8	78.5	81.6	92.7
Fixed vegetable oils and fats (6/83=100)	42	93.3	80.3	71.3	70.6	60.2	64.6	67.3	71.9	71.2	75.4	85.7
Chemicals (3/83=100)	5	100.2	99.6	99.8	98.0	95.7	95.2	99.6	106.7	107.7	112.9	117.9
Organic chemicals (12/83=100)	51	101.0	99.2	98.5	93.1	91.6	92.4	101.9	118.4	116.1	123.5	135.1
Fertilizers, manufactured (3/83=100)	56	99.9	100.5	98.9	93.0	85.1	77.4	85.6	91.6	100.9	106.5	110.6
Intermediate manufactured products (9/81=100)	6	99.8	99.8	101.3	102.5	103.8	104.2	106.4	107.9	110.3	111.2	114.4
Leather and furskins (9/79=100)	61	97.0	98.0	97.3	103.8	104.2	107.8	123.6	126.9	128.7	118.0	125.7
Rubber manufactures	62	99.5	99.7	100.7	100.1	100.5	100.9	102.0	102.5	103.9	104.1	105.2
Paper and paperboard products (6/78=100)	64	99.2	97.9	100.5	104.7	109.1	110.8	114.7	117.0	120.1	122.4	126.2
Iron and steel (3/82=100)	67	99.7	100.9	100.3	100.2	102.3	101.9	102.9	102.9	100.7	102.9	106.1
Nonferrous metals (9/81=100)	68	99.3	98.9	104.2	103.1	105.3	102.6	106.6	113.0	123.0	124.4	134.0
Metal manufactures, n.e.s. (3/82=100)	69	100.0	100.2	100.4	100.8	100.8	100.8	101.5	101.3	102.3	103.4	104.5
Machinery and transport equipment, excluding military and commercial aircraft (12/78=100)	7	100.1	100.2	100.7	100.8	101.0	101.6	101.7	101.8	102.1	102.4	103.2
Power generating machinery and equipment (12/78=100)	71	100.1	101.3	102.3	102.4	102.5	103.7	104.6	103.7	104.8	105.2	107.0
Machinery specialized for particular industries (9/78=100)	72	100.2	100.4	100.6	100.3	100.4	100.6	100.0	100.1	100.5	100.9	102.1
Metalworking machinery (6/78=100)	73	100.4	101.3	101.9	102.0	103.0	104.2	105.8	106.7	107.8	108.2	109.3
General industrial machines and parts n.e.s. 9/78=100)	74	100.4	100.4	100.9	101.6	102.5	103.3	104.2	104.5	104.6	105.4	106.7
Office machines and automatic data processing equipment	75	99.7	99.1	99.9	99.0	98.8	98.2	96.0	96.1	95.7	95.5	95.8
Telecommunications, sound recording and reproducing equipment	76	99.9	100.1	99.2	98.9	99.7	101.3	101.9	101.4	101.4	101.9	102.8
Electrical machinery and equipment	77	100.0	98.9	99.5	99.2	99.7	100.3	101.7	102.1	102.5	101.8	103.1
Road vehicles and parts (3/80=100)	78	100.1	100.9	101.0	101.7	101.9	103.3	103.1	103.5	103.8	104.6	104.5
Other transport equipment, excl. military and commercial aviation	79	100.8	101.1	102.1	103.1	102.8	103.5	104.5	105.5	105.8	106.6	107.4
Other manufactured articles	8	100.1	100.3	102.3	103.5	103.4	103.8	104.6	105.2	105.4	105.6	106.9
Apparel (9/83=100)	84	-	-	-	-	-	-	-	-	-	-	-
Professional, scientific, and controlling instruments and apparatus	87	100.5	100.6	102.0	103.1	103.0	103.5	104.4	105.5	106.3	107.1	110.0
Photographic apparatus and supplies, optical goods, watches and clocks (12/77=100)	88	99.2	100.1	101.9	102.6	102.4	102.1	102.7	102.5	99.0	97.9	97.6
Miscellaneous manufactured articles, n.e.s.	89	-	-	-	-	-	-	-	-	-	-	-
Gold, non-monetary (6/83=100)	971	-	-	-	-	-	-	-	-	-	-	-

- Data not available.

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

(June 1977=100, unless otherwise indicated)

Category	1974 SITC	1986				1987				1988
		Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.
ALL COMMODITIES (9/82=100)		98.6	98.7	101.1	102.3	106.5	110.0	110.9	112.5	113.8
Food (9/77=100)	0	113.7	107.3	112.0	109.1	105.2	108.3	109.1	112.5	114.1
Meat	01	98.7	96.0	104.3	109.2	105.0	108.0	114.4	113.4	111.5
Dairy products and eggs (6/81=100)	02	108.0	108.7	111.3	113.8	119.3	122.3	121.7	125.1	125.6
Fish	03	107.0	110.5	114.1	119.1	121.8	126.0	130.4	131.0	132.5
Bakery goods, pasta products, grain and grain preparations (9/77=100)	04	110.4	112.5	117.8	118.8	122.3	126.2	124.8	130.7	135.8
Fruits and vegetables	05	97.6	100.0	106.0	104.3	101.9	110.1	110.0	116.2	115.4
Sugar, sugar preparations, and honey (3/82=100)	06	106.8	104.6	106.2	106.5	107.4	109.6	109.0	107.0	109.6
Coffee, tea, cocoa	07	143.7	117.2	121.5	104.9	89.9	87.0	85.1	90.6	94.3
Beverages and tobacco	1	103.4	105.2	103.9	106.8	107.8	112.8	112.2	113.5	116.0
Beverages	11	104.4	106.1	107.5	109.5	112.1	114.2	114.8	116.2	118.7
Crude materials	2	103.2	106.4	109.5	109.1	115.1	116.2	120.3	122.1	129.2
Crude rubber (inc. synthetic & reclaimed) (3/84=100)	23	104.8	99.5	97.7	98.4	98.4	103.7	110.7	120.1	121.7
Wood (9/81=100)	24	101.8	104.3	107.6	104.8	113.5	110.2	117.4	108.8	112.4
Pulp and waste paper (12/81=100)	25	94.1	100.3	108.0	116.9	127.0	132.0	133.4	141.0	151.0
Crude fertilizers and crude minerals (12/83=100)	27	99.5	99.0	98.4	98.6	98.2	99.6	99.2	99.9	100.4
Metalliferous ores and metal scrap (3/84=100)	28	112.1	121.6	124.8	118.3	122.8	124.5	128.7	137.9	151.2
Crude vegetable and animal materials, n.e.s.	29	114.1	111.3	112.4	111.9	113.0	109.0	107.6	118.3	135.8
Fuels and related products (6/82=100)	3	60.8	51.5	52.2	55.9	67.4	74.1	74.3	67.2	60.6
Petroleum and petroleum products (6/82=100)	33	58.4	49.0	50.0	55.0	67.4	74.4	75.2	67.8	60.4
Fats and oils (9/83=100)	4	68.3	66.7	61.2	83.4	82.9	87.9	96.4	102.1	106.4
Vegetable oils (9/83=100)	42	-	-	-	-	-	-	100.0	105.7	111.1
Chemicals (9/82=100)	5	100.3	99.7	99.8	99.0	102.6	104.8	105.6	110.1	114.2
Medicinal and pharmaceutical products (3/84=100)	54	109.5	111.2	115.9	113.6	120.1	123.4	124.3	126.3	135.3
Manufactured fertilizers (3/84=100)	56	91.4	93.0	89.8	89.9	92.9	94.6	109.3	133.6	133.7
Chemical materials and products, n.e.s. (9/84=100)	59	108.8	110.1	111.3	112.7	115.1	117.7	120.6	124.8	138.7
Intermediate manufactured products (12/77=100)	6	102.1	103.6	105.8	106.7	108.6	112.5	116.3	119.8	124.4
Leather and furskins	61	105.3	106.3	108.8	107.2	110.9	116.6	117.8	124.4	131.8
Rubber manufactures, n.e.s.	62	100.2	101.2	102.0	101.8	104.3	104.6	103.2	104.6	106.0
Cork and wood manufactures	63	108.0	111.0	112.7	117.4	118.0	124.3	128.3	128.2	133.8
Paper and paperboard products	64	100.5	100.8	101.0	104.9	104.8	104.9	110.3	112.3	117.2
Textiles	65	103.9	105.4	107.4	107.9	110.4	111.8	114.6	118.6	120.0
Nonmetallic mineral manufactures, n.e.s.	66	106.9	110.5	116.6	117.9	120.5	126.7	130.4	133.4	137.4
Iron and steel (9/78=100)	67	99.1	98.9	100.0	100.9	102.7	106.6	109.4	114.0	120.0
Nonferrous metals (12/81=100)	68	98.0	98.9	103.3	101.5	102.5	112.4	120.9	125.8	132.7
Metal manufactures, n.e.s.	69	104.8	107.9	107.7	108.3	112.1	112.7	114.6	117.8	121.1
Machinery and transport equipment (6/81=100)	7	107.0	110.4	113.0	114.4	117.5	119.9	119.9	123.1	125.4
Machinery specialized for particular industries (9/78=100)	72	113.2	116.9	122.7	123.0	130.4	136.1	134.3	142.1	146.8
Metalworking machinery (3/80=100)	73	113.6	113.0	117.7	120.9	126.4	128.1	130.2	135.5	139.9
General industrial machinery and parts, n.e.s. (6/81=100)	74	111.2	116.2	119.9	120.9	127.9	130.8	130.1	137.0	140.4
Office machines and automatic data processing equipment (3/80=100)	75	104.8	109.1	109.9	108.9	110.0	114.0	114.8	118.3	118.1
Telecommunications, sound recording and reproducing apparatus (3/80=100)	76	102.8	106.4	109.2	108.9	110.5	110.3	110.2	112.1	112.8
Electrical machinery and equipment (12/81=100)	77	103.1	106.4	108.8	109.8	112.4	115.8	115.1	118.2	122.2
Road vehicles and parts (6/81=100)	78	107.9	110.8	112.9	116.1	118.6	120.5	120.6	122.6	125.5
Misc. manufactured articles (3/80=100)	8	105.1	106.8	109.7	110.3	114.5	117.8	118.5	121.8	124.2
Plumbing, heating, and lighting fixtures (6/80=100)	81	105.7	108.6	111.1	110.8	111.6	117.0	116.2	121.0	123.4
Furniture and parts (6/80=100)	82	107.1	108.0	110.7	112.3	114.8	119.8	119.0	124.3	125.4
Clothing (9/77=100)	84	100.4	100.7	101.7	102.6	106.4	109.2	111.9	112.3	115.6
Footwear	85	107.1	108.0	110.7	112.3	114.8	119.8	119.0	124.3	125.4
Professional, scientific, and controlling instruments and apparatus (12/79=100)	87	112.1	117.9	122.6	122.5	131.3	135.9	132.7	138.7	140.0
Photographic apparatus and supplies, optical goods, watches, and clocks (3/80=100)	88	110.5	113.8	118.0	119.0	123.7	126.0	122.1	127.3	129.2
Misc. manufactured articles, n.e.s. (6/82=100)	89	-	-	-	-	-	-	-	-	-
Gold, non-monetary (6/82=100)	971	-	-	-	-	-	-	-	-	-

- Data not available.

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

(September 1983 = 100 unless otherwise indicated)

Category	Per-centage of 1980 trade value	1986				1987				1988
		Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.
Foods, feeds, and beverages	16.294	96.7	96.2	87.2	90.2	87.4	91.5	88.0	96.6	98.5
Raw materials	30.696	97.7	96.0	95.1	96.3	100.8	106.1	109.1	111.8	114.2
Capital goods (12/82 = 100)	30.186	100.6	100.6	100.7	101.1	101.4	101.6	101.8	102.1	103.3
Automotive vehicles, parts and engines (12/82 = 100)	7.483	101.2	101.9	102.3	103.5	103.4	103.6	104.0	104.5	104.3
Consumer goods	7.467	102.2	103.3	103.6	105.2	105.9	106.3	106.9	108.0	110.1
Durables	3.965	101.1	102.8	102.9	104.9	105.5	106.6	107.3	107.9	110.4
Nondurables	3.501	103.7	103.7	103.8	104.3	105.4	104.3	104.6	106.3	107.4

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

(December 1982 = 100)

Category	Per-centage of 1980 trade value	1986				1987				1988
		Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.
Foods, feeds, and beverages	7.477	111.0	106.1	109.8	108.4	105.2	107.8	109.0	112.1	113.7
Petroleum and petroleum products, excl. natural gas	31.108	58.5	49.1	50.0	54.7	67.2	74.1	74.7	67.6	60.3
Raw materials, excluding petroleum	19.205	-	-	-	-	-	-	-	-	-
Raw materials, nondurable	9.391	-	-	-	-	-	-	-	-	-
Raw materials, durable	9.814	-	-	-	-	-	-	-	-	-
Capital goods	13.164	106.7	110.7	113.5	114.2	118.7	122.2	121.9	126.6	128.6
Automotive vehicles, parts and engines	11.750	107.7	110.4	112.7	114.6	116.5	118.4	118.4	120.6	123.7
Consumer goods	14.250	104.9	107.1	110.1	110.5	114.2	116.9	118.2	121.4	124.2
Durable	5.507	-	-	-	-	-	-	-	-	-
Nondurable	8.743	-	-	-	-	-	-	-	-	-

- Data not available.

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

Industry group	1986				1987				1988
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.
Manufacturing:									
Food and kindred products (6/83 = 100)	98.0	97.2	97.4	100.2	102.0	107.4	107.1	116.3	120.8
Lumber and wood products, except furniture (6/83 = 100)	103.6	103.4	104.8	108.8	112.8	116.2	138.9	142.5	146.1
Furniture and fixtures (9/83 = 100)	103.0	103.7	104.0	104.1	108.0	108.6	108.7	111.2	112.5
Paper and allied products (3/81 = 100)	91.8	97.9	102.3	104.9	109.3	112.3	115.5	119.3	124.6
Chemicals and allied products (12/84 = 100)	99.2	98.0	95.8	95.8	100.5	107.6	108.7	113.8	118.4
Petroleum and coal products (12/83 = 100)	75.4	61.8	65.1	67.6	73.5	80.5	81.4	78.8	73.0
Primary metal products (3/82 = 100)	102.6	102.6	109.3	106.9	110.6	117.2	122.3	126.6	126.9
Machinery, except electrical (9/78 = 100)	100.5	100.1	100.1	100.1	99.6	99.4	99.4	99.7	100.6
Electrical machinery (12/80 = 100)	99.6	99.5	99.9	100.8	101.9	102.1	102.5	102.2	102.9
Transportation equipment (12/78 = 100)	103.8	104.7	104.8	106.0	106.2	106.7	106.9	107.8	108.0
Scientific instruments; optical goods; clocks (6/77 = 100)	103.4	104.5	104.7	105.3	105.8	106.8	106.6	107.1	109.2

¹ SIC - based classification.

41. U.S. import price indexes by Standard Industrial Classification¹

Industry group	1986				1987				1988
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.
Manufacturing:									
Food and kindred products (6/77 = 100)	98.0	97.3	99.7	103.0	103.8	106.3	108.4	110.6	114.0
Textile mill products (9/82 = 100)	104.6	106.8	109.2	110.6	114.1	116.1	119.4	124.3	127.4
Apparel and related products (6/77 = 100)	100.5	101.2	102.4	103.0	107.0	109.4	112.3	113.4	116.6
Lumber and wood products, except furniture (6/77 = 100)	103.7	106.3	109.0	109.0	114.8	115.0	120.3	115.4	119.5
Furniture and fixtures (6/80 = 100)	107.2	109.4	111.4	111.6	116.1	117.0	118.3	118.9	122.2
Paper and allied products (6/77 = 100)	96.4	97.3	98.6	103.3	105.1	105.9	110.9	113.6	119.1
Chemicals and allied products (9/82 = 100)	100.6	103.3	104.3	102.6	105.7	106.2	107.2	112.2	116.8
Rubber and miscellaneous plastic products (12/80 = 100)	103.6	105.3	106.6	107.9	110.6	113.6	112.3	115.7	117.2
Leather and leather products	102.4	103.2	105.3	106.4	109.3	113.3	113.3	118.4	120.8
Primary metal products (6/81 = 100)	96.5	97.1	102.3	101.3	102.7	110.4	115.2	120.0	122.6
Fabricated metal products (12/84 = 100)	107.2	110.5	111.1	111.7	116.7	117.5	119.8	123.2	127.3
Machinery, except electrical (3/80 = 100)	111.1	114.9	118.2	118.9	123.4	127.4	127.8	133.9	135.9
Electrical machinery (9/84 = 100)	100.9	104.3	106.9	107.0	109.4	110.7	110.2	112.5	114.7
Transportation equipment (6/81 = 100)	109.8	112.8	114.7	117.3	119.9	122.1	122.5	124.6	127.3
Scientific instruments; optical goods; clocks (12/79 = 100)	112.6	117.8	122.6	122.4	128.8	132.5	128.8	134.0	135.8
Miscellaneous manufactured commodities (9/82 = 100)	102.4	104.7	110.7	112.2	115.1	118.1	121.4	123.8	127.7

SIC - based classification.

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

(1977 = 100)

Item	Quarterly Indexes										
	1985		1986				1987				1988
	III	IV	I	II	III	IV	I	II	III	IV	I
Business:											
Output per hour of all persons	108.2	107.9	109.5	109.7	109.6	109.6	109.7	110.1	111.3	110.9	111.8
Compensation per hour	177.0	179.3	180.7	182.2	183.6	185.2	185.8	187.3	189.1	190.6	192.2
Real compensation per hour	99.5	99.7	100.1	101.3	101.5	101.7	100.7	100.3	100.3	100.2	100.2
Unit labor costs	163.6	166.1	165.0	166.2	167.5	169.0	169.4	170.2	169.8	171.8	171.9
Unit nonlabor payments	161.8	160.2	163.1	163.9	165.7	162.4	166.0	168.6	172.2	170.8	170.8
Implicit price deflator	163.0	164.0	164.3	165.4	166.9	166.7	168.2	169.6	170.7	171.4	171.5
Nonfarm business:											
Output per hour of all persons	106.4	105.9	107.7	107.7	107.5	107.5	107.6	108.0	109.1	108.8	109.8
Compensation per hour	176.2	178.3	180.0	181.3	182.6	184.4	184.9	186.3	187.9	189.5	191.2
Real compensation per hour	99.0	99.2	99.8	100.8	100.9	101.2	100.2	99.7	99.7	99.6	99.7
Unit labor costs	165.7	168.3	167.2	168.4	169.8	171.5	171.8	172.5	172.2	174.1	174.1
Unit nonlabor payments	163.4	160.8	164.7	165.2	167.0	163.9	167.4	169.2	173.0	171.8	172.3
Implicit price deflator	164.9	165.7	166.4	167.3	168.8	168.8	170.3	171.4	172.5	173.3	173.4
Nonfinancial corporations:											
Output per hour of all employees	109.2	108.9	109.8	109.7	109.9	110.5	109.7	109.9	110.8	110.5	111.4
Compensation per hour	173.8	175.7	177.2	178.4	179.5	181.0	180.8	182.0	183.3	184.8	186.3
Real compensation per hour	97.6	97.8	98.2	99.2	99.2	99.4	98.0	97.5	97.2	97.1	97.1
Total unit costs	163.7	166.0	166.3	167.2	168.5	168.7	169.7	170.9	171.0	172.5	172.3
Unit labor costs	159.1	161.4	161.5	162.6	163.2	163.8	164.8	165.6	165.5	167.2	167.2
Unit nonlabor costs	177.5	179.4	180.7	180.6	184.2	183.2	184.1	186.6	187.3	188.0	187.2
Unit profits	142.5	128.7	129.7	129.5	130.6	127.7	132.2	132.9	142.1	137.0	136.4
Unit nonlabor payments	165.2	161.6	162.8	162.7	165.4	163.7	165.9	167.8	171.4	170.2	169.4
Implicit price deflator	161.2	161.5	161.9	162.7	164.0	163.8	165.2	166.3	167.5	168.2	168.0
Manufacturing:											
Output per hour of all persons	125.3	126.2	127.7	128.5	129.3	129.7	130.4	132.3	133.4	133.6	134.5
Compensation per hour	178.0	180.2	181.0	182.1	183.1	184.3	183.9	184.8	185.4	186.3	188.4
Real compensation per hour	100.0	100.3	100.3	101.3	101.2	101.2	99.6	98.9	98.3	97.9	98.2
Unit labor costs	142.1	142.8	141.8	141.7	141.7	142.2	141.0	139.6	139.0	139.5	140.1

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

(1977 = 100)

Item	1960	1970	1973	1976	1978	1980	1981	1982	1983	1984	1985	1986
Private business												
Productivity:												
Output per hour of all persons	67.3	88.4	95.9	98.4	100.8	99.2	100.6	100.3	103.1	105.7	107.6	109.7
Output per unit of capital services	102.1	101.9	105.3	97.2	102.0	94.2	92.4	86.7	88.4	92.8	92.8	92.8
Multifactor productivity	78.1	92.9	99.1	98.0	101.2	97.4	97.7	95.3	97.7	101.0	102.2	103.4
Output	55.3	80.2	93.0	94.5	105.8	106.6	108.9	105.4	109.9	119.2	124.0	128.1
Inputs:												
Hours of all persons	82.2	90.8	96.9	96.1	105.0	107.5	108.2	105.2	106.7	112.8	115.2	116.8
Capital services	54.2	78.7	88.3	97.2	103.8	113.1	117.8	121.7	124.4	128.5	133.6	138.0
Combined units of labor and capital input	70.8	86.3	93.8	96.5	104.5	109.4	111.5	110.7	112.6	118.1	121.3	123.8
Capital per hour of all persons	65.9	86.7	91.1	101.2	98.8	105.3	108.8	115.7	116.6	113.9	116.0	118.2
Private nonfarm business												
Productivity:												
Output per hour of all persons	70.7	89.2	96.4	98.5	100.8	98.7	99.6	99.1	102.5	104.7	105.9	107.6
Output per unit of capital services	103.6	102.8	106.0	97.3	101.9	93.4	91.1	85.1	87.3	91.3	90.8	90.5
Multifactor productivity	80.9	93.7	99.6	98.1	101.2	96.9	96.7	94.1	97.0	99.9	100.5	101.4
Output	54.4	79.9	92.9	94.4	106.0	106.6	108.4	104.8	110.1	119.3	123.7	127.6
Inputs:												
Hours of all persons	77.0	89.6	96.3	95.8	105.1	108.0	108.8	105.7	107.4	114.0	116.8	118.5
Capital services	52.5	77.8	87.6	97.0	104.0	114.1	119.0	123.2	126.1	130.6	136.3	141.0
Combined units of labor and capital input	67.3	85.3	93.3	96.2	104.7	110.0	112.2	111.4	113.5	119.4	123.1	125.8
Capital per hour of all persons	68.2	86.8	91.0	101.3	98.9	105.6	109.4	116.5	117.4	114.6	116.7	119.0
Manufacturing												
Productivity:												
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	124.2	128.8
Output per unit of capital services	102.5	98.6	111.4	96.2	102.1	91.2	89.2	81.8	86.9	95.7	97.8	99.3
Multifactor productivity	71.9	85.2	97.9	96.8	101.7	98.7	99.8	99.2	105.1	112.2	117.0	120.6
Output	52.5	78.6	96.3	93.1	106.0	103.2	104.8	98.4	104.7	117.5	122.5	125.9
Inputs:												
Hours of all persons	84.4	97.3	103.1	95.9	104.4	101.7	101.1	92.9	93.5	99.5	98.7	97.8
Capital services	51.2	79.7	86.4	96.7	103.7	113.1	117.5	120.3	120.6	122.8	125.3	126.8
Combined units of labor and capital inputs	73.0	92.2	98.4	96.1	104.2	104.5	105.0	99.2	99.7	104.7	104.8	104.4
Capital per hour of all persons	60.7	82.0	83.8	100.9	99.4	111.2	116.2	129.4	129.0	123.5	127.0	129.7

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	105.6	107.5	109.5	110.5
Compensation per hour	33.6	57.8	70.9	92.8	108.5	131.5	143.7	154.9	161.5	168.0	175.9	182.8	188.2
Real compensation per hour	68.9	90.3	96.8	98.8	100.9	96.7	95.8	97.3	98.2	98.0	99.1	101.1	100.4
Unit labor costs	49.7	65.4	73.9	94.3	107.6	132.5	142.7	154.5	156.7	159.1	163.6	166.9	170.3
Unit nonlabor payments	46.4	59.4	72.5	93.3	106.7	118.7	134.6	136.6	146.4	156.5	160.3	163.8	169.4
Implicit price deflator	48.5	63.2	73.4	94.0	107.3	127.6	139.8	148.1	153.0	158.2	162.4	165.8	170.0
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	105.8	107.5	108.4
Compensation per hour	35.3	58.2	71.2	92.8	108.6	131.3	143.6	154.8	161.5	167.8	175.2	182.0	187.1
Real compensation per hour	72.3	90.9	97.2	98.9	100.9	96.6	95.8	97.2	98.3	97.9	98.7	100.6	99.8
Unit labor costs	49.7	65.2	73.9	94.3	107.7	132.9	144.0	156.0	157.6	160.4	165.6	169.3	172.7
Unit nonlabor payments	46.3	60.0	69.3	93.0	105.6	118.5	133.5	136.5	148.3	156.4	161.3	165.2	170.4
Implicit price deflator	48.5	63.4	72.3	93.8	107.0	127.8	140.3	149.2	154.3	159.0	164.1	167.8	171.9
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	108.2	109.9	110.2
Compensation per hour	36.9	59.2	71.6	92.9	108.4	131.1	143.3	154.3	159.9	165.8	172.8	178.9	182.7
Real compensation per hour	75.5	92.5	97.7	98.9	100.8	96.4	95.5	96.9	97.3	96.7	97.3	98.9	97.5
Total unit costs	49.4	64.8	72.7	94.8	107.3	133.4	147.7	159.5	159.5	160.8	164.4	167.7	171.0
Unit labor costs	50.2	65.0	73.4	94.3	107.8	132.3	143.8	153.8	154.5	156.5	159.7	162.8	165.8
Unit nonlabor costs	47.0	64.2	70.7	96.2	105.7	136.7	159.1	176.4	174.3	173.6	178.3	182.2	186.5
Unit profits	59.8	52.3	65.6	89.4	102.0	85.2	98.1	78.5	110.9	136.5	133.9	129.3	136.1
Unit nonlabor payments	51.5	60.1	68.9	93.8	104.4	118.6	137.8	142.1	152.1	160.6	162.7	163.7	168.9
Implicit price deflator	50.7	63.3	71.9	94.2	106.6	127.6	141.7	149.8	153.7	157.9	160.7	163.1	166.8
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	124.2	128.8	132.4
Compensation per hour	36.5	57.4	68.8	92.1	108.2	132.4	145.2	157.5	162.4	168.0	176.9	182.7	185.1
Real compensation per hour	74.8	89.6	93.9	98.1	100.6	97.4	96.8	98.9	98.8	98.0	99.6	101.0	98.7
Unit labor costs	58.7	71.0	73.7	94.9	106.6	130.6	140.1	148.7	145.0	142.2	142.4	141.8	139.7
Unit nonlabor payments	60.0	64.1	70.7	93.5	101.9	97.8	111.8	114.0	128.5	138.6	134.7	137.9	-
Implicit price deflator	59.1	69.0	72.8	94.5	105.2	121.0	131.8	138.6	140.2	141.2	140.2	140.7	-

- Data not available.

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

Country	Annual average		1986		1987				1988
	1986	1987	III	IV	I	II	III	IV	I
Total labor force basis									
United States	6.9	6.1	6.9	6.8	6.5	6.2	5.9	5.8	5.6
Canada	9.5	8.8	9.6	9.4	9.6	9.0	8.8	8.2	7.8
Australia	8.0	8.1	8.2	8.3	8.3	8.1	8.0	7.9	-
Japan	2.8	2.9	2.9	2.9	3.0	3.1	2.8	2.7	-
France	10.4	10.8	10.6	10.6	10.9	11.0	10.8	10.6	10.6
Germany	6.8	6.8	6.8	6.7	6.7	6.8	6.8	6.8	6.8
Italy ^{1, 2}	7.4	7.7	7.3	7.7	7.4	7.6	7.9	7.9	7.8
Sweden ³	2.6	1.9	2.6	2.6	2.0	1.9	1.9	1.7	1.7
United Kingdom	11.2	10.2	11.2	11.1	10.9	10.5	10.0	9.4	9.0
Civilian labor force basis									
United States	7.0	6.2	7.0	6.8	6.6	6.3	6.0	5.9	5.7
Canada	9.6	8.9	9.7	9.4	9.6	9.1	8.8	8.2	7.9
Australia	8.1	8.1	8.3	8.4	8.3	8.2	8.0	8.0	-
Japan	2.8	2.9	2.9	2.9	3.0	3.1	2.8	2.8	-
France	10.7	11.1	10.8	10.8	11.2	11.2	11.1	10.8	10.8
Germany	7.0	6.9	6.9	6.8	6.8	6.9	7.0	7.0	6.9
Italy ^{1, 2}	7.5	7.9	7.4	7.8	7.6	7.8	8.1	8.0	8.0
Sweden ³	2.6	1.9	2.6	2.6	2.0	1.9	1.9	1.7	1.7
United Kingdom	11.2	10.3	11.3	11.2	11.0	10.6	10.0	9.5	9.0

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.

- Data not available.

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	22,670	22,800	22,930	23,160	23,130	23,290	23,340	23,480	23,610
Germany	26,000	26,250	26,520	26,650	26,700	26,650	26,760	26,960	27,100	27,260
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	5,780
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 rate¹										
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	56.2	56.2	56.0
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	50.8	50.5
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	21,250	21,300	21,330	21,200	21,240	21,170	20,980	20,900	20,970	20,970
Germany	25,130	25,470	25,750	25,560	25,140	24,750	24,790	24,950	25,210	25,370
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	5,240
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 ratio²										
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	49.1	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	45.4	45.8	45.8
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	1,210	1,370	1,470	1,730	1,920	1,960	2,310	2,440	2,510	2,620
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	5.4	6.0	6.4	7.5	8.3	8.5	9.9	10.4	10.7	11.1
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	3.5	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.

NOTE: See notes for information on breaks in series for Germany, Italy, the Netherlands, and Sweden.

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								
	1978	1979	1980	1981	1982	1983	1984	1985	1986
PRIVATE SECTOR³									
Total cases	9.4	9.5	8.7	8.3	7.7	7.6	8.0	7.9	7.9
Lost workday cases	4.1	4.3	4.0	3.8	3.5	3.4	3.7	3.6	3.6
Lost workdays	63.5	67.7	65.2	61.7	58.7	58.5	63.4	64.9	65.8
Agriculture, forestry, and fishing³									
Total cases	11.6	11.7	11.9	12.3	11.8	11.9	12.0	11.4	11.2
Lost workday cases	5.4	5.7	5.8	5.9	5.9	6.1	6.1	5.7	5.6
Lost workdays	80.7	83.7	82.7	82.8	86.0	90.8	90.7	91.3	93.6
Mining									
Total cases	11.5	11.4	11.2	11.6	10.5	8.4	9.7	8.4	7.4
Lost workday cases	6.4	6.8	6.5	6.2	5.4	4.5	5.3	4.8	4.1
Lost workdays	143.2	150.5	163.6	146.4	137.3	125.1	160.2	145.3	125.9
Construction									
Total cases	16.0	16.2	15.7	15.1	14.6	14.8	15.5	15.2	15.2
Lost workday cases	6.4	6.8	6.5	6.3	6.0	6.3	6.9	6.8	6.9
Lost workdays	109.4	120.4	117.0	113.1	115.7	118.2	128.1	128.9	134.5
General building contractors:									
Total cases	15.9	16.3	15.5	15.1	14.1	14.4	15.4	15.2	14.9
Lost workday cases	6.3	6.8	6.5	6.1	5.9	6.2	6.9	6.8	6.6
Lost workdays	105.3	111.2	113.0	107.1	112.0	113.0	121.3	120.4	122.7
Heavy construction contractors:									
Total cases	16.6	16.6	16.3	14.9	15.1	15.4	14.9	14.5	14.7
Lost workday cases	6.2	6.7	6.3	6.0	5.8	6.2	6.4	6.3	6.3
Lost workdays	110.9	123.1	117.6	106.0	113.1	122.4	131.7	127.3	132.9
Special trade contractors:									
Total cases	15.8	16.0	15.5	15.2	14.7	14.8	15.8	15.4	15.6
Lost workday cases	6.6	6.9	6.7	6.6	6.2	6.4	7.1	7.0	7.2
Lost workdays	111.0	124.3	118.9	119.3	118.6	119.0	130.1	133.3	140.4
Manufacturing									
Total cases	13.2	13.3	12.2	11.5	10.2	10.0	10.6	10.4	10.6
Lost workday cases	5.6	5.9	5.4	5.1	4.4	4.3	4.7	4.6	4.7
Lost workdays	84.9	90.2	86.7	82.0	75.0	73.5	77.9	80.2	85.2
Durable goods									
Lumber and wood products:									
Total cases	22.6	20.7	18.6	17.6	16.9	18.3	19.6	18.5	18.9
Lost workday cases	11.1	10.8	9.5	9.0	8.3	9.2	9.9	9.3	9.7
Lost workdays	178.8	175.9	171.8	158.4	153.3	163.5	172.0	171.4	177.2
Furniture and fixtures:									
Total cases	17.5	17.6	16.0	15.1	13.9	14.1	15.3	15.0	15.2
Lost workday cases	6.9	7.1	6.6	6.2	5.5	5.7	6.4	6.3	6.3
Lost workdays	95.9	99.6	97.6	91.9	85.6	83.0	101.5	100.4	103.0
Stone, clay, and glass products:									
Total cases	16.8	16.8	15.0	14.1	13.0	13.1	13.6	13.9	13.6
Lost workday cases	7.8	8.0	7.1	6.9	6.1	6.0	6.6	6.7	6.5
Lost workdays	126.3	133.7	128.1	122.2	112.2	112.0	120.8	127.8	126.0
Primary metal industries:									
Total cases	17.0	17.3	15.2	14.4	12.4	12.4	13.3	12.6	13.6
Lost workday cases	7.5	8.1	7.1	6.7	5.4	5.4	6.1	5.7	6.1
Lost workdays	123.6	134.7	128.3	121.3	101.6	103.4	115.3	113.8	125.5
Fabricated metal products:									
Total cases	19.3	19.9	18.5	17.5	15.3	15.1	16.1	16.3	16.0
Lost workday cases	8.0	8.7	8.0	7.5	6.4	6.1	6.7	6.9	6.8
Lost workdays	112.4	124.2	118.4	109.9	102.5	96.5	104.9	110.1	115.5
Machinery, except electrical:									
Total cases	14.4	14.7	13.7	12.9	10.7	9.8	10.7	10.8	10.7
Lost workday cases	5.4	5.9	5.5	5.1	4.2	3.6	4.1	4.2	4.2
Lost workdays	75.1	83.6	81.3	74.9	66.0	58.1	65.8	69.3	72.0
Electric and electronic equipment:									
Total cases	8.7	8.6	8.0	7.4	6.5	6.3	6.8	6.4	6.4
Lost workday cases	3.3	3.4	3.3	3.1	2.7	2.6	2.8	2.7	2.7
Lost workdays	50.3	51.9	51.8	48.4	42.2	41.4	45.0	45.7	49.8
Transportation equipment:									
Total cases	11.5	11.6	10.6	9.8	9.2	8.4	9.3	9.0	9.6
Lost workday cases	5.1	5.5	4.9	4.6	4.0	3.6	4.2	3.9	4.1
Lost workdays	78.0	85.9	82.4	78.1	72.2	64.5	68.8	71.6	79.1
Instruments and related products:									
Total cases	6.9	7.2	6.8	6.5	5.6	5.2	5.4	5.2	5.3
Lost workday cases	2.6	2.8	2.7	2.7	2.3	2.1	2.2	2.2	2.3
Lost workdays	37.0	40.0	41.8	39.2	37.0	35.6	37.5	37.9	42.2
Miscellaneous manufacturing industries:									
Total cases	11.8	11.7	10.9	10.7	9.9	9.9	10.5	9.7	10.2
Lost workday cases	4.5	4.7	4.4	4.4	4.1	4.0	4.3	4.2	4.3
Lost workdays	66.4	67.7	67.9	68.3	69.9	66.3	70.2	73.2	70.9

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								
	1978	1979	1980	1981	1982	1983	1984	1985	1986
Nondurable goods									
Food and kindred products:									
Total cases	19.4	19.9	18.7	17.8	16.7	16.5	16.7	16.7	16.5
Lost workday cases	8.9	9.5	9.0	8.6	8.0	7.9	8.1	8.1	8.0
Lost workdays	132.2	141.8	136.8	130.7	129.3	131.2	131.6	138.0	137.8
Tobacco manufacturing:									
Total cases	8.7	9.3	8.1	8.2	7.2	6.5	7.7	7.3	6.7
Lost workday cases	4.0	4.2	3.8	3.9	3.2	3.0	3.2	3.0	2.5
Lost workdays	58.6	64.8	45.8	56.8	44.6	42.8	51.7	51.7	45.6
Textile mill products:									
Total cases	10.2	9.7	9.1	8.8	7.6	7.4	8.0	7.5	7.8
Lost workday cases	3.4	3.4	3.3	3.2	2.8	2.8	3.0	3.0	3.1
Lost workdays	61.5	61.3	62.8	59.2	53.8	51.4	54.0	57.4	59.3
Apparel and other textile products:									
Total cases	6.5	6.5	6.4	6.3	6.0	6.4	6.7	6.7	6.7
Lost workday cases	2.2	2.2	2.2	2.2	2.1	2.4	2.5	2.6	2.7
Lost workdays	32.4	34.1	34.9	35.0	36.4	40.6	40.9	44.1	49.4
Paper and allied products:									
Total cases	13.5	13.5	12.7	11.6	10.6	10.0	10.4	10.2	10.5
Lost workday cases	5.7	6.0	5.8	5.4	4.9	4.5	4.7	4.7	4.7
Lost workdays	103.3	108.4	112.3	103.6	99.1	90.3	93.8	94.6	99.5
Printing and publishing:									
Total cases	7.0	7.1	6.9	6.7	6.6	6.6	6.5	6.3	6.5
Lost workday cases	2.9	3.1	3.1	3.0	2.8	2.9	2.9	2.9	2.9
Lost workdays	43.8	45.1	46.5	47.4	45.7	44.6	46.0	49.2	50.8
Chemicals and allied products:									
Total cases	7.8	7.7	6.8	6.6	5.7	5.5	5.3	5.1	6.3
Lost workday cases	3.3	3.5	3.1	3.0	2.5	2.5	2.4	2.3	2.7
Lost workdays	50.9	54.9	50.3	48.1	39.4	42.3	40.8	38.8	49.4
Petroleum and coal products:									
Total cases	7.9	7.7	7.2	6.7	5.3	5.5	5.1	5.1	7.1
Lost workday cases	3.4	3.6	3.5	2.9	2.5	2.4	2.4	2.4	3.2
Lost workdays	58.3	62.0	59.1	51.2	46.4	46.8	53.5	49.9	67.5
Rubber and miscellaneous plastics products:									
Total cases	17.1	17.1	15.5	14.6	12.7	13.0	13.6	13.4	14.0
Lost workday cases	8.1	8.2	7.4	7.2	6.0	6.2	6.4	6.3	6.6
Lost workdays	125.5	127.1	118.6	117.4	100.9	101.4	104.3	107.4	118.2
Leather and leather products:									
Total cases	11.7	11.5	11.7	11.5	9.9	10.0	10.5	10.3	10.5
Lost workday cases	4.7	4.9	5.0	5.1	4.5	4.4	4.7	4.6	4.8
Lost workdays	72.5	76.2	82.7	82.6	86.5	87.3	94.4	88.3	83.4
Transportation and public utilities									
Total cases	10.1	10.0	9.4	9.0	8.5	8.2	8.8	8.6	8.2
Lost workday cases	5.7	5.9	5.5	5.3	4.9	4.7	5.2	5.0	4.8
Lost workdays	102.3	107.0	104.5	100.6	96.7	94.9	105.1	107.1	102.1
Wholesale and retail trade									
Total cases	7.9	8.0	7.4	7.3	7.2	7.2	7.4	7.4	7.7
Lost workday cases	3.2	3.4	3.2	3.1	3.1	3.1	3.3	3.2	3.3
Lost workdays	44.9	49.0	48.7	45.3	45.5	47.8	50.5	50.7	54.0
Wholesale trade:									
Total cases	8.9	8.8	8.2	7.7	7.1	7.0	7.2	7.2	7.2
Lost workday cases	3.9	4.1	3.9	3.6	3.4	3.2	3.5	3.5	3.6
Lost workdays	57.5	59.1	58.2	54.7	52.1	50.6	55.5	59.8	62.5
Retail trade:									
Total cases	7.5	7.7	7.1	7.1	7.2	7.3	7.5	7.5	7.8
Lost workday cases	2.8	3.1	2.9	2.9	2.9	3.0	3.2	3.1	3.2
Lost workdays	39.7	44.7	44.5	41.1	42.6	46.7	48.4	47.0	50.5
Finance, insurance, and real estate									
Total cases	2.1	2.1	2.0	1.9	2.0	2.0	1.9	2.0	2.0
Lost workday cases .....	.8	.9	.8	.8	.9	.9	.9	.9	.9
Lost workdays	12.5	13.3	12.2	11.6	13.2	12.8	13.6	15.4	17.1
Services									
Total cases	5.5	5.5	5.2	5.0	4.9	5.1	5.2	5.4	5.3
Lost workday cases	2.4	2.5	2.3	2.3	2.3	2.4	2.5	2.6	2.5
Lost workdays	36.2	38.1	35.8	35.9	35.8	37.0	41.1	45.4	43.0

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:

$$(N/EH) \times 200,000$$

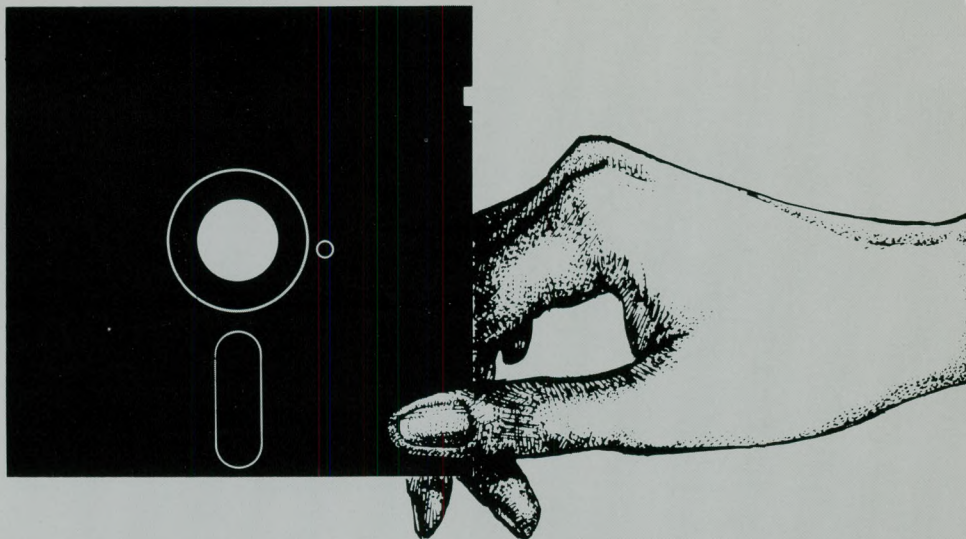
where: N = number of injuries and illnesses or lost workdays.

 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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