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In this issue:

Four articles on the quality of jobs
Consumer spending by occupation and size of city
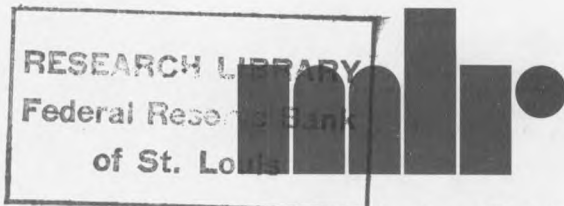Children in two-earner families

December cover:

Design by Richard L. Mathews

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Sam M. Hirabayashi

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San Francisco, CA 94119

Phone: (415) 744-6600

THE QUALITY OF JOBS

Labor month in review

JOB SAFETY IN 1988. The Bureau of Labor Statistics reported results of its annual survey of employer records of job-related injuries and illnesses. The data show an injury and illness rate of 8.6 per 100 full-time workers. Injuries and illnesses totaled 6.4 million.

Although the 1988 rate was higher than in recent years, BLS noted that this increase does not solely reflect changing workplace safety and health conditions. Improved recordkeeping by employers and emphasis on monitoring employer records by the Occupational Safety and Health Administration may have contributed to the increase in the number of cases recorded. BLS has begun a multiyear effort to improve its data on workplace injuries and illnesses.

Occupational injuries. Recordable injuries stemming from accidents at work are those which result in death, loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment beyond first aid.

Recorded job-related injuries occurred at a rate of 8.3 per 100 full-time workers in 1988. Of the 6.2 million injuries recorded in the private sector, almost one-half (2.9 million) were serious enough for workers to take time off from work or to be restricted in work activity. These cases resulted in about 54 million lost workdays.

Slightly over one-third of the total injuries recorded during 1988 were in manufacturing. Other industry divisions with substantial shares of total injuries included wholesale and retail trade (one-fourth), services (one-sixth), and construction (one-tenth).

Injury rates varied by establishment size in 1988 as they have in previous years. Rates for establishments with fewer than 50 or with more than 1,000 employees were lower than the rates for the midsize establishments.

Occupational illnesses. The survey measures the number of new work-related illness cases detected during the year and recognized as work related. The majority of these illnesses are either acute (for example, contact dermatitis) or chronic illnesses (carpal tunnel syndrome), with symptoms that are relatively easy to diagnose and relate to the workplace. In contrast, some chronic conditions (work-related asthma) and long-term latent illnesses (work-related cancers) often are difficult to recognize or relate to the workplace, and are not adequately recorded.

The survey found more than 240,000 new cases of occupational illness among private sector workers. Manufacturing accounted for about three-fourths of the total illness cases. One category of illness—disorders associated with repeated trauma (conditions caused by repeated motion, pressure, or vibration such as carpal tunnel syndrome) accounted for more than four-fifths of the total increase in illnesses. Repeated trauma accounted for almost one-half of the illness cases in 1988 and skin diseases for almost one-fourth.

Occupational fatalities. The survey found 3,300 job-related deaths in establishments with 11 employees or more in 1988. Because fatalities are difficult to measure, BLS believes the count understates the work-related fatalities for the year. Currently, BLS is investigating methods for collecting and verifying data on occupational fatalities through the use of death certificates, workers' compensation reports, and motor vehicle accident reports.

Background of the survey. The Annual Survey of Occupational Injuries and Illnesses is a Federal/State cooperative program in which employer reports are collected and processed by BLS in cooperation with participating State agencies. The 1988 survey, requiring mandatory response, involved a sample of 280,000 establishments. The estimates generated from the survey represent the work injury and illness experience of about 90 million workers in the private sector of the U.S. economy.

Data reported in the annual survey are based on the records employers maintain under the Occupational Safety and Health Act of 1970. Excluded from the act's coverage are workplaces covered by other Federal safety and health laws. Thus, occupational injuries and illnesses for coal, metal and non-metal mining, and railroad activities were provided to BLS by the Labor Department's Mine Safety and Health Administration and the Transportation Department's Federal Railroad Administration.

The survey is limited to private industry. It excludes the self-employed; farmers with fewer than 11 employees; private households; and employees in the Federal, State, and local governments. The fatality data represent units with 11 employees or more; estimates for injuries and illnesses are for units with at least one employee.

Estimates based on a sample may differ from those that would have been obtained from a census of establishments using the same procedures. A relative standard error was calculated for each estimate from the annual survey and will be published in a BLS bulletin that will be available in the spring of 1990. Occupational injury and illness rates by industry for selected years are presented in table 51 of the Current Labor Statistics section of this issue. ☐

The Quality of Jobs
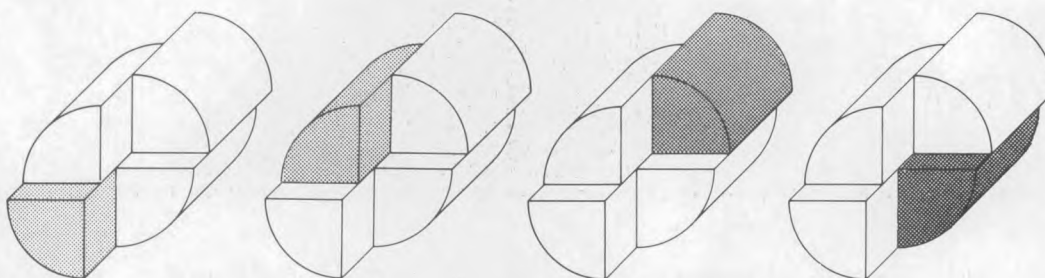
What makes jobs "good"? Time was when most of us would have answered that question simply in terms of pay. Today, we are likely to ask also about benefits offered, about steadiness of the work, and about other job conditions.

Four articles in this issue of the *Monthly Labor Review* explore different ways we assess job quality.

Job characteristics. Because people devote so much time and effort to their jobs, the nature of the job as well as the conditions of the workplace are, along with pay, important determinants of the value of employment. In "More than wages at issue in the job quality debate," Neal Rosenthal provides a review of the job attributes most commonly valued by workers in looking at the quality of the job they do.

Rosenthal notes that developing measures of overall job "quality" is difficult because the same job characteristics may be valued quite differently by different persons (for example, some may seek outdoor work while others shun it). Although the pay level established for the position is important, job attributes and working conditions also are of wide interest.

Contingent work. Among the most valued attributes of a job of high quality is security and constancy of employment. While part-time employment and flexibility in working hours meet the needs of many workers and their families, concern has developed about the phenomenon of contingent jobs. These are jobs in which security of ongoing employment is limited. Because "contingency of employment" is difficult to measure directly, some researchers have used new groupings of employment statistics to estimate the extent of contingent employment.

In "On the definition of 'contingent work'," Anne E. Polivka and Thomas Nardone evaluate these data and assess their adequacy in providing the information needed. The authors conclude that existing employment data are not well-suited to measure contingent employment, and outline the steps needed to collect the type of data they believe will better identify this segment of the labor market.

Flexible benefits. What were once called "fringe" benefits have become essential to many workers and their families. Increasing attention has been focused on noncash benefit compensation, such as pension rights, health insurance coverage, and employee leave. Some employee benefits plans now let workers choose the types of benefits they want their employers to provide. These plans reflect the diversity of workers' needs, and help employees balance their work and family responsibilities.

In "Flexible benefit plans: employees who have a choice," Joseph R. Meisenheimer II and William J. Wiatrowski report on the prevalence of flexible benefit plans among medium-sized and large employers, and review case studies of employee choices made when such plans are introduced.

Costs versus value. How much do workers value these noncash benefits? When is the value to the employee equal to the dollar cost of the benefit to the employer? Melissa Famulari and Marilyn E. Manser tackle these difficult questions in "Employer-provided benefits: employer cost versus employee value," by reviewing measurement issues and relating them to economic theory.

They recognize that cost may not be a good proxy for the value of the benefit to the worker. They suggest that more could be learned about how to value benefits by surveying workers to determine whether they would choose less benefits in exchange for more cash, and by studying the relationship between family spending patterns and employer-provided benefits.

THE DIVERSITY OF THESE ARTICLES illustrates the complexity of job quality issues, and of the whole range of expectations and needs that workers have from their jobs. Wider recognition of this diversity will help us improve our understanding of the labor market and suppress the inclination to classify jobs as "good" or "bad." ☐
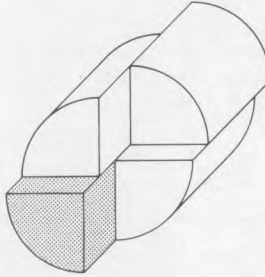
The Quality of Jobs

More than wages at issue in job quality debate

*Nonwage characteristics of jobs
play a role in employment decisions;
workers often trade wages for job security,
status, and other job attributes*

Neal H. Rosenthal

Everyone agrees that the quality of jobs differs, but determining if one job is better than another can lead to great debate. Whether jobs have qualities deemed positive ("good jobs") or negative ("bad jobs") depends on the criteria used to evaluate the job as well as who does the evaluation. Economists focus their good jobs-bad jobs debate on wages, while individuals, as well as counselors and psychologists, who are primarily concerned with a comprehensive view of an individual's well-being, also consider the importance of job satisfaction, job security, and many other factors.

This article discusses the effect of nonwage attributes of jobs on the perceptions of job quality. It broadens the good jobs-bad jobs debate by considering factors in addition to wages which may be important to individuals in determining the quality of their jobs. The intention is not to detract from concerns about the economic benefits of work, but to highlight important aspects of job quality other than wages.

Individual values

Individuals consider a multitude of factors in addition to earnings when characterizing a job as "good" or "bad." For purposes of this discussion, these factors are grouped into five categories: job duties and working conditions, job

Neal H. Rosenthal is chief of the Division of Occupational Outlook, Bureau of Labor Statistics.

satisfaction, period of work, job status, and job security. Although many of the factors are associated with specific occupations, it is important to remember that they can vary within an occupation. Just as earnings may have a wide range within an occupation, so may working conditions, job security, and determinants of job satisfaction.

The value individuals place on different job attributes varies and is determined by many factors. These values are derived from the socioeconomic background and the environment in the geographic area in which they live. In addition, different interests, perceived abilities, and interests in activities other than work, such as leisure or family responsibilities, result in individuals viewing the quality of a job from different perspectives.

It is not surprising that there is great diversity in how jobs are valued. This country's population has very diverse backgrounds. People live in inner cities, suburban areas, and rural areas. The population includes foreign born immigrants, sons and daughters of immigrants of different cultures, and those whose ancestors have been in the country for many generations. Educational attainment varies from high school dropouts to recipients of doctorate and other advanced degrees. Family economic backgrounds range from the very wealthy to those

living in poverty. Each background would influence a person's perspective of the quality of his or her job.

Individuals from these diverse backgrounds have widely different interests and abilities. Some have artistic and creative talents, others work well with their hands. Some people are endowed with above-average intellectual abilities, and some are not. Some like to work with people, others prefer to work alone. Some prefer to work outdoors, others like an office environment. Structured working conditions are preferred by some, while others prefer unstructured conditions. Each individual reflects a unique combination of interests and abilities.

Job characteristics

Just as individuals differ, the characteristics of jobs differ. Many job characteristics are commonly perceived to be positive and others negative. Hazardous conditions and lack of job security are viewed by most workers as negative. However, all jobs with these characteristics are not undesirable. Playing professional football, for example, is certainly hazardous to one's health and lacks job security, but most athletes are not deterred from pursuing a professional career in the National Football League because of this.

Whether job characteristics are deemed negative or positive depends on each individual's personal view. For example, artistic jobs are viewed as desirable by many, but common perception does not indicate that nonartistic jobs are undesirable. Nevertheless, someone without artistic talent would likely be extremely frustrated in a job which required artistic abilities.

The following discussion defines some characteristics that may determine an individual's perception of a job's desirability. Nonwage benefits that translate into earnings, such as employer-paid health insurance, employer contributions to pension plans, and paid vacations, are not discussed, although, like earnings, they are important to a job's desirability. Some job attributes that relate to earnings, such as advancement opportunities, are discussed. Commonly held perceptions of the effect of a characteristic on job quality and specific occupations associated with the characteristic also are included.

Job duties and working conditions. The actual tasks performed on the job and the environment in which the tasks are performed, both the physical workplace and relationships with others, are important in evaluating the desirability of jobs.

Hazardous jobs involve work with dangerous equipment or materials or in dangerous surroundings. In general, hazardous jobs are viewed as less desirable than those that have little or no risk to the worker's physical well-being. Nevertheless, millions of workers are in jobs with potential hazards—construction craft occupations, metalworking occupations, driving occupations, and a variety of production occupations in manufacturing industries, to name a few.

Repetitious jobs requiring the same tasks to be done over and over again are, in general, not considered as desirable as jobs in which the tasks are varied. Jobs on the assembly line in manufacturing are commonly used to exemplify repetitious work, but many clerical workers are in occupations having this characteristic, for instance, word processors, statistical clerks, and file clerks.

Physical stamina is required in some jobs, as workers may have to lift heavy weights, walk long distances, stand for long periods, or stoop frequently. For many, such activity is undesirable. A variety of workers require physical stamina to perform their duties, including construction craft workers, postal mail carriers, laborers, and food counter workers. In contrast, sedentary jobs, such as those performed at a desk in an office, may be considered undesirable by many people.

A *generally confined* work space which requires workers to be in one place most of the time during the workday, rather than moving from place to place, is often considered an undesirable characteristic. Among the workers experiencing this characteristic are long distance truckdrivers, telephone operators, and cashiers.

At the other extreme are jobs that require workers to be on the move with little time in one place. These jobs may be desirable or undesirable, depending on individual preference. Sales representatives, insurance adjusters, mail carriers, and telephone and cable television line installers are typical workers of such occupations.

Stress is created in some jobs because of deadlines, life-threatening situations, and supervisory pressures. Air-traffic controllers are commonly used as an example of workers in a stressful occupation. Most workers consider stress to be undesirable, but some receive a feeling of importance and vitality while under stress.

Autonomy is lacking in jobs that are closely supervised or where the tasks have to be done in a very specific way. Some jobs are in settings that make it difficult to receive or make personal phone calls, receive visitors, or leave the worksite for any reason without obtaining the supervisor's permission. Such restraints make the job

Actual tasks performed and the environment are important in evaluating desirability of jobs.

Many job characteristics result in intrinsic satisfaction.

undesirable to some workers. In general, jobs that permit more initiative in determining how the work should be done and more freedom in deciding one's movements are more desirable.

Some occupations are subject to more or fewer constraints than others. For example, assemblers in a manufacturing plant tend to have less autonomy than newspaper reporters covering a sporting event. However, the degree of autonomy in a specific job is often determined by regulations imposed by employers or individual supervisors rather than the occupation itself. Because of the value placed on autonomy, it is not surprising that self-employment is a goal of many workers.

Working with detail is required in some jobs requiring precision in handling or dealing with specific items. There is no generally held view that this characteristic makes good jobs or bad jobs, although individuals may strongly believe that this characteristic is either desirable or undesirable for them.

Workers in occupations requiring attention to detail include accountants, optometrists, drafters, watch repairers, machinists, air-traffic controllers, surveyors, and dental laboratory technicians.

Working as part of a team is important in jobs requiring cooperation with coworkers in order to accomplish objectives. While this characteristic is not considered positive or negative, individuals may have strong feelings about its effect on job quality.

Many projects may require workers in different occupations to work together as a team. Construction projects, scientific research projects, professional team sports, performing arts, and advertising campaigns all may require individuals in different occupations to work as a team. Conversely, each of these activities are conducted in some settings by individuals working independently.

Job satisfaction. Many job characteristics result in intrinsic satisfaction. For the most part, all the characteristics listed below are positive, but the lack of the characteristic is not necessarily negative.

Ability to see the results of a job in a physical product can give a worker a sense of pride and satisfaction. Brickmasons, chefs, choreographers, artists, and architects are in occupations that possess this job attribute.

Problem solving, that is identifying a problem or goal and deciding what must be done to achieve a successful solution, is an important part of some jobs. Automobile mechanics, industrial production managers, physicians, police detectives, and engineers are among the workers having problem solving as a significant job attribute.

Creativity involves designing new products or services, procedures for making work more efficient, ways to accomplish a task or goal, or composing a song. Architects, designers, advertising workers, industrial engineers, and performing artists are in occupations where creativity is a significant job characteristic.

Recognition of a job well done is an aspect of some jobs. Some occupations lend themselves to public acclaim or appreciation by supervisors and associates for the accomplishments of the workers. Writers and editors, public officials, and performing artists commonly are identified with this characteristic. Of course, they can elicit just the opposite reaction.

Ability to influence others is needed in some jobs in order to stimulate others to think or act in a specific way. Teachers, counselors, psychologists, salesworkers, and managers are associated with this characteristic.

Ability to fully utilize the skills that individuals have obtained through work experience and school training is possible in some jobs. This characteristic is generally not associated with specific occupations, but is determined more by the manner in which employers use their workers. In general, workers with the most formal education view this characteristic as more important than those with little education. Studies have shown that this attribute is very important to workers.[1]

Opportunities to learn new skills is available in some jobs. New skills or training usually will enhance opportunities for advancement. This characteristic often is associated with the practices of employers rather than with a specific occupation. Research shows it is important to many workers.[2]

Possible advancement opportunities can be an important characteristic of a job and can lead to increased earnings and other desirable job attributes, or to a reduction in undesirable attributes. Most occupations have advancement potential, but to widely different degrees. Occupations having little or no advancement potential are known as "dead-end jobs."

Period of work. The hours of work differ among jobs in terms of total hours worked per week and the hours when workers must be on the job. Some periods of work are generally viewed as negative aspects of a job and others are considered positive.

Weekend and shift work are required in some jobs. That is, workers are assigned work during the weekend or on shifts other than the usual workday. In general, these work schedules are

considered undesirable, but they may be welcomed by full-time students or persons in search of a second job.

Jobs in retail sales, food service, and health service often are associated with weekend and/or shift work. Other activities that may require unusual hours of work are police and fire protection, public transportation, performing arts, power generation and distribution, and some manufacturing operations.

Overtime is often needed on some jobs during peak times or to meet deadlines. The chance to earn overtime pay periodically may be considered desirable by some workers, but others may not appreciate spending the extra time at work.

Overtime is not associated with specific occupations, but is generally more common in industries in which deadlines are important to meet or in which some segments of the work must be completed before others can begin, such as construction, durable goods manufacturing, and advertising.

Flexible work hours allow workers to set their own hours of work within some time framework as long as the required total number of hours are worked and the job is done. Such arrangements are considered desirable by workers.

The availability of flexitime generally is determined by the employer rather than by the occupation, and is more common in office-related work environments. Salesworkers also have great freedom in setting their own schedules to conform to the times when the customer load is heavy.

Part-time work (fewer than 35 hours a week) may be considered desirable by workers who have family commitments or prefer more leisure time than would be available with a full-time job.[3] To the contrary, a part-time job may not be desirable if an individual would like to work full time and increase his or her earnings.

Although part-time jobs are found in most occupations, jobs in some occupations are largely part time, especially in food service and retail sales activities. Many clerical occupations also have above average numbers of part-time jobs, as employers can organize the work to accommodate part-time work schedules.

Job status. How the importance of a job is perceived has an effect on an individual's view of the quality of his or her job. One's socioeconomic background has a great impact on how a specific job is viewed by each individual.

Social status is recognized as being associated with occupations.[4] Those having high status are naturally more desirable. A person's socioeconomic status has some bearing on how he or she ranks occupations by status, but stud-ies have shown remarkable consistency in the ranking among different groups and over time.[5]

Occupations that rank high in social status generally require high educational achievement and include physician, lawyer, college professor, engineer, and architect. Occupations requiring little education are usually at the lower end of the spectrum and include laborer, janitor, and private household worker.

Status within an organization has a bearing on job satisfaction and is important to workers in evaluating a job's desirability. This characteristic is determined by the actions of the organization in which an individual is employed, rather than the occupation.

Job security. The chance of keeping a job despite economic conditions or other factors, can be a significant and positive aspect of a job. The amount of security associated with a job is more commonly determined by the employer or activity than by the occupation. Jobs in government are more secure than construction jobs, given the high risk of layoff because of seasonal and cyclical factors that affect the construction industry.

Tradeoffs

Everyone would like the perfect job—a job with varied duties, little stress, a product that can be seen, problem solving tasks, recognition from the public, flexible hours, high social status, and security, along with high wages. Very few individuals, however, have jobs with all of these qualities. But individuals usually try to choose a job that has more of the qualities that are most important to them and avoid those that have characteristics that seem undesirable.

Wages are generally considered the most important determinant of job desirability.[6] One reason is that higher pay may enable one to obtain greater enjoyment of life away from work. For example, enjoying leisure, caring for family, and the ability to meet one's needs for food, clothing, and shelter depend largely on the level of one's wages. Most workers spend about one-fourth of each week at work and, therefore, nonwage attributes of a job can be very important in determining job quality.

Individuals, therefore, usually consider nonwage job characteristics when selecting a job, in some cases trading wages for these nonwage characteristics. The more education and experience an individual has, the greater the variety of jobs available to him or her, compared with counterparts with lesser education or experience. Yet, data show that job shifting is greater among young workers and workers in

Status within an organization has a bearing on job satisfaction.

low paying jobs.[7] This may be because young workers have little understanding of what job characteristics are important to them, and gain that knowledge through experience in different jobs. Because wages are so important to most workers, many often leave a low paying job for a higher paying position, but they may also leave because of concern about other job characteristics.

Measurement difficulties

The values placed on each job characteristic differ among individuals. Studies have attempted to identify which characteristics are important to job satisfaction and to establish relative measures of the importance of different characteristics. Measurement poses significant problems to researchers engaged in these efforts because of the highly subjective nature of the responses to questions in the surveys used in the studies.[8] For example, individuals are usually asked to rank specific job attributes in some subjective way, such as high, medium, or low. The results of studies using this type of response can be very tenuous. In addition, problems arise when studies on job satisfaction are compared because the job attributes being measured often reflect the special interests or theories of the researchers.

Some job satisfaction studies can be very informative, however, especially if they focus on a very specific job characteristic. For example, as part of a supplement to the Current Population Survey in May 1985, information was gathered on whether employees would prefer to work more, fewer, or the same number of hours at the same hourly rate of pay they were currently earning. About a fourth of the respondents said they would prefer to work more hours and earn more money; nearly 10 percent preferred to work fewer hours and earn proportionally less; and the majority indicated they would prefer the same number of hours. While this survey lacks information on the relative importance of part-time work to job satisfaction, it does provide information on the extent to which workers are satisfied with their current hours of work.[9]

In contrast to other job characteristics, earnings do lend themselves to statistical measurements that allow comparisons among jobs and occupations, and cross classification by sex, race, and other characteristics. For this reason, earnings studies are perhaps the most reliable evaluation of job quality, although they do not represent a truly comprehensive measure.

The value of nonwage attributes of jobs has traditionally been part of the theoretical concepts used to explain labor market behavior. However, these attributes have, for the most part, been ignored in the debate concerning good jobs-bad jobs. Yet, trends indicate changes have occurred over time that affect nonwage attributes of jobs. Technology has had a great impact on reducing hazardous, tedious, and dirty jobs. Occupational safety and health legislation has improved workers' safety. Employers, in attempts to reduce labor turnover, have adopted practices to improve job quality and job satisfaction. For example, new management practices focus on reducing occupational rigidities and involving employees at all levels in the decisionmaking process concerning a variety of subjects affecting job quality. And finally, labor organizations increasingly have focused on nonwage aspects of jobs, such as job security, in labor-management negotiations.

Wages may be the most important concern in the good jobs-bad jobs debate, but they should not be the only concern in this very important issue. □

Footnotes

[1] Barry Gruenberg, "The Happy Worker: An Analysis of Educational and Occupational Differences in Determinants of Job Satisfaction," *American Journal of Sociology,* September 1980, pp. 247–71.

[2] Christopher Jencks, Lauri Pearlman, and Lee Rainwater, "What Is a Good Job? A New Measure of Labor Market Success," *American Journal of Sociology,* May 1988, pp. 1322–57.

[3] Rebecca M. Blank, *Are Part-Time Jobs Bad Jobs?* (Washington, The Brookings Institution, 1989).

[4] Otis Dudley Duncan, "A Socioeconomic Index for All Occupations," in Albert J. Reiss, ed., *Occupations and Social Status* (New York, Free Press, 1961), pp. 109–61.

[5] George A. Kanzaki, "Fifty Years (1925–1975) of Stability in the Social Status of Occupations," *The Vocational Guidance Quarterly,* December 1976, pp. 101–05; and Stefan J. Harasymiw, Marcia D. Horne, and Sally C. Lewis, "Occupational Attitudes in Population Subgroups," *The Vocational Guidance Quarterly,* December 1977, pp. 147–56.

[6] Jencks, Pearlman, and Rainwater, "What Is a Good Job?"

[7] *Occupational Projections and Training Data,* 1982 edition, Bulletin 2202 (Bureau of Labor Statistics, 1982), p. 14.

[8] Graham L. Staines and Robert P. Quinn, "American workers evaluate the quality of their jobs," *Monthly Labor Review,* January 1979, pp. 3–12.

[9] Susan E. Shank, "Preferred hours of work and corresponding earnings," *Monthly Labor Review,* November 1986, pp. 40–47.

The Quality of Jobs
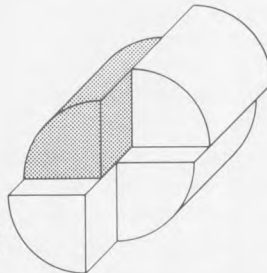
On the definition of "contingent work"

*Lack of an established definition has hindered
estimates of this segment of the labor force;
factors in defining contingency should include
job security and work hours; measurement may require
a combined household-establishment survey*

**Anne E. Polivka
and
Thomas Nardone**

Anne E. Polivka is an
economist in the Office of
Research and Evaluation,
Bureau of Labor Statistics.
Thomas Nardone is an
economist in the Office of
Employment and
Unemployment Statistics,
Bureau of Labor Statistics.

In the 1980's, the American economy produced the longest peacetime expansion of the post-World War II era. During this expansion, employment increased by about 20 million and unemployment reached its lowest level in 15 years. While labor market prospects for many American workers undoubtedly improved, the work arrangements of some individuals may have fundamentally changed.

During the 1980's, firms have strived to gain greater control over their labor costs by seeking to quickly adjust the size of their work force in response to changing market conditions.[1] A perception exists that firms are relying more heavily on part-time and temporary workers and contracting out for services previously performed in-house. These flexible arrangements, along with other arrangements that do not involve full-time wage and salary workers, have come to be referred to by labor market analysts as "contingent work."

Analysts of the effects of contingent staffing methods on the American workplace have reached various conclusions. Some analysts view the flexibility provided by contingent arrangements as necessary to meet variable market conditions and changing demographics.[2]

Many other analysts, however, have concluded that contingent staffing methods have detrimental effects for both employees and employers. Some researchers cite the possible erosion of pay, decline in benefits, loss of job security, inability to obtain on-the-job training, and lack of access to advancement resulting from contingent arrangements as indications of the weakening position of the American worker.[3] Others suggest that the lack of loyalty among contingent workers to their employers could hurt productivity and product quality.[4] Unfortunately, a careful examination of these issues has been hampered by the lack of an established definition of contingent work.

This article examines several issues surrounding contingent work, including its definition, reasons for its existence, and methods for measuring the number of contingent jobs. Our goal is to stimulate further discussion and to move toward a concise, consistent, and measurable definition of contingent work.

Defining contingent work

The phrase "contingent employment arrangements" was coined by Audrey Freedman at a

1985 conference on employment security and was used to "connote conditionality." She described:

> . . . these conditional and transitory employment relationships as initiated by a need for labor—usually, because a company has an increased demand for a particular service or product or technology, at a particular place at a specific time.[5]

Since the phrase's original usage, contingent employment has been identified with a wide range of employment practices, including part-time work, temporary work, employee leasing, self-employment, contracting out, and home-based work. As a result, the operational definition of a contingent job has become any arrangement which differs from full-time, permanent, wage and salary employment.[6]

Despite its widespread usage, this approach to defining contingent work may cause a large number of jobs to be misclassified. As Audrey Freedman's quote implies, an important characteristic of "contingency" is a lack of attachment between the worker and employer.[7] Yet, the operational definition of contingent work includes some arrangements which involve long-term, stable employment. Many part-time workers, for example, are as attached to their employers as are full-time workers. In fact, in January 1987, half of all part-time workers ages 25 and older had 3.9 years or more of tenure with their current employers. This is about 80 percent of the median tenure of full-time workers.[8] Hence, the operational definition of contingency may misrepresent the status of a substantial number of part-time workers.

Another group that may be misclassified as contingent under the operational definition are the self-employed. These workers, by definition, have no commitment to an employer, but they may have long-term commitments to their occupations or businesses. Some self-employed individuals do have less employment security than paid workers, who may derive some protection from market forces by belonging to large organizations. However, the degree of employment stability is probably more related to the self-employed individual's occupation or field of business rather than the work arrangement itself. Self-employed doctors and lawyers undoubtedly have more employment security than do many wage and salary workers in manufacturing industries. Furthermore, it is inconsistent to consider a self-employed doctor as contingent on the basis of job security, while classifying wage and salary employees of the doctor as non-contingent. Clearly, assuming that all self-employed individuals are contingent leads to logical inconsistencies and an overestimate of

the number of contingent workers.

Defining as contingent any job in a firm that contracts to provide goods or services to another firm also would overestimate the prevalence of contingent work. Many workers employed by firms providing services under contract hold full-time, permanent jobs. For instance, the employees of a security firm that provides guards at a textile plant may be as secure in their jobs as the employees of the textile manufacturer. If the demand for the security firm's service declines, its workers may lose their positions. Yet, the same could occur to textile workers if the demand for textiles declines. The job security of both groups is subject to market forces. To classify one group as "contingent" and the other as "noncontingent" solely because one is employed by a contractor and the other by a manufacturer seems inappropriate. In fact, given the relative growth of the service-producing sector compared to the goods-producing sector, jobs in firms that obtain contracts to provide services may be more secure than jobs in firms that manufacture goods.

These examples illustrate the inconsistencies and possible misclassifications caused by the broadness of the operational definition of contingent work—a definition which allows jobs offering a high degree of employment stability to be classified as contingent solely because they are not full-time, permanent, wage and salary positions. Perhaps a better approach would be to construct a definition based on the terms of employment, considering such factors as job security, variability in hours of work, and access to benefits.

Alternative approach. Probably the most salient characteristic of contingent work is the low degree of *job security*. Contingent employment can be described as "on-demand" employment. Often, when an employer needs someone to pick apples, sort holiday mail, or fill in for a sick employee, a contingent arrangement is established. Once the work is completed, however, the employment relationship is severed. In constructing a definition of contingent work, the amount of job security embodied in the arrangement should be the key criterion. Specifically, any work arrangement which does not contain an explicit or implicit commitment between the employee and employer for long-term employment should be considered contingent.

When job security is used as a basis for classifying jobs, it should be noted that contingent arrangements can last for extended periods. Jobs lasting for long periods of time, however, would still be contingent if there is a reasonable degree of uncertainty about the continuation of

When an employer needs someone to pick apples, sort holiday mail, or fill in for a sick employee, a contingent arrangement is established.

employment. For example, a substitute teacher holding a position for a permanent teacher who is on maternity leave may be employed an entire school year. Nevertheless, the substitute position would be contingent because there is no commitment to future employment. The crucial issue when classifying jobs is whether an expectation of future employment exists, not the actual duration of the relationships.

The lack of commitment for future employment also distinguishes contingent work from jobs that involve occasional layoffs. Individuals in noncontingent jobs may experience temporary layoffs due to the renovation of a firm's equipment or a drop in demand for a firm's product. Yet, the jobs would not be considered contingent if there was a reasonable expectation or explicit guarantee of recall.

Another aspect of employment arrangements that could be included in a definition of contingent work is *variability in hours.* In many jobs, the number and scheduling of hours worked may vary, depending on the availability of other workers, the season, or workers' personal commitments such as family or school responsibilities. Arrangements in which the minimum number of hours worked can be changed in an unpredictable manner by the employer or employee should be regarded as contingent.[9]

When considering this aspect of contingency, the randomness of the hours variation is important. Arrangements such as flexitime, in which hours can be changed according to established rules, should not be defined as contingent. Furthermore, even if the hours worked do not constitute a full-time schedule, the arrangement may not be contingent. For example, a permanent 20-hour-a week job would not be contingent. The emphasis should be on the *unpredictability* of hours, not the level.

Finally, much of the discussion surrounding contingent work has been concerned with individuals' *access to benefits,* especially health insurance. Workers classified as contingent under the operational definition, typically receive few or no benefits. For instance, fewer than one-quarter of temporary help employees work in firms that offer health benefits.[10]

It could be argued that access to benefits should be included in a definition of contingent work because the presence of benefits in the employment relationship is a tangible sign of the commitment between the worker and employer. Nevertheless, while the availability of benefits is an important characteristic of employment arrangements, it is neither a necessary, sufficient, nor even desirable condition for defining contingent work. Defining contingency on the basis of who bears the financial

responsibility for benefits could misclassify jobs and deemphasize other important aspects of contingency. Self-employed individuals, for example, are responsible legally and financially for all of their benefits. However, they often have long-term commitments to their employment, suggesting they should not be considered contingent. For wage and salary workers, a definition of contingency based on the lack of access to benefits probably would overlap a definition based on job security. The overlap arises because eligibility for benefits typically is tied to long-term employment.

Taking into account the importance of job security and variability of hours, our definition of contingent work is:

> Any job in which an individual does not have an explicit or implicit contract for long-term employment or one in which the minimum hours worked can vary in a nonsystematic manner.[11]

Dual labor market theory. A noteworthy feature of our definition is its apparent resemblance to the concept of the secondary job market developed by proponents of dual labor market theory. Dual labor market theorists divide the labor market into primary and secondary markets. The primary market is characterized by jobs with relatively high wages, good working conditions, promotion potential, and employment security. In contrast, the secondary market is characterized by jobs with low pay, poor working conditions, and little advancement or job security. Most dual labor market theorists consider the difference in job security as the critical distinction between the primary and secondary markets.[12] This emphasis on job security suggests a connection between the secondary labor market and the proposed definition of contingent work. Nevertheless, there are important differences in the motivation for the formation of the two concepts, as well as in the types of jobs which would fall within each category.

Dual labor market theory was formulated during the 1960's to explain the persistence of discrimination and unemployment among the economically disadvantaged, particularly urban blacks. The theory suggests that the poor economic position of these individuals resulted from their entrapment in the secondary market. According to dual labor market theorists, no individual would choose to be employed in the secondary market.[13]

In contrast, when discussing contingent arrangements, the economic positions of such diverse groups as working mothers and displaced workers are examined. Furthermore, analysts of the contingent labor market admit that some individuals hold contingent jobs voluntarily.

Another aspect of employment arrangements that could be included in a definition of contingent work is variability in hours.

In addition to these conceptual differences, secondary and contingent jobs differ in the breadth of occupations included in each category. The secondary labor market is generally restricted to low-skilled occupations, while contingent work often includes high-skilled occupations such as nurses, accountants, substitute teachers, and engineers. Thus, even though similarities exist between secondary jobs and contingent jobs, the differences are substantial enough that the discussion surrounding contingent work cannot be subsumed by dual labor market theory.

Why contingent work exists

Before discussing issues involved in the measurement of contingent arrangements, it would be useful to review the reasons why they exist. To draw attention to the fact that the desire for contingent arrangements can be generated by *either* the employer or the employee, the discussion will be divided along these lines.

Employers' reasons. The most commonly cited reason for firms using contingent arrangements is to control costs. Perhaps the largest cost savings result from the reduced time that paid workers are idle or work at less than full capacity.[14] Within the course of a day, week, or year, the demand for a firm's product can vary in a systematic way. Maintaining a constant work force through these expected changes in demand would be costly. To reduce these costs, firms may choose instead to hire workers on a contingent basis. For example, canning firms may hire seasonal workers during the harvest, owners of car washes may use day laborers to meet high demand on weekends, and private postal and fast food delivery services may use on-call hiring arrangements to meet daily peaks.

In addition to decreasing the number of hours workers are idle, contingent arrangements can help firms contain costs by reducing worker compensation and administrative costs. Evidence suggests that firms offer lower pay and few or no benefits to workers filling contingent positions.[15] Additionally, contingent arrangements can reduce personnel and training costs by eliminating many of the expenses which would be incurred when recruiting a "regular" employee.[16] Any combination of these cost savings—a decline in the number of paid idle hours, lower wages, decreased liability for benefits, or reduced personnel and training costs—could encourage firms to use contingent arrangements.

Besides providing many cost savings, contingent arrangements can help employers meet nonsystematic changes in demand for their products. At times, firms may be uncertain whether their product demand will continue at its current level. In the initial stages of an economic recovery, for example, employers may be uncertain about whether an increase in demand will be sustained. Consequently, even though firms may need extra workers, they may be reluctant to hire permanent staff until the economic outlook is more certain. Firms may choose instead to meet their labor demand with workers to whom they have no permanent commitments.[17]

Adjusting to fluctuations in demand through contingent arrangements also can help firms insulate a core of permanent employees from layoffs.[18] There are several reasons why a firm may wish to protect the employment of its permanent staff. By increasing job security, firms can safeguard the human capital investment in their current workers and hire more talented new workers. In addition, firms may also obtain wage and work rule concessions from their permanent staff by offering them employment security.

Similar to fluctuations in a firm's demand for labor, the labor supply of its permanent staff could vary in both planned and unplanned ways. For instance, permanent workers may go on vacation, become ill, or have to care for an elderly parent or other family member. Firms may choose to cover these changes in labor supply with contingent workers.

Firms may also use contingent arrangements to screen prospective candidates for permanent jobs. In a survey of 442 firms that was conducted by Katherine Abraham in collaboration with the Bureau of National Affairs, 23 percent of the firms that used flexible arrangements reported doing so in order to identify good candidates for regular jobs.[19] Many temporary help agencies view the practice of clients hiring "temps" on a permanent basis as enough of a problem to charge them a penalty when temporary workers are retained permanently.[20]

In addition to providing a mechanism to screen job candidates and reduce the personnel costs of clients, the temporary help industry may actually help stimulate the demand for contingent workers. By assuring firms a steady supply of screened and trained workers, employers may be encouraged to use "temps" when they otherwise would forgo hiring. If firms had to recruit, train, and hire temporary replacements for permanent staff, the only cost effective alternatives may be to delay projects or reassign work. Access to the temporary help industry may enable firms to easily create contingent positions.

While many factors encourage the use of con-

A shortage of labor in an occupation may force employers to hire individuals who are unwilling or unable to accept permanent positions.

tingent arrangements, there are times when firms may be compelled to do so. A shortage of labor in an occupation may force employers to hire individuals who are unwilling or unable to accept permanent positions. For example, some nursing homes and hospitals hire nurses on a contingent basis because they are unable to fill nursing vacancies at prevailing wages. Employers also may be willing to accommodate the desires of highly skilled workers for contingent arrangements in order to gain access to their expertise. For example, it is not unusual for firms to hire retired executives as temporary consultants.[21]

Finally, by increasing the cost of laying off workers, legislation designed to protect workers could inadvertently encourage employers to use contingent arrangements. Specifically, courts have held that under the Equal Employment Opportunity Act the composition of a group of laid-off workers can be used to establish that an employer's actions are discriminatory, even if the intent to discriminate cannot be proven. Thus, any employer who lays off a large number of workers runs the risk of being sued. Contingent arrangements can help employers eliminate this risk by reducing the need to furlough their own employees.[22]

All of the factors discussed above—cost containment, the ability to easily meet variations in product demand or labor supply, the desire to protect the employment of permanent staff, the inability to attract qualified permanent workers, and the existence of legislation which makes it costly to lay off permanent staff—may make contingent arrangements desirable for firms.

Workers' reasons. Much of the discussion surrounding contingent work suggests that individuals take contingent jobs only because they cannot find permanent work. This is undoubtedly true for some workers, especially during economic downturns. For a variety of reasons, however, some individuals may prefer contingent arrangements.

In order to meet family, school, or other nonwork responsibilities, many workers may need more flexible schedules than can typically be found in permanent work arrangements. Parents of young children may wish to work only during school hours or during the school year. Conversely, students may want to work only when school is not in session. Other workers may need flexible schedules so they can care for elderly parents. In order to gain this flexibility, workers may accept contingent positions.[23]

In addition to a desire for flexibility, workers may take contingent positions if they are unsure about their commitment to a particular field or to the labor market in general. To test their interests, new entrants or reentrants to the job market may take a contingent position in a field they are considering for a career. The temporary help industry may encourage market testing by providing workers an organized method of sampling specific jobs as well as the job market in general.

Another reason individuals may accept contingent jobs is to supplement their income. Some workers may moonlight in contingent positions to meet regular expenses or pay off debts.[24] Still others may accept contingent positions to meet temporary declines in family income, particularly when other family members may be laid off. Older persons may work on a contingent basis to supplement pensions or Social Security, where earnings limits often discourage permanent, full-time work.

While some individuals supplement income through contingent arrangements, others use them as a means of rearranging the form of compensation. Workers who are covered under their spouses' health insurance and retirement programs may prefer the different combinations of benefits, hours flexibility, and cash income available through contingent arrangements. Others simply may be willing to trade compensation for the freedom and independence of contingent arrangements.

Measuring contingent work

Contingent arrangements are obviously not a new labor market phenomenon. However, some analysts have suggested that changing demographics and increasing cost pressures have caused the number of contingent jobs to increase markedly in recent years.[25] To ascertain whether contingent arrangements have become more prevalent, however, a good measurement of the number of contingent jobs is needed.

A widely cited estimate of the contingent work force was made by Richard S. Belous of the National Planning Association. Belous estimated that at least 29 million people held contingent jobs in 1987. The figure is the sum of part-time workers, self-employed individuals, and a fraction of the employment in the temporary help supply industry.[26] Although useful for drawing attention to the issue of contingent work, this estimate can be improved both in its concept and calculation.

Conceptual problems stem from the approach used to make the estimate. Groups of workers are counted as contingent on the basis of characteristics that are not directly related to contingency. Specifically, all part-time and self-employed workers are counted as contin-

To test their interest, new entrants or reentrants to the job market may take a contingent position in a field they are considering for a career.

gent, although as previously noted, many of these individuals are in long-term, stable work arrangements.[27]

Belous's approach also leads to both over-counting and undercounting. A substantial number of workers fall into more than one of the categories included in his estimate. BLS data show that, in 1987, about 1.9 million of the self-employed worked part time, and an unknown number of the workers in temporary help jobs may have held second jobs in which they were part time or self-employed.[28] On the other hand, a major source of undercounting in the estimate is the lack of data about workers hired directly by employers for temporary jobs.

Many of the above criticisms could be made of any estimate of contingent work that uses data currently available. Current nationally representative surveys simply do not measure the extent of contingent arrangements.[29]

Ideally, an estimate of contingent employment would be made using data collected about job security and the variability of hours worked. Using our proposed definition of contingency as a guide, such data might be obtained through a new survey or additional questions on an existing survey. Prior to formulating the questions, a decision would need to be made on the most appropriate survey instrument. An establishment, household, or combined establishment and household survey could be the vehicle for the measurement. An establishment survey would allow the distinction to be made between contingent jobs and workers who change jobs frequently, making the jobs they hold appear to be contingent. This difference is important because many workers move frequently among permanent jobs, particularly early in their careers. A household survey, however, would have the advantage of easily providing a variety of demographic information. Furthermore, it would permit an investigation of the proportion of workers who prefer contingent arrangements.

To take advantage of the strengths of both types of surveys, the most appropriate instrument for measuring contingent employment may be a combined establishment and household survey. Establishments and workers could be matched through the use of unemployment insurance records. A sample of the firms and workers could then be surveyed. A combined survey would provide information about a myriad of demographic, occupational, industrial, and establishment characteristics. In addition, employers' and employees' perceptions of the terms of employment for specific jobs could be compared.

Regardless of the type of survey, questions concerning job security and variability of hours would have to be developed. To understand and accurately measure contingent arrangements, it might be necessary to use at least three types of questions. Questions designed to (1) elicit information about the probability of existing employment arrangements continuing; (2) inquire directly about commitments to long-term employment; and (3) measure characteristics that may be indicative of contingent arrangements. For instance, when inquiring about job security, both employers and employees could be asked about the probability of a position remaining in existence if current economic conditions continue, the probability of the position being eliminated if conditions deteriorate, and, for workers who are laid off, the probability of being recalled if conditions improve. Employers and employees could also be asked directly if a commitment to long-term employment exists. Finally, information could be sought about characteristics of specific jobs such as the distribution of individuals' job tenure. Such information may be useful for distinguishing between permanent and contingent jobs. The above discussion touches on some of the issues to consider in a measure of contingent work. Final determination of the type of survey to be used and the questions to be asked will require further research and discussion.

THIS ARTICLE HAS SOUGHT to define and explain the existence of contingent work. The extent and effects of such arrangements will undoubtedly continue to be important issues. Besides counting the number of such jobs, the effects of these arrangements on America's international economic position, corporate profit, capital investment, and individual economic welfare are issues worthy of study.   □

Footnotes

[1] Reasons firms have sought greater control of labor costs include the severe recessions of the early 1980's, the rise in international competition in many manufacturing industries, and the deregulation of domestic transportation, communication, and finance industries. See Audrey Freedman, "How the 1980's have changed industrial relations," *Monthly Labor Review*, May 1988, pp. 35–38; and Roberta V. McKay, "International Competition: Its Impact on Employ-

ment," in *Flexible Workstyles: A Look at Contingent Labor* (U.S. Department of Labor, Women's Bureau, 1988), pp. 23–28.

[2] Richard S. Belous, "How human resource systems adjust to the shift toward contingent workers," *Monthly Labor Review*, March 1989, pp. 7–12.

[3] Testimony of Rodger Dillon before the Committee on

Government Operations, U.S. House of Representatives, *Rising Use of Part-time and Temporary Workers: Who Benefits and Who Loses?* (Washington, U.S. Government Printing Office, 1988), pp. 116–38; Kathleen Christensen, "Women's Labor Force Attachment: Rise of Contingent Work," in *Flexible Workstyles*, pp. 76–82; and Marcia Freedman, "Shifts in Labor Market Structure and Patterns of Occupational Training," in *Flexible Workstyles*, pp. 65–68.

[4] Joani Nelson-Horchler, "The Trouble with Temps," *Industry Week*, Dec. 14, 1987, pp. 53–57; and testimony of Rodger Dillon, pp. 136–37.

[5] Testimony of Audrey Freedman, *Rising Use of Part-time and Temporary Workers*, p. 35.

[6] Kathleen Christensen states, "Contingent work is an umbrella term used to describe changes in employer-employee relations. It typically covers a variety of forms including part-time, temporary, self-employed independent contracting, and occasionally home-based work arrangements." See her testimony, *Rising Use of Part-time and Temporary Workers*, p. 82. Christensen and Mary Murphree state, "Workers are being hired on a part-time, temporary, contractual, or leased basis. Collectively, this trend has been referred to as the 'contingent workforce'." See Kathleen Christensen and Mary Murphree, "Introduction to," *Flexible Workstyles*, p. 1. Rodger Dillon states, "Contingent workers include in their ranks part-time workers, temporary workers, self-employed contract workers, at-home workers, and leased employees." See his testimony, p. 119. Susan Christopherson states, "In addition to growth in the part-time workforce, other forms of contingent work have emerged, including a large temporary industry workforce." See "Production Organization and Worktime: The Emergence of a Contingent Labor Market," in *Flexible Workstyles*, p. 34.

[7] Other authors have stated that the central issue with regard to contingent work is the employer-employee relationship. See Christensen and Murphree, *Flexible Workstyles*, p. 2; and Richard S. Belous, "How human resource systems adjust," p. 7.

[8] Bureau of Labor Statistics, unpublished data from the Current Population Survey, supplement on job tenure and occupational mobility, January 1987.

[9] In the temporary help industry, for example, either the employer or employee can vary the number of hours worked on a daily basis. The agency may have no work to offer, or the "temp" may not seek or may reject an assignment that is offered.

[10] Harry B. Williams, "What temporary workers earn: findings from new BLS survey," *Monthly Labor Review*, March 1989, pp. 3–6.

[11] The definition refers to variations in the *minimum* number of hours to ensure that jobs involving overtime are not classified as contingent.

[12] For example, Michael J. Piore states: "The relative stability of jobs and workers in the two sectors also appeared to be the critical explanatory variable in understanding the origins of the two sectors, and the other characteristics may be viewed as derivatives of this one factor." See "Notes for the Theory of Labor Market Stratification," in R. Edwards and others, eds., *Labor Market Segmentation* (Lexington, MA, D.C. Heath and Co., 1975), pp. 125–50.

[13] For a good review of the literature on dual labor market theory, see Glen C. Cain, "The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey," *Journal of Economic Literature*, December 1976, pp. 1215–57.

[14] Audrey Freedman, *Rising Use of Part-time and Temporary Workers*, p. 37.

[15] Evidence that contingent workers receive lower wages and benefits than permanent workers usually is inferred from the pay and benefits differentials between full- and part-time workers. See Belous, "How human resource systems adjust," p. 11; Kathleen Christensen, "Women's Labor Force Attachment," p. 82; and Sar A. Levitan and Elizabeth A. Conway, "Part-time Employment: Living on Half Rations," Graduate Institute for Policy Education and Research Working Paper (Washington, George Washington University, Graduate School of Arts and Sciences, 1988), pp. 10–15.

[16] Audrey Freedman, *Rising Use of Part-time and Temporary Workers*, p. 38.

[17] Max L. Carey and Kim L. Hazelbaker, "Employment growth in the temporary help industry," *Monthly Labor Review*, April 1986, pp. 37–44; and Christopherson, "Production Organization and Worktime," pp. 34–38.

[18] Paul Osterman, *Employment Futures: Reorganization, Dislocation, and Public Policy* (New York, Oxford University Press, 1988), pp. 85–89.

[19] Katherine G. Abraham, "Restructuring the Employment Relationship: The Growth of Market-Mediated Work Arrangements," unpublished paper prepared for the conference on *New Developments in Labor Markets and Human Resource Policies*, held at MIT's Endicott House, June 11–12, 1987, revised October 1988, table 5.

[20] Garth Mangum, Donald Mayall, and Kristin Nelson, "The Temporary Help Industry: A Response to the Dual Internal Labor Market," *Industrial and Labor Relations Review*, July 1985, pp. 599–611.

[21] Kathleen Christensen, "Independent Contracting," *Flexible Workstyles*, pp. 54–58.

[22] The number of cases charging age discrimination in dismissals or layoff decisions has risen very rapidly. The number of charges involving age discrimination handled by the Equal Employment Opportunity Commission (EEOC) or by State agencies reporting to the EEOC more than doubled between 1980 and 1986, increasing from about 5,500 to more than 13,000. Settlements of these cases can be expensive. The Equitable Life Insurance Co., which was in a lawsuit involving a layoff of 360 workers over the age of 40, ended up paying $12.5 million. See Abraham, "Restructuring the Employment Relationship," p. 26. Even if a court case does not result in a lawsuit, complying with the law can be costly and time consuming. As Steve Crosely, vice-president of marketing for Norell Services, noted: "To drop a permanent employee may require a manager to go through equal opportunity checks that could take 90 days." See "Technical Temps—A Growing Trend," *Administrative Management*, February 1986, pp. 25–29.

[23] Of course, accepting a contingent arrangement to gain flexibility may also reflect the lack of good alternatives. Lack of good child care may cause a parent who would otherwise prefer to work at a permanent job to take a contingent one. See Christensen, *Rising Use Of Part-time and Temporary Workers*, p. 87.

[24] Data from the May 1985 supplement to the Current Population Survey showed that about 40 percent of multiple jobholders worked at more than one job to meet regular household expenses or to pay off debts. See John F. Stinson, Jr., "Moonlighting by women jumped to record highs," *Monthly Labor Review*, November 1986, pp. 22–25.

[25] There is some indication that changing demographics and industrial structure within the United States has encouraged the growth of contingent arrangements. The relative increase in the number of women with both work and family responsibilities, for example, may have expanded the pool of workers interested in flexible employment arrangements. The labor force participation rate of women with children

increased from 52.9 percent to 65.0 percent between 1978 and 1988. See "Labor Force Participation Unchanged Among Mothers with Young Children," *Bureau of Labor Statistics News*, USDL 88–431, Sept. 7, 1988. The recent growth of the service sector may also have increased the economy's reliance on contingent arrangements, because industries in the service sector typically cannot store their products. Furthermore, evidence exists that more rapidly changing technology has compressed product cycles. Evidence also indicates that the greater integration of the United States into the international economy has increased the vulnerability of export demand to exchange rate variability. See Piore and Sabel, *The Second Industrial Divide* (New York, Basic Books Inc., 1984). Both shorter product life cycles and increased variation in export demand could increase unexpected fluctuations in firms' product demand. Growth in expected and unexpected changes of firms' product demand may cause the use of contingent arrangements to rise.

[26] Belous, "How human resource systems adjust," pp. 9–10.

[27] Belous also provides a higher estimate of the contingent work force that includes all employees in the business services industry. See Belous, "How human resource systems adjust," p. 9. As was argued earlier, however, employment in a firm that provides services under contract does not necessarily mean that a worker is contingent. Individuals working in advertising, credit reporting and collections, computer and data processing services, research and development, and management consulting—industries included in business services—may have as much job security as manufacturing workers.

[28] Bureau of Labor Statistics, unpublished data from the Current Population Survey, 1987 annual averages.

[29] Information on the contracting-out practices in four manufacturing industries was obtained through a special survey undertaken by BLS. For a summary of the results, see Janice D. Murphy, "Business contracting-out practices: evidence from a BLS survey," unpublished paper presented at the Eastern Economic Association Meetings, Mar. 3–5, 1989.

Health care: a long case history

Support for public health care and "sickness" insurance predates social security. Since the colonial period, local communities had built and subsidized asylums, "pesthouses," almshouses, dispensaries, and hospitals for the sick and poor. Most cities and many States by the early 20th century had health departments to monitor sanitation and to control disease. During the Progressive period, reformers linked health care issues with income-maintenance schemes; by 1915, there was probably more support for government-supported health insurance than for a system of contributory old-age pensions. California, New York, and Massachusetts considered compulsory health insurance proposals based on ideas formulated by the American Association for Labor Legislation. The American Medical Association suggested management guidelines for such compulsory programs. These initiatives foundered with surprising rapidity, however. American physicians suddenly turned hostile toward mandatory health insurance as they rethought its implications for their professional freedom and economic future. Others denounced the idea as "Socialist" and "European." The New York Medical Society, reversing its earlier stance, in 1925 flatly announced that compulsory health insurance "is a dead issue in the United States."

—W. Andrew Achenbaum
Social Security: Visions and Revisions
(New York, Cambridge University Press, 1986),
pp. 162–63.
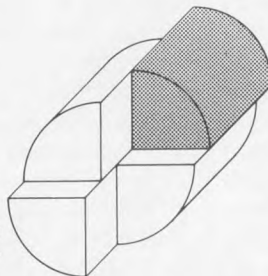
Flexible benefits plans: employees who have a choice

Although flexible compensation arrangements have generated considerable attention in recent years, such plans were available to only 13 percent of surveyed workers in 1988

Joseph R.
Meisenheimer II
and
William J.
Wiatrowski

Twice as many full-time employees of medium and large private firms were eligible for flexible benefits plans or reimbursement accounts in 1988 as in 1986. Despite this growth, such plans were available to only 13 percent of workers covered by the Bureau of Labor Statistics' 1988 survey of employee benefits in medium and large firms.[1] Flexible benefits plans, reimbursement accounts, and other arrangements, such as leave banks and alternative work schedules, have been the subject of considerable debate and interest in the 1980's, as employers seek to control benefit costs and employees seek to satisfy individual needs.

Flexible benefits plans, also called cafeteria plans, are arrangements in which employees tailor their benefits package to their specific needs. Employees can select the benefits they value most and may forgo benefits of lesser importance to them. Under a flexible arrangement, an employer allocates a specified amount of money to each employee to "purchase" benefits. In this way, employers control the amount they spend on each employee for benefits, while the employee selects the benefits. This method differs from a traditional benefits program, in which an employer offers a standard package with few, if any, choices to employees.[2]

Reimbursement accounts may supplement flexible benefits plans, or they may stand alone. Reimbursement accounts, also called flexible spending accounts, provide a way for employees to pay for certain expenses that are not covered by existing benefit plans, such as medical care deductibles or dependent care costs. Under these accounts, eligible employees may deposit part of their pay into an account established by the employer, usually before taxes are calculated. In addition, some employers also contribute to the accounts. Employees are then reimbursed from these accounts for specified expenses.[3]

The choices that employees make through their flexible benefits plans, reimbursement accounts, and other forms of flexible compensation reflect the worth employees place on benefits. This article explores changes in the work force that have led employers to offer flexible compensation arrangements, the choices employees have made, and some means being used to measure the payout of benefits. (A more theoretical approach to deriving a value of employee benefits in relation to their costs to the employer is discussed by Melissa Famulari and Marilyn Manser on pages 24–32.)

Joseph R. Meisenheimer II, an economist formerly with the Division of Occupational Pay and Employee Benefit Levels, Bureau of Labor Statistics, is currently with the Division of Labor Force Statistics. William J. Wiatrowski is an economist in the Division of Occupational Pay and Employee Benefit Levels.

Changing demographics

Over the last two decades, the labor force has grown by more than 50 percent, and its composition has changed dramatically. One key development has been the increasing participation of women. In 1988, women accounted for 45 percent of the labor force, compared with 37 percent in 1968. Fifty-seven percent of women age 16 and older participated in the labor force in 1988, up from 42 percent in 1968. And not only are women participating increasingly in the overall labor force, but they now make up a larger share of employment in some industries and occupations traditionally dominated by men.

Another major change in the labor force is the increasing proportion of dual-income families. In 1968, the husband and wife were earners in 45 percent of married-couple families. By 1987 (the most recent year for which data are available), this proportion had risen to 57 percent. Conversely, the husband was the sole earner in 35 percent of married-couple families in 1968, compared with 19 percent in 1987.

Changes in the composition of the labor force have led to changing benefits needs of its members. More dual-earner families can lead to duplication of certain benefits, such as health insurance, which is commonly available to employees and families. Conversely, dual-earner families have needs that may not be satisfied by traditional benefits packages—for example, they may require child care and time off to tend to family commitments. Hence, a uniform benefits package that usually consists of health care, life insurance, income protection during short-term disabilities, a pension plan, and a paid vacation may no longer be suited to a changing labor force.

The industrial composition of today's labor force is also quite different from that of two decades ago. In 1988, 18 percent of all workers were in manufacturing, down from 29 percent in 1968. Offsetting this decline is the increase in employment in service-producing industries—including wholesale and retail trade, finance, transportation, and other services—to 76 percent in 1988, compared with 65 percent in 1968.[4]

Employers, faced with domestic and foreign competition, are looking for ways to control costs, including employee benefits costs. No longer can employee benefits be considered "fringes of compensation"; in 1988, benefits accounted for slightly more than 27 percent of the cost of total compensation.[5]

Another factor that may influence the growth of flexible compensation is the increase in mergers and acquisitions among U.S. firms. Flexible benefits plans may be used to integrate benefits offered to a newly merged work force. In this way, employees can keep their existing benefits even though they now work for a different company. Each factor—the changing composition of the labor force, employers' encounters with foreign and domestic competition, and mergers and acquisitions among firms—has resulted in increased interest in flexible compensation arrangements, such as flexible benefits plans, flexible work schedules, and leave banks.

Incidence of flexible plans

Although growing in incidence and receiving considerable interest, flexible benefits plans and reimbursement accounts are not widespread. According to the 1988 survey of employee benefits, 5 percent of full-time employees were eligible for flexible benefits plans, and 12 percent were eligible for reimbursement accounts. These plans are more common among white-collar workers than among blue-collar workers.[6] Seven percent of professional and administrative workers were eligible for flexible benefits plans in 1988; only 2 percent of production and service workers were eligible. Reimbursement accounts were available to 20 percent of professional and administrative workers, compared with 5 percent of production and service workers. (See table 1.)

In the BLS 1987 survey of employee benefits in State and local governments, 5 percent of full-time employees were eligible for flexible benefits plans and 5 percent were eligible for reimbursement accounts.[7] Teachers (at 8 percent) were twice as likely as regular employees (4 percent) and four times as likely as police officers and firefighters (2 percent) to be eligible for a flexible benefits plan.[8] (See table 1.) However, the disparity was much smaller for reimbursement accounts for which 5 percent of teachers, 4 percent of regular employees, and 3 percent of police and firefighters were eligible.

Flexible benefits plans were first instituted in 1974 at an East Coast service firm and a West Coast manufacturing firm. For several years there was little additional interest in such plans, as employers waited to gauge employee reaction, and for legal uncertainties to be resolved. With the addition of Section 125 of the Internal Revenue Code, effective in 1979, the legal uncertainties began to disappear. During the 1980's, the incidence of flexible benefits plans has slowly increased.[9]

Plan design

In a flexible benefits plan, the employer allocates a specified amount of money to each em-

Flexible benefits plans, also called cafeteria plans, are arrangements in which employees tailor their benefits packages to their specific needs.

Table 1. Full-time employees eligible for flexible benefits plans and reimbursement accounts, medium and large firms in private industry, 1986 and 1988, and State and local governments, 1987

Coverage	Private industry, 1986				Private industry, 1988 (pre-expanded scope)[1]			
	All employees	Professional and administrative employees	Technical and clerical employees	Production employees	All employees	Professional and administrative employees	Technical and clerical employees	Production and service employees
Total	100	100	100	100	100	100	100	100
Eligible for flexible benefits and/or reimbursement accounts[2]	5	9	8	2	15	23	20	6
Flexible benefits	2	4	2	1	6	9	10	2
With reimbursement accounts ..	2	3	2	(3)	5	8	8	1
Reimbursement accounts	5	9	7	1	14	22	19	5
Freestanding reimbursement accounts	3	5	5	1	9	14	11	4
Not eligible for flexible benefits or reimbursement accounts	95	91	92	98	85	77	80	94

Coverage	Private industry, 1988 (expanded scope)[4]				State and local governments, 1987			
	All employees	Professional and administrative employees	Technical and clerical employees	Production and service employees	All employees	Regular employees[5]	Teachers	Police and firefighters
Total	100	100	100	100	100	100	100	100
Eligible for flexible benefits and/or reimbursement accounts[2]	13	20	18	6	9	8	11	4
Flexible benefits	5	7	8	2	5	4	8	2
With reimbursement accounts ..	4	7	7	1	1	1	2	(3)
Reimbursement accounts	12	20	17	5	5	4	5	3
Freestanding reimbursement accounts	8	13	10	4	3	3	3	3
Not eligible for flexible benefits or reimbursement accounts	87	80	82	94	91	92	89	96

[1] These data include only establishments covered by the pre-expanded survey and are directly comparable with the 1986 survey.

[2] Flexible benefits plans (or cafeteria plans) allow employees to choose from a selection of benefits those that they value most highly. Reimbursement accounts (or flexible spending accounts) provide money for expenses not covered by existing benefits plans.

[3] Less than 0.5 percent.

[4] These data are not strictly comparable with 1986 data. The 1988 survey cov-ered firms in private sector industries, except agriculture and households (maids, housekeepers), employing at least 100 workers. The 1986 survey excluded several major service industries, and minimum employment ranged from 50 to 250, depending on the industry.

[5] Workers other than teachers, police, and firefighters.

NOTE: Sums of individual items may not equal totals because some employees were eligible for both flexible benefits plans and reimbursement accounts.

ployee to purchase benefits. Many plans also will permit employee contributions if the cost of the desired benefit exceeds the employer allocation. Such contributions are often deducted before taxes, reducing the employee's taxable income.

In most flexible benefits plans, employees may choose from a variety of health care and life insurance options. Some plans permit the purchase of various levels of sickness and accident insurance, long-term disability insurance, and additional vacation and sick leave days. Employees may also "sell" vacation and sick leave days to buy other benefits. A few plans offer dependent care, adoption assistance, and legal assistance benefits. Many plans permit employees to take cash in lieu of benefits, and some allow contributions to a deferred compen-

sation account, such as a 401(k) savings and thrift plan.

Data from individual employers on the extent of workers opting for cash over some or all of their flexible benefits package show no clear trends. In some cases, only about 10 percent of workers chose cash in lieu of benefits, while in one establishment nearly 65 percent of workers chose cash.[10] In many cases where a cash option is available, employees are not allowed to trade all benefits for cash. Instead, a minimum level of benefits must be chosen, while additional benefits may be declined in favor of cash.

Reimbursement accounts are commonly developed as independent accounts, but may also be established as part of a flexible benefits plan. As noted earlier, these accounts are usually

funded by employee pretax contributions. In a few cases, employers may contribute directly to a freestanding reimbursement account, or if the account is part of a flexible benefits plan, an employee may deposit part of the employer's plan allocation into the account.

Reimbursement accounts are established to help pay for certain expenses specifically mentioned in the plan. Generally, there are two types of accounts: health care and dependent care. A typical health care account reimburses an employee for such items as premium contributions, copayments, deductibles, and other expenses not covered by the employer's health plan.[11] A typical dependent care account reimburses an employee for day-care expenses for dependent children, dependent parents, or disabled dependents such as spouses. In rare cases, reimbursement accounts may be established for legal expenses. The following shows the coverage of certain expenses by reimbursement accounts in medium and large private firms in 1988:

Typically covered

- Health care deductibles, copayments, and coinsurance
- Health expenses not covered by the employee's health plan
- Dependent care expenses

Covered less frequently

- Employee's share of health care premiums
- Other insurance premiums such as life insurance
- Legal expenses

Some case studies

Because of the small number of flexible benefits plans reported in the 1988 survey of employee benefits, the Bureau cannot project the survey findings into economy-wide estimates. However, individual situations from the benefits literature and from the survey illustrate choices made by employees. Indeed, flexible benefits have had varying effects on employee behavior. The following compares experiences of a large bank with those of a service organization.

A bank's experience.   Prior to implementation of the bank's flexible benefits program, an employee opinion survey revealed that only 39 percent of its employees were pleased with their benefits package, even though the medical and dental plans were entirely paid by the employer. The company introduced a flexible benefits program that included various levels of health, life, accidental death and dismemberment, and long-

term disability insurance coverage. In addition, the program included reimbursement accounts covering health and dependent care, a 401(k) savings plan, and the ability to buy or sell vacation days.

Nearly all of the employees (94 percent) changed some benefits in the first election; 30 percent changed health coverage; 52 percent, life coverage; 39 percent, long-term disability coverage; and 43 percent, vacation benefits. In addition, 53 percent of the employees participated in the health care reimbursement account. The bank's flexible benefits program appears to be a success; when the employee opinion survey was repeated 2 years later, 87 percent of the employees were pleased with their benefits package.[12]

Service organization's experience.   Although the bank's employees took considerable advantage of their flexible benefits program, the story at the service organization was quite different. Before the flexible benefits program began, a company survey found that 57 percent of the employees wanted to select their own benefits; 61 percent of them said they would take less of one benefit to get more of another. But, 88 percent of employees selected a benefits package very similar to their coverage prior to implementation of the program.[13]

Other experiences.   Another establishment offered a flexible benefits program in which employees received an amount of money based on their pay, years of service, job grade, and age. With this money, employees could purchase health coverage, life insurance for themselves and their dependents, accidental death and dismemberment insurance, survivor income benefits, and long-term disability insurance. They could also buy or sell up to 5 vacation days, receive cash in lieu of benefits, and deposit money into health and dependent care reimbursement accounts.

Employees could choose from four levels of medical plans (basic, medium, high, and premium), three health maintenance organizations (HMO's), and a dental plan.[14] They were allowed to waive health benefits, but only if they were covered as a dependent under another group medical plan (6 percent waived their health benefits). HMO's and high benefits plans were the most popular, each selected by 29 percent of employees, followed by basic plans with 21 percent of employees; premium plans, 10 percent; and medium plans, 5 percent. Most employees (94 percent) also selected dental benefits.

Employees could choose life insurance coverage equal to one of five multiples of annual pay.

Thirty-one percent of employees chose one-half annual pay; 21 percent chose one times pay; 19 percent, two times pay; 17 percent, four times pay; and 12 percent, three times pay. Of the three long-term disability benefits plans, 57 percent of the employees chose the plan replacing half of annual pay, 31 percent chose to replace seven-tenths of pay, and 12 percent chose to replace six-tenths of pay.

Experiences with public plans. Flexible benefits plans in State and local governments are frequently not as comprehensive as those in the private sector. According to the Bureau's 1987 survey of employee benefits in State and local governments, public sector plans generally restrict options to health care coverage and life insurance. Often, employees are permitted to receive cash in lieu of benefits, and a few plans offer various amounts of long-term disability coverage. Flexible benefits plans in State and local governments generally do not include reimbursement accounts; only 1 in 5 employees eligible for a flexible benefits plan in 1987 was also eligible for a reimbursement account. Public sector flexible benefits plans almost never include 401(k) plans, vacation, or sick leave options.

The experiences of a large Southwest city show that even when choices are limited, employees have very definite ideas of what benefits they prefer.[15] With the implementation of flexible benefits in 1986, the city's employees could choose between different levels of medical and dental care, and could improve disability protection. Several benefits were specifically excluded from the plan, such as life insurance and vacations. Prior to implementing the new program, 60 percent of employees chose the fee-for-service plan and 40 percent chose the HMO. In addition, 63 percent chose dental care. These numbers were virtually unchanged under the flexible benefits plan, but nearly all fee-for-service plan participants opted for a different deductible than the one provided under the old plan. In most cases, a lower deductible was chosen. Likewise, one-third of dental plan participants, when given the choice, switched from a fee-for-service plan to a plan in which services are provided free, or for a small, fixed fee. Few of the city's employees chose the additional disability coverage that was offered.

Other flexible arrangements

The needs of the changing work force have prompted interest in other forms of flexible arrangements. For example, to accommodate the special needs of two-earner and single-parent families, some employers have adopted flexible work schedules. These programs range from allowing employees to vary arrival and departure times to permitting employees to work extra hours on some days and fewer hours on other days. A recent Bureau of Labor Statistics survey of private and public sector establishments with 10 or more employees showed that 43 percent of the establishments offered flexible work schedules.[16]

Leave banks are also receiving attention. These programs combine several forms of paid leave—for example, vacation time, sick leave, and personal leave—into one leave category. Restrictions on the purposes for which leave may be used are relaxed, giving employees more flexibility in meeting their needs.

Another practice, found primarily in public school districts, is leave-sharing programs. These plans typically allow employees to donate sick leave each year into an "account," which can be drawn upon by employees who have exhausted their own sick leave due to lengthy illnesses. The Federal Government is experimenting with this type of leave-sharing policy. Early indications are that fellow employees are generous in donating their leave, and that those with lengthy illnesses are benefiting. The literature indicates that other employers are beginning to adopt a variety of flexible leave policies.[17]

Greater employee choice has also been evident in insurance and retirement benefit programs. Data from the Employee Benefits Survey show that the proportion of establishments offering full-time employees more than one medical plan has risen from 13 percent in 1980 to 32 percent in 1984, then to 54 percent in 1988.[18]

To help curb rising health care costs, employers may offer workers alternatives to traditional fee-for-service health insurance plans. Among medium and large firms, participation in HMO's (which are often offered in addition to fee-for-service plans) rose from 3 percent of health care plan participants in 1980, to 5 percent in 1984, and to 19 percent in 1988.[19] A more recent plan, preferred provider organizations, grew from 1 percent of participants in 1986 (the first year studied) to 7 percent in 1988.[20] (Preferred providers are groups of hospitals, physicians, and dentists who contract to provide health care services. These plans limit reimbursement rates when participants use the services of nonmember providers.)

Employers have also built flexibility into their retirement programs by introducing salary reduction or 401(k) plans. Relatively unknown in 1980, these plans were available to one-third

Dual-earner families have needs that may not be satisfied by traditional benefits packages.

of full-time employees in medium and large firms in 1988.[21] Employees can reduce their taxable income by channeling part of their earnings into long-term retirement and savings plans. Typically, employees choose whether to join the plan and the amount to save, subject to a maximum limit. These plans allow employees to use their own contributions to supplement employer-sponsored retirement plans (such as defined benefit pension and profit-sharing-plans) and, in effect, create their own retirement program.

Measuring payouts

Comparing employee benefits plans is difficult because plans typically consist of many provisions. For example, how does a health insurance plan with a $100 deductible, an 80-percent coinsurance rate, extensive mental health care coverage, and an employee premium of $100 per month compare to an HMO plan with no deductible, a coinsurance rate of 100 percent, restrictive mental health care coverage, and an employee premium of $20 per month?

To meet the needs of data users who have requested simpler measures, the Bureau is working on several statistical models that estimate plan payouts.[22] The models compute payouts by making certain assumptions about plan provisions. As with any model, these are simplified versions of reality: They do not take into account the circumstances of individual workers or employers, and they do not consider all factors affecting payouts.

The first of these models used 1984 defined benefit pension plan data.[23] For each pension plan, monthly benefits and replacement rates (the percentage of preretirement income replaced by pension benefits) are computed for employees with assumed final earnings and years of service. These data are averaged to estimate benefits for all defined benefit pension plan participants. Calculations take into account benefit formulas, service maximums, Social Security integration, alternative methods of computing benefits, and other features.[24] Future plans include expanding the replacement rate calculations to account for reduced benefits at early retirement and for survivor benefits.

In 1986, the replacement rates model calculated that participants in defined benefit pension plans in medium and large private firms with 30 years of service and final year earnings of $25,000 would have an average of 28 percent of preretirement earnings replaced by their plan benefits. If primary Social Security benefits were included, the replacement rate rose to 62 percent. Data from the 1987 survey of State and local governments showed higher replacement rates, and variations in benefits, depending on Social Security coverage.[25]

What's ahead

The Bureau is preparing other models. Perhaps the most ambitious is a measure to summarize payouts from health care plans. This model will compute the benefits paid by the health plan and the expenses the employee must pay in a number of annual medical scenarios. For each health care plan in the survey, the total cost of a medical procedure will be compared with deductibles, copayments, maximum dollar limitations, coinsurance rates, and out-of-pocket expense limits to determine the plan's and the employee's share of costs. Employee premiums will be included in calculations to determine total employee costs for a year. To highlight distinctions among plans, data will be tabulated separately for HMO's and, perhaps, for other variables.

Also planned are the results of an analysis of life insurance benefits available to employees. For each life insurance plan in the Employee Benefits Survey, coverage was computed for employees, based on assumed earnings and years of service. These data were averaged for the entire survey, revealing typical benefits available to a beneficiary upon death of an employee. Additional calculations provide the average insurance coverage for older active employees, whose benefits may be reduced as the cost of coverage increases.

In addition to the Bureau's work on the payouts of pension, health care, and life insurance plans, the Employee Benefits Survey will expand its coverage of flexible compensation. The 1989 survey collected information on the incidence of flexible work schedules, and in 1990, data will be collected on the incidence of leave banks. Also in 1990, the survey will improve its coverage of flexible benefits plans and reimbursement accounts to acquire more specific details on these plans. At the same time, the survey coverage is expanding. Medium and large private firms will be surveyed in odd years, and small firms (from 1 to 99 employees) and governments in even years. These changes should enable the Bureau to chart developments in flexible compensation more extensively throughout the economy.   □

Footnotes

[1] The 1988 Employee Benefits Survey is a sample survey of approximately 2,500 private sector establishments in the District of Columbia and all States except Alaska and Hawaii. An establishment must employ at least 100 workers to be within the scope of the survey. The survey provides representative data for 31 million full-time employees on a variety of employee benefits, such as leave benefits, short- and long-term disability coverage, health benefits, life insurance, retirement and capital accumulation plans, child care, employee assistance programs, and educational assistance. Survey data are published in a Department of Labor news release and in the Bureau of Labor Statistics Bulletin, *Employee Benefits in Medium and Large Firms*, *1988*, Bulletin 2336 (Bureau of Labor Statistics, 1989). In addition, detailed articles on survey findings are published periodically in the *Monthly Labor Review*.

[2] The survey tabulated the number of *eligible* employees, those who could receive flexible benefits if desired. To be included in this study, a flexible benefits plan had to offer at least two types of benefits (health care and life insurance, for example). Employees could then choose one benefit, or both, depending on their needs.

[3] Flexible benefits plans and reimbursement accounts are established under the requirements of Section 125 of the Internal Revenue Code. Regulations concerning these plans can be found in 26 C.F.R. 1.125. The tax code and regulations specify benefits that may and may not be included in these plans. For example, the only deferred compensation plans that may be included are cash or deferred arrangements (Internal Revenue Code Section 401(k) plans). The law also imposes the restriction that money allocated by an employee to a reimbursement account and not used by the end of the plan year is forfeited.

[4] Labor force data were obtained from *Labor Force Statistics Derived from the Current Population Survey*, *1948–87*, Bulletin 2307 (Bureau of Labor Statistics, 1988); and unpublished data from the Current Population Survey and the Current Employment Statistics survey.

[5] *Employment Cost Indexes and Levels*, *1975–88*, Bulletin 2319 (Bureau of Labor Statistics, 1988), p. 43.

[6] In the 1988 Employee Benefits Survey, workers were classified into three broad occupational groups: professional and administrative, technical and clerical, and production and service. Professional and administrative and technical and clerical workers are commonly referred to as white-collar employees, and production and service workers as blue-collar employees. The Bureau tabulated employee benefits data for each of the three occupational groups and for all three occupational groups combined.

[7] The 1987 Employee Benefits Survey is a sample survey of approximately 1,000 State and local government employers in the District of Columbia and all States except Alaska and Hawaii. Local government entities had to employ at least 50 workers to be within the scope of the survey. The survey provides representative data for approximately 10 million full-time State and local government employees. Survey findings are in *Employee Benefits in State and Local Governments*, *1987*, Bulletin 2309 (Bureau of Labor Statistics, 1988).

[8] In the 1987 Employee Benefits Survey, workers were classified into three broad occupational groups: regular employees, teachers, and police and firefighters. Regular employees were defined as workers who were not teachers, police officers, or firefighters.

[9] "Employees Satisfied with Flexible Benefits at Three Companies with Oldest Such Programs," *Spencer's Research Reports*, September 1983, pp. 007.–31—32.

[10] "Colonial Penn Employees Build Their Own Benefits," *Spencer's Research Reports*, August 1985, pp. 007.–47—50.

[11] Deductibles and copayments are required to be paid by a plan participant before benefits are paid by the plan.

[12] Polly T. Taplin, "Flexible Benefits After Two, Three, and Five Years," *Employee Benefit Plan Review*, June 1988, pp. 30–34.

[13] "Flex Plan Participants Opt for Few Changes," *Business Insurance*, Mar. 21, 1988, p. 6.

[14] A health maintenance organization (HMO) is a prepaid health care arrangement that delivers comprehensive medical services to enrolled members for a fixed periodic fee.

[15] "City of Scottsdale Develops Flex Plan through Consultation with Employee Task Force," *Spencer's Research Reports*, September 1986, pp. 007.–21—25.

[16] Howard V. Hayghe, "Employers and child care: what roles do they play?" *Monthly Labor Review*, September 1988, p. 42.

[17] See, for example "Amoco Corp. Announces New Policies to Allow Employees More Flexibility," *Benefits Today*, Dec. 16, 1988, p. 407; "Around the U.S.A.," *Benefits Today*, Jan. 27, 1989, p. 27; and "A Leave Sharing Program: The Federal Government Experiments with Its Employees' Benefits," *Spencer's Research Reports*, January 1989, pp. 323.1.–19—20.

[18] Although these are unweighted tabulations of sample establishments, they do provide a rough measure of how the options available to employees have increased this decade.

[19] *Employee Benefits in Industry*, *1980*, p. 23; *Employee Benefits in Medium and Large Firms*, *1984*, p. 40; and *Employee Benefits in Medium and Large Firms*, *1988*, p. 46.

[20] *Employee Benefits in Medium and Large Firms*, *1986*, p. 48; and *Employee Benefits in Medium and Large Firms*, *1988*, p. 46.

[21] *Employee Benefits in Medium and Large Firms*, *1988*, p. 107.

[22] It should be emphasized that projected plan payouts are not measures of value. For a discussion of some of the problems associated with the concept of value, see the article by Melissa Famulari and Marilyn E. Manser on page 24–32.

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

[24] The pension data are published annually in the Bureau of Labor Statistics bulletin, *Employee Benefits Survey in Medium and Large Firms*.

[25] For further details on differences between public and private sector defined benefit pension plans, see Lora Mills Lovejoy, "The comparative value of public and private pensions," *Monthly Labor Review*, December 1988, pp. 18–26.
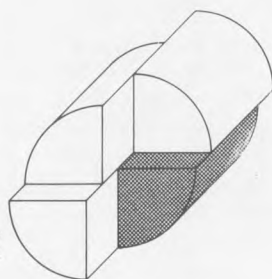
Employer-provided benefits: employer cost versus employee value

*Cash-equivalent value is one approach
to measuring employees' value
of noncash benefits; more data and research
are needed, however, to resolve complex
methodological issues regarding this approach*

Melissa Famulari
and
Marilyn E. Manser

Employers compensate their employees not only with cash, but also with noncash payments. The latter, sometimes called "in-kind" or "fringe" benefits, include some that are legally required, such as Social Security, workers' compensation, and unemployment insurance, and some that are not, such as paid leave, health and life insurance, and pensions. This article discusses the effort of economists to measure the value individuals place on noncash payments.[1]

Economists have developed the concept of "cash-equivalent value" to measure the value of noncash benefits to an individual.[2] A person's cash-equivalent value is the least amount of money he or she would be willing to accept in exchange for not receiving particular noncash goods. When applied to an employer-provided benefit, the cash-equivalent value is the minimum amount of additional cash compensation the worker will accept in lieu of receiving the benefit. Although some estimates of cash-equivalent value for Government-provided in-kind benefits such as food stamps, public and subsidized housing, medicaid, and medicare exist, little has been done to quantify employer-provided benefits, primarily because of a lack of data. Moreover, even if data were available, a variety of problems have made it difficult to implement the cash-equivalent value approach.[3]

Information on the employer's cost of providing the benefit is readily available through the Bureau of Labor Statistics' Employment Cost Index (ECI) program. To what extent does employer cost approximate employee value? We believe that there are various biases associated with using employer cost as the measure of the employee's value of employer-provided benefits. These biases can result in misleading conclusions.

This article (1) outlines the cash-equivalent value approach to measuring value and points out the relationship of employer cost to cash-equivalent value, (2) describes the three most commonly utilized techniques to estimate cash-equivalent value and examines the data requirements and limitations of each technique, and (3) discusses both the types of studies where the biases do not appear to distort conclusions and studies where we feel the use of employer cost as a measure of employee value would result in highly misleading conclusions. While some of this material is quite technical, we have endeavored to keep the discussion as general as possible.[4]

Employee value

Perhaps the simplest approach to estimating value is that which holds value to be the employer's cost of a given benefit. A more sophis-

Melissa Famulari is an economist in the Office of Economic Research, Bureau of Labor Statistics. Marilyn E. Manser is assistant commissioner of the same office.

ticated view is the *funds-released* approach, which maintains that value can be measured as the amount of money an individual would have spent to acquire a certain good in the absence of being provided the benefit associated with that good. In contrast to this is the *market-value* approach, in which value is the amount the individual would have paid for the benefit if he or she had purchased the *specific* amount the employer provided (as opposed to the amount the individual would have chosen at the existing market price). Finally, there is the *cash-equivalent* approach, wherein value is the least amount of money an individual would be willing to accept in exchange for not receiving a certain benefit. This last approach is the way most economists define value.[5]

Description of the theory. If an individual is given some noncash benefit by his or her employer, such as free or subsidized meals, pensions, or health insurance, and nothing else changes, plainly the individual will be better off than before the receipt of the noncash good. But *how much* better off? The cash-equivalent value approach to determining the change in individual well-being is fairly straightforward: we ask, "What is the minimum amount of additional cash compensation an individual would require to become just as well off as that individual would be if he or she received the noncash good?"[6] The cash-equivalent value is then the amount of cash compensation which makes the individual indifferent between getting the benefit and no cash and getting the cash and no benefit.

Sources of difference between employer cost and employee value. In many ways, it would seem that the relationship between employer cost and employee value is fairly straightforward. Any employer-provided benefits other than legally required ones result from employer-employee contracting, directly for unionized, and less directly for nonunionized, workers. Except for legally mandated benefits, employers can compensate employees with either wages or noncash benefits, and because both cost the employer the same amount, in general the employer has no incentive to prefer one form of compensation over the other.[7] Thus, in a perfectly competitive situation, in the absence of government intervention, taxes, and other institutional restrictions, the marginal worker (the last worker convinced by the total compensation package to accept the job) would be expected to value the last dollar of each benefit type equal to another dollar of money wages, or he or she could be made better off at no cost to the employer.

Consequently, in such a situation, the cost of the benefit provided is a measure of its value.

Despite this apparent consonance, there are a number of reasons why employer cost can diverge from employee value. Employer cost for a noncash benefit that is not legally required can diverge from employee value because (1) the benefit is not subject to personal income taxes, (2) the benefit is provided uniformly to large groups of employees in a firm, and (3) the employer's cost of providing the benefit may be lower than the market price of the benefit to the employee. Let us consider each of these in turn. (Several graphical representations of the disparity that may arise between employer cost and employee value are presented in the appendix.)

1. When the benefit is not subject to income taxes, the equality of employer cost and employee value breaks down even for the marginal worker. Specifically, in a world with taxes, the marginal worker would be expected to consume noncash benefits up to the point where the marginal value of another dollar of benefits equals the after-tax value of another dollar of money wages. That is, the marginal worker, whose marginal tax rate is, say, t, would need to receive $1/(1 - t)$ dollars of pre-tax income in order to get a dollar of after-tax income. (The amount $t/(1 - t)$ is paid in taxes, leaving $[1/(1 - t)] - [t/(1 - t)] =$ one dollar.) More of the benefit will be consumed than if this differential tax treatment did not exist, and as a result, employer cost will overstate the cash-equivalent value of the benefit. (One common explanation for the growth of employee benefits has been the increasing tax rates faced by typical workers.) An implication of the differential tax treatment is that higher income workers will place a higher value on noncash benefits than will lower income workers, because the tax rate of the former exceeds that of the latter.

2. Historically, firms have typically provided benefits to their work forces as a whole, instead of tailoring them to the preferences of individual employees.[8] In addition, laws mandating that personal income tax advantages be available only for benefits which do not favor higher paid workers provide incentives for a more uniform provision of benefits to all employees in a firm. If there are costs associated with changing jobs and if employees are not perfect substitutes for one another in production, then uniform provision of benefits drives a wedge between employer cost and employee value for at least some individuals.[9] Under these conditions, the employer would be expected to provide benefits in accordance with the preferences of the "median" worker.[10]

Various biases associated with using employer cost as the measure of employee value can result in misleading conclusions.

When a benefit is not subject to income taxes, the equality of employer cost and employee value breaks down.

Even in the absence of differential tax rates, higher income workers would be expected to demand more of any "normal" good (a good which people want more of as their income increases) than would lower income workers. In support of this proposition, Steven A. Woodbury estimated an income elasticity for noncash benefits which is greater than one; that is, a 1-percent increase in income leads to a greater-than-1-percent increase in the demand for noncash benefits.[11] Consider the class of benefits whose provision does not typically vary with employee income (for example, health insurance, child care, Christmas bonuses, and parking). Because employer cost will be the same regardless of employee income, the benefit ratio, that is, the ratio of employee value to employer cost, would be expected to be higher for higher income workers than for lower income workers in a firm. By contrast, for benefits which are provided in amounts proportional to income, such as life insurance and pensions, less of a difference in benefit ratios among workers would be expected.

In general, benefit ratios are also expected to vary by some demographic factors, particularly family status. For instance, two-earner families that receive largely duplicative health insurance policies would place a relatively low value on one of them, single individuals may place a low value on life insurance policies, and so on. Thus, assuming that employee benefits are valued equally by all households—even at a given income level—may severely distort comparisons of well-being among households.[12]

As of 1978, cafeteria plans—that is, plans whereby workers choose among a "menu" of benefit options—could qualify for tax-exempt status. Depending upon the particular choices the employees have, these plans allow the provision of benefits to vary among the workers of a firm. That individuals do choose differently when given a choice is additional evidence that uniformity is a factor in driving a wedge between employer cost and employee value. We may assume that, as more options are given, the amount of the benefit the employer provides approaches the amount the employee would choose. Anecdotal evidence that employees do choose differently when given a choice is presented in the article "Flexible benefit plans: employees who have a choice," by Joseph Meisenheimer II and William Wiatrowski, elsewhere in this issue.

3. Ignoring taxes and issues relating to the uniform provision of benefits, an employee's marginal value of a noncash benefit will be set equal to the employer's marginal cost of providing the benefit, everything else being equal. If the employer's marginal cost is lower than the employee's market price, then the benefit will be "overprovided" relative to the amount the employee would choose at the market price. Thus, employer cost will provide a lower bound on employee value, and the amount provided by the employer times the price the employee would pay in the market will provide an upper bound.

The cost to the employer may be less than the purchase price to the employee for three reasons.[13] First, employers are often able to take advantage of discounts sellers offer for bulk purchases. Second, sellers are willing to provide benefits to groups of people at a cheaper rate than to individuals when there are adverse selection problems. Adverse selection occurs when, for example, the workers in the poorest health are the ones who want to purchase the most health insurance. By selling benefits to a group of workers, sellers can mitigate adverse selection. Finally, employers may prefer providing more of a given type of benefit than is demanded in order to reduce turnover, maintain a healthier and more productive work force, or attain another, similar objective. Here, a more inclusive measure of employer cost—one which "nets out" the gain accruing to the firm in providing the benefit—would result in an employer cost that is less than the market price.

The case of legally required employer-provided benefits is different from that of nonrequired benefits. The difference between the two is that employers and employees can negotiate about which nonrequired benefits will be provided in what amounts, whereas quantities of legally required benefits may be arbitrarily set with regard to employee values. Even given that employees as a group vote for legislators who will enact desired changes in the provision of mandated benefits, some voters who pay taxes are neither workers nor participants in the labor market, so median voter results may not apply.[14] In addition, the aforementioned problem concerning the uniform provision of benefits is exacerbated in the case of legally required benefits. Legally required benefits are provided uniformly to the work force as a whole and not just to groups of workers within a firm. Further, because unemployment insurance and workers' compensation are not fully experience rated, workers in some industries or firms will place a relatively higher value on them than will other workers.[15] As a result, while there may be some cases in which it is reasonable to use employer cost as a measure of the typical employee's value for benefits that are not legally required, it seems quite unrealistic to assume that employer cost of legally mandated benefits is a reasonable approximation of employee value.

Estimating cash-equivalent value

Given the many discrepancies between the employer's cost and the employee's value of a certain benefit, just how difficult is it to get a measure of the cash-equivalent value of the benefit?[16] The discussion that follows shows that estimation of cash-equivalent values is in general quite difficult, both because the data requirements are so extensive and because of the complex issues involved in the actual estimation, even if the data were available. Certainly, if more high-quality data existed, more research would be done on the methodological issues. Three approaches are currently the most frequently utilized:[17]

1. *Utility-Based Estimates.* Researchers have estimated recipient values by assuming some functional form for utility.[18] This sets a particular functional form for the demands for goods. Theoretically, because we can observe quantity demanded and price, and economic theory suggests which variables affect the demand for goods (although demand is also affected by factors influencing utility functions across individuals—something about which economic theory has nothing to say), demands for goods can be estimated. After estimating a particular demand system, researchers use the parameter estimates to compare the costs of achieving levels of utility with and without a given noncash benefit. This permits the calculation of the cash-equivalent value of the benefit. Ideally, the data needed to support such a technique include information on prices, wages, amounts of leisure and goods consumed, and characteristics of the benefit package. Although to our knowledge, there are no data sets with all the desired data, there are some studies that employ the utility-based technique to examine recipient values of Government transfer programs.[19]

There are a number of methodological problems with utility-based estimates of cash-equivalent value. Probably the foremost is that it is computationally difficult to estimate a demand system (much less, get all the data) for all the goods people demand. Somewhat questionable assumptions must be made in order for the estimates to be valid, for example, that (1) today's consumption is unrelated to both past and future consumption, (2) a reasonable functional form for utility has been chosen, and (3) utility functions among individuals are the same, at least within demographic subgroups.

2. *Survey Approach.* This technique involves asking employees directly about their willingness to pay for various noncash benefits. Questions like "What is the maximum amount you would be willing to pay to receive this benefit?" are posed to individuals who do not have the benefit in question. Support for this approach in regard to valuing public goods such as environmental quality exists in the literature,[20] because study results are both replicable and logically consistent with the predictions of demand theory. In addition, evidence that the survey approach yields the predicted magnitudes relative to hedonic wage equation results (see next) is also in the literature.[21]

The two chief problems with the survey approach are that (1) estimates of value are based upon hypothetical as opposed to actual choices and (2) empirically, there appears to be a significant downward bias in people's stated values—estimates of 50–67 percent exist in the literature.[22]

3. *The Hedonic Approach.* The theory behind the hedonic approach, which was popularized by Sherwin Rosen in 1974, is that variation in the observed mix of benefits and cash compensation offered by employers competing for workers having the same productivity is the result of the different tastes for benefits of those workers and the differential ability of employers to provide those benefits. In theory, ignoring institutional features discussed earlier, the amount of wages given up to obtain a specified amount of a noncash benefit is a measure of both the marginal value of the benefit to a worker who accepted the wage-benefit compensation package and the marginal cost to the firm in providing the benefit.[23] The simplest application of the hedonic approach would estimate a regression equation relating the wage to the amount of a particular benefit offered, all else being equal.[24] However, movements along the function given thereby reflect both differences in worker tastes for benefits and the firm's ability to provide the benefits. As a result, such movements do not, in general, provide a measure of the change in employee value for significant changes in the amount of the benefit provided.[25]

The hedonic wage equation tells one very little about either the demand for or supply of benefits; rather, it provides an estimate of a single point on compensated demand and supply functions. However, identifying the underlying compensated demands could provide an estimate of the cash-equivalent value of the benefits. Rosen has suggested a second stage to the hedonic method which would enable a researcher to identify the said cash-equivalent values.[26]

Under certain conditions, uniform provision of benefits drives a wedge between employer cost and employee value.

There are difficulties, however, even in the first-stage estimation—that is, estimating the wage differential associated with the differential provision of benefits.[27] First, because the level of benefits provided is often based upon the amount of wages paid to the individual, statistical complexities arise.[28] Second, researchers must assume that individuals were able to obtain the desired amount of the particular benefit being studied, rather than having had to choose among a limited number of packages of wages and benefits.[29] Finally, because no particular shape of the hedonic wage function is specified by theory, researchers need to allow for variety in their empirical estimates.

In the second-stage estimation, identification of the underlying compensated supply and demand parameters has proven to be far more complex than originally anticipated by Rosen.[30] Data requirements are significant for the proper implementation of the proposed technique, and to our knowledge, no empirical estimates of cash-equivalent values for employee benefits exist in the economics literature. By contrast, estimates of compensated demands for clean air, housing amenities, neighborhood characteristics, and noise from hedonic price equations do exist in the literature.[31]

Conclusions

In examining the issues that arise in obtaining employee values of employer-provided benefits, we conclude that employer cost is limited as a measure of employee value. For some purposes, however, using employer cost to proxy the median worker's value of non-legally required benefits seems to be a reasonable approximation to employee value. For example, use of this aproximation along with an estimate of after-tax wages to compare the "typical" employee after-tax value of compensation in two industries would appear reasonable. If there are differences in median after-tax wages and noncash benefits between industries, interesting research could be done to determine what the source of the differences is—for example, different median characteristics of the work forces in those industries, differences in median job amenities, or some other disparity. Employer

cost as a proxy for how the median employee's value of benefits has changed over time also seems reasonable.[32]

In contrast, the use of employer cost as an approximation in distributional analyses could be highly misleading. Such studies typically focus on the well-being (proxied by some measure of income) of people at varying income levels or family structures. But as we have argued, income and family structure are themselves associated with variations in employee values, and these variations may be considerable. Further, and perhaps more important, the available employer cost measures refer to the "typical" worker in broadly defined industries (nine) and occupations (three). But employers often actually pay more for benefits provided to some types of workers than for others. For example, they may make higher pension contributions for more highly compensated workers or pay a higher cost for family health insurance policies than for single coverage. Thus, imputing these average employer costs to individual observations in a household file to do distributional studies would clearly yield misleading results. There is no theoretical basis for concluding that such comparisons using after-tax cash wages plus the average employer cost for benefits would provide a better proxy for the value of compensation than would use of after-tax cash wages only.[33] Empirical evidence of the extent of the bias involved would, of course, be useful.

More research on employee values is needed. In particular, empirical estimates of the difference between employee value and employer cost for workers of different demographic characteristics would provide evidence for whether the possible discrepancies are significant enough to preclude the use of employer cost as a measure of employee value in distributional studies. Empirical estimates of whether, and how much, employer per-unit cost differs from market price for the median worker in different industries, occupations, areas, and so forth, would provide evidence as to whether cross-sectional analyses using employer cost as the measure of employee value are reasonable. For these purposes, additional data and methodological research are essential. □

Footnotes

[1] The focus is on the employee value of employer-provided noncash benefits, as opposed to job characteristics, such as safety, security, and cleanliness. For the purposes of this article, the chief distinction between the two is that there exists an explicit market for noncash benefits. As a result, while many measurement issues are conceptually the same for both job dimensions, in analyses involving

benefits, one must always take into account the fact that the employee could have purchased the benefit on his or her own.

[2] A detailed discussion of the notion of cash-equivalent value and its relation to measurement issues in the case of Government-provided transfers is given in Timothy M. Smeeding, "Alternative Methods for Valuing Selected In-

Kind Benefits and Measuring Their Effect on Poverty," Technical Paper No. 50 (Bureau of the Census, March 1982); see also Bureau of the Census, *Proceedings, Conference on the Measurement of Noncash Benefits,* vol. 1, December 12–14, 1985. Considerations that arise in the context of employer-provided benefits are treated in Jack E. Triplett, "An Essay on Labor Cost," in J.E. Triplett, ed., *The Measurement of Labor Cost,* NBER Studies in Income and Wealth, vol. 48 (Chicago, University of Chicago Press, 1983), pp. 1–60.

[3] See, for instance, Smeeding, "Alternative Methods"; Triplett, "Essay on Labor Costs"; Bureau of the Census, *Proceedings*; and Marilyn E. Manser, "Cash-Equivalent Values from In-Kind Benefits: Estimates from a Complete Demand System Using Household Data," Working Paper No. 173 (Bureau of Labor Statistics, December 1987); as well as studies cited in these references.

[4] Most of the concepts we discuss can be found in any second-course college economics text, for example, Jack Hirshleifer, *Price Theory and Applications,* 2nd ed. (Englewood Cliffs, NJ, Prentice–Hall, 1980).

[5] For an examination of the similarities and differences between these alternative approaches, as well as a discussion of the relative merits of each, see G. Cooper and A. Katz, *The Cash Equivalent of In-Kind Income* (Stamford, CT, Cooper and Co., 1977); Smeeding, "Alternative Methods"; and Bureau of the Census, *Proceedings.*

[6] This phrasing is after a measure called the *Hick's equivalent variation.* An alternative measure is the *Hick's compensating variation,* which asks, for an individual who already has the employer-provided benefit, "What minimum amount of cash compensation would have to be taken away from the individual to return the individual to the level of satisfaction he or she could achieve without the benefit?" While the two questions will in general have different answers, one is not more correct to ask than the other. However, the former seems a more natural way to approach the issue of employee value, so we shall appeal to it for the rest of our analysis. Chapter 4 of Richard W. Tresch's *Public Finance: A Normative Theory* (Plano, TX, Business Publications, Inc., 1981) offers a further discussion of the two approaches; see also Cooper and Katz, *The Cash Equivalent,* pp. 73–81.

[7] This statement is not universally true, because when benefits are excluded from Social Security tax, the employer and employee split the tax savings. (See Richard A. White, "Employee Preferences for Nontaxable Compensations Offered in a Cafeteria Compensation Plan: An Empirical Study," *The Accounting Review,* July 1983, pp. 539–61, esp. p. 541.) Also, employers sometimes provide benefits to increase worker productivity, as when health insurance is provided to improve health care, which then results in more productive workers. Yet again, employers may prefer the provision of benefits over wages in the case of employees working overtime if the employees are compensated at more than the hourly wage for overtime hours. In any of these cases, the employer would not be indifferent to the provision of cash as against benefits.

For simplicity, we shall ignore these exceptions in our analysis.

[8] Avoidance of adverse selection (see shortly) is one explanation for the uniform provision of benefits. The high cost of tailoring benefits to the preferences of each employee may be another.

[9] If there were no costs to switching jobs, and if any worker were equally as good as another in any particular job, one would expect to see a segmented labor market—that is, those with similar tastes, family structures, nonlabor income, and so on would "sort" into the same firms. Then there would be no disparity between employer cost and employee value as a result of the uniform provision of benefits. Some evidence that, as benefits have increased as a proportion of total compensation, the labor market has become more segmented is provided in Frank A. Scott, Mark C. Berger, and Dan A. Black, "Effects of the Tax Treatment of Fringe Benefits on Labor Market Segmentation," *Industrial and Labor Relations Review,* January 1989, pp. 216–29.

[10] For any employee who could resell the benefit at the market price, no divergence would arise.

[11] See Steven A. Woodbury, "Substitution between Wage and Nonwage Benefits," *American Economic Review,* March 1983, pp. 166–82.

[12] This bias would arise even if employer cost were measured for each employee separately. Another bias would be introduced if the ECI measure were used for distributional studies, because the ECI measures employer costs for the work force as a whole, whereas employer costs for some employee benefits vary among workers in a firm (for example, life insurance costs may be higher for higher income than for lower income workers, and employers often pay more for health insurance coverage for married workers than for single workers). Using the ECI as the measure of employee value entails assuming that average costs provide a measure of employee values for all workers in an industry and/or occupation, which is not appropriate.

[13] It is possible for the employer's cost to be higher than the employee's market price if administrative costs are high enough. This would appear more likely in the case of certain Government transfers in which monitoring costs are high, such as housing subsidy programs or the food stamp program. Because these are not examined here, only the situation in which provider cost is less than market price is analyzed in the text.

[14] For a discussion of the notion of a median voter, see Anthony Downs, *An Economic Theory of Democracy* (New York, Harper and Brothers, 1956).

[15] See the discussion in Smeeding, "Alternative Methods."

[16] When the benefit is provided to the individual in amounts less than or equal to the amounts the employee would purchase at existing market prices, estimation of employee values is, in principle, straightforward. The employee value would be the market price times the amount the employer provided. Estimation of employee value would thus involve ascertaining (1) the appropriate market price and (2) how much the individual would purchase at that price. The latter is straightforward if the person can be observed to purchase more of the good than the employer provides. For instance, an individual who receives employer-provided life insurance and purchases additional life insurance can be assumed to desire at least as much of the benefit as is provided by the employer. If the employer provides more than the employee would choose at existing market prices, then the cash-equivalent value of the benefit must be determined.

[17] For a description of a variety of other alternatives, see Cooper and Katz, *The Cash Equivalent*; and Smeeding, "Alternative Methods."

[18] A utility function mathematically describes an individual's preferences for various bundles of goods.

[19] Among recent studies are Manser, "Cash-Equivalent Values," on medicaid and food stamps; Christine K. Ranney and John E. Kushman, "Cash Equivalence, Welfare Stigma, and Food Stamps," *Southern Economic Journal,* vol. 54, no. 4, 1987, pp. 1011–27; and Alan S. Caniglia, "The Economic Evaluation of Food Stamps: An Intertemporal Analysis with Nonlinear Budget Constraints," *Public Fi-*

nance Quarterly, January 1988, pp. 3–29. Earlier studies include those cited in Cooper and Katz, *The Cash Equivalent*; and in Smeeding, "Alternative Methods."

[20] See studies cited in Davis S. Brookshire, Mark A. Thayer, William D. Schulze, and Ralph C. d'Arge, "Valuing Public Goods: A Comparison of Survey and Hedonic Approaches," *American Economic Review*, March 1982, pp. 165–77.

[21] See Brookshire and others, "Valuing Public Goods."

[22] The estimates of downward bias were based upon a study (see Brookshire and others, pp. 174–75) which asked for willingness to pay for goose hunting permits. Willingness to pay was then compared to actual repurchases.

[23] See Sherwin Rosen, "Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition," *Journal of Political Economy*, vol. 82, 1974, pp. 34–55. The theory is that if everything else about the workers and the job is equal, the workers will be compensated the same. If there are two identical workers working identical jobs, and one is given more health insurance than the other, the worker with more health insurance will have lower wages. Measuring this difference in wages is the goal of the hedonic wage equation.

[24] Estimates of the wage differential associated with the differential provision of employer-provided benefits have primarily been for pensions (see Robert S. Smith and Ronald G. Ehrenberg, "Estimating Wage-Fringe Tradeoffs: Some Data Problems," in Triplett, *The Measurement of Labor Cost*), but some also have been made for paid sick leave (Arleen Leibowitz, "Fringe Benefits in Employee Compensation," in Triplett, *The Measurement of Labor Cost*; and Smith and Ehrenberg, "Estimating Wage-Fringe Trade-offs") and for health insurance (Leibowitz, "Fringe Benefits"). The technique has been applied extensively to the evaluation of workplace amenities such as job safety, repetitive work, and employment stability. (See Robert S. Smith, "Compensating Wage Differentials and Public Policy: A Review," *Industrial and Labor Relations Review*, April 1979, pp. 339–52.)

[25] See Myrick A. Freeman, III, "Hedonic Prices, Property Values and Measuring Environmental Benefits: A Survey of the Issues," *Scandinavian Journal of Economics*, 1979, pp. 154–73, esp. p. 158; and Smith, "Compensating Wage Differentials," p. 349.

[26] Rosen, "Hedonic Prices." According to Rosen, first we estimate the hedonic wage equation. Then we take the first derivative of the wage equation with respect to the benefit of interest and evaluate it at the amounts of the benefit provided to the employees in the sample. This represents the implicit marginal price of the benefit. Finally, we use the resulting implicit price variable as the dependent variable in the estimation of compensated supply and demand equations (that is, supply and demand equations in which utility is held constant—see Tresch, *Public Finance*, pp. 63–64) for the benefit. The area under the compensated demand curve,

between different amounts of benefits, is an estimate of cash-equivalent value.

[27] See, for example, Smith and Ehrenberg, "Estimating Wage-Fringe Trade-offs."

[28] The difficulty is one of "simultaneous equation bias," which arises because a variable (here, benefit provision) not only affects, but is affected by, the dependent variable (here, wages). The instrumental variables method is one standard econometric technique used to solve this estimation problem. (See J. Johnston, *Econometric Methods*, 3rd ed. (New York, McGraw–Hill, 1984).)

[29] If benefits are provided "lumpily" (and if there are mobility costs, and if labor is not perfectly substitutable), then the researcher cannot assume that empirical estimates are tracing out true wage-benefit tradeoffs. See Freeman, "Hedonic Prices," pp. 161–63, for a discussion of this point with respect to the tradeoff between housing prices and air quality.

[30] For discussions of the problems involved in identifying structural equations using the hedonic method, see especially Dennis Epple, "Hedonic Prices and Implicit Markets: Estimating Demand and Supply Functions for Differentiated Products," *Journal of Political Economy*, vol. 95, no. 1, 1987, pp. 59–80; and Timothy J. Bartik, "The Estimation of Demand Parameters in Hedonic Price Models," *Journal of Political Economy*, vol. 95, no. 1, 1987, pp. 81–88; but also James N. Brown, "Structural Estimation in Implicit Markets," in Triplett, *The Measurement of Labor Cost*, pp. 123–51; James N. Brown and Harvey S. Rosen, "On the Estimation of Structural Hedonic Price Models," *Econometrica*, May 1982, pp. 765–68; and Freeman, "Hedonic Prices." In brief, the problem of identification centers around the fact that the hedonic wage equation need not be linear. As a result, both prices and quantities of benefits are choice variables. Extreme care in the modeling of the errors in the hedonic wage equation and the demand equation for the benefit is necessary to determine appropriate instruments for prices and quantities of the benefit.

[31] See Epple, "Hedonic Prices," for references.

[32] For this purpose, analysts would have to be willing to assert either that the overconsumption of benefits induced by the taxation of wages has not changed significantly over time, or that this distortion is small enough that ignoring it will not introduce a significant bias.

[33] Other issues may also arise in income-distributional studies. For instance, we have not discussed what should be included as benefits in a more comprehensive measure of income. David T. Ellwood and Lawrence H. Summers ("Measuring Income: What Kind Should Be In?" in Bureau of the Census, *Proceedings, Conference on the Measurement of Noncash Benefits*, pp. 8–27) argue against including employers' contributions toward pensions in analyzing income, on the grounds that to do so entails double-counting if, as is the present practice, pension benefits are treated as income when received by retirees.

APPENDIX: Graphical analysis of the relationship between employer cost and employee value in various situations

Employer cost equals employee value

Assume that employer per-unit cost of the benefit is constant and equals the price P_B the employee would have to pay in the market to obtain the benefit.

Assume also that there are no institutional or other constraints. Then the employer and employee will contract to have benefits provided until the employee's marginal value of the benefit (as measured along the employee's ordinary demand curve for the

Chart A–1. Employer cost versus employee value of benefits, selected scenarios
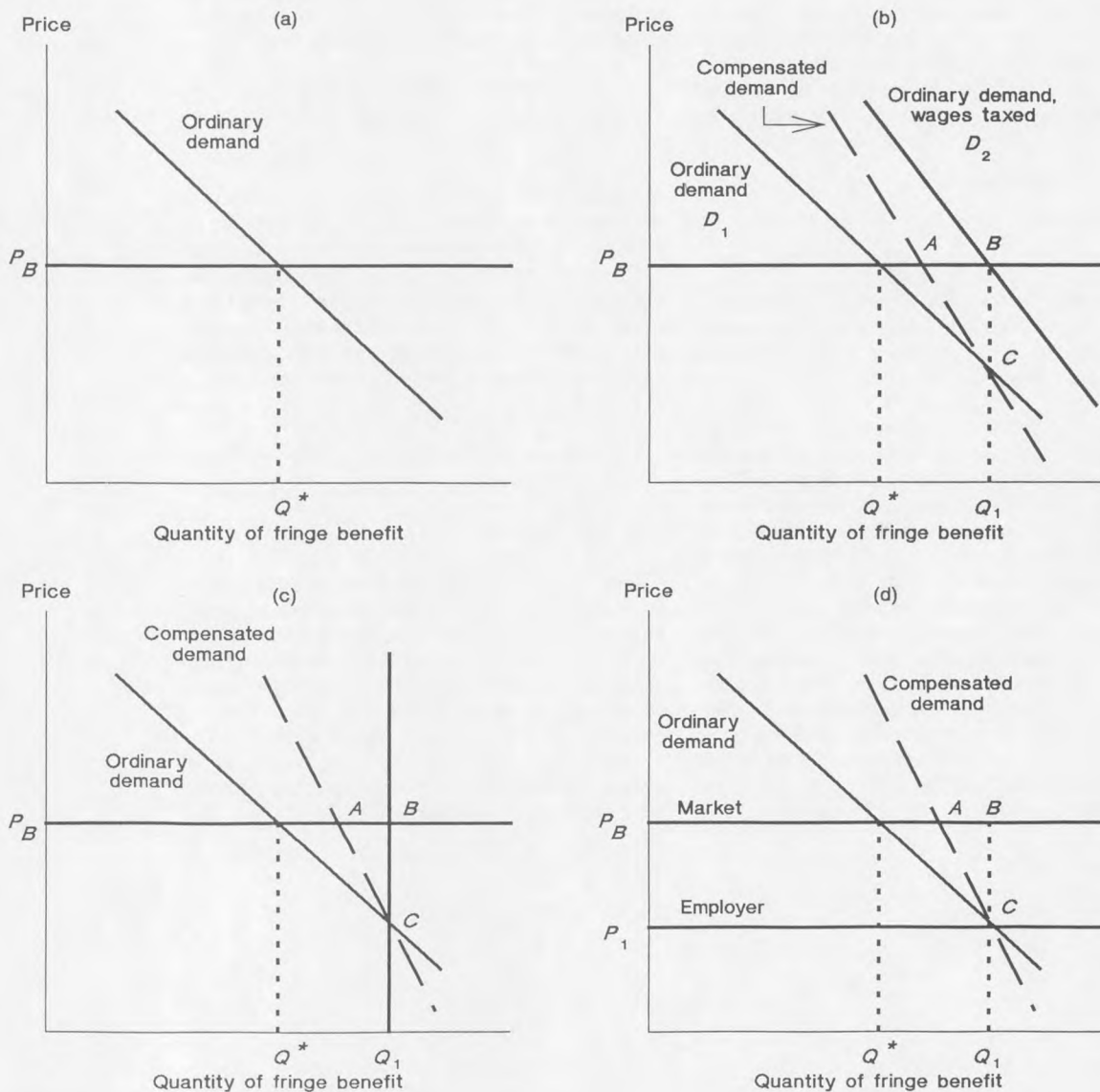
benefit) is equal to the market price P_B. Thus, if Q^* is the number of units of the benefit the employer will provide, we have

Employer cost $= P_B \cdot Q^* =$ Employee value

(See chart A–1(a).)

Note that the cash-equivalent value of the benefit provided is equal to price times quantity, and not the area under the demand curve—that is, it does not include consumer surplus. Because it is always possible to purchase Q^* at price P_B, the employee would not be willing (in this hypothetical world without

taxes) to give up more than $P_B \cdot Q^*$ in cash wages to be provided the benefit by the employer.

Employer cost does not equal employee value

If compensation in the form of taxed wages or untaxed fringe benefits is provided. Assume that employer per-unit cost of the benefit is constant and equals the price P_B the employee would have to pay in the market to obtain the benefit. Assume also that the only institutional constraint is that taxes are paid on money wages. Let t be the employee's marginal tax rate. Then the tax on wages acts like a subsidy on fringe benefits, and the vertical distance between the

ordinary demand curve D_1 presupposing no tax on wages and the ordinary demand curve D_2 given that wages are taxed (see chart A–1(b)) is $P_B[1/(1 - t)]$. In that case, the employer and employee would contract to have Q_1 units of the benefit provided. The value of the additional units to the employee $(Q_1 - Q^*)$ is given by the area under the compensated demand curve (which holds utility constant—see, for example, Tresch, *Public Finance*, pp. 63–64, cited in text footnote 6) through point C on the graph. Then we have

$$\text{Employer cost} = P_B \cdot Q_1$$
$$\text{Employee value} = P_B \cdot Q_1$$
$$- \text{ Area of triangle } ABC$$

Note that the after-tax value of wages of amount w is then $w(1 - t)$, which is less than the employer cost of those wages. Also, employer cost is an upper bound on the employee's value of benefits.

If provision of benefits is uniform to the employees within a firm. Assume that employer per-unit cost of the benefit is constant and equals the price P_B the employee would have to pay in the market to obtain the benefit. Assume also that the only institutional constraint is that benefits are provided uniformly to the employees within the firm. Then, for a given employee, the relationship between employer cost and employee value depends upon whether the benefit is over- or underprovided to the employee. If the amount of the benefit provided is less than or equal to the amount the employee would otherwise have chosen at P_B, then employer cost will equal employee value. If, on the other hand, the amount of the benefit provided is greater than the amount the employee would otherwise have chosen at P_B, then employee

value will be less than employer cost. This is because the additional units of the benefit $(Q_1 - Q^*)$ are valued at an amount represented by the area under the compensated demand curve through point C, while the employer's cost of each unit is the constant market price P_B. (See chart A–1(c).) For this case, if Q_1 is the amount of benefit provided, we have

$$\text{Employer cost} = P_B \cdot Q_1$$
$$\text{Employee value} = P_B \cdot Q_1$$
$$- \text{ Area of triangle } ABC$$

If employer cost differs from the price the employee would pay in the market. Assume that there are no taxes or other institutional constraints. Assume, however, that the employer cost P_1 of providing the benefit is less than the price P_B the employee would have to pay in the market to obtain the benefit. Then employee value will exceed employer cost, and for an amount Q_1 of benefit provided, we have

$$\text{Employer cost} = P_1 \cdot Q_1$$
$$\text{Employee value} = P_1 \cdot Q_1 + (P_B - P_1)Q_1$$
$$- \text{ Area of triangle } ABC$$

(See chart A–1(d).)

Employee value is greater than employer cost by an amount $(P_B - P_1)$ because the employee would have to pay P_B, and not P_1, in the market to acquire the benefit. Employee value is less than $P_B \cdot Q_1$ because the cheaper price to the employer causes "overprovision" of the benefit in relation to what the employee would choose to purchase at P_B. The "overprovided" units $(Q_1 - Q^*)$ are valued at an amount represented by the area under the compensated demand curve through point C. □

Spending differences across occupational fields

Multivariate analysis reveals
that income is the most significant factor
in determining levels of various expenditures;
occupation and education also play a role

Robert Cage

Robert Cage is an economist formerly in the Division of Expenditure Surveys, Bureau of Labor Statistics. He was assisted by Carolyn White, an economic assistant in the same division, in preparing this article and in constructing tables and charts for it.

Since the late 1940's, the U.S. labor force has undergone several substantial changes affecting its composition and structure. Female participation has grown rapidly since World War II, and consequently, there are more dual-earner families.[1] Growth of the suburban population has contributed to increased commuting time to and from work. And although average weekly work hours have decreased for the civilian labor force, the average American household has less time available for leisure activities:

> . . . the amount of leisure time enjoyed by the average American has shrunk 37 percent since 1973. Over the same period, the average work week, *including commuting*, has jumped from 41 hours to nearly 47 hours. In some professions, predictably law, finance, and medicine, the demands often stretch to 80-plus hours a week. Vacations have shortened to the point where they are frequently no more than long weekends. And the Sabbath is for, what else, shopping.[2]

According to the same source, the course of the rat race has led to less time available for family activities, increased consumption of service-oriented items, and more labor-saving gadgetry. This increased demand for services is reflected in the change in employment by occupational group. Projections by BLS indicate that employment by the year 2000 will increase most for service workers and least for operators and laborers. (See table 1.)

Does the shift in employment towards service workers have any implications regarding con-

sumption? In other words, does occupation as a demographic variable affect the level and distribution of consumption for any given expenditure category? Do white-collar workers, for example, spend differently than blue-collar workers, or are these distinctions becoming antiquated? Does one's working environment have a measurable effect on one's perception of social class, formation of tastes and preferences, and, consequently, spending patterns? The purpose of this article is to compare and contrast various occupational groups to investigate what effect, if any, occupational status has on family expenditures for certain goods and services after controlling for income, education, number of earners, and other demographic variables.

Background

It is well documented that, throughout a person's life cycle, permanent income has a significant effect on consumption.[3] Age also influences consumption with respect to the nature of the bundle of goods and services an individual consumes. As one ages, tastes and preferences are likely to change, as are such needs as medical care and transportation. Not much attention has been given to the study of the effects of occupational status, a *means* of obtaining income, on consumption behavior. Perhaps this is because such a study is more a sociological question of tastes and preferences than an economic question of constraints on opportunities.

Even after controlling for income and education, expenditures for certain goods and services are affected by occupational factors.

In developing variables for their analysis of consumer demand, H. S. Houthakker and Lester D. Taylor observed that the effect of occupation, or more generally, social class, on consumption is usually less obvious than that of other factors.[4] Of course, developing an appropriate measure of social class is inherently difficult. Sociologists define the "classes" as social strata sharing essential economic, political, or cultural characteristics. In this regard, income, education, and occupation are arguably factors which influence one's position in society: income determines economic power or budgetary constraints, while education and occupation contribute to the formation of preferences and cultural characteristics.

Income, education, and occupation, however, are interrelated. Human-capital theorists have long argued that individuals can, by foregoing earnings and obtaining higher levels of education, augment the quality of their labor services in such a way as to raise their future market value.[5] It is typically believed, therefore, that more educated individuals attract higher wages.[6] Also, at least one authority maintains that on-the-job training may be just as significant as formal schooling in determining an individual's labor productivity and market value.[7]

An in-depth technical discussion of the relationships among education, occupation, and income is beyond the scope of this article. However, distinguishing education levels and income levels among different occupational groups is important in understanding the spending patterns associated with various occupations. It may be that members of the same occupational group are characterized by similar educational attainment and income level. For example, intuitively, one might expect managers and professionals, or white-collar workers in general, to have higher incomes and higher levels of education than blue-collar workers such as operators and laborers. If so, the question then would be whether these differences account for any differences in spending between the two groups. It is hypothesized in this article that, even after controlling for income and education, expenditures for selected goods and services such as food, transportation, housing, reading materials, entertainment, occupation-related items, and apparel are directly affected by the circumstances surrounding one's occupational environment and job field. An analysis of the distribution of total expenditures will be used to determine any differences in spending behavior among different occupational groups, while a multivariate tobit regression (see later) will be employed to pin-

point the effects of occupational status alone on the expenditures.

Data and demographics

The BLS Consumer Expenditure Survey provides an excellent source of household data for cross-sectional studies. The survey collects expenditure data which provide a continuous flow of information on the buying habits of American consumers. The data are used in a wide variety of research endeavors by Government, business, labor, and academic analysts. The survey consists of two components: a diary survey and an interview survey. The data used for this article are from the 1986 and 1987 interview surveys.[8]

It is important to note that the reference group in the Consumer Expenditure Survey is a consumer unit[9] and that the income and expenditure data are those of the entire consumer unit, or household. Data for individual or personal expenditures are not available. The sample of consumer units was divided into occupational groups based on the occupation of the reference person.[10]

Five occupational groups were compared: managers and professional specialists; technicians, sales, and administrative support; precision production, craft, and repair workers; operators and laborers; and service workers.[11] Specific occupations are classed into these groups by the Census Bureau and are commonly used in producing labor market data at BLS. Managers, professionals, technicians, and sales and administrative support personnel are generally considered employed in white-collar fields, while precision production workers, craft and repair employees, operators, and laborers are

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Table 1. **Employment by occupation, 1986, projection to 2000 (moderate alternative), and percent change**

[Number in thousands]

Occupation	1986	2000	Percent change
Service workers	17,536	22,917	30.7
Managerial and professional specialty	24,121	30,808	27.7
Technicians, salesworkers, administrative support	36,183	43,594	20.5
Precision production, craft, and repair	13,924	15,590	12.0
Operators, laborers, farmers, forestry	19,556	20,117	2.9

SOURCE: George T. Silvestri and John M. Lukasiewicz, "A look at occupational employment trends to the year 2000," *Monthly Labor Review*, September 1987, pp. 46–63.

considered blue collar. Service workers have developed into a third distinct group comprising such occupations as firefighters, police officers, food preparation and service workers, dental assistants and health aides, and cleaning and personal care service workers.

Analysis was restricted to salaried workers and wage earners and excluded self-employed workers for two reasons. First, salaried workers and wage earners comprise 91 percent of all workers in the sample, and second, many different occupations are lumped together in the self-employed category. Thus, it would have been difficult to interpret any results with respect to differences caused by specific occupational fields. Two years of data were used to ensure a large enough sample size for each of the groups under investigation.

Table 2 shows some selected characteristics, including income and percent distribution of total expenditures, for the five salaried and wage earner groups. Managers and professionals make up 32 percent of all salaried workers and wage earners, with service and craft and repair workers having the smallest representation, at about 10 percent each. The blue-collar groups of craft and repair workers and operators and laborers have the largest consumer units with an average size of 3.1 and 3.0 persons, respectively, while the households of white-collar and service workers are smaller, with an average of 2.6 persons each.

Chart 1 illustrates the relationship between income and education for the five salaried and wage earner groups. Although there is a trend which suggests that income is greater as educational level increases, the two variables are not perfectly correlated for the groups. Managers and professionals represent the greatest deviation from the mean, with an average income of $42,000 and 80 percent having obtained a college education. Although both white-collar groups are characterized by higher educational attainment, average income for technicians, salespeople, and administrative support personnel is less than that of craft and repair workers.

A study by the Conference Board and the Census Bureau on discretionary income, or "spare cash," reports similar findings. According to that study, the second strongest determinant of discretionary income, after household income, is education. Certain occupations are associated with high levels of education and income. More than half (53 percent) of all households headed by a person in a professional or managerial job have discretionary income. But still, 27 percent of all households with discretionary income are headed by an individual in a blue-collar, farm, or service job.[12]

The spending power of the five groups is also represented by the market value of an owned home and the ratio of total expenditures to income. Managers and professionals have the highest percentage of homeownership, while the majority of service workers are renters. Although managers and professionals and craft and repair workers have roughly the same percentage of homeownership (about 66 percent each), the estimated market value of an owned home for managers and professionals is almost twice as high.

The ratio of total expenditures to income before taxes is around 87 percent for technicians, salespeople, and administrative support personnel, as well as for both blue-collar groups, while the ratio for service workers is considerably higher at 97 percent and for managers and professionals, considerably lower at 80 percent. Although this does not necessarily indicate the level of saving for any of the groups, it emphasizes the higher income of managers and professionals. Almost all of the average income after taxes of the other groups, especially service workers, is absorbed by the expenditure categories, while only 80 percent of managers' and professionals' average income is used for that group's expenditure needs. This indicates that a greater share of the average income of managers and professionals is available for investments, such as second or vacation homes, financial securities, or savings. Property income, of which a large part is interest and dividends, is greatest for managers and professionals, supporting this conjecture.

Shares analysis

In terms of average dollar amounts, managers and professionals spend more on all major expenditure categories. The percent distribution of total expenditures is more useful, however, in determining any difference in consumption patterns across the five occupational groups. A chi-square test of proportions was used to measure the significance of mean expenditures as a proportion of total expenditures for one group compared to the average of the others. This was done for all major expenditure categories and for more specific items for which occupational status was hypothesized to influence expenditures.

The results of the test are listed in table 2. An asterisk (*) on an expenditure category indicates that the share of total expenditures distributed to that category was significantly different, at the 99-percent confidence interval, from the average of all other groups. For example, service workers spend 16.5 percent of total expendi-

A greater share of the average income of managers and professionals is available for investments, financial securities, or savings.

tures for food, which is significantly higher than the average of any other salaried and wage earner groups.

Thus, the cost for food as a share of total expenditures is lower for managers and profes-

sionals and higher for service workers and operators and laborers. Because service workers report the lowest average income, the data support Friedrich Engel's contention that a higher share of the income of poorer households goes to food

Table 2. **Selected characteristics and percent distribution of total expenditures of salaried workers and wage earners, Consumer Expenditure Survey, interview survey, 1986–87**

Item	Managers and professionals	Technicians, salesworkers, administrators	Service workers	Production, craft, and repair workers	Operators and laborers
Number of consumer units (thousands)	20,123	16,686	6,503	6,449	12,610
Percent of total salaried workers and wage earners	32.3	26.8	10.4	10.3	20.2
Consumer unit characteristics:					
Income before taxes	$42,021	$28,590	$17,848	$29,289	$24,172
Income after taxes	37,620	25,661	16,449	26,491	22,047
Average number of persons in consumer unit ...	2.6	2.6	2.6	3.1	3.0
Age of reference person	40.9	38.9	40.2	38.6	39.0
Average number of vehicles	2.3	2.0	1.6	2.7	2.4
Percent reporting:					
Homeownership	67	55	43	66	58
Black	7	11	21	7	12
Education level:					
Elementary (1–8)	1	2	12	8	10
High school (9–12)	20	44	54	61	66
College	79	54	34	30	23
Estimated market value of owned home	$73,165	$45,731	$29,149	$45,111	$33,827
Average annual expenditures	$33,592	$24,772	$17,311	$25,185	$20,828
Food	*13.05	14.33	*16.51	15.04	*16.20
Food at home	*8.13	9.65	*11.96	*10.94	*12.10
Food away from home	*4.92	4.68	4.54	*4.09	*4.11
Alcoholic beverages	1.17	1.29	1.28	1.18	1.29
Housing	30.52	30.22	31.05	*27.96	*28.55
Owned dwellings	*11.87	9.80	*8.01	*9.60	*8.71
Rented dwellings	*4.25	*6.61	*9.54	*5.05	*6.31
Other lodging	*2.32	1.81	*1.01	*1.49	*1.07
Apparel and services	5.64	5.55	5.18	*4.65	*4.71
Men, 16 and over	*1.24	1.07	.85	.89	.92
Women, 16 and over	*1.96	1.95	1.64	*1.33	*1.38
Transportation	*20.15	21.23	20.91	*23.73	*23.05
Vehicle purchases	10.02	10.05	9.67	*11.61	10.62
Gasoline and motor oil	*3.18	3.89	4.44	*4.99	*5.21
Public transportation	*1.36	1.11	1.04	*.59	*.62
Health care	3.35	3.66	*4.00	3.51	3.62
Entertainment	5.32	4.91	*4.39	5.49	4.76
Fees and admissions	*1.67	1.43	*1.02	1.19	*.98
Television, radios, and sound equipment	1.65	1.61	1.83	1.74	1.85
Personal care	.84	.92	.99	.78	.85
Reading	.66	.58	.50	.49	.50
Education	*1.86	1.46	1.29	*1.02	*.90
Tobacco products and smoking supplies	*.57	.94	*1.41	*1.30	*1.58
Miscellaneous	1.88	2.10	1.72	*2.60	2.07
Cash contributions	*3.56	2.63	*2.05	*2.08	*1.94
Personal insurance and pensions	*11.43	10.17	*8.72	10.18	9.95
Life and other personal insurance	1.22	1.17	1.18	1.27	1.25
Retirement, pensions, Social Security	*10.20	9.00	*7.54	8.91	*8.69

* Chi-square test of proportions was significant at the 99-percent confidence interval for this line item. See N. M. Downie and R. W. Heath, *Basic Statistical Methods* (New York, Harper and Row, 1974), pp. 200–01.

Chart 1. Correlation between income and education for wage and salary earners, Consumer Expenditure Survey, 1986 and 1987 Interview Surveys

Income before taxes

$50,000 —

$45,000 —

Managers, professionals ●

$40,000 —

$35,000 —

Technicians, sales, administrative support

$30,000 — Precision craft ● and repair workers ●

$25,000 — Operators and ● laborers

$20,000 —

● Service workers

$15,000 —

$10,000 —

0   10   20   30   40   50   60   70   80   90

Percent obtaining college education
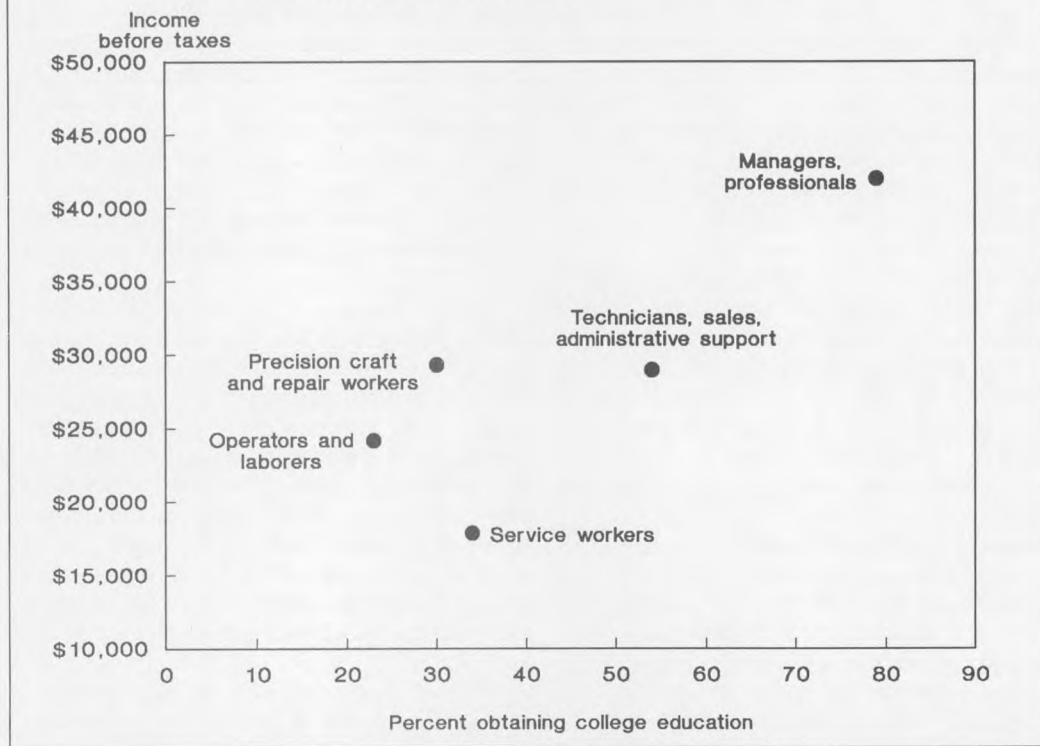
than is the case for richer households.[13] Also, the average size of households headed by craft and repair workers or operators and laborers is larger than those headed by managers and professionals and technicians, salespeople, and administrative support personnel, and therefore, those households require greater expenses for food.

Food away from home, in contrast, is highest for managers and professionals and lowest for the blue-collar groups. This can be explained, in part, by the fact that managers and professionals are likely to eat at more expensive restaurants than those that blue-collar workers patronize. It is also possible that, in general, managers and professionals eat out more often than do blue-collar workers.

The share for rented dwellings is highest for service workers, reflecting the high percentage of renters in this group. On the other hand, the share for owned dwellings is highest for managers and professionals, as is that for other lodging, indicating a greater probability on the part of that group's families to incur expenses for vacation homes and lodging while out of town.

Managers and professionals also spend a higher share of income on men's clothing than all other groups, due to the preponderance of suits purchased as working attire. The share for

women's clothing is higher as well, with a greater percentage reporting expenses for dresses, coats, and furs.

Transportation expenditures were higher for the blue-collar groups at 23 percent of total expenditures, significantly more than the 20-percent share spent by managers and professionals. Blue-collar families also allocate a much higher share of total expenditures for vehicle purchases (both new and used cars and trucks) and gasoline and motor oil. The average blue-collar worker evidently relies mostly on the automobile for transportation needs and may be commuting a greater distance to work as well, thus consuming more gasoline. The average number of vehicles owned by families headed by craft and repair workers and by families headed by operators and laborers is 3.0, much higher than the figure for the other groups. Some transportation expenses of managers and professionals and salesworkers are likely to be reimbursed by their employer as business expenses—particularly costs for gasoline. Also, the use of a company car may contribute to the lower share of total transportation expenses for managers and professionals.

Another reason for the lower transportation expenditures of managers and professionals may be that a large proportion of these individ-

uals are employed in urban areas and, therefore, have public transportation at their disposal for commuting needs. Ninety-three percent of all managers and professionals in the Consumer Expenditure Survey sample live in urban areas, compared to only 82 percent of the blue-collar groups. Together with the fact that managers and professionals are more likely to incur expenses related to travel, such as the cost of airline fares, the higher concentration of this group in urban areas might explain the greater share they spend for public transportation.

Managers and professionals spend a higher share than do any of the other groups for fees and admissions to sporting events and clubs. These include club membership dues, which are generally very expensive. By contrast, the share of expenditures spent for tobacco and smoking supplies is significantly higher for the blue-collar groups and lower for managers and professionals.

Finally, costs of education, cash contributions, and monies allocated to retirement funds, pensions, and Social Security are significantly higher for managers and professionals compared to the other groups. Interestingly, of all types of expenditures made by technicians, salespeople, and administrative support personnel, only the share allocated for rented dwellings proved to be significantly different from the average such expenditure for all the groups. This implies that, on average, this group does not distribute expenditures significantly differently from all other salaried and wage earners. Therefore, it is most representative of the "average" worker.

It is obvious from these results that differences exist among the five occupational groups, although, with respect to demographics and consumption patterns, the white-collar groups tend to be similar to each other and the blue-collar groups to each other. Chart 2 highlights the major differences in expenditure distribution among the five groups.

Regression analysis

In this section, regression analysis determines the effect occupation alone has on the probability and level of incurring an expense after controlling for variation due to income and education. Tobit analysis utilizes maximum likelihood estimation in a single equation when a set of continuous observations on a dependent variable is truncated.[14] For household expenditure data, it is more advantageous than ordinary least squares, because many households might not incur an expense for some goods and services. The data have a lower bound of zero.

Income was a driving force in determining all expenditure levels investigated; occupation and education were significant for most items.

Eleven different expenditure categories, listed in table 3, were chosen as dependent variables. These include most major categories for which, according to the shares analysis, the five occupational groups have significantly different mean expenditures. Among such categories are food at home and away from home, housing, transportation, apparel, reading, cash contributions, and personal insurance and pensions. Expenses for personal care and occupational expenses were also chosen, as it was reasoned that occupational status would have an effect on these items.

The independent, or causal, variables were chosen from the socioeconomic characteristics of the family. Dummies were created for the five occupational groups, with managers and professionals being left out of the model as the control group. Parameter estimates produced for the occupational dummies indicate the relationship of these groups to managers and professionals with respect to the probability and level of incurring an expense for the dependent variable. Education was accounted for by including dummies for the educational level of the reference person.

As mentioned previously, income is an important determinant of consumption. The category of total expenditures was used as an approximation of income in these models as a continuous variable. Total expenditures are chosen as a proxy for income primarily because (1) in the short run, families have more control over expenditures than income, and (2) total expenditures give a better fit than income in models designed to predict expenditures in a number of different categories.[15]

Because Houthakker and Taylor argue that family composition is so important that no cross-sectional analysis should ignore it,[16] dummies were included in the models with husband-and-wife-only families being the control group.

Other socioeconomic variables included in all of the models were family size (squared), age (squared), race, urbanization, housing tenure, and number of earners. The region of residence, season, and sex of the reference person were included in some of the models if it was believed that they influenced the level of expenditures for the dependent variable in question. The models produce an intercept which represents the expected quarterly expenditures for the dependent variable, before accounting for the continuous variables (total expenditures, age squared, family size squared, and number of earners), of the control group: a husband-and-wife-only family headed by a white manager or professional with some college or more educa-

Chart 2. Shares of total expenditures for wage and salary earners, Consumer Expenditure Survey, 1986 and 1987 Interview Surveys
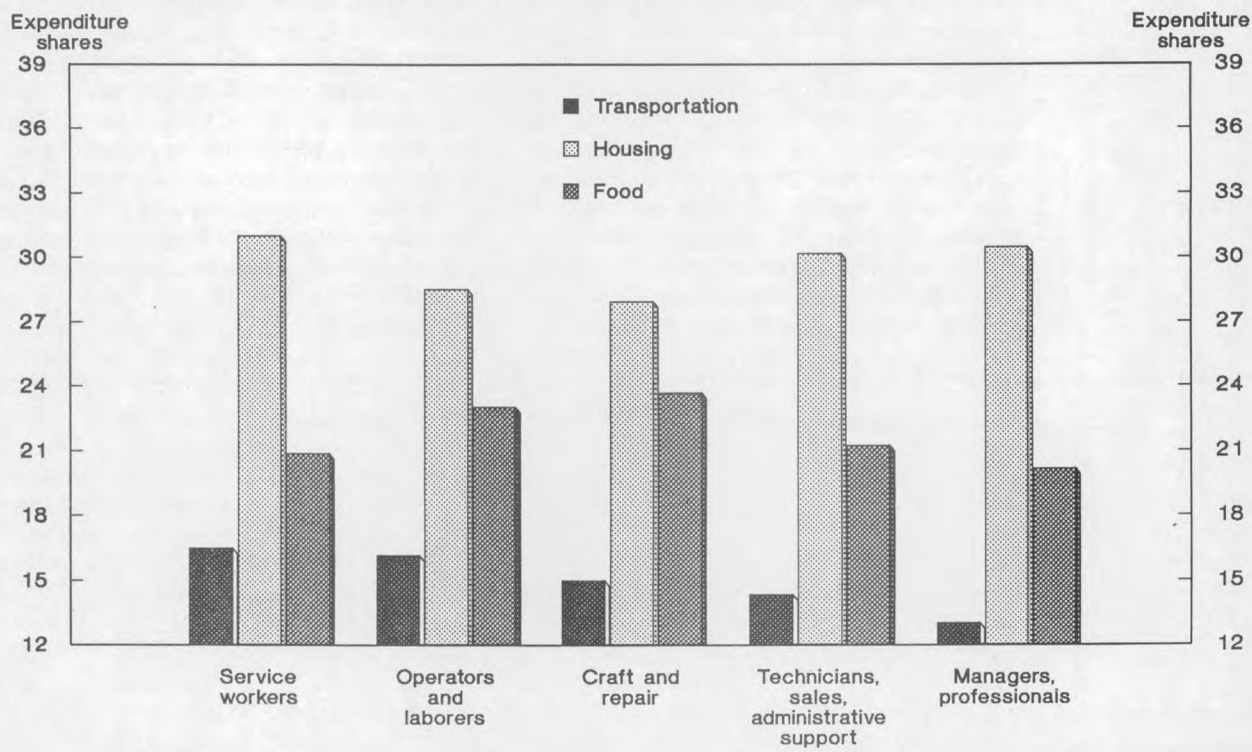
tional attainment, living in an owned home in an urban area.

The sample used for the analysis was restricted to one-earner salaried and wage families, and two-earner salaried and wage families if both earners belonged to the same occupational group. This way, the family expenditures of a specific occupational group would be highlighted without introducing error caused by families whose earners belong to different occupational groups. The sample consisted of 4,101 consumer units.

The descriptive data indicated that expenditure differences exist among occupational groups. The regression analysis tests whether these differences still exist after controlling for other demographic variables. Results are listed in table 3. To test the overall significance of the set of variables included in each expenditure model, the likelihood ratio test statistic was used.[17] The resulting chi-square values were statistically significant at the 0.01 level. This allowed for the rejection of the null hypothesis that all of the coefficients (except the intercept) were equal to zero for all the models considered.

An asterisk (*) indicates that the parameter estimate was significantly different from zero at the 95-percent confidence interval, while two

asterisks (**) indicate significance at the 99-percent confidence interval. The parameter estimates for total expenditures were significantly different for all of the dependent variables at the 99-percent confidence interval. This indicates that total expenditures (used as a proxy for income) has a major influence in determining the probability and level of incurring an expense for the expenditures upon which the regression is performed. In fact, total expenditures proved to be the only significant variable, along with age squared, influencing entertainment and cash contributions.

Occupation proved to be a significant variable for all of the dependent variables except apparel, entertainment, and cash contributions. This implies that income is a better predictor of the level of expense for most of these expenditure categories.

Although, as a proportion of total expenditures, service workers spend the most on food at home, the negative parameter estimate in the regression implies that they spend significantly less than managers and professionals in terms of average dollar amount. All occupational groups were less likely to incur an expense for food away from home compared to managers and professionals, except service workers, which is similar to the result obtained in the shares anal-

ysis. Household composition had a significant influence on food expenditures as well, with single consumer units more likely to have higher expenditures for food away from home while husband-and-wife families with children are more likely to eat at home. Education had little effect on the probability or level of food expenses.

All occupational groups had significant negative coefficients for housing, indicating the greater likelihood of managers and professionals incurring higher expenses for housing. Those families headed by someone with some college or more educational attainment also are more likely to have higher housing expenditures.

The much larger proportion of expenditures allocated to transportation by the blue-collar groups and service workers is reflected in the significantly positive parameter estimates for transportation expenses by these groups. Recall that these workers own more vehicles and are more likely to use them in their business.

All groups were less likely to incur expenses for reading materials and for personal insurance and pensions compared to managers and professionals. This is consistent with the shares analysis.

Table 3. Tobit regression analysis: coefficients of estimation of causal variables

Item	Food at home	Food away from home	Housing	Apparel	Trans-portation	Enter-tainment
F-statistic	211.0	52.9	203.5	76.5	215.2	60.2
Chi-square statistic	*2585.6	*816.9	*2939.1	*1525.5	*3160.2	*916.6
Adjusted R-squared statistic	0.47	0.18	0.51	0.31	0.53	0.20
Independent variables						
Constant	**424.33	**133.88	**941.28	30.75	**−1791.40	−106.91
Total expenditures	**.0194	**.0201	**.2061	**.0499	**.4250	**.0666
Occupation (managers/professionals):						
Technicians, sales, administrative support	−16.03	**−31.64	*−125.11	−12.08	**259.12	13.82
Service workers	**−47.90	−23.62	**−240.28	−28.54	**441.47	23.27
Production, craft, and repair	−20.95	*−36.55	**−232.57	−32.33	**341.28	−25.20
Operators and laborers	4.94	*−29.01	**−302.93	−7.85	**424.93	57.44
Education (some college or more):						
Some high school or less	*−29.70	*−32.69	**−186.94	*−38.19	**489.53	11.68
High school graduate	−13.02	−1.66	**−152.24	*−34.71	**338.27	−5.14
Household composition (husband and wife only):						
Single	**−203.85	*30.91	*−148.29	−31.55	**392.48	34.66
Husband and wife with children	**99.90	**−50.35	**206.45	4.45	−183.76	−15.61
Other families	−3.93	*−41.23	106.88	*−52.68	60.80	20.35
Urbanization (urban):						
Rural	**−83.37	**−42.56	**−406.26	**−58.50	**473.43	27.52
Housing tenure (owner):						
Renter	−20.81	−18.53	**−258.57	*29.24	**471.53	−7.00
Age of reference person squared	**.0338	−.0054	*−.0382	*−.0122	**−.0752	*−.0243
Consumer unit size squared	**11.28	−1.03	2.65	1.69	−7.26	−.98
Race of reference person (white):						
Black	*−38.53	**−42.04	37.96	*50.96	139.33	−44.31
Other races	35.05	3.68	−76.00	−48.29	154.30	−24.22
Season (fall):						
Winter	—	—	—	**66.06	—	—
Spring	—	—	—	−28.31	—	—
Summer	—	—	—	−11.73	—	—
Region (midwest):						
Northeast	—	—	73.17	7.85	52.92	—
South	—	—	17.57	−5.16	50.47	—
West	—	—	**186.46	−11.43	*−187.20	—
Sex of reference person (male):						
Female	—	—	52.63	**101.88	111.00	—
Number of earners	*39.08	24.12	34.33	−12.42	**−400.54	39.07
Number of vehicles	—	—	—	—	**200.56	—

See footnotes at end of table.

Table 3. **Continued—Tobit regression analysis: coefficients of estimation of causal variables**

Item	Personal care	Reading materials	Cash contributions	Occupational expenses	Personal insurance and pensions
F-statistic	58.9	40.7	43.1	13.1	119.5
Chi-square statistic	*899.5	*814.8	*821.6	*217.4	*1736.3
Adjusted R-squared statistic	0.19	0.18	0.18	0.05	0.34
Independent variables					
Constant	**41.2	**27.39	**−277.83	*−20.19	**275.4
Total expenditures	**.0027	**.0025	**.0590	**.0024	**.0636
Occupation (managers/professionals):					
Technicians, sales, administrative support	**−5.87	**−7.31	−10.21	−1.12	**−152.57
Service workers	**−12.80	**−14.41	24.08	1.44	**−179.81
Production, craft, and repair	**−17.80	**−13.35	70.05	**43.03	**−178.23
Operators and laborers	**−15.20	*−12.65	34.33	**11.65	**−191.25
Education (some college or more):					
Some high school or less	**−11.83	**−17.16	−24.56	*−7.80	*−87.03
High school graduate	−3.81	**−11.10	−4.70	2.36	*−57.25
Household composition (husband and wife only):					
Single	**−16.23	−4.06	39.45	**12.15	−88.68
Husband and wife with children	−1.62	4.97	*−98.50	2.32	14.43
Other families	*−8.36	−1.62	−44.86	8.90	−67.35
Urbanization (urban):					
Rural	**−15.34	*−6.88	16.24	1.29	*−71.24
Housing tenure (owner):					
Renter	*−4.94	*−4.20	44.71	−3.54	**−203.96
Age of reference person squared	**.0049	**.0049	**.0500	.0013	.0201
Consumer unit size squared	.51	−.13	−.26	.42	**−6.58
Race of reference person (white):					
Black	**14.40	*−6.84	28.64	−1.15	−14.53
Other races	*−10.33	2.58	−10.19	.30	**172.71
Season (fall):					
Winter	—	—	—	—	—
Spring	—	—	—	—	—
Summer	—	—	—	—	—
Region (midwest):					
Northeast	—	2.48	**−104.94	—	—
South	—	*−4.21	−29.47	—	—
West	—	−3.28	−37.92	—	—
Sex of reference person (male):					
Female	—	2.37	24.96	—	−45.06
Number of earners	2.78	3.22	42.66	**11.81	**232.67
Number of vehicles	—	—	—	—	—

* Significantly different from zero at the 95-percent confidence interval.

** Significantly different from zero at the 99-percent confidence interval.

NOTE: Dash indicates that the variable was not used in the model.

The blue-collar job fields are, on the face of it, more likely to have workers who belong to labor unions and, consequently, have greater occupational expenses because of union dues. The tobit analysis reflects this intuitive assumption: both operators and laborers and craft and repair workers spend more on occupational expenses, which include the cost of union dues, tools, uniforms, and licenses and permits, than do managers and professionals.

To determine the overall significance of occupation on the dependent variables, a chi-square test was performed using the logarithm of the likelihood of the variables in the restricted model (without the occupational dummies) and the logarithm of the likelihood of the variables in the full model. (See table 4.) The test was also performed for education. The results demonstrate that, after control for education and income, occupation has a significant effect on the probability and level of incurring expenses for food, housing, transportation, personal care products, reading materials, occupation-related items, and personal insurance and pensions.

Education also is influential in predicting the level of expense for housing, apparel, transportation, personal care products, reading materials, occupation-related items, and personal insurance and pensions.

Conclusions

The shares analysis illustrated that differences exist among the five occupational groups with respect to their distributions of expenditures. The demographics and family characteristics associated with these occupational groups help explain some of the differences. The multivariate tobit analysis demonstrated that income was a driving force in determining the level of expense for all expenditure categories investigated. Occupation and education proved to have significant effects for most items; however, the only variables that occupation alone influenced that education did not were food at home and food away from home. This suggests that some occupational fields are associated with the same level of educational attainment. The data, furthermore, indicate that managers and professionals have higher degrees of educational attainment and higher incomes, on average, than blue-collar and service workers. These socioeconomic characteristics result in a greater allocation of expenditures towards housing, reading materials, pensions, and entertainment by families headed by managers and professionals, while service workers and blue-collar families are more likely to spend a larger share for food and transportation. The tobit analysis

confirms these findings for the most part. Further investigation into the effects of occupational status, and even its relationship to income and education, would be worthwhile, given that the composition of the labor force is changing. An analysis of the interaction among income, education, and occupation could be employed in future research. As employment of service and white-collar workers continues to grow, and that of high-wage blue-collar positions continues to decline, changes in consumption at the aggregate level may occur. □

Table 4. Tobit regression analysis results: significance of occupation and education on selected expenditures

Dependent variable	Occupation	Education
Food at home	*12.0	4.0
Food away from home	*12.0	0.0
Housing	**30.0	**16.0
Apparel and services	4.0	*8.0
Transportation	**32.0	**38.0
Entertainment	6.0	2.0
Personal care products	**50.0	**22.0
Reading materials	**40.0	**62.0
Cash contributions	4.0	0.0
Occupational expenditures	**94.0	*8.0
Personal insurance and pensions	**52.0	*8.0

* Significant at the 95-percent confidence interval.
**Significant at the 99-percent confidence interval.
NOTE: $\chi^2 = -2$ (Log likelihood$_{Restricted}$ − Log likelihood$_{Full}$).

Footnotes

[1] See Eva Jacobs, Stephanie Shipp, and Gregory Brown, "Families of working wives spend more on services and nondurables," *Monthly Labor Review*, February 1989, pp. 15–23.

[2] Nancy Gibbs, "How America has run out of time," *Time*, Apr. 24, 1989, pp. 58–67.

[3] See H. S. Houthakker and Lester D. Taylor, *Consumer Demand in the U.S.* (Cambridge, MA. Cambridge University Press, 1970), pp. 254–57.

[4] Houthakker and Taylor, *Consumer Demand*, p. 59.

[5] See Angus Deaton and John Muellbauer, *Economics and Consumer Behavior* (New York, Cambridge University Press, 1980).

[6] See Gary S. Becker, *Human Capital* (Chicago, University of Chicago Press, 1975).

[7] See Jacob Mincer, "On-the-Job Training: Costs, Returns, and Some Implications," *Journal of Political Economy*, October 1962, pp. 50–59.

[8] Publication of the data occurred in BLS news releases 88–175 (Apr. 14, 1988) and 89–330 (July 6, 1989).

[9] A *consumer unit* is (1) a single person living alone or sharing a household with others but who is financially independent, (2) members of a sample household related by blood, marriage, adoption, or some other legal arrangement, or (3) two or more persons living together who share responsibility for at least two out of three major types of expenses—that is, food, housing, and other expenses. The terms "household," "family," and "consumer" are used for convenience.

[10] A *reference person* is the first member mentioned by the respondent when asked to "start with the name of the person or one of the persons who owns or rents this home." Other consumer unit members are then referenced to this person by their relationship to him or her.

[11] *Managerial and professional specialty occupations* include officials, administrators, financial managers, personnel and labor relations managers, purchasing managers, managers, marketing advertising and public relations administrators, administrators in education and related fields, medicine and health managers, properties and real estate managers, accountants and auditors, architects, engineers, mathematical and computer scientists, natural scientists, physicists, dentists, nurses, therapists, teachers, counselors (educational and vocational), librarians, social scientists, social recreation counselors, religious workers, writers, artists, entertainers, athletes, lawyers, and judges.

Technical, sales, and administrative support occupations include health technologists and technicians, electrical and electronic technicians, science technicians, computer programmers, sales supervisors and proprietors, insurance salespersons, real estate salespersons, securities and financial services salespersons, sales representatives, commodities brokers, salesworkers (cashiers), administrative support supervisors, computer operators, telephone operators, postal clerks, distribution clerks, adjusters and investigators, bank tellers, data entry clerks, and teachers' aides.

Service occupations include child care workers, cleaners, firefighters and fire prevention workers, police and detectives, guards, bartenders, waiters and waitresses, cooks, short-order cooks, kitchen workers, dental assistants, health aides, nurses' aides, orderlies and attendants, maids, janitors, cleaners, barbers, hairdressers and cosmetologists, attendants, amusement and recreation facilities workers, public transportation attendants, and welfare service aides.

Precision production, craft, and repair occupations include mechanics and repairers, construction workers, carpenters, extractive workers, and precision production workers.

Operators, fabricators, and laborers include textile, apparel, and furnishings machine operators (textile sewing machine, pressing machine); fabricators, assemblers, and handworkers; motor vehicle operators; industrial truck and tractor operators; freight, stock, and material handlers; and workers engaged in farming, forestry, and fishing.

[12] See *A Marketer's Guide to Discretionary Income* (Washington, The Conference Board and U.S. Bureau of the Census, 1989).

[13] See Deaton and Muellbauer, *Economics*, p. 193.

[14] See Jean Kinsey, "Probit and Tobit Analysis," Consumer Research Paper prepared for American Council of Consumer Interest Conference, Atlanta, April 11–14, 1984.

[15] See Jacobs, Shipp, and Brown, "Families of Working Wives," p. 20.

[16] Houthakker and Taylor, *Consumer Demand*, p. 225.

[17] The likelihood ratio statistic is used to test the significance over all the coefficients in the model. This statistic is analogous to the F-statistic in ordinary least squares regression. The null hypothesis is that the probability of a household's having expenditures for the items under study is independent of the values of the coefficients in the tobit function. The test statistic is

$$\chi^2 = -2 (\log \text{likelihood}_R - \log \text{likelihood}_U),$$

where R denotes the restricted model and U the unrestricted model. The statistic is asymptotically chi-square distributed, with the degrees of freedom equal to the number of coefficients set equal to zero.

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 anaytical, not polemical in tone. Communications should be addressed to the Editor-in-Chief, *Monthly Labor Review,* Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C. 20212.

Consumer expenditures in different-size cities

*Patterns of spending differ between
metropolitan and nonmetropolitan cities;
large-city households spend more on housing,
dining out, and public transportation,
while small-city units spend more
on food at home and private vehicles*

Susan M. Banta

Susan M. Banta is an
economist in the Division
of Consumer Expenditure
Surveys, Bureau of Labor
Statistics.

The 1980's were a decade of metropolitan migration, with large cities continuing to house a growing percentage of our population. The Bureau of the Census recently reported that:

> More than 3 of every 4 people live in the country's 282 designated metropolitan areas. . . .The metropolitan increase [between 1980 and 1987] was 8.5 percent (14.6 million), more than twice the 4.1 percent increase (2.2 million) in nonmetropolitan territory. National growth since 1980 has amounted to 7.4 percent.[1]

The growth of U.S. metropolitan areas may affect consumption if these areas have different patterns of expenditures. Two questions can be raised with respect to urban areas: Do earning and spending patterns differ with city size? and, If so, are these differences similar to those between urban and rural areas? To answer these questions, this article presents a comparison of the average annual expenditures and income in metropolitan (large) and nonmetropolitan (small) cities.

Data

The data are from the 1987 Bureau of Labor Statistics Consumer Expenditure Interview Survey. This is a continuous survey in which information on income and expenditures of consumer units[2] is collected in five consecutive quarterly interviews following a rotating panel design with approximately 5,000 consumer units each quarter. The data are collected on an ongoing basis in 101 primary sampling units (PSU's) across the country. The comparisons made here are based on weighted data which represent the U.S. population.

For the purpose of this study, a large city is considered to be any urban area classified as a Metropolitan Statistical Area (MSA) by the Bureau of the Census, including rural areas within MSA's. A small city is considered to be any non-MSA urban area.[3]

Statistical method and results

Table 1 shows the differences between the average metropolitan consumer unit and the average

nonmetropolitan consumer unit. A chi-square in testing the significance of the difference between expenditure shares is[4]

$$\chi^2 = \frac{N\,(a_i d_i - b_i c_i)^2}{k l m_i n_i}$$

where:

$a_i,\ c_i$ = the average expenditure on line item i for metropolitan and nonmetropolitan cities, respectively;

$b_i,\ d_i$ = the total of average expenditures on all line items other than line item i for metropolitan and nonmetropolitan cities, respectively;

k = average total expenditures, metropolitan cities;

l = average total expenditures, nonmetropolitan cities;

$m_i = a_i + c_i$;

$n_i = b_i + d_i$;

$N = k + l$.

On average, metropolitan households have more earners per household and slightly larger households. They also have higher levels of education, are more likely to hold a mortgage, and are more likely to own at least one vehicle.

Income and expenditures. As might be expected, average income and expenditures are notably higher in metropolitan cities. Note, however, that although on average households in larger urban areas earn and spend more, they spend a smaller percentage of their income than households in small cities. Large-city dwellers spend only 84 percent, while those in smaller cities spend 91 percent, of their reported income. As might also be expected, housing expenditures account for a higher share of total expenditures in metropolitan areas in comparison with nonmetropolitan areas. Expenditure shares on shelter are significantly different at 19 percent and 14 percent, respectively. Conversely, expenditures on utilities account for a higher share of total expenditures in nonmetropolitan areas than in metropolitan areas. There is evidence that this is due to the inclusion of at least one utility in the cost of rent in metropolitan areas: 30 percent of all metropolitan consumer units report that at least one utility is included in their rent, as compared with 20 percent in nonmetropolitan consumer units. Food expenditures also follow expected trends. While the expenditure shares for total food in both classifications are similar, those for "at home" and "away from home" expenditures are

very different: nonmetropolitan consumer units spend a significantly higher proportion of expenditures on food at home, while metropolitan consumer units spend more away from home.

Table 1 reveals some interesting results with respect to out-of-pocket health care expenditures.[5] The difference in expenditure shares between metropolitan and nonmetropolitan consumer units is highly significant at 4.2 and 5.7 percent, respectively. Table 2 shows the component differences in health care expenditures. Nonmetropolitan consumer units allocate a much higher share for health insurance and prescription drugs, while metropolitan con-

Table 1. **Selected characteristics and average annual expenditures of metropolitan and nonmetropolitan urban consumer units, 1987**

Item	Expenditures		Shares		Chi-square statistic
	Metro-politan	Nonmetro-politan	Metro-politan	Nonmetro-politan	
Number of consumer units (thousands)	71,765	8,968	—	—	—
Consumer unit characteristics:					
Income before taxes[1]	$29,330	$19,879	—	—	—
Persons in consumer unit	2.5	2.4	—	—	—
Age of reference person	47	47	—	—	—
Earners per consumer unit ...	1.4	1.2	—	—	—
Percent attended college	46	39	—	—	—
At least one vehicle owned ...	85	81	—	—	—
Housing tenure (percent):					
Homeowner with mortgage .	38	33	—	—	—
Homeowner without mortgage	21	25	—	—	—
Renter	41	42	—	—	—
Average annual expenditures ...	$24,616	$18,078	—	—	—
Food	3,736	2,831	15.2	15.6	1.82
At home	2,576	2,081	10.5	11.5	*11.75
Away from home	1,161	750	4.7	4.1	*7.86
Alcoholic beverages	287	158	1.2	.9	*8.64
Housing	7,722	5,145	31.3	28.4	*42.24
Shelter	4,641	2,574	18.9	14.3	*157.70
Utilities	1,676	1,556	6.8	8.6	*48.02
Household operations	407	258	1.7	1.4	3.50
Housefurnishings and equipment	998	756	4.0	4.1	.37
Apparel and services	1,302	917	5.4	5.2	0.67
Transportation	4,771	3,427	19.4	18.9	1.40
Health care	1,036	1,026	4.2	5.7	*48.65
Entertainment	1,210	872	4.9	4.8	.11
Personal care	233	164	.9	.9	.18
Reading	150	108	.6	.6	.03
Education	346	247	1.4	1.4	.12
Tobacco and supplies	223	219	.9	1.2	9.47
Miscellaneous	535	422	2.2	2.3	1.22
Cash contributions	770	786	3.1	4.3	44.05
Personal insurance and pensions	2,293	1,755	9.3	9.7	1.84

[1] Income values are derived from "complete income reporters" only. The distinction between complete and incomplete income reporters is based in general on whether the respondent provided values for at least one major source of income, such as wages and salaries, self-employment income, or Social Security income.

NOTE: Asterisk indicates significance at the 5-percent level.

Table 2. **Selected average annual health care expenditures of metropolitan and nonmetropolitan urban units, 1987**

Item	Expenditures		Shares		
	Metro-politan	Nonmetro-politan	Metro-politan	Nonmetro-politan	Chi-square statistic
Health care	$1,036	$1,026	100.0	100.0	—
Health insurance	370	423	35.7	41.2	*6.62
Medical services	482	370	46.5	36.1	*23.27
Prescription drugs	131	185	12.7	18.0	*11.53
Medical supplies	53	48	5.1	4.7	0.21

NOTE: Asterisk indicates significance at the 5-percent level.

sumer units spend a higher share for medical services. Thirty percent of all metropolitan consumer units reported paying the total premium on their health insurance, compared with 50 percent of all nonmetropolitan consumer units. Thus, nonmetropolitan households are not necessarily spending more on health care, but merely paying a higher portion of health costs out of pocket. The differences in expenditure shares for prescription drugs and medical services are also a reflection of the difference in insurance coverage between the two city types.

Transportation expenditures are highlighted in table 3. The differences in expenditure shares between metropolitan and nonmetropolitan urban areas are highly significant with respect to public transportation, although there is virtually no difference in private vehicle purchases across the two city types. Table 3 shows that those who live in metropolitan-area cities are less likely to

use their private vehicles than are nonmetropolitan-area dwellers, whose gasoline and motor oil expenditures account for a significantly higher share of their transportation expenditures. A strong difference in modes of transportation thus exists between the two city types, with public transportation replacing a significant portion of private vehicle usage in metropolitan areas. This is especially evident in airline fares and mass transit expenditures.

While total entertainment expenditures do not exhibit any significant difference between metropolitan and nonmetropolitan cities, there are some interesting comparisons between the disaggregated expenditure items of the two city types, as shown in table 4. Foremost of these is the large difference in expenditures on fees and admissions and on televisions and radios and sound equipment between metropolitan and nonmetropolitan cities: metropolitan-area dwellers spend significantly more on fees and admissions, while nonmetropolitan-area dwellers spend a significantly higher amount on television sets.

Perhaps a more indicative statistic, however, is the percentage of those interviewed who reported expenditures on these items. Of the metropolitan consumers interviewed, 60 percent reported expenditures on fees and admissions, while there were 46 percent reporting in the nonmetropolitan sample. Similarly, 64 and 79 percent reported expenditures on television and radios and sound equipment in metropolitan and nonmetropolitan areas, respectively. Greater accessibility to out-of-home activities in metropolitan areas probably accounts for much of these differences.

Table 3. **Selected average annual transportation expenditures of metropolitan and nonmetropolitan urban consumer units, 1987**

Item	Expenditures		Shares		
	Metro-politan	Nonmetro-politan	Metro-politan	Nonmetro-politan	Chi-square statistic
At least one vehicle owned (percent)	85	81	—	—	—
Transportation	$4,772	$3,427	100.0	100.0	—
Vehicle purchases	2,130	1,528	44.6	44.6	0.00
Gasoline and motor oil	873	757	18.3	22.0	*18.04
Public transportation	322	150	6.8	4.4	*20.66
Airline fares	221	112	4.7	3.3	*9.51
Mass transit	69	28	1.5	.8	*6.75
Taxis	14	4	.3	.1	2.84
Other public transportation	14	6	.3	.2	1.15
Other transportation	1,448	993	30.3	29.0	1.79

NOTE: Asterisk indicates significance at the 5-percent level.

Urban versus rural areas. Given the results alone, how comparable are these findings to those of comparisons made between expenditures in urban and rural areas? John Rogers studied urban versus rural differences using 1985 Consumer Expenditure Survey data.[6] The results of his study showed that average income and total expenditures are higher in urban consumer units than in rural consumer units, with much of the difference due to higher food, housing, and health expenditures. Many of Rogers' urban/rural results match those found here. For example:

In 1985, urban consumer units spent more for housing than did their rural counterparts, and the amount spent accounted for a larger share of total expenditures.[7]

Rural homeowners were more likely to have paid off their mortgages.[8]

[Utility] costs accounted for a larger share of rural consumers' housing costs than of urban consumers'.[9]

Rural consumers also spent more per unit on health care than did urban consumers. . . . [They] more frequently paid the full cost of their health insurance policies while employers more frequently paid the cost of policies for urban consumers.[10]

In general, the differences between expenditures in urban and rural areas found by Rogers were larger and more often significant than those discussed in this article. A divergence also occurred between specific comparisons. For example, Rogers found transportation expenditures and expenditure shares to be higher in rural areas, whereas here they were found to be larger in metropolitan areas. Also, in Rogers' study, rural consumer units were found to be more likely to own a home, while here metropolitan consumer units had a slightly higher incidence of homeownership. In general, then, most metropolitan/nonmetropolitan comparisons made in this article resemble urban/rural comparisons made by Rogers, although some important differences exist.

Conclusion

Significant differences exist between average expenditure patterns in metropolitan and nonmetropolitan urban areas. While generally these differences are similar to those of urban/rural comparisons (that is, higher income and expenditures in metropolitan and urban areas), the trends of item-level expenditures often follow very different paths in the two comparisons. With increasing metropolitan migration, this information will be useful in reaching a better understanding of future expenditure patterns nationwide. □

Table 4. **Selected average annual entertainment expenditures of metropolitan and nonmetropolitan urban consumer units, 1987**

Item	Expenditures		Shares		Chi-square statistic
	Metro-politan	Nonmetro-politan	Metro-politan	Nonmetro-politan	
Entertainment	$1,210	$872	100.0	100.0	—
Fees and admissions	363	188	30.0	21.6	*18.55
Fees for participant sports	47	25	3.9	2.9	1.57
Admissions to sports events	20	10	1.7	1.1	.91
Admissions to movies, concerts, etc.	67	24	5.5	2.8	*9.40
Club memberships	83	47	6.9	5.4	1.87
Fees for recreation lessons	48	19	4.0	2.2	*5.20
Total out-of-town recreation	98	63	8.1	7.2	.54
Televisions, radios and sound equipment	401	359	33.1	41.2	*14.10
Televisions	271	283	22.4	32.5	*26.25
Radios and sound equipment	130	76	10.7	8.7	2.34
Pets, other entertainment supplies and equipment ..	446	325	36.9	37.3	.04

NOTE: Asterisk indicates significance at the 5-percent level.

Footnotes

[1] Bureau of the Census, *News Release,* Sept. 30, 1988.

[2] A consumer unit consists of all members of a particular housing unit or other type of living quarters who are related by blood, marriage, or adoption, or who are parties to some other legal arrangement, such as foster children. Determination of membership in a consumer unit in the case of unrelated persons is based on financial independence. The term "household" may be used interchangeably with "consumer unit."

[3] A non-MSA urban area is any city with population between 2,500 and 50,000.

[4] N. M. Downie and R. W. Heath, *Basic Statistical*

Methods (New York, Harper and Row, 1974), pp. 193–201.

[5] Health care expenditures include out-of-pocket expenditures only; reimbursed health costs are not recorded as health care expenditures.

[6] John Rogers, "Expenditures of urban and rural consumers, 1972–73 to 1985," *Monthly Labor Review,* March 1988, pp. 41–46.

[7] *Ibid,* p. 42.

[8] *Ibid.*

[9] *Ibid.*

[10] *Ibid.*

Research summaries
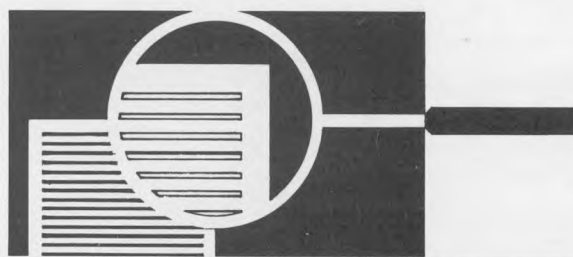
Children in 2-worker families and real family income

Howard V. Hayghe

In recent years, changes in marital trends and family stability, along with changes in the labor force activity of mothers, have affected the lives of many of the Nation's children. The high incidence of divorce, separation, and out-of-wedlock births during the 1970's and 1980's has led to an increase in the proportion of children living with just one parent. The rapid increase in the proportion of employed married mothers has resulted in continuing growth in the percentage of children in families in which both parents are working. And, as racial minorities have increased, so have the number and proportion of minority children.

This research summary is based on information collected annually in March as part of the Current Population Survey.[1] It reviews the changing work patterns and composition of families with children, and trends in *children's* median family income. This measure of income differs somewhat from the more commonly used measure—median income of *families with children.*[2]

Family trends

The primary change in the family situation of children has been the well-publicized increases in the proportion who are living in dual-worker families, that is, families with both parents employed (including fathers in the Armed Forces). Secondarily, the proportion living in single-parent families main-

Howard V. Hayghe is an economist in the Office of Employment and Unemployment Statistics, Bureau of Labor Statistics.

tained by mothers has also increased. These developments, of course, were coupled with the decline in the number of children living in "traditional" families (two-parent families in which only the father was employed). At the same time, the total number of children under 18 years was also declining.

Dual-worker versus traditional families. In March 1988, 24.9 million children under the age of 18 lived in dual-worker families. These children accounted for 43 percent of the total in families. Just 13 years earlier, children in such families numbered 18.9 million and constituted barely 30 percent of the Nation's children. Meanwhile, the number in "traditional" families fell from about 29 million (46 percent of all children) to fewer than 17 million (29 percent of children). (See table 1.)

Children whose parents both work tend to be better off than other children. For instance, in 1987, median family income for children in dual-worker families ($41,000) was nearly 30 percent higher than for children in "traditional" families ($32,000) and more than four times that of children in single-parent families maintained by women.

Single-parent versus two-parent families. The growth in the proportion of children living in single-parent families has not been as dramatic as the shift from "traditional" to dual-worker families. In 1975, 16 percent of children under 18 lived in single-parent families; by 1988, the proportion was 22 percent. The overwhelming majority of these children lived with their mothers, but a growing segment lived with their fathers.

Though small, this shift has some important implications for the well-being of children because of the employment situation of single parents,

especially mothers. As a group, these women face many difficulties that inhibit labor market success.[3] Consequently, 45 percent of the children in single-parent families maintained by a woman lived with a mother who was either unemployed (7 percent) or not in the labor force (38 percent). Of the children in families maintained by unmarried men, 21 percent lived with a father who was not employed. In contrast, only 4 percent of the children in two-parent families had no employed parent.

Thus, as might be expected, children in families maintained by women tend to have very low incomes. In 1987, median family income for children living with single mothers was only $9,000 ($15,400 if the mother worked); it was $20,800 for children living with single fathers. This compares to $35,600 for children in two-parent families.

Race and Hispanic origin. Black children accounted for nearly 14 percent of all children in 1988, while the proportion who were Hispanic totaled almost 11 percent. Both proportions were somewhat higher than in 1975.

Typically, white and Hispanic children live in two-parent families, whereas a little more than half of black children are in single-parent families (53 percent). For each group, the proportion living in two-parent families has declined. The decline was least for whites (6 percentage points) and greatest for black children (about 10 percentage points). Among Hispanics, the decline was also substantial (from 80 percent in 1975 to 72 percent in 1988). (See table 2.)

For the children in these families, part of the significance of these shifts lies in the employment problems of single parents, the effects of which were discussed above. The majority of

Table 1. Family characteristics of children under 18 years, March 1975–88

[In percent]

Year	Total children (thousands)	Two-parent families			Single-parent families			White families	Black families	Hispanic-origin families
		Total	Traditional familes[1]	Dual-worker families[2]	Total	Maintained by women[3]	Maintained by men[3]			
1975	63,574	84.1	46.2	29.7	15.9	14.6	1.3	85.4	12.9	7.5
1976	62,661	83.6	44.3	31.3	16.4	15.2	1.2	85.0	13.1	7.5
1977	61,709	83.0	43.0	33.2	17.0	15.7	1.3	85.0	13.0	7.4
1978	60,961	81.7	40.7	34.8	18.3	16.8	1.5	84.8	13.2	8.0
1979	59,983	81.6	39.5	36.2	18.4	16.8	1.6	84.7	13.3	7.2
1980	59,714	80.6	37.1	36.5	19.4	17.7	1.6	84.2	13.2	7.8
1981	59,148	80.4	36.3	36.8	19.6	17.8	1.8	83.8	13.3	8.3
1982	58,312	79.4	35.0	35.7	20.6	18.8	1.8	83.6	13.3	8.4
1983	58,034	79.4	34.0	35.4	20.6	18.7	1.9	83.6	13.3	8.8
1984	58,233	79.1	33.2	37.8	20.9	18.8	2.1	83.3	13.4	9.6
1985	58,189	78.3	31.5	39.5	21.7	19.3	2.4	83.2	13.5	9.8
1986	58,546	78.3	31.1	39.5	21.7	19.3	2.4	82.9	13.6	10.1
1987	58,438	77.8	28.8	41.9	22.2	19.7	2.5	83.2	13.6	10.4
1988	58,441	77.6	28.6	42.6	22.4	19.6	2.7	82.9	13.6	10.8

[1] Father employed (including Armed Forces), mother not employed.
[2] Father and mother employed (including father in Armed Forces).
[3] No spouse present.

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

black and Hispanic children in such families (54 and 59 percent, respectively) lived with a parent who was not employed, compared with 37 percent of white children in such families.

At 28 percent for each group, the proportion of black and Hispanic children who were in dual-worker families was somewhat higher in 1988 than in 1975, while for white children the proportion rose sharply to reach 45 percent. Part of this differential resulted from the rapid increase among blacks and Hispanics in the proportion of children living in single-parent families. However, part was also because the labor force participation rate of white married mothers increased more rapidly than that of their black or Hispanic counterparts:

Labor force participation rate

	March 1975	March 1988	Differ- ence
White	43.6	64.1	20.5
Black	58.4	76.0	17.6
Hispanic origin	38.5	52.6	14.1

Because the increase in white mothers' labor force participation rate was more rapid than that of black mothers, the traditional gap in participation between the two groups narrowed substantially. In contrast, the difference between the participation rates of white and Hispanic mothers widened between 1975 and 1988.

School- and preschool-age children. A higher proportion of school-age children are in dual-worker families than children under 6. This is because the mothers are far more likely to be in the labor force than those of preschoolers.[4] Nonetheless, both proportions have increased sharply since 1975—from 32 percent to 45 percent of the school-agers and from 23 percent to 39 percent

of the preschoolers. Over the same period, of course, there were substantial declines in the proportions in "traditional" families among children in both age groups. (See table 3.)

For both preschool- and school-age children in single-parent families, the proportions with an employed parent rose between 1975 and 1988—from 39 to 44 percent of children under 6 and from 53 to 62 percent of children 6 to 17 years old. Nonetheless, these percentages remained far below those of children of similar ages living in married-couple families.

Table 2. Family characteristics of children by race and Hispanic origin, selected years, March 1975–88

Family characteristics	White			Black			Hispanic origin		
	1975	1980	1988	1975	1980	1988	1975	1980	1988
Total children (thousands)	54,292	50,301	48,449	8,210	7,902	7,937	4,751	4,646	6,311
Percent in:									
Two-parent families	88.1	85.4	82.4	56.9	49.5	47.3	80.3	77.4	71.7
Traditional families[1]	49.7	40.4	31.3	23.5	17.3	13.1	45.7	39.2	32.2
Dual-worker families[2]	30.6	38.3	45.1	23.2	24.6	27.7	22.7	27.4	28.4
Single-parent families	11.9	14.6	17.6	43.1	50.5	52.7	19.8	22.6	28.3
Maintained by women[3]	10.7	13.0	14.9	41.6	48.6	49.5	18.7	21.1	25.4
Maintained by men[3]	1.2	1.6	2.7	1.5	2.0	3.2	1.1	1.6	2.9

[1] Father employed (including Armed Forces), mother not employed.
[2] Father and mother employed (including father in Armed Forces).
[3] No spouse present.

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

Table 3. Family characteristics of children by age, selected years, March 1975–88

Family characteristics	Children 6 to 17 years old			Children under 6 years old		
	1975	1980	1988	1975	1980	1988
Total children (thousands)	45,208	41,788	38,554	18,366	17,927	19,887
Percent in:						
Two-parent families	83.1	79.0	75.8	86.8	84.4	81.0
Traditional families[1]	42.5	32.9	24.5	55.3	46.8	36.5
Dual-worker families[2]	32.2	39.1	44.6	23.3	30.6	38.5
Single-parent families	16.9	21.0	24.2	13.2	15.6	19.0
Maintained by women[3]	15.4	19.1	21.2	12.7	14.6	16.6
Maintained by men[3]	1.6	1.9	2.9	.5	1.0	2.3
White families	85.4	84.1	82.3	85.5	84.4	84.2
Black families	13.0	13.5	14.2	12.6	12.7	12.4
Hispanic-origin families	7.0	7.2	10.4	8.8	9.1	11.7

[1] Father employed (including Armed Forces), mother not employed.

[2] Father and mother employed (including father in Armed Forces).

[3] No spouse present.

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

Income trends: 1974–87

To the extent that income measures economic well-being, there has been little overall improvement in children's welfare over the period from 1974 to 1987. In fact, family income trends indicate that children's well-being declined, on average, in the early 1980's. However, as the economy recovered from the recession of the early 1980's, family income began rising so that by 1987 some groups of children were in families with median incomes that were equal to, or slightly above, their 1974 levels (in constant 1987 dollars[5]). However, other groups were in families in which the median was below its 1974 level. (See table 4.)

In 1974, children's real median family income was about $29,600. From 1974 to 1979, the median edged upward. However, under the pressure of recession, the median fell to $26,800 between 1979 and 1983. Subsequently, as the Nation entered a protracted growth period, the median rose, reaching $30,000 in 1987—only a little above the 1974 level.

For children in dual-worker families, the trend in median family income was similar, with one important exception. During the period following 1983, as the economy rebounded, the family median for these children rose to reach about $40,900 in 1987, compared with its 1974 level of $37,900.

Children in "traditional" families experienced less variation in family income over the period. In 1974, median real income for children in "traditional" families was $31,400; 13 years later, it was $31,700. In between, the median was lowest in 1983 ($28,900) and highest in 1979 ($32,600).

Children in single-parent families maintained by women were not as fortunate as those in two-parent families. The families of these children—whose median income is far less than that of two-parent families anyway—did not participate in the post-1983 recovery experienced by children in two-parent families. Between 1974 and 1979, their median income was fairly stable

Table 4. Median family income in constant (1987) dollars[1] for children under 18 years by family characteristics, 1974–87

Year	Total children	In two-parent families			In families maintained by women[4]	In families maintained by men[4]	In white families	In black families	In Hispanic-origin families
		Total	Traditional families[2]	Dual-worker families[3]					
1974	$29,560	$32,675	$31,402	$37,860	$11,116	$23,702	$31,361	$17,051	$21,313
1975	28,340	31,639	30,319	36,482	10,754	23,248	30,101	16,505	19,438
1976	29,554	32,823	31,308	37,020	11,243	25,550	31,377	16,546	20,426
1977	29,724	33,274	31,959	37,309	11,257	24,632	31,587	16,062	21,523
1978	30,566	34,165	32,109	38,570	10,927	24,322	32,328	16,478	20,479
1979	30,442	34,508	32,558	38,808	11,346	23,665	32,389	16,147	20,842
1980	29,152	33,045	30,746	38,258	10,567	19,676	30,815	16,409	19,523
1981	28,196	32,595	29,909	38,136	10,439	23,850	29,727	15,347	18,907
1982	27,346	30,927	29,847	37,140	9,400	20,878	29,154	13,862	17,555
1983	26,800	31,444	28,865	36,620	9,065	21,628	28,681	14,028	17,844
1984	28,003	32,966	30,065	37,969	9,206	23,102	30,174	13,853	18,536
1985	28,519	33,440	30,500	38,811	8,993	21,343	32,656	15,341	17,910
1986	29,513	34,706	31,656	39,814	8,946	22,743	31,527	15,068	18,081
1987	30,007	35,619	31,652	40,890	9,007	20,781	32,357	14,250	17,504

[1] CPI–U–X1 used to adjust nominal values. See footnote 5 of research summary for explanation.

[2] Father employed (including Armed Forces), mother not employed.

[3] Father and mother employed (including father in Armed Forces).

[4] No spouse present.

at around $11,000 a year. However, from 1980 to 1983, the median fell to about $9,000, where it has remained since.

Part of the reason why children in these families did not participate in the economic expansion of the 1980's was attributable to changes in the composition of families maintained by women. Since 1975, the proportion of these families in which the householder was never married grew from about 13 percent to 21 percent. These women are typically very young, have completed relatively few years of schooling, and hence are not likely to possess the skills and experience necessary to obtain today's jobs. In addition, the proportion of such families that were black or Hispanic also rose, and black and Hispanic single mothers typically experienced labor market difficulties and consequently low median income.

Black and Hispanic children's median family income fell gradually over most of the 13-year period. In contrast, income for children in white families, which declined during the early 1980's began to rise after 1983, returning to its 1979 level. The result was that in terms of economic well-being, black and Hispanic children fell further behind whites, as shown by the change in the ratios of black and Hispanic children's median family income to that of white children:

	Family income ratio	
	1974	1987
Black/white	54.4	44.0
Hispanic/white	68.0	54.1

The difference in income trends between white children, on the one hand, and black and Hispanic children, on the other, partly reflects the changes in their family composition shown in table 3.

Families whose youngest children are 6 to 17 years old typically have higher median incomes than those with children under 6 years. This difference is partly because young children frequently have young parents, and earnings vary directly with the age of the earner.[6] Also, the needs of very young children often restrict the ability of parents—especially the mothers—to work or find work. (See table 5.)

Table 5. Median family income in constant (1987) dollars[1] for children by age and family characteristics, selected years, 1974–87

Family characteristics	1974	1977	1980	1983	1987
Children 6 to 17 years					
Total	$31,575	$31,438	$30,920	$28,416	$31,366
In two-parent families	35,248	35,421	35,562	33,712	37,690
Traditional[2]	29,893	34,132	32,936	31,274	33,282
Dual-worker[3]	39,543	39,296	40,317	38,310	42,432
In families maintained by women[4]	12,487	12,458	12,231	10,736	10,517
In families maintained by men[4]	24,113	26,202	21,560	25,160	25,270
White	33,688	33,439	32,777	30,646	33,864
Black	17,666	16,993	17,127	14,657	15,116
Hispanic origin	22,789	23,130	20,742	19,083	18,485
Children under 6 years					
Total	$25,800	$25,099	$25,663	$23,982	$27,503
In two-parent families	27,917	28,820	28,731	27,440	32,396
Traditional[2]	27,497	28,286	27,477	26,107	29,633
Dual-worker[3]	31,962	31,605	32,883	32,658	37,623
In families maintained by women[4]	8,193	7,353	6,968	6,207	6,397
In families maintained by men[4]	16,780	20,086	15,506	14,158	14,543
White	26,896	27,572	26,943	25,597	29,668
Black	15,574	13,143	14,620	11,978	12,357
Hispanic origin	18,810	19,016	17,442	15,681	15,474

[1] CPI–U–X1 used to adjust nominal values. See footnote 5 at end of report for explanation.

[2] Father employed (including Armed Forces), mother not employed.

[3] Father and mother employed (including father in Armed Forces).

[4] No spouse present.

WHAT ARE SOME OF the implications of these income trends? In the short term, of course, children whose family incomes are declining or lagging may not be receiving adequate food, shelter, clothing, or health care. Moreover, participation in organized social and educational activities available outside the schools may prove difficult for children from these groups.

The long-term impact of these income trends is more problematic, especially for children in single-parent families. This group varies continuously as parents remarry or divorce; the children may actually spend only a small part of their childhood in low-income, single-parent households.[7] However, to the degree that income affects educational and skill-training opportunities, children from single-parent, black, or Hispanic families may not be able to compete effectively as adults in the labor market. Thus, to the extent that jobs requiring highly skilled, educated workers predominate in the future,[8] these children may be more likely to be relegated to lower skilled, low-paying work when they enter the labor force. □

Footnotes

[1] The Current Population Survey is a sample survey of about 55,800 households with coverage in each of the 50 States and the District of Columbia, conducted by the Bureau of the Census for the Bureau of Labor Statistics. Its purpose is to collect information on the employment status of persons in the noninstitutional population age 16 and over. Each March, additional questions are asked regarding household members' work experience in the prior year and the amount of money income they received from all sources.

[2] The measure of income used in this report is the median family income of *children*. This median is based on the frequency distribution of *children* by family income. Because many families contain more than one child (in March 1988, 58.4 million children lived in 32.3 million families), the frequency distribution of *children* by family income differs from that of *families with children*. In the distribution of *families*, the income of each family unit is represented only once, whereas in a distribution of *children* by their families' income, the income of family units can be represented more than once, depending on the number of children in each family. As a result, the dollar value of *children's* median family income (about $30,000 in 1987)

differs somewhat from that of *families with children* (about $30,720).

[3] See, for example, B. L. Johnson and E. Waldman, "Most women who head families receive poor job market returns," *Monthly Labor Review,* December 1983, pp. 30–34.

[4] See, for example, Bureau of Labor Statistics, "Labor Force Participation Unchanged Among Mothers with Young Children," USDL news release 88–431, Sept. 7, 1988, table 1.

[5] In this report, the CPI–U–X1 (Consumer Price Index for All Urban Consumers experimental series) was used to convert nominal-dollar income to constant-dollar income. This is one of several experimental price indices developed by the Bureau of Labor Statistics to incorporate a rental equivalence factor for home ownership into the CPI–U. The CPI–U presently includes the rental equivalency only from 1983 forward. The CPI–U–X1 was used here to provide a deflator for years prior to 1983 that is consistent with current usage. See the appendix in M. W. Horrigan and S. E. Haugen, "The declining middle-class thesis: a sensitivity analysis," *Monthly Labor Review,* May 1988, pp. 3–13.

[6] See, for example, Bureau of Labor Statistics, "Usual Weekly Earnings of Wage and Salary Workers: First Quarter 1989," USDL news release 89–194, Apr. 26, 1989, table 2.

[7] For a discussion of changes in family composition and its relation to family income, see J. N. Morgan, D. Dickinson, J. Dickinson, J. Benus, and G. Duncan, *Five Thousand Families—Patterns of Economic Progress,* (Ann Arbor, University of Michigan, Institute for Social Science Research, 1974), pp. 99–122.

[8] See G. T. Silvestri and J. M. Lukasiewicz, "A look at occupational employment trends to the year 2000," *Monthly Labor Review,* September 1987, pp. 46–64.

Child care options of employed women

Approximately $14 billion was spent on child care in 1986 by families with children under age 15, according to provisional data from the Commerce Department's Survey of Income and Program Participation. About 18.2 million working women with children took part in the survey conducted over the September to November 1986 period. One-third of the respondents reported making weekly payments for child care at an average cost of $45 a week. Thirty-three percent of women above the poverty line reported payments, compared with 21 percent of women who were below the poverty line.

The average weekly payment for child care amounted to 6 percent of monthly family income. The average payment for women with family income below the poverty level was $32, or 22 percent of their monthly income. Those with monthly family income of more than $3,750 spent $58 weekly, or 4 percent of monthly income.

The following are the average monthly income of families with working mothers with children under age 15 and the average weekly expenditure for child care, by race and Hispanic origin:

	Monthly income	Weekly expenditure
Total	$3,048	$45.20
White	3,071	45.60
Black	2,259	36.80
Hispanic origin	2,448	43.90

Of the 9 million preschool children of working mothers, 41 percent were cared for in someone else's home and 21 percent attended a group day care facility, nursery school, or preschool. The proportion of preschoolers cared for by their mothers at work was 6.7 percent. This proportion is usually highest before school commences.

The following are the day care arrangements reported in the fall of 1986 for both preschoolers and children 5 years or older:

	Under age 5	Ages 5–14
Total (thousands)	9,046	19,976
Arrangement (percent):	100	100
Child's home	29.7	13.8
Another's home	41.3	5.4
Day/group care center	14.7	1.9
Nursery school/preschool	6.4	.9
Kindergarten/grade school	1.2	69.9
Child cares for self	—	4.9
Mother cares for child at work	6.7	3.2

As shown, about 70 percent of the 20 million children ages 5 to 14 were reported to be in school while their mothers worked; only a little more than 7 percent were cared for outside their homes. Parental care for children in this age group accounted for one-fifth of all arrangements in the summer, compared with one-tenth in the fall. Moreover, 13 percent were left to their own supervision during the summer, compared with 5 percent in the fall.

The Census Bureau cautions that the data come from two national samples of the Survey of Income and Program Participation and are subject to various errors, such as undercoverage of the population, processing errors, and respondent reporting errors. A forthcoming report will include final statistics for 1986 and 1987.　□

—Laurie B. Lande,
Office of Publications.

Major agreements expiring next month
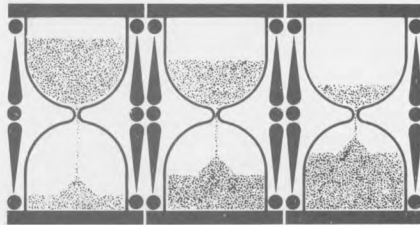
This list of selected collective bargaining agreements expiring in January is based on information collected by the Bureau's Office of Compensation and Working Conditions. The list includes agreements covering 1,000 workers or more. Private industry is arranged in order of Standard Industrial Classification. Labor organizations listed are affiliated with the AFL–CIO, except where noted as independent (Ind.).

Private industry

Food products

Bryan Foods, Inc., West Point, MS; Food and Commercial Workers, 1,300 workers

Delmonte Corp., Midwest Div., Illinois; Retail, Wholesale and Department Store, 1,200 workers

Chemicals

American Cyanamid Co., Pearl River, NY; Chemical Workers, 1,575 workers

Petroleum

Atlantic Richfield Co. and Arco Pipeline Co., Interstate; Oil, Chemical and Atomic Workers, 4,800 workers

American Oil Co., Interstate; Oil, Chemical and Atomic Workers, 4,600 workers

Ashland Oil Co., Interstate; Oil, Chemical and Atomic Workers, 1,200 workers

Chevron U.S.A. Inc., Interstate; Oil, Chemical and Atomic Workers, 4,300 workers

Mobil Oil Corp., Interstate; Oil, Chemical and Atomic Workers, 3,000 workers

Shell Oil Co., Interstate; Oil, Chemical and Atomic Workers, 4,000 workers

Sun Oil of Pennsylvania Co., Interstate; Oil, Chemical and Atomic Workers, 1,300 workers

Texaco, Inc., Interstate; Oil, Chemical and Atomic Workers, 4,200 workers

Union Oil Co. of California, Interstate; Oil, Chemical and Atomic Workers, 2,400 workers

Stone, clay and glass

Corning Glass Works, Corning, NY; Flint Glass Workers, 3,400 workers

Machinery, except electrical

Fafnir Bearing Co., New Britain, CT; Auto Workers, 1,200 workers

Electrical and electronic equipment

Litton Industries, Sioux Falls, SD; Electrical Workers (UE–Ind.), 1,000 workers

Transportation equipment

United Technologies, West Palm Beach, FL; Machinists, 1,300 workers

Dana Corp., Spicer Axle Div., Ft Wayne, IN; Allied Industrial Workers, 1,850 workers

Instruments and related products

Honeywell Inc., Minneapolis, MN; Teamsters, 6,300 workers

Airlines

American Airlines, Interstate; Allied Pilots, 6,100 workers

Utilities

General Telephone Co. of Wisconsin, Wisconsin; Communications Workers, 1,500 workers

Boston Gas Co., Boston, MA; Steelworkers, 1,000 workers

Utah Power and Light Co., Interstate; Electrical Workers (IBEW), 3,500 workers

Wholesale trade

Associated Produce Dealers and Brokers of Los Angeles Inc., Los Angeles, CA; Teamsters, 1,500 workers

Retail trade

Acme Food Stores, Philadelphia, PA; Food and Commercial Workers, 6,400 workers

Acme Food Stores, New Jersey; Food and Commercial Workers, 3,400 workers

Real estate

Midtown Realty Owners Assn., New York, NY; Service Employees, 2,500 workers

Services

Service Employers Assn. (route agreement), New York, NY; Service Employees, 6,000 workers

Phonograph Record Labor Agreement, Interstate; Musicians, 5,400 workers

Public activities

General administration

San Diego County multidepartmental, San Diego County, CA; independent union, 8,000 workers

Albuquerque multidepartmental blue collar, Albuquerque, NM; State, County and Municipal Employees, 1,250 workers

Education

Detroit public school custodians, Detroit, MI; State, County and Municipal Employees, 2,100 workers

Protective services

Los Angeles County peace officers (lieutenants and sergeants), Los Angeles County, CA; independent union, 1,000 workers

Los Angeles County peace officers, Los Angeles County, CA; independent union, 5,800 workers

San Diego County sheriffs, San Diego County, CA; independent union, 1,000 workers

Transit

Santa Clara Transit Authority, Santa Clara County, CA; Amalgamated Transit Union, 1,600 workers

Developments in industrial relations
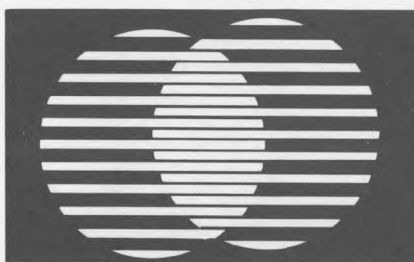
Newspaper accords

In St. Paul, MN, the *Pioneer Press Dispatch* and Local 29C of the Graphic Communications union agreed on a 9½ year contract for 43 pressroom employees. The contract reportedly permits the newspaper to reduce gradually the number of employees in particular positions. It also calls for wage increases totaling $5.31 an hour (the previous rate was $19.29 an hour for employees on the day shift).

The agreement was retroactive to the August 31, 1988, expiration date of the prior contract.

Elsewhere, *The Washington Post* (DC) and The Newspaper Guild were optimistic about their future relationship after they agreed on a 5-year contract. The previous contract had expired in mid-1986, and after bargaining collapsed a year later, the *Post* imposed some contract changes on the 1,400 employees.

The *Post's* chief bargainer said the new accord, reached after 120 bargaining sessions, "deals with every conceivable issue, from video display terminals to adoption assistance. It's 2 years longer than any contract we've ever had before and it has the first no-strike and management-rights clauses we've ever had with the Guild."

The local union's chief negotiator was pleased that the local had won large increases in starting salaries for reporters and photographers (up to $100 a week) and significant improvements in health insurance benefits for all employees, although at a cost to employees.

The contract provides for general wage increases of $18.20 to $38.30 a

week in the first year, $19.30 to $39.40 in the second, and $18.80 to $38.20 in the third. This will bring the top minimum rate—paid after 4 years of service—to $860.70 a week for reporters and employees in other key jobs. In each of the 3 years, the increases averaged $30 a week. This is also true of the fourth and fifth years, but the allocation of the money among various jobs in those years will be determined after the third year. Employees in the starting steps of some jobs will also receive increases under a new formula raising their rates to 80 percent of the top rates for their jobs.

All employees will be eligible for possible automatic annual cost-of-living pay adjustments in each of the final two years. The adjustments—each limited to 4 percent—will equal that portion of any rise in the BLS Consumer Price Index in excess of 6 percent during the preceding 12 months.

The employee obligation for health insurance is now 10 percent of the premium cost for employees earning $30,000 or more a year and 5 percent for those earning less.

Other terms included adoption of an accelerated grievance procedure for settling disputes over discharge and suspensions, provision for use of up to 10 days of vacation for paternity leave, testing of video display terminals for radiation emissions, and reimbursement of 50 percent of adoption expenses, to a maximum of $4,000 ($5,000 if the child has a disability).

The union also agreed to exclude 100 employees from the bargaining unit, while the *Post* dropped its plan to petition the National Labor Relations Board to permit the exclusion of a larger number. There also is provision for continuing talks on union charges that the *Post* was not fully paying reporters for overtime work, and that it discriminated against women and minorities.

Diamond–Star and Auto Workers

A no-layoff provision was the feature of the initial contract between Diamond–Star Motors Corp. and the Auto Workers, leading to speculation that the union would seek the same provision in 1990 bargaining with the Big Three auto producers—Chrysler Corp., General Motors Corp., and Ford Motor Co. The Diamond–Star plant, located in Normal, IL, is jointly owned by Chrysler and Mitsubishi Motors Corp. of Japan, and produces automobiles for both companies.

The new provision permits layoffs only when the "long-term viability of the company is at stake." An Auto Workers official stopped short of saying that the new provision would figure prominently in the 1990 talks, however, contract provisions resulting from recent settlements in the auto industry have clearly reflected the union's concern for protecting jobs. The current contracts at the Big Three permit layoffs when sales decline. During such layoffs, employees are covered by Supplemental Unemployment Benefit (SUB) plans which are designed to give eligible employees nearly 95 percent of their normal take-home pay for up to 2 years when combined with State unemployment benefits. However, this does not always occur because of the sometimes severe drain on the company SUB funds.

The 3-year Diamond–Star accord covers 2,400 employees. It provides for 80 percent protection of take-home pay for up to 1 year in the event of layoffs and for a range of contract provisions that will bring employee compensation to parity with Chrysler and other companies in 1992. Prior to the settlement, base pay for Diamond–Star employees reportedly averaged $12.75 an hour, compared with an expected $17.01 in 1991, according to the union. (The $17.01 expected rate includes a

union estimate of future automatic cost-of-living adjustments under a new formula matching that at Chrysler and the other companies, but does not include the money workers could receive under a provision guaranteeing them the same wage increases and lump-sum payments that Chrysler workers might receive in 1990 and 1991.)

A major gain for the company is a provision reducing the number of job classifications to three, compared with the dozens still prevailing at the other auto companies despite some consolidations of duties as a result of settlements in recent years. With the broad classifications, Diamond–Star managers can use team production approaches, in which each employee or "associate" performs more than one task.

Diamond–Star is the third Japanese-managed domestic aubmible plant in which the Auto Workers holds employee representation rights. The other two are New United Motor Manufacturing Inc. in Fremont, CA (jointly owned by Toyota Motor Corp. and General Motors) and Mazda Motor Manufacturing USA in Flat Rock, MI (partly owned by Ford). So far, the union has not succeeded in organizing a wholly Japanese-owned plant in the United States.

Elsewhere in the automobile industry, General Motors reported encouraging results of a new employee involvement plan at a plant in Oklahoma City, OK, despite resistance from some employees represented by the Auto Workers and some supervisors. The Voluntary Input Program (VIP), covering 5,300 rank-and-file workers, was adopted in a supplement to the Auto Workers 1987 national accord for General Motors plants. In October 1989, 67 percent of the employees were participating in the program, compared with 46 percent at its inception in May 1989. One inducement is a "pay for knowledge" provision permitting employees to earn an extra 20 cents to 70 cents an hour for taking on added responsibilities, such as aiding management in improving the quality of automobiles.

An official of Local 1991 indicated that success of VIP is not assured because some workers give up on attaining consensus with managers in meetings on improving operations. This problem was heightened by the fact that the VIP plan began during a period when the plant was undergoing many production changes.

The plant's personnel director admitted that some supervisors resisted VIP, concerned that workers were assuming a supervisory role in production. But, he contended that this view is unwarranted because only the roles and responsibilities of supervisors have changed, not their importance or value in the plant.

Grocery store accords

The United Food and Commercial Workers negotiated separate, but similar, agreements for 27,000 employees of Giant Food Inc. and Safeway Stores Inc. in the Washington, DC–Baltimore, MD, areas. The contracts cover 19,900 employees in the DC area (12,000 at Giant and 7,900 at Safeway) and 7,100 in the Baltimore area (6,000 at Giant and 1,100 at Safeway).

Both sides agreed that the settlements favored the union. An official of Local 400 in DC said the union's bargaining position was strengthened by the intense competition in the industry which discouraged management from risking a work stoppage. Giant and Safeway representatives said that they conceded on some bargaining issues in order to ease employee hiring and retention problems in a tight labor market.

The 3-year agreements provide for an immediate $1 an hour wage increase for all employees. Those hired prior to the adoption of a two-tier pay schedule in 1983 will receive 45-cent-an-hour wage increases and $200–$500 lump-sum payments in March of 1990 and 1991. Employees in the second tier will receive larger wage increases—50 cents an hour—in March of 1990 and 1991, which will narrow the differential between the tiers to 90 cents. Some narrowing also occurred in the 1986 settlements.

Giant and Safeway will continue to pay the full cost of health insurance premiums. Initially, they had pressed for employees to assume part of the cost.

The settlement also provided for improved pensions, including extra payments to retirees at the end of 1990 and 1991.

Meat processing settlements

About 1,400 employees of Oscar Mayer Food Corp.'s Madison, WI, plant were covered by a 3-year contract that provides for a 25-cent-an-hour wage increase, and establishes a "goal bonus" plan that could result in annual distributions up to $1,500, according to an official of Local 538 of the United Food and Commercial Workers. He said that a larger wage increase was not possible because of the intense competition Oscar Mayer is encountering from nonunion companies, which hold a large share of the market. The 25-cent immediate hike brought the plant's base scale to $10.95 an hour.

Payments under the goal bonus plan will depend on the degree of success in attaining productivity, safety, and cost-saving goals to be set by union and management representatives. The first possible payout is to be made in 1991.

Other provisions include new educational assistance and mail order prescription drug programs, and improvements in paid vacations and the long-term disability plan.

In Fremont, NE, Geo. A Hormel & Co. canceled plans to close the "kill and cut" unit of its plant after employees accepted a 3-year contract that includes a new two-tier pay schedule. Under the schedule, new employees will start at $7.25 an hour, move to $7.50 after 6 months, to $7.75 after the first year, $8 after $1\frac{1}{2}$ years, and $8.50 after $2\frac{1}{2}$ years. Previously, new workers started at $9.25 and progressed to $10.75.

Employees on the payroll at the time of settlement will not be affected by the reduced rates. Instead, they will receive 15-cent-an-hour wage increases in each contract year.

Other terms negotiated by Local 22 of the United Food and Commercial Workers included employee payment of 20 percent of health insurance premium costs, which had been fully paid by Hormel; $10,000 life insurance coverage, instead of $5,000; and a fifth

week of vacation for employees with 30 years of service. The contract, negotiated a week before the scheduled expiration of the preceding contract, covers 670 employees.

Hotel workers settle

A scheduled strike by 3,000 employees was averted when the Hotel Association of Washington, DC, and Hotel Employees and Restaurant Employees Local 25 agreed on a 3-year contract. A major issue in the talks was management's demand that employees begin paying part of health insurance premium costs. Under the settlement, the 15 hotels will continue to pay full premium costs, but the two health insurance plans were replaced by preferred provider type plans. Other terms included 5-percent annual increases in wage rates.

As usual, the Hotel Employees and Restaurant Employees accord with the Hotel Association set a pattern for settlements for 2,500 workers the union represents at independent hotels.

In San Francisco, CA, Local 2 of the union settled with 38 hotels on longer-than-usual contracts to enable union officials to devote more time to organizing nonunion employees at five hotels. At the time of the settlements, the local reportedly represented about 7,000 hotel employees in the city, or 82 percent of the total.

The new 5-year contracts, which succeeded 3-year contracts, provided for nontipped employees to receive a 30-cent-an-hour wage increase in the first year and 35-cent increases in the other years. Wages for tipped employees were frozen for the contract term, but these employees will be paid at double time for vacations. An exception to the wage freeze was bellpersons, who received an immediate 20-cent increase in the $1.30 "per bag" rate for handling the luggage of tour groups, followed by a 10-cent increase in 1990.

Mine Workers rejoins AFL–CIO

Labor unions' efforts to attain a unified front in dealing with management and government were enhanced when the 150,000-member United Mine Workers returned to the AFL–CIO, ending a half century of self-imposed exile. The reaffiliation culminated increasingly close cooperation between the federation and the Mine Workers in recent years, most notably the AFL–CIO's aid in the union's efforts to reach a settlement with the Pittston Co. and end the bitter work stoppage against the soft coal producer.

Mine Workers President Richard L. Trumka called the reaffiliation a formalization of "our ever-closer working relationship with the AFL–CIO and its member unions" and said that the move was "in the best interests of our membership."

The reaffiliation triggered a resumption of the Mine Workers and the Oil, Chemical and Atomic Workers negotiations to strengthen their bargaining front with energy producers by merging. In 1988, the Mine Workers had approved a merger plan, but the Oil, Chemical and Atomic Workers rejected it; reportedly, one reason was because the Mine Workers was not then an AFL–CIO member.

The reaffiliation also was a step in fulfilling AFL–CIO President Lane Kirkland's vow to unify labor. Other unions brought into the federation since his inauguration in 1979 include the Auto Workers, the United Transportation Union, the Locomotive Engineers, the Teamsters, and the Longshoremen's and Warehousemen's Union. Labor organizations still outside the AFL–CIO include the United Electrical Workers, the National Education Association, and the American Nurses Association.

Utility pledges equal opportunity

Following discussions with a coalition of consumer, business, minority, disabled, and women's organizations, Southern California Edison Co. made a comprehensive equal opportunity pledge. The company's chairman called the goals in the pledge "appropriate for a responsible public utility serving this demographically diverse and changing region," and maintained that the commitment is part of the company's long-term strategy to aid its customers, including small businesses.

The pledge binds Southern California Edison to make good faith efforts to:

- Continue to have minorities and women represented on its board of directors.
- By the year 2000, raise the proportion of minorities to 30 percent (from 13 percent) of its top 500 management jobs and women to 20 percent (from 6 percent) of its top 100 management jobs. This will be accomplished through advancement of qualified minorities and women into jobs that open through normal attrition, without resorting to quotas or ratios.
- Appoint a multicultural advisory council to report quarterly to the company's chief officer.
- Award 30 percent of its $1 billion a year in business contracts to minority-owned and women-owned businesses, at usual costs and without compromising quality.
- Increase its contributions to non-profit organizations serving low-income people, minorities, women, and the disabled.
- Double its low-income energy assistance program.

The coalition of organizations participating in the development of the pledge included the California Council of Urban Leagues, the League of United Latin American Citizens, Latino Issues Forum, the Black Business Association of Los Angeles, the American GI Forum, the Filipino-American Political Association, the Coalition of Bay Area Women-Owned Businesses, and the World Institute on Disability. Legal counsel was provided by public advocates.

Pan Am settles sex bias case

Pan American World Airways has agreed to modify its limits on employee weight, and pay $2.35 million to 116 current and former female attendants the carrier had declared overweight. The court-approved settlement ended a 5-year court case in which the attendants contended they were disciplined and, in some cases, fired in violation of the sex discrimination provisions of the Civil Rights Act of 1964.

Previously, Pan Am classified all female attendants as having "medium"

frames in determining if they fell within the limits of a height-weight chart, while classifying all male attendants as having "large" frames. According to the Independent Union of Flight Attendants, which represents Pan Am's 5,400 attendants, this classification amounted to discrimination against women because it gave the men more leeway in meeting the requirements. The union also objected to periodic visual inspections of appearance, contending that the inspection of male attendants was less rigorous.

Under the new policy, both male and female employees will be classified as having medium frames, except for those employees subject to less stringent weight limits because a physician determines they have large bones. The settlement also ended the visual inspection of employees.

Chrysler, UAW start child care

The automobile industry's first jointly operated onsite child care center will be built at Chrysler Motors Corp. Electronics Division plant in Huntsville, AL. The program will be operated by the UAW–Chrysler National Training Center through a contract with a professional child care company. The cost to participating employees has not yet been determined. The center will have an initial capacity of 100 to 200 children, and will care for children ages 6 weeks to 5 years. It will operate from 5 a.m. to 1 a.m., Monday through Friday.

The electronics plant was selected for the pilot project because its 3,400 employees are predominantly young and are from a large geographic area around the plant, and because existing child care facilities in the area were deemed to be inadequate.

Earlier in 1989, Chrysler began child care referral programs at its car assembly plant in Sterling Heights, MI, and at its Dodge truck assembly plant in Warren, MI.

Employee stock ownership plans

Employee stock ownership plans added 865,000 employees to new and existing plans last year, according to an estimate by the National Center for Employee Ownership. An estimated 775 new plans were created in what the Center sees as a continuing strong growth rate. About half of the new plans were stock "bonus" plans and half were employee stock ownership plans.

The Center estimates that 90 percent of existing plans are in private companies, of which half are used to provide a market for the shares of retiring owners. The remaining 10 percent are in public companies and are often used to restructure employee benefits in ways that provide tax benefits to the company or as a defense against a hostile corporate takeover.

Currently, there are about 10,000 plans covering more than 10 million employees, according to the Center's estimates. At the end of 1988, there were 9,500 plans, covering more than 9.7 million employees. □

Hail and Farewell

With this month's "Developments in Industrial Relations," George Ruben of the Division of Developments in Labor-Management Relations, Bureau of Labor Statistics, retires. For 10 years, George has prepared or supervised the preparation of the *Monthly Labor Review* department as well as written the annual report and analysis of labor-management developments which appears in the January issue each year. He has been cited for his expertise and knowledge and received a special Lawrence R. Klein Award for sustained excellence of output. We will miss him and wish him well in his retirement.

—The Editors

Book reviews
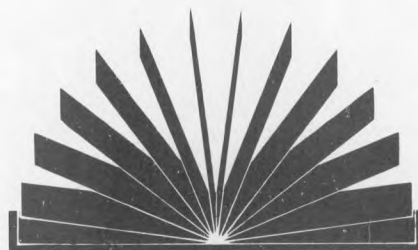
Perceptions of reality

The Social Foundations of Industrial Power: A Comparison of France and Germany. By Marc Maurice, Francois Sellier, and Jean-Jacques Silvestre. Cambridge, MA, The MIT Press, 1986. 292 pp.

The German Worker: Working Class Autobiographies from the Age of Industrialization. By Alfred Kelly. Berkeley, CA, University of California Press, 1987. 438 pp. $45, cloth; $12.95, paper.

In the early 1970's, a group of scholars at the Laboratory of Economics and Sociology of Work, University of Aix-en-Provence, France, set up a monumental field research project comparing work organization, wage structure, and labor in French and German firms. The main results were published in French in 1982 and are now available in English. As the Introduction indicates, the aim was to identify difference in the work structure of the two countries and ascertain how work relations were structured in relation to the domains of education, business organization, and industrial relations. The authors attempt to link macrosociological and microsocial (firm level) phenomena.

The team found substantial structural differences between the French and German firms. Their research covered pay scales, skill development, job mobility, authority structure, labor-management cooperation, and the resolution of conflict. Many interesting differences emerged. Thus, say the authors, German education encourages close attention to technical training, so that skill is an important criterion both for promotions and wage determination. French education encourages on-the-job training. French work organization appears more bureaucratic and less performance-oriented than in German firms. French employers have a freer hand in defining jobs. Wages are found to be more closely linked to productivity in Germany. There is a higher proportion of blue-collar workers in German firms, regardless of the technology involved. Wage differentials between white- and blue-collar workers are higher in France. The roles of supervisors vary considerably between the two countries. Time study is more readily accepted by German workers. French trade unions are likely to act on the assumption that management will not make concessions without a strike. German works councils head off strikes. German employers recognize the legitimacy of union values and also accept the authority of industry associations and business groups more than the French.

The authors conclude that their work gives no support to the convergence hypothesis. Rather, national specificities in work relations exist and are maintained, influenced by educational, training, and promotion systems.

Differences between workplace characteristics in the two countries are indeed interesting. There is a rich variety of detail and the theoretical reasoning is accomplished in a professional manner. Nevertheless, the book is likely to appeal to a rather limited readership of specialists in industrial relations theory and the sociology of work. It is too academic to attract many managers, trade unionists, or government officials; even advanced students are likely to find it heavy going. But it certainly makes a useful contribution to our understanding of work organization and relations in the workplace.

The postwar success of the German economy owes much to the solidly crafted German industrial relations system and to the attitudes that managers, workers, and officials of trade unions and employers' associations bring to it. The significance of attitudes is one of the under-studied aspects of industrial relations and (although other surveys do exist) of comparative industrial relations. And, over time, relatively little attention has been given to shifts in attitudes.

In his very readable book, Alfred Kelly has given us something of a benchmark from the past to enhance our knowledge of German workers. His approach has been to draw on the autobiographies of 19 workers from different occupations and parts of Germany and some neighboring countries. Obviously, such an approach has drawbacks. The few workers who committed their stories to paper were scarcely typical; their writings rarely satisfied academic niceties and were often written years following the events they described. Their writing styles were rarely elegant. A good proportion became active in what was often a risky business for a worker of the time, trade unions or Social Democratic politics. But the abstracts read with much of the freshness and honesty of the interviews in Studs Terkel's *Working: People Talk About What They Do All Day and How They Feel About What They Do* (New York, Pantheon Books, 1974).

The vicissitudes of the worker's life appear very clearly in the abstracts—the demanding employer; the long hours; miserable working conditions; the low level of social protection (even though Germany was a forerunner in this respect); and the commonly harsh attitude of the authorities not only toward trade unionism but also to any form of worker "misbehavior." Harsh authority and poor conditions, although common, were not of course the fate of all workers in Germany or elsewhere. There were many who had steady work and—for the time—satisfactory living standards. Wages and working conditions improved fairly steadily over the period covered by these accounts, as did the extent of social protection. But hardship existed, as the abstracts demonstrate, and one is struck by the fortitude with which these workers bore misfortune and by their unfailing positive attitude toward work.

—OLIVER CLARKE

Department of Industrial Relations
University of Western Australia, Perth

Current labor statistics

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, 13–15, 17–18, 44, and 48.) Seasonally adjusted labor force data in tables 12 and 4–10 were revised in the February 1989 issue of the *Review* and reflect the experience through 1988. Seasonally adjusted establishment survey data shown in tables 13–15 and 17–18 were revised in the July 1989 *Review* and reflect the experience through March 1989. A brief explanation of the seasonal adjustment methodology appears in "Notes on the data."

Revisions in the productivity data in table 44 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month-to-month and 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 "real" earnings shown in table 15—are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current-dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of $3 and a current price index number of 150, where 1977 = 100, the hourly rate expressed in 1977 dollars is $2 ($3/150 × 100 = $2). The $2 (or any other resulting values) are described as "real," "constant," or "1977" dollars.

Additional information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule preceding these general notes. More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in *Employment and Earnings*, a monthly publication of the Bureau. More data from the household survey are published in the data books—*Revised Seasonally Adjusted Labor Force Statistics*, Bulletin 2306, and *Labor Force Statistics Derived From the Current Population Survey*, Bulletin 2307. More data from the establishment survey appear in two data books—*Employment, Hours, and Earnings, United States*, and *Employment, Hours, and Earnings, States and Areas*, and the supplements to these data books. More detailed information on employee compensation and collective bargaining settlements is published in the monthly periodical, *Current Wage Developments*. More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report*, and *Producer Price Indexes*. Detailed data on all of the series in this section are provided in the *Handbook of Labor Statistics*, which is published biennially by the Bureau. BLS bulletins are issued covering productivity, injury and illness, and other data in this section. Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

n.e.c. = not elsewhere classified.

n.e.s. = not elsewhere specified.

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.

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 60,000 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

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

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

The **labor force** consists of all employed or unemployed civilians plus members of the Armed Forces stationed in the United States. Persons **not in the labor force** are those not classified as employed or unemployed; this group includes persons who are retired, those engaged in their own 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 intercensal 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.*

Labor force data in tables 1 and 4–10 are seasonally adjusted based on the experience through December 1988. Since January 1980, national labor force data have been 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).

At the end of each calendar year, seasonally adjusted data for the previous 5 years are revised, and projected seasonal adjustment factors are calculated for use during the January–June period. In July, new seasonal adjustment factors, which incorporate the experience through June, are produced for the July–December period but no revisons are made in the historical data.

Additional sources of information

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

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review,* December 1969, pp. 9–20.

Establishment survey data

Description of the series

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by more than 300,000 establishments representing all industries except agriculture. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is

engaged in one type of economic activity.

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

Production workers in manufacturing include working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 12–17 include production workers in manufacturing and mining; construction workers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

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

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 represents the percent of industries in which employment was rising over the indicated period, plus one-half of the industries with unchanged employment; 50 percent indicates an equal balance between industries with increasing and decreasing employment. 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. Data are centered within the span. The March 1989 *Review* introduced an expanded index on private nonagricultural employment based on 349 industries, and a new manufacturing index based on 141 industries. These indexes are useful for measuring the dispersion of economic gains or losses and are also economic indicators.

Notes on the data

Establishment survey data are annually adjusted to comprehensive counts of employ-

ment (called "benchmarks"). The latest adjustment, which incorporated March 1988 benchmarks, was made with the release of May 1989 data, published in the July 1989 issue of the *Review*. Coincident with the benchmark adjustments, seasonally adjusted data were revised to reflect the experience through March 1989. Unadjusted data have been revised back to April 1987; seasonally adjusted data back to January 1984. These revisions were published in the *Supplement to Employment and Earnings* (Bureau of Labor Statistics, 1989). Unadjusted data from April 1988 forward and seasonally adjusted data from January 1985 forward are subject to revision in future benchmarks.

The BLS also uses the X–11 ARIMA methodology to seasonally adjust establishment survey data. Beginning in June 1989, projected seasonal adjustment factors are calculated only for the first 6 months after benchmarking, rather than for 12 months (April–March) as was previously done. A second set of projected factors, which incorporate the experience though October, will be produced for the subsequent period and introduced with the publication of data for October. The change makes the procedure used for the establishment survey data more parallel to that used in adjusting the household survey data. Revisions of historical data will continue to be made once a year coincident with the benchmark revisions.

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" (prior to any benchmark revisions) in the third month of their appearance. Thus, December data are published as preliminary in January and February and as final in March. For the same reasons, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, fourth-quarter data are published as preliminary in January and February and final in March.

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 *Hand-*

book 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; 22–30)

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 4,200 private nonfarm establishments providing about 22,000 occupational observations and 800 State and local government establishments providing 4,200 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 civilian and private indexes and the index for 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 of 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), *Employment Cost Indexes and Levels, 1975-88*, Bulletin 2319 (Bureau of Labor Statistics, 1988), and the following *Monthly Labor Review* articles: "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 adjustments (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, profes-

sional, 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; 31–43)

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 32. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are measured for the CPI–U. A rental equivalence method replaced the asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI–W. The central purpose of the change was to separate shelter costs from the investment component of homeownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes. An updated CPI–U and CPI–W were introduced with release of the January 1987 data.

Additional sources of information

For a discussion of the general method for computing the CPI, see BLS *Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988). The recent change in the measurement of homeownership costs is discussed in Robert Gillingham and Walter Lane, "Changing the treatment of shelter costs for homeowners in the CPI," *Monthly Labor Review*, July 1982, pp. 9–14. An overview of the recently introduced revised CPI, reflecting 1982–84 expenditure patterns, is contained in *The Consumer Price Index: 1987 Revision*, Report 736 (Bureau of Labor Statistics, 1987).

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

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,100 commodities and about 75,000 quotations per month selected to represent the movement of prices of all commodities produced in the manufacturing, agriculture, forestry, fishing, mining, gas and electricity, and public utilities sectors. The stage of processing structure of Producer Price Indexes organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition. The industry and product structure of PPI organizes data in accordance with the Standard Industrial Classification (SIC) and the product code extension of the SIC developed by the U.S. Bureau of the Census.

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 or special composite groups. 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; 44–47)

Business sector and major sectors

Description of the series

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

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

Definitions

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

Multifactor productivity is the ratio of output per unit of labor and capital inputs combined. Changes in this measure reflect changes in a number of factors which affect the production process such as changes in technology, shifts in the composition of the labor force, changes in capacity utilization, research and development, skill and efforts of the work force, management, and so forth. Changes in the output per hour measures reflect the impact of these factors as well as the substitution of capital for labor.

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

Unit labor costs 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 at work of payroll workers, self-employed persons, and unpaid family workers.

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

Labor and capital inputs combined are derived by combining changes in labor and capital inputs with weights which represent each component's share of total output. The indexes for capital services and combined units of labor and capital are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

Notes on the data

Output measures for the **business sector** 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 estimates 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 44–47 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, cap-

ital, 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), chapter 11. Historical data are provided in *Handbook of Labor Statistics,* Bulletin 2217 (Bureau of Labor Statistics, 1985).

Industry productivity measures

Description of the series

The BLS industry productivity data supplement the measures for the business economy and major sectors with annual measures of labor productivity for selected industries at the 3- and 4-digit levels of the Standard Industrial Classification system. The industry measures differ in methodology and data sources from the productivity measures for the major sectors because the industry measures are developed independently of the National Income and Product Accounts framework used for the major sector measures.

Definitions

Output per employee hour is derived by dividing an index of industry output by an index of aggregate hours of all employees. Output indexes are based on quantifiable units of products or services, or both, combined with fixed-period weights. Whenever possible, physical quantities are used as the unit of measurement for output. If quantity data are not available for a given industry, data on the constant-dollar value of production are used.

The labor input series consist of the hours of all employees (production and nonproduction workers), the hours of all persons (paid employees, partners, proprietors, and unpaid family workers), or the number of employees, depending upon the industry.

Notes on the data

The industry measures are compiled from data produced by the Bureau of Labor Statistics, the Departments of Commerce, Interior, and Agriculture, the Federal Re-

serve Board, regulatory agencies, trade associations, and other sources.

For most industries, the productivity indexes refer to the output per hour of all employees. For some transportation industries, only indexes of output per employee are prepared. For some trade and service industries, indexes of output per hour of all persons (including the self-employed) are constructed.

Additional sources of information

For a complete listing of available industry productivity indexes and their components, see *Productivity Measures for Selected Industries and Government Services (1985)*, Bulletin 2322 (Bureau of Labor Statistics, 1989). For additional information about the methodology for computing the industry productivity measures see *Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988), chapter 11.

International Comparisons
(Tables 48–50)

Labor force and unemployment

Description of the series

Tables 48 and 49 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and several 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 AND UNEMPLOYMENT DATA: Household Survey Data.

Notes on the data

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

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

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

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

There are breaks in the data series for Germany (1983 and 1987), Italy (1986), the Netherlands (1983), and Sweden (1987). For both Germany and the Netherlands, the 1983 breaks reflect the replacement of labor force survey results tabulated by the national statistical offices with those tabulated by the European Community Statistical Office (EUROSTAT). The Dutch figures for 1983 onward also reflect the replacement of 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. The 1987 break for Germany reflects the incorporation of employment statistics based on the 1987 Population Census, which indicated that the level of employment was about one million higher than previously estimated. The impact of this change was to lower the adjusted unemployment rate by 0.3 percentage point. When historical data benchmarked to the 1987 Census became available, BLS will revise its comparative measures for Germany.

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 last 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 work-seeking was reduced from 60 days to 4 weeks. These changes result 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 Supplements to Appendix B. The statistics are also analyzed periodically in the *Monthly Labor Review*. Additional historical data, generally beginning with 1959, are published in the *Handbook of Labor Statistics* and are available in statistical supplements to Bulletin 1979.

Occupational Injury and Illness Data

(Table 51)

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 co-operative 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	1987	1988	1987 IV	1988 I	1988 II	1988 III	1988 IV	1989 I	1989 II	1989 III
Employment data										
Employment status of the civilian noninstitutionalized population (household survey):[1]										
Labor force participation rate	65.6	65.9	65.7	65.8	65.8	65.9	66.1	66.4	66.5	66.5
Employment-population ratio	61.5	62.3	61.9	62.1	62.2	62.3	62.5	62.9	63.0	63.0
Unemployment rate	6.2	5.5	5.9	5.7	5.5	5.5	5.3	5.2	5.3	5.2
Men	6.2	5.5	5.8	5.6	5.4	5.4	5.4	5.2	5.1	5.1
16 to 24 years	12.6	11.4	11.9	11.8	11.2	11.4	11.3	11.2	11.1	11.3
25 years and over	4.8	4.2	4.4	4.3	4.2	4.1	4.1	4.0	3.9	3.9
Women	6.2	5.6	6.0	5.8	5.6	5.6	5.3	5.2	5.4	5.4
16 to 24 years	11.7	10.6	11.2	11.0	10.7	10.5	10.3	10.2	10.4	10.5
25 years and over	4.8	4.3	4.6	4.5	4.3	4.4	4.2	4.0	4.3	4.2
Unemployment rate, 15 weeks and over	1.7	1.3	1.5	1.4	1.3	1.3	1.2	1.1	1.1	1.1
Employment, nonagricultural (payroll data), in thousands:[1]										
Total	102,200	105,584	103,491	104,355	105,184	105,976	106,799	107,680	108,339	108,914
Private sector	85,190	88,212	86,336	87,111	87,851	88,577	89,288	90,104	90,661	91,095
Goods-producing	24,708	25,249	24,961	25,022	25,202	25,313	25,452	25,634	25,664	25,657
Manufacturing	19,024	19,403	19,199	19,271	19,360	19,435	19,550	19,659	19,663	19,616
Service-producing	77,492	80,335	78,530	79,333	79,983	80,663	81,346	82,047	82,676	83,257
Average hours:										
Private sector	34.8	34.7	34.8	34.7	34.7	34.7	34.7	34.7	34.7	34.7
Manufacturing	41.0	41.1	41.2	41.0	41.1	41.1	41.1	41.1	41.1	41.0
Overtime	3.7	3.9	3.9	3.8	3.9	3.9	3.9	3.9	3.8	3.8
Employment Cost Index										
Percent change in the ECI, compensation:										
All workers (excluding farm, household, and Federal workers)	3.6	5.0	.8	1.4	1.1	1.3	1.0	1.2	1.1	1.6
Private industry workers	3.3	4.9	.7	1.5	1.2	1.0	1.0	1.3	1.2	1.2
Goods-producing[2]	3.1	4.4	1.0	1.8	1.1	.6	.8	1.0	1.1	1.1
Service-producing[2]	3.7	5.1	.5	1.3	1.4	1.2	1.2	1.5	1.2	1.3
State and local government workers	4.4	5.6	.9	1.3	.3	2.7	1.1	1.2	.6	3.3
Workers by bargaining status (private industry):										
Union	2.8	3.9	1.1	1.6	1.0	.7	.5	.8	1.0	.9
Nonunion	3.6	5.1	.6	1.5	1.3	1.1	1.2	1.5	1.2	1.4

[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	1987	1988	1987 IV	1988 I	1988 II	1988 III	1988 IV	1989 I	1989 II	1989 III
Compensation data [1], [2]										
Employment Cost Index--compensation (wages, salaries, benefits):										
Civilian nonfarm	3.6	5.0	0.8	1.4	1.1	1.3	1.0	1.2	1.1	1.6
Private nonfarm	3.3	4.9	.7	1.5	1.2	1.0	1.0	1.3	1.2	1.2
Employment Cost Index--wages and salaries										
Civilian nonfarm	3.5	4.3	.7	1.0	.9	1.3	1.0	1.1	.8	1.6
Private nonfarm	3.3	4.1	.6	1.0	1.1	1.0	1.0	1.1	1.0	1.2
Price data[1]										
Consumer Price Index (All urban consumers): All items	4.4	4.4	.3	1.0	1.3	1.5	.6	1.5	1.5	.7
Producer Price Index:										
Finished goods	2.2	4.0	.1	.5	1.3	.8	1.3	1.9	2.0	-.7
Finished consumer goods	2.6	4.0	-.2	.4	1.4	1.0	1.1	2.2	2.3	-.9
Capital equipment	1.3	3.6	1.1	.7	.6	.4	1.8	.9	1.1	.0
Intermediate materials, supplies, components	5.4	5.6	.9	1.1	2.6	1.2	.6	1.9	1.1	-.3
Crude materials	8.9	3.1	-1.4	-.3	4.0	-1.2	.6	6.1	.9	-2.0
Productivity data[3]										
Output per hour of all persons:										
Business sector	1.2	1.7	2.8	2.5	-2.1	3.1	.2	1.1	1.6	1.2
Nonfarm business sector	1.1	2.0	2.5	2.8	-1.6	3.3	1.9	-1.3	1.1	2.1
Nonfinancial corporations [4]	2.2	2.3	1.6	3.9	.4	1.3	-.4	-1.7	.1	–

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

Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.
[4] Output per hour of all employees.
– Data not available.

3. Alternative measures of wage and compensation changes

Components	Quarterly average 1988 II	1988 III	1988 IV	1989 I	1989 II	1989 III	Four quarters ended-- 1988 II	1988 III	1988 IV	1989 I	1989 II	1989 III
Average hourly compensation:[1]												
All persons, business sector	5.7	5.8	5.2	4.8	6.8	4.8	5.1	5.3	4.8	5.4	5.6	5.4
All persons, nonfarm business sector	5.4	5.4	5.9	4.9	5.6	5.3	4.9	5.1	4.8	5.4	5.5	5.4
Employment Cost Index--compensation:												
Civilian nonfarm [2]	1.1	1.3	1.0	1.2	1.1	1.6	4.6	4.7	5.0	4.8	4.8	5.1
Private nonfarm	1.2	1.0	1.0	1.3	1.2	1.2	4.5	4.5	4.9	4.6	4.5	4.7
Union	1.0	.7	.5	.8	1.0	.9	4.3	4.5	3.9	3.0	3.1	3.2
Nonunion	1.3	1.1	1.2	1.5	1.2	1.4	4.5	4.5	5.1	5.1	5.0	5.3
State and local governments	.3	2.7	1.1	1.2	.6	3.3	5.0	5.4	5.6	5.5	5.8	6.4
Employment Cost Index--wages and salaries:												
Civilian nonfarm[2]	.9	1.3	1.0	1.1	.8	1.6	3.9	3.9	4.3	4.4	4.3	4.6
Private nonfarm	1.1	1.0	1.0	1.1	1.0	1.2	3.7	3.7	4.1	4.2	4.1	4.4
Union	.8	.7	.4	.7	.8	.6	2.9	2.9	2.2	2.5	2.6	2.5
Nonunion	1.2	1.0	1.1	1.3	1.0	1.3	4.0	3.9	4.5	4.8	4.6	4.9
State and local governments	.3	2.6	1.0	.8	.5	3.1	4.4	4.7	4.8	4.8	5.0	5.5
Total effective wage adjustments[3]	.9	.8	.5	.5	1.0	1.0	3.0	2.9	2.6	2.7	2.8	3.0
From current settlements	.3	.2	.1	.1	.3	.4	1.0	1.0	.7	.7	.7	.9
From prior settlements	.5	.4	.2	.3	.5	.4	1.6	1.4	1.3	1.3	1.3	1.3
From cost-of-living provision	.1	.2	.2	.1	.2	.2	.5	.5	.6	.6	.8	.8
Negotiated wage adjustments from settlements:[3]												
First-year adjustments	2.6	2.7	2.6	3.2	3.9	3.6	2.4	2.5	2.5	2.7	3.2	3.5
Annual rate over life of contract	2.2	2.8	2.2	3.1	3.4	3.0	2.0	2.2	2.4	2.5	2.9	3.0
Negotiated wage and benefit adjustments from settlements:[4]												
First-year adjustment	3.1	3.4	3.5	3.2	5.0	3.9	3.0	3.1	3.1	3.3	3.8	4.0
Annual rate over life of contract	2.4	3.2	2.1	3.4	3.4	2.7	2.3	2.5	2.5	2.6	3.0	2.8

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

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

(Numbers in thousands)

Employment status	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
TOTAL															
Noninstitutional population [1],[2]	184,490	186,322	186,801	186,949	187,098	187,340	187,461	187,581	187,708	187,854	187,995	188,149	188,286	188,428	188,580
Labor force[2]	121,602	123,378	123,778	124,215	124,259	125,124	124,865	124,948	125,343	125,283	125,768	125,622	125,706	125,742	125,814
Participation rate [3]	65.9	66.2	66.3	66.4	66.4	66.8	66.6	66.6	66.8	66.7	66.9	66.8	66.8	66.7	66.7
Total employed [2]	114,177	116,677	117,260	117,652	117,705	118,407	118,537	118,820	118,797	118,888	119,207	119,125	119,285	119,158	119,254
Employment-population ratio [4]	61.9	62.6	62.8	62.9	62.9	63.2	63.2	63.3	63.3	63.3	63.4	63.3	63.4	63.2	63.2
Resident Armed Forces [1]	1,737	1,709	1,687	1,705	1,696	1,696	1,684	1,684	1,684	1,673	1,666	1,666	1,688	1,702	1,709
Civilian employed	112,440	114,968	115,573	115,947	116,009	116,711	116,853	117,136	117,113	117,215	117,541	117,459	117,597	117,456	117,545
Agriculture	3,208	3,169	3,238	3,238	3,193	3,300	3,223	3,206	3,104	3,112	3,096	3,219	3,307	3,257	3,217
Nonagricultural industries	109,232	111,800	112,335	112,709	112,816	113,411	113,630	113,930	114,009	114,102	114,445	114,240	114,290	114,199	114,327
Unemployed	7,425	6,701	6,518	6,563	6,554	6,716	6,328	6,128	6,546	6,395	6,561	6,497	6,421	6,584	6,561
Unemployment rate [5]	6.1	5.4	5.3	5.3	5.3	5.4	5.1	4.9	5.2	5.1	5.2	5.2	5.1	5.2	5.2
Not in labor force	62,888	62,944	63,023	62,734	62,839	62,216	62,596	62,633	62,365	62,571	62,228	62,527	62,580	62,686	62,766
Men, 16 years and over															
Noninstitutional population [1],[2]	88,476	89,404	89,637	89,716	89,792	89,914	89,973	90,032	90,094	90,167	90,237	90,315	90,384	90,456	90,535
Labor force[2]	67,784	68,474	68,569	68,686	68,638	69,032	69,113	69,190	69,360	69,114	69,507	69,245	69,337	69,272	69,606
Participation rate [3]	76.6	76.6	76.5	76.6	76.4	76.8	76.8	76.9	77.0	76.7	77.0	76.7	76.7	76.6	76.9
Total employed [2]	63,684	64,820	64,976	65,074	65,055	65,322	65,572	65,920	65,767	65,713	66,110	65,961	65,934	65,601	66,030
Employment-population ratio [4]	72.0	72.5	72.5	72.5	72.5	72.6	72.9	73.2	73.0	72.9	73.3	73.0	72.9	72.5	72.9
Resident Armed Forces [1]	1,577	1,547	1,526	1,542	1,534	1,532	1,521	1,521	1,521	1,511	1,501	1,499	1,519	1,531	1,533
Civilian employed	62,107	63,273	63,450	63,532	63,521	63,790	64,051	64,399	64,246	64,202	64,609	64,462	64,415	64,070	64,497
Unemployed	4,101	3,655	3,593	3,612	3,583	3,710	3,540	3,270	3,593	3,401	3,397	3,284	3,403	3,672	3,576
Unemployment rate [5]	6.1	5.3	5.2	5.3	5.2	5.4	5.1	4.7	5.2	4.9	4.9	4.7	4.9	5.3	5.1
Women, 16 years and over															
Noninstitutional population [1],[2]	96,013	96,918	97,164	97,234	97,306	97,427	97,488	97,550	97,614	97,687	97,758	97,834	97,902	97,972	98,045
Labor force[2]	53,818	54,904	55,209	55,529	55,621	56,091	55,752	55,758	55,983	56,169	56,261	56,377	56,370	56,470	56,208
Participation rate [3]	56.1	56.6	56.8	57.1	57.2	57.6	57.2	57.2	57.4	57.5	57.6	57.6	57.6	57.6	57.3
Total employed[2]	50,494	51,858	52,284	52,578	52,650	53,085	52,965	52,900	53,029	53,175	53,097	53,164	53,352	53,557	53,224
Employment-population ratio [4]	52.6	53.5	53.8	54.1	54.1	54.5	54.3	54.2	54.3	54.4	54.3	54.3	54.5	54.7	54.3
Resident Armed Forces [1]	160	162	161	163	162	164	163	163	163	162	165	167	169	171	176
Civilian employed	50,334	51,696	52,123	52,415	52,488	52,921	52,802	52,737	52,866	53,013	52,932	52,997	53,183	53,386	53,048
Unemployed	3,324	3,046	2,925	2,951	2,971	3,006	2,787	2,858	2,953	2,994	3,164	3,213	3,018	2,912	2,985
Unemployment rate [5]	6.2	5.5	5.3	5.3	5.3	5.4	5.0	5.1	5.3	5.3	5.6	5.7	5.4	5.2	5.3

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

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

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

(Numbers in thousands)

Employment status	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
TOTAL															
Civilian noninstitutional population[1]	182,753	184,613	185,114	185,244	185,402	185,644	185,777	185,897	186,024	186,181	186,329	186,483	186,598	186,726	186,871
Civilian labor force	119,865	121,669	122,091	122,510	122,563	123,428	123,181	123,264	123,659	123,610	124,102	123,956	124,018	124,040	124,105
Participation rate	65.6	65.9	66.0	66.1	66.1	66.5	66.3	66.3	66.5	66.4	66.6	66.5	66.5	66.4	66.4
Employed	112,440	114,968	115,573	115,947	116,009	116,711	116,853	117,136	117,113	117,215	117,541	117,459	117,597	117,456	117,545
Employment-population ratio[2]	61.5	62.3	62.4	62.6	62.6	62.9	62.9	63.0	63.0	63.0	63.1	63.0	63.0	62.9	62.9
Unemployed	7,425	6,701	6,518	6,563	6,554	6,716	6,328	6,128	6,546	6,395	6,561	6,497	6,421	6,584	6,561
Unemployment rate	6.2	5.5	5.3	5.4	5.3	5.4	5.1	5.0	5.3	5.2	5.3	5.2	5.2	5.3	5.3
Not in labor force	62,888	62,944	63,023	62,734	62,839	62,216	62,596	62,633	62,365	62,571	62,228	62,527	62,580	62,686	62,766
Men, 20 years and over															
Civilian noninstitutional population[1]	79,565	80,553	80,851	80,924	81,001	81,162	81,256	81,333	81,413	81,524	81,592	81,679	81,754	81,790	81,905
Civilian labor force	62,095	62,768	62,915	62,995	63,002	63,358	63,490	63,557	63,709	63,503	63,831	63,656	63,643	63,721	63,883
Participation rate	78.0	77.9	77.8	77.8	77.8	78.1	78.1	78.1	78.3	77.9	78.2	77.9	77.8	77.9	78.0
Employed	58,726	59,781	60,004	59,999	60,049	60,420	60,636	60,869	60,757	60,798	61,093	60,921	60,853	60,683	60,981
Employment-population ratio[2]	73.8	74.2	74.2	74.1	74.1	74.4	74.6	74.8	74.6	74.6	74.9	74.6	74.4	74.2	74.5
Agriculture	2,329	2,271	2,315	2,313	2,292	2,277	2,320	2,317	2,252	2,284	2,256	2,342	2,364	2,339	2,309
Nonagricultural industries	56,397	57,510	57,689	57,686	57,757	58,143	58,316	58,552	58,505	58,514	58,837	58,579	58,489	58,344	58,673
Unemployed	3,369	2,987	2,911	2,996	2,953	2,938	2,853	2,688	2,952	2,705	2,737	2,734	2,790	3,038	2,902
Unemployment rate	5.4	4.8	4.6	4.8	4.7	4.6	4.5	4.2	4.6	4.3	4.3	4.3	4.4	4.8	4.5
Women, 20 years ond over															
Civilian noninstitutional population[1]	88,583	89,532	89,807	89,887	89,954	90,072	90,153	90,242	90,318	90,432	90,526	90,607	90,684	90,771	90,860
Civilian labor force	49,783	50,870	51,201	51,558	51,587	51,998	51,821	51,851	51,992	52,171	52,231	52,463	52,373	52,443	52,239
Participation rate	56.2	56.8	57.0	57.4	57.3	57.7	57.5	57.5	57.6	57.7	57.7	57.9	57.8	57.8	57.5
Employed	47,074	48,383	48,788	49,113	49,165	49,543	49,514	49,484	49,544	49,690	49,661	49,850	49,905	50,089	49,767
Employment-population ratio[2]	53.1	54.0	54.3	54.6	54.7	55.0	54.9	54.8	54.9	54.9	54.9	55.0	55.0	55.2	54.8
Agriculture	622	625	640	640	646	715	666	664	615	628	610	627	644	701	648
Nonagricultural industries	46,453	47,757	48,148	48,473	48,519	48,827	48,849	48,819	48,929	49,062	49,051	49,223	49,261	49,388	49,119
Unemployed	2,709	2,487	2,413	2,445	2,422	2,455	2,306	2,367	2,448	2,480	2,570	2,613	2,468	2,353	2,472
Unemployment rate	5.4	4.9	4.7	4.7	4.7	4.7	4.5	4.6	4.7	4.8	4.9	5.0	4.7	4.5	4.7
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	14,606	14,527	14,456	14,433	14,447	14,410	14,367	14,323	14,293	14,224	14,211	14,196	14,160	14,166	14,107
Civilian labor force	7,988	8,031	7,975	7,957	7,974	8,071	7,871	7,856	7,958	7,936	8,040	7,837	8,003	7,876	7,983
Participation rate	54.7	55.3	55.2	55.1	55.2	56.0	54.8	54.9	55.7	55.8	56.6	55.2	56.5	55.6	56.6
Employed	6,640	6,805	6,781	6,835	6,795	6,748	6,703	6,783	6,812	6,726	6,786	6,687	6,840	6,683	6,796
Employment-population ratio[2]	45.5	46.8	46.9	47.4	47.0	46.8	46.7	47.4	47.7	47.3	47.8	47.1	48.3	47.2	48.2
Agriculture	258	273	283	285	255	307	237	224	237	200	230	249	300	216	260
Nonagricultural industries	6,382	6,532	6,498	6,550	6,540	6,441	6,466	6,559	6,575	6,526	6,556	6,438	6,540	6,467	6,536
Unemployed	1,347	1,226	1,194	1,122	1,179	1,323	1,168	1,073	1,146	1,210	1,254	1,150	1,163	1,193	1,187
Unemployment rate	16.9	15.3	15.0	14.1	14.8	16.4	14.8	13.7	14.4	15.2	15.6	14.7	14.5	15.1	14.9
White															
Civilian noninstitutional population[1]	156,958	158,194	158,524	158,603	158,705	158,865	158,947	159,020	159,098	159,200	159,297	159,400	159,470	159,549	159,644
Civilian labor force	103,290	104,756	105,051	105,395	105,411	106,106	105,798	105,988	106,312	106,164	106,455	106,424	106,446	106,325	106,544
Participation rate	65.8	66.2	66.3	66.5	66.4	66.8	66.6	66.7	66.8	66.7	66.8	66.8	66.8	66.6	66.7
Employed	97,789	99,812	100,199	100,543	100,567	101,183	101,278	101,554	101,458	101,465	101,693	101,581	101,670	101,535	101,816
Employment-population ratio[2]	62.3	63.1	63.2	63.4	63.4	63.7	63.7	63.9	63.8	63.7	63.8	63.7	63.8	63.6	63.8
Unemployed	5,501	4,944	4,852	4,852	4,844	4,923	4,521	4,434	4,854	4,699	4,762	4,843	4,777	4,791	4,728
Unemployment rate	5.3	4.7	4.6	4.6	4.6	4.6	4.3	4.2	4.6	4.4	4.5	4.6	4.5	4.5	4.4
Black															
Civilian noninstitutional population[1]	20,352	20,692	20,786	20,811	20,842	20,877	20,905	20,930	20,956	20,986	21,012	21,038	21,060	21,085	21,108
Civilian labor force	12,993	13,205	13,290	13,330	13,405	13,477	13,476	13,425	13,287	13,444	13,600	13,555	13,448	13,515	13,491
Participation rate	63.8	63.8	63.9	64.1	64.3	64.6	64.5	64.1	63.4	64.1	64.7	64.4	63.9	64.1	63.9
Employed	11,309	11,658	11,807	11,831	11,856	11,860	11,873	11,961	11,846	11,968	11,982	12,082	11,958	11,940	11,902
Employment-population ratio[2]	55.6	56.3	56.8	56.8	56.9	56.8	56.8	57.1	56.5	57.0	57.0	57.4	56.8	56.6	56.4
Unemployed	1,684	1,547	1,483	1,499	1,549	1,617	1,603	1,464	1,442	1,476	1,618	1,473	1,490	1,574	1,589
Unemployment rate	13.0	11.7	11.2	11.2	11.6	12.0	11.9	10.9	10.8	11.0	11.9	10.9	11.1	11.6	11.8

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		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Hispanic origin															
Civilian noninstitutional population[1]	12,867	13,325	13,458	13,495	13,533	13,564	13,606	13,649	13,690	13,731	13,772	13,813	13,853	13,894	13,936
Civilian labor force	8,541	8,982	9,075	9,148	9,133	9,205	9,219	9,210	9,262	9,428	9,272	9,433	9,364	9,326	9,311
Participation rate	66.4	67.4	67.4	67.8	67.5	67.9	67.8	67.5	67.7	68.7	67.3	68.3	67.6	67.1	66.8
Employed	7,790	8,250	8,368	8,419	8,441	8,434	8,596	8,607	8,495	8,686	8,524	8,587	8,521	8,550	8,580
Employment-population ratio[2]	60.5	61.9	62.2	62.4	62.4	62.2	63.2	63.1	62.1	63.3	61.9	62.2	61.5	61.5	61.6
Unemployed	751	732	707	729	692	771	624	603	767	742	748	846	843	776	731
Unemployment rate	8.8	8.2	7.8	8.0	7.6	8.4	6.8	6.5	8.3	7.9	8.1	9.0	9.0	8.3	7.9

[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		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
CHARACTERISTIC															
Civilian employed, 16 years and over	112,440	114,968	115,573	115,947	116,009	116,711	116,853	117,136	117,113	117,215	117,541	117,459	117,597	117,456	117,545
Men	62,107	63,273	63,450	63,532	63,521	63,790	64,051	64,399	64,246	64,202	64,609	64,462	64,415	64,070	64,497
Women	50,334	51,696	52,123	52,415	52,488	52,921	52,802	52,737	52,866	53,013	52,932	52,997	53,183	53,386	53,048
Married men, spouse present	40,265	40,472	40,504	40,407	40,483	40,925	40,928	41,083	40,890	40,902	41,102	41,089	40,636	40,572	40,775
Married women, spouse present	28,107	28,756	28,890	28,995	29,053	29,589	29,412	29,569	29,656	29,739	29,481	29,552	29,220	29,461	29,475
Women who maintain families	6,060	6,211	6,344	6,375	6,399	6,416	6,385	6,256	6,243	6,331	6,403	6,456	6,342	6,437	6,348
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,632	1,621	1,661	1,672	1,698	1,684	1,645	1,656	1,554	1,610	1,550	1,695	1,803	1,671	1,680
Self-employed workers	1,423	1,398	1,405	1,450	1,349	1,387	1,419	1,403	1,419	1,358	1,412	1,434	1,420	1,441	1,413
Unpaid family workers	153	150	177	125	149	189	150	138	124	127	126	126	137	135	121
Nonagricultural industries:															
Wage and salary workers	100,771	103,021	103,733	103,770	103,904	104,510	104,797	104,982	104,985	105,245	105,519	105,321	105,259	105,355	105,413
Government	16,800	17,114	17,240	17,387	17,423	17,393	17,311	17,382	17,180	17,230	17,261	17,519	17,591	17,619	17,582
Private industries	83,970	85,907	86,493	86,383	86,481	87,117	87,486	87,600	87,806	88,015	88,259	87,803	87,668	87,737	87,830
Private households	1,208	1,153	1,152	1,209	1,210	1,196	1,135	1,163	1,117	1,128	1,140	1,093	1,146	1,054	968
Other	82,762	84,754	85,341	85,174	85,271	85,921	86,350	86,437	86,689	86,887	87,118	86,710	86,522	86,682	86,862
Self-employed workers	8,201	8,519	8,479	8,619	8,602	8,718	8,517	8,645	8,671	8,516	8,570	8,606	8,625	8,569	8,680
Unpaid family workers	260	260	232	300	266	298	285	332	281	322	241	239	264	296	285
PERSONS AT WORK PART TIME[1]															
All industries:															
Part time for economic reasons	5,401	5,206	4,963	5,061	5,321	5,097	4,981	4,968	5,143	4,837	4,957	4,750	4,785	4,882	4,728
Slack work	2,385	2,350	2,220	2,279	2,549	2,302	2,303	2,232	2,373	2,296	2,318	2,311	2,282	2,330	2,336
Could only find part-time work	2,672	2,487	2,399	2,375	2,410	2,352	2,333	2,393	2,425	2,343	2,289	2,138	2,107	2,171	2,037
Voluntary part time	14,395	14,963	15,161	15,446	15,363	15,401	15,126	15,561	15,498	15,316	15,416	15,652	15,614	15,542	15,303
Nonagricultural industries:															
Part time for economic reasons	5,122	4,965	4,727	4,819	5,033	4,837	4,697	4,709	4,930	4,609	4,801	4,505	4,553	4,612	4,466
Slack work	2,201	2,199	2,095	2,116	2,377	2,144	2,105	2,048	2,243	2,102	2,190	2,185	2,129	2,174	2,178
Could only find part-time work	2,587	2,408	2,319	2,288	2,307	2,283	2,272	2,317	2,369	2,301	2,236	2,057	2,024	2,090	1,975
Voluntary part time	13,928	14,509	14,679	14,986	14,928	14,970	14,688	15,127	15,060	14,976	14,977	15,219	15,094	15,109	14,865

[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		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
CHARACTERISTIC															
Total, all civilian workers	6.2	5.5	5.3	5.4	5.3	5.4	5.1	5.0	5.3	5.2	5.3	5.2	5.2	5.3	5.3
Both sexes, 16 to 19 years	16.9	15.3	15.0	14.1	14.8	16.4	14.8	13.7	14.4	15.2	15.6	14.7	14.5	15.1	14.9
Men, 20 years and over	5.4	4.8	4.6	4.8	4.7	4.6	4.5	4.2	4.6	4.3	4.3	4.3	4.4	4.8	4.5
Women, 20 years and over	5.4	4.9	4.7	4.7	4.7	4.7	4.5	4.6	4.7	4.8	4.9	5.0	4.7	4.5	4.7
White, total	5.3	4.7	4.6	4.6	4.6	4.6	4.3	4.2	4.6	4.4	4.5	4.6	4.5	4.5	4.4
Both sexes, 16 to 19 years	14.4	13.1	12.9	11.9	12.6	14.1	12.1	11.3	12.3	13.1	13.0	12.8	12.8	12.1	12.2
Men, 16 to 19 years	15.5	13.9	14.4	12.6	13.4	16.4	14.0	12.3	13.1	14.8	13.4	12.4	12.9	13.3	13.9
Women, 16 to 19 years	13.4	12.3	11.3	11.3	11.8	11.7	10.2	10.2	11.5	11.2	12.6	13.4	12.7	10.8	10.4
Men, 20 years and over	4.8	4.1	4.1	4.2	4.1	4.0	3.8	3.6	4.0	3.6	3.7	3.8	3.8	4.2	3.8
Women, 20 years and over	4.6	4.1	4.0	4.0	3.9	3.9	3.6	3.8	4.1	4.1	4.1	4.3	4.1	3.8	4.0
Black, total	13.0	11.7	11.2	11.2	11.6	12.0	11.9	10.9	10.8	11.0	11.9	10.9	11.1	11.6	11.8
Both sexes, 16 to 19 years	34.7	32.4	30.9	31.1	29.6	34.5	32.4	31.6	30.8	32.4	36.5	27.4	31.6	37.3	34.2
Men, 16 to 19 years	34.4	32.7	32.8	32.1	29.2	36.7	33.1	28.6	35.5	36.9	33.5	22.1	30.0	34.1	32.4
Women, 16 to 19 years	34.9	32.0	28.6	29.9	29.3	32.0	31.6	34.8	26.2	28.4	40.2	33.1	33.4	40.3	36.1
Men, 20 years and over	11.1	10.1	9.6	9.8	10.0	10.4	10.5	9.8	10.0	9.4	9.4	9.3	9.8	10.0	10.3
Women, 20 years and over	11.6	10.4	9.8	9.8	10.5	10.4	10.3	9.1	8.8	9.5	10.5	9.9	9.4	9.6	10.0
Hispanic origin, total	8.8	8.2	7.8	8.0	7.6	8.4	6.8	6.5	8.3	7.9	8.1	9.0	9.0	8.3	7.9
Married men, spouse present	3.9	3.3	3.1	3.3	3.1	3.1	3.1	2.9	3.2	2.9	2.8	2.9	3.1	3.4	3.0
Married women, spouse present	4.3	3.9	3.7	3.8	3.7	3.6	3.4	3.5	4.0	3.8	3.8	3.8	3.9	3.8	4.0
Women who maintain families	9.2	8.1	7.9	7.7	8.2	8.0	8.0	7.9	7.6	8.3	7.9	8.7	8.0	7.6	7.6
Full-time workers	5.8	5.2	5.0	5.0	5.1	5.0	4.8	4.8	5.0	4.8	4.8	4.9	4.9	5.0	4.9
Part-time workers	8.4	7.6	7.4	7.1	7.0	7.9	7.3	6.2	7.2	6.9	7.7	7.2	6.9	7.3	7.1
Unemployed 15 weeks and over	1.7	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.2	1.1	1.0	1.2	1.1	1.1	1.1
Labor force time lost[1]	7.1	6.3	6.1	6.2	6.3	6.2	5.9	5.8	6.0	5.9	6.1	6.0	5.9	5.9	5.8
INDUSTRY															
Nonagricultural private wage and salary workers	6.2	5.5	5.4	5.5	5.4	5.6	5.1	5.0	5.4	5.2	5.3	5.4	5.4	5.4	5.3
Mining	10.0	7.9	8.8	8.9	7.7	6.1	8.0	7.0	5.6	4.5	3.7	5.5	6.5	8.5	5.1
Construction	11.6	10.6	10.0	10.6	10.4	10.4	10.0	9.4	9.7	9.3	10.0	10.5	10.3	10.4	9.0
Manufacturing	6.0	5.3	5.3	5.1	5.2	5.3	4.9	4.8	4.9	4.9	5.2	5.0	5.2	5.1	5.4
Durable goods	5.8	5.0	5.0	4.9	5.0	5.0	4.4	4.7	4.7	4.5	4.6	4.7	4.8	4.7	5.2
Nondurable goods	6.3	5.7	5.7	5.3	5.5	5.7	5.5	4.9	5.2	5.5	6.1	5.5	5.9	5.5	5.6
Transportation and public utilities	4.5	3.9	3.5	4.0	3.8	3.8	3.9	3.9	4.0	4.0	4.4	4.2	3.6	4.7	3.9
Wholesale and retail trade	6.9	6.2	6.0	6.2	6.3	6.3	5.6	5.6	5.9	5.5	6.0	6.2	6.0	5.8	5.8
Finance and service industries	4.9	4.5	4.5	4.6	4.1	4.7	4.3	4.1	4.8	4.7	4.3	4.4	4.4	4.5	4.4
Government workers	3.5	2.8	2.6	2.5	2.7	2.7	2.7	2.6	2.7	2.9	3.0	2.8	2.7	2.8	2.7
Agricultural wage and salary workers	10.5	10.6	10.2	9.3	8.8	9.5	8.9	8.9	10.5	10.3	11.0	8.5	8.6	7.7	10.0

[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		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Total, 16 years and over	6.2	5.5	5.3	5.4	5.3	5.4	5.1	5.0	5.3	5.2	5.3	5.2	5.2	5.3	5.3
16 to 24 years	12.2	11.0	10.9	10.6	10.9	11.9	10.5	9.8	10.5	10.4	11.3	10.7	10.9	11.2	11.1
16 to 19 years	16.9	15.3	15.0	14.1	14.8	16.4	14.8	13.7	14.4	15.2	15.6	14.7	14.5	15.1	14.9
16 to 17 years	19.1	17.4	17.2	15.8	16.6	18.3	18.2	15.3	14.9	16.2	17.5	17.8	18.1	16.8	16.8
18 to 19 years	15.2	13.8	13.3	12.9	13.3	15.4	12.7	12.5	13.8	14.5	14.9	12.4	12.5	14.2	13.5
20 to 24 years	9.7	8.7	8.6	8.7	8.7	9.3	8.1	7.7	8.4	7.7	8.9	8.6	8.8	8.9	8.9
25 years and over	4.8	4.3	4.1	4.2	4.1	4.1	4.0	3.9	4.1	4.0	4.0	4.0	4.0	4.1	4.0
25 to 54 years	5.0	4.5	4.3	4.4	4.3	4.2	4.2	4.1	4.4	4.2	4.1	4.2	4.1	4.3	4.2
55 years and over	3.3	3.1	2.8	2.8	3.0	3.1	3.1	2.6	2.9	2.9	3.3	3.1	3.1	3.0	3.0
Men, 16 years and over	6.2	5.5	5.4	5.4	5.3	5.5	5.2	4.8	5.3	5.0	5.0	4.8	5.0	5.4	5.3
16 to 24 years	12.6	11.4	11.8	10.9	11.1	12.8	11.1	9.7	10.7	11.0	11.5	10.4	11.4	12.1	11.8
16 to 19 years	17.8	16.0	16.5	14.8	15.4	18.6	16.7	14.2	15.5	17.0	15.8	13.4	14.7	15.8	16.1
16 to 17 years	20.2	18.2	18.5	17.3	17.3	20.6	19.6	15.8	17.0	18.8	20.0	17.4	17.4	19.8	18.6
18 to 19 years	16.0	14.6	15.0	13.0	13.5	17.9	15.1	13.2	14.6	15.7	13.6	10.7	12.7	13.5	14.4
20 to 24 years	9.9	8.9	9.2	8.8	8.7	9.6	8.1	7.2	8.0	7.7	9.2	8.7	9.6	10.1	9.3
25 years and over	4.8	4.2	4.0	4.2	4.1	4.0	4.0	3.8	4.2	3.7	3.7	3.7	3.7	4.1	3.9
25 to 54 years	5.0	4.4	4.2	4.4	4.3	4.2	4.1	4.0	4.4	3.9	3.7	3.9	3.8	4.2	4.0
55 years and over	3.5	3.3	3.0	3.2	3.3	3.0	3.4	2.8	3.2	2.9	3.0	3.1	3.3	3.6	3.1
Women, 16 years and over	6.2	5.6	5.3	5.3	5.4	5.4	5.0	5.1	5.3	5.3	5.6	5.7	5.4	5.2	5.3
16 to 24 years	11.7	10.6	9.9	10.3	10.7	10.9	9.7	10.0	10.4	9.8	11.0	11.1	10.2	10.1	10.3
16 to 19 years	15.9	14.4	13.3	13.3	14.2	14.0	12.8	13.1	13.2	13.4	15.4	16.0	14.4	14.5	13.5
16 to 17 years	18.0	16.6	15.8	14.1	15.8	15.9	16.8	14.8	12.7	13.4	14.7	18.3	18.8	13.7	14.7
18 to 19 years	14.3	12.9	11.6	12.8	13.1	12.7	10.0	11.7	12.8	13.3	16.2	14.4	12.4	14.8	12.5
20 to 24 years	9.4	8.5	7.9	8.6	8.7	9.1	8.0	8.3	8.9	7.7	8.6	8.4	7.9	7.6	8.4
25 years and over	4.8	4.3	4.2	4.2	4.1	4.1	3.9	4.0	4.1	4.4	4.4	4.4	4.2	4.1	4.2
25 to 54 years	5.1	4.6	4.5	4.4	4.4	4.3	4.2	4.3	4.4	4.6	4.5	4.6	4.5	4.3	4.4
55 years and over	3.0	2.8	2.4	2.4	2.6	3.1	2.5	2.3	2.6	3.0	3.8	3.2	2.7	2.2	2.8

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

(Numbers in thousands)

Reason for unemployment	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Job losers	3,566	3,092	2,951	3,031	3,066	3,121	2,876	2,831	2,984	2,724	2,765	2,920	2,984	2,915	2,917
On layoff	943	851	844	814	819	827	774	808	847	790	806	822	873	828	753
Other job losers	2,623	2,241	2,107	2,217	2,247	2,294	2,102	2,023	2,137	1,934	1,958	2,097	2,111	2,087	2,163
Job leavers	965	983	984	963	998	985	985	885	978	1,114	1,023	1,010	1,040	1,039	979
Reentrants	1,974	1,809	1,747	1,766	1,725	1,835	1,740	1,730	1,894	1,852	2,051	1,934	1,768	1,946	1,891
New entrants	920	816	747	799	799	780	765	713	671	683	742	724	628	629	685
PERCENT OF UNEMPLOYED															
Job losers	48.0	46.1	45.9	46.2	46.5	46.4	45.2	46.0	45.7	42.7	42.0	44.3	46.5	44.6	45.1
On layoff	12.7	12.7	13.1	12.4	12.4	12.3	12.2	13.1	13.0	12.4	12.3	12.5	13.6	12.7	11.6
Other job losers	35.3	33.4	32.8	33.8	34.1	34.1	33.0	32.8	32.7	30.3	29.8	31.8	32.9	32.0	33.4
Job leavers	13.0	14.7	15.3	14.7	15.1	14.7	15.5	14.4	15.0	17.5	15.5	15.3	16.2	15.9	15.1
Reentrants	26.6	27.0	27.2	26.9	26.2	27.3	27.3	28.1	29.0	29.1	31.2	29.4	27.5	29.8	29.2
New entrants	12.4	12.2	11.6	12.2	12.1	11.6	12.0	11.6	10.3	10.7	11.3	11.0	9.8	9.6	10.6
PERCENT OF CIVILIAN LABOR FORCE															
Job losers	3.0	2.5	2.4	2.5	2.5	2.5	2.3	2.3	2.4	2.2	2.2	2.4	2.4	2.4	2.4
Job leavers	.8	.8	.8	.8	.8	.8	.8	.7	.8	.9	.8	.8	.8	.8	.8
Reentrants	1.6	1.5	1.4	1.4	1.4	1.5	1.4	1.4	1.5	1.5	1.7	1.6	1.4	1.6	1.5
New entrants	.8	.7	.6	.7	.7	.6	.6	.6	.5	.6	.6	.6	.5	.5	.6

10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

Weeks of unemployment	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Less than 5 weeks	3,246	3,084	3,059	3,117	3,029	3,181	3,247	3,055	3,090	3,041	3,309	3,149	3,071	3,156	3,138
5 to 14 weeks	2,196	2,007	1,835	1,935	2,039	2,081	1,865	1,821	2,034	2,017	1,999	1,927	2,011	2,036	1,972
15 weeks and over	1,983	1,610	1,554	1,502	1,495	1,512	1,304	1,310	1,426	1,313	1,258	1,472	1,305	1,370	1,374
15 to 26 weeks	943	801	788	787	758	757	665	648	689	702	659	846	737	789	728
27 weeks and over	1,040	809	766	715	737	755	639	663	737	611	599	626	567	581	646
Mean duration in weeks	14.5	13.5	13.4	12.6	12.8	12.7	12.1	12.4	12.7	11.8	11.1	12.0	11.3	11.4	11.8
Median duration in weeks	6.5	5.9	5.7	5.6	5.8	5.7	5.3	5.4	5.4	5.3	5.5	5.6	5.0	5.0	4.9

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

State	Sept. 1988	Sept. 1989	State	Sept. 1988	Sept. 1989
Alabama	6.9	6.9	Montana	5.7	5.1
Alaska	8.7	7.3	Nebraska	3.2	2.9
Arizona	7.0	5.8	Nevada	4.3	5.0
Arkansas	6.9	5.5	New Hampshire	2.5	4.0
California	5.0	5.0			
			New Jersey	3.4	4.3
Colorado	5.2	4.3	New Mexico	7.3	6.1
Connecticut	2.7	3.4	New York	4.2	5.2
Delaware	3.0	3.2	North Carolina	3.1	3.5
District of Columbia	5.5	4.9	North Dakota	4.3	4.2
Florida	5.1	5.7			
			Ohio	5.7	4.9
Georgia	5.7	6.2	Oklahoma	6.2	5.1
Hawaii	2.8	2.2	Oregon	5.2	4.7
Idaho	4.3	4.0	Pennsylvania	5.1	4.0
Illinois	5.4	5.5	Rhode Island	3.4	4.0
Indiana	5.3	4.7			
			South Carolina	4.4	5.0
Iowa	3.8	3.9	South Dakota	3.8	3.9
Kansas	4.7	4.3	Tennessee	5.8	3.8
Kentucky	6.5	5.4	Texas	7.1	6.3
Louisiana	10.4	7.6	Utah	4.5	3.6
Maine	2.6	3.1			
			Vermont	2.2	3.3
Maryland	4.5	4.1	Virginia	4.1	3.7
Massachusetts	3.0	4.3	Washington	5.7	5.2
Michigan	6.6	7.5	West Virginia	9.6	8.1
Minnesota	3.6	4.1	Wisconsin	3.5	4.1
Mississippi	9.5	7.1			
Missouri	5.2	5.1	Wyoming	5.6	5.6

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	Sept. 1988	Aug. 1989	Sept. 1989p	State	Sept. 1988	Aug. 1989	Sept. 1989p
Alabama	1,551.6	1,576.1	1,584.1	Nebraska	693.6	710.8	715.5
Alaska	224.2	239.4	233.7	Nevada	552.4	579.1	584.6
Arizona	1,406.4	1,403.9	1,443.3	New Hampshire	538.0	534.6	535.7
Arkansas	872.3	886.4	898.2				
California	12,167.5	12,342.0	12,499.4	New Jersey	3,662.9	3,705.6	3,690.6
				New Mexico	546.5	554.4	561.6
Colorado	1,429.8	1,441.3	1,451.0	New York	8,212.1	8,237.4	8,236.3
Connecticut	1,676.6	1,682.0	1,696.9	North Carolina	2,992.5	3,005.7	3,051.1
Delaware	332.3	344.5	341.9	North Dakota	260.4	259.2	263.6
District of Columbia	671.0	694.0	688.7				
Florida	5,083.6	5,201.7	5,264.7	Ohio	4,731.7	4,807.2	4,848.5
				Oklahoma	1,141.1	1,131.4	1,143.5
Georgia	2,903.8	2,933.8	2,940.0	Oregon	1,174.2	1,202.7	1,215.1
Hawaii	473.1	493.4	488.9	Pennsylvania	5,072.1	5,084.7	5,121.3
Idaho	360.1	366.2	375.0	Rhode Island	460.5	455.9	459.3
Illinois	5,123.5	5,161.5	5,189.2				
Indiana	2,441.2	2,463.9	2,499.1	South Carolina	1,462.1	1,505.9	1,520.1
				South Dakota	267.5	269.6	269.4
Iowa	1,172.5	1,183.3	1,201.2	Tennessee	2,080.3	2,082.2	2,099.3
Kansas	1,041.0	1,044.1	1,062.5	Texas	6,682.3	6,776.4	6,808.1
Kentucky	1,382.8	1,396.8	1,402.7	Utah	674.9	690.0	704.5
Louisiana	1,506.7	1,511.0	1,520.8				
Maine	533.0	535.4	536.3	Vermont	253.7	253.6	255.2
				Virginia	2,813.6	2,893.0	2,923.7
Maryland	2,110.8	2,117.7	2,134.1	Washington	1,972.3	2,048.1	2,072.3
Massachusetts	3,126.0	3,118.2	3,118.8	West Virginia	613.8	613.6	619.8
Michigan	3,812.1	3,839.6	3,876.0	Wisconsin	2,182.0	2,214.9	2,222.9
Minnesota	2,050.8	2,091.9	2,106.8				
Mississippi	905.4	903.0	922.2	Wyoming	189.4	191.2	195.6
Missouri	2,261.8	2,264.3	2,290.7	Puerto Rico	815.7	812.8	818.2
Montana	285.1	283.1	286.7	Virgin Islands	40.3	42.0	–

- Data not available.
p = preliminary

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

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

(In thousands)

Industry	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.p	Oct.p
TOTAL	102,200	105,584	106,475	106,824	107,097	107,442	107,711	107,888	108,101	108,310	108,607	108,767	108,887	109,088	109,321
PRIVATE SECTOR	85,190	88,212	88,991	89,299	89,574	89,897	90,124	90,291	90,475	90,623	90,884	91,016	91,083	91,185	91,324
GOODS-PRODUCING	24,708	25,249	25,384	25,460	25,513	25,626	25,629	25,646	25,671	25,672	25,648	25,669	25,694	25,607	25,604
Mining	717	721	717	712	711	711	711	714	720	722	715	706	729	730	732
Oil and gas extraction	402	406	400	396	394	393	394	397	400	401	402	404	405	408	410
Construction	4,967	5,125	5,162	5,191	5,213	5,267	5,270	5,252	5,279	5,283	5,283	5,314	5,321	5,321	5,329
General building contractors	1,320	1,368	1,363	1,375	1,380	1,404	1,398	1,380	1,377	1,388	1,384	1,391	1,403	1,396	1,386
Manufacturing	19,024	19,403	19,505	19,557	19,589	19,648	19,648	19,680	19,672	19,667	19,650	19,649	19,644	19,556	19,543
Production workers	12,970	13,254	13,324	13,365	13,385	13,423	13,426	13,442	13,430	13,426	13,400	13,410	13,401	13,321	13,311
Durable goods	11,194	11,437	11,509	11,545	11,565	11,605	11,594	11,604	11,600	11,594	11,567	11,549	11,551	11,477	11,449
Production workers	7,439	7,635	7,690	7,717	7,730	7,758	7,749	7,749	7,744	7,735	7,706	7,697	7,696	7,631	7,613
Lumber and wood products	741	765	770	775	780	784	778	777	772	771	769	767	763	759	763
Furniture and fixtures	516	530	531	532	532	532	534	535	537	534	534	536	529	528	525
Stone, clay, and glass products	586	600	603	605	607	607	608	607	606	604	603	602	601	596	599
Primary metal industries	747	774	783	784	785	786	786	788	788	787	787	785	786	776	775
Blast furnaces and basic steel products	268	277	277	277	276	276	276	276	275	276	276	277	276	273	272
Fabricated metal products	1,401	1,431	1,442	1,445	1,449	1,458	1,458	1,457	1,454	1,452	1,449	1,446	1,443	1,438	1,433
Machinery, except electrical	2,008	2,082	2,110	2,120	2,126	2,134	2,138	2,143	2,144	2,150	2,151	2,154	2,152	2,148	2,140
Electrical and electronic equipment	2,069	2,070	2,073	2,075	2,067	2,065	2,062	2,060	2,058	2,050	2,041	2,040	2,034	2,024	2,017
Transportation equipment	2,051	2,051	2,055	2,060	2,063	2,079	2,067	2,071	2,073	2,076	2,062	2,046	2,068	2,036	2,024
Motor vehicles and equipment	867	857	865	867	867	882	871	869	875	876	861	844	873	844	830
Instruments and related products	706	749	758	762	767	770	772	776	777	778	779	781	782	780	781
Miscellaneous manufacturing industries	371	386	384	387	389	390	391	390	391	392	392	392	393	392	392
Nondurable goods	7,830	7,967	7,996	8,012	8,024	8,043	8,054	8,076	8,072	8,073	8,083	8,100	8,093	8,079	8,094
Production workers	5,531	5,619	5,634	5,648	5,655	5,665	5,677	5,693	5,686	5,691	5,694	5,713	5,705	5,690	5,698
Food and kindred products	1,620	1,636	1,644	1,648	1,646	1,650	1,650	1,655	1,657	1,656	1,663	1,678	1,667	1,677	1,684
Tobacco manufactures	55	56	55	56	56	56	56	56	54	53	52	53	52	51	51
Textile mill products	726	729	726	725	724	728	728	729	728	728	729	730	727	723	726
Apparel and other textile products	1,099	1,092	1,083	1,088	1,090	1,092	1,096	1,101	1,098	1,095	1,093	1,094	1,095	1,085	1,083
Paper and allied products	680	693	695	695	696	696	696	697	696	697	697	701	700	697	699
Printing and publishing	1,506	1,561	1,577	1,581	1,588	1,595	1,595	1,600	1,601	1,603	1,607	1,609	1,611	1,612	1,614
Chemicals and allied products	1,026	1,065	1,074	1,075	1,079	1,084	1,085	1,088	1,090	1,094	1,096	1,091	1,097	1,095	1,096
Petroleum and coal products	164	162	162	162	162	160	161	161	162	162	163	163	163	163	164
Rubber and misc. plastics products	811	829	836	839	840	839	843	845	843	843	841	841	841	837	838
Leather and leather products	143	144	144	143	143	143	144	144	143	142	142	140	140	139	139
SERVICE-PRODUCING	77,492	80,335	81,091	81,364	81,584	81,816	82,082	82,242	82,430	82,638	82,959	83,098	83,193	83,481	83,717
Transportation and public utilities	5,372	5,548	5,596	5,616	5,634	5,654	5,667	5,666	5,682	5,700	5,716	5,736	5,618	5,711	5,738
Transportation	3,164	3,334	3,381	3,402	3,421	3,439	3,453	3,452	3,467	3,484	3,500	3,524	3,539	3,548	3,573
Communication and public utilities	2,208	2,214	2,215	2,214	2,213	2,215	2,214	2,214	2,215	2,216	2,216	2,212	2,079	2,163	2,165
Wholesale trade	5,844	6,029	6,086	6,104	6,125	6,146	6,171	6,197	6,206	6,222	6,230	6,237	6,256	6,264	6,270
Durable goods	3,427	3,561	3,599	3,612	3,626	3,638	3,657	3,676	3,676	3,685	3,693	3,700	3,708	3,717	3,717
Nondurable goods	2,417	2,467	2,487	2,492	2,499	2,508	2,514	2,521	2,530	2,537	2,537	2,537	2,548	2,547	2,553
Retail trade	18,483	19,110	19,229	19,282	19,328	19,407	19,460	19,488	19,489	19,528	19,551	19,586	19,621	19,629	19,653
General merchandise stores	2,412	2,461	2,447	2,452	2,460	2,472	2,481	2,490	2,492	2,491	2,493	2,482	2,484	2,484	2,465
Food stores	2,962	3,098	3,149	3,165	3,182	3,200	3,212	3,223	3,233	3,245	3,262	3,274	3,293	3,294	3,317
Automotive dealers and service stations	2,004	2,090	2,124	2,131	2,136	2,143	2,150	2,155	2,159	2,159	2,155	2,155	2,152	2,156	2,169
Eating and drinking places	6,106	6,282	6,314	6,322	6,328	6,323	6,332	6,322	6,335	6,348	6,362	6,370	6,385	6,397	6,403
Finance, insurance, and real estate	6,547	6,676	6,710	6,726	6,744	6,746	6,763	6,774	6,776	6,790	6,808	6,815	6,836	6,851	6,852
Finance	3,270	3,290	3,293	3,299	3,307	3,308	3,311	3,316	3,312	3,320	3,320	3,324	3,336	3,343	3,340
Insurance	2,024	2,082	2,098	2,102	2,110	2,109	2,116	2,117	2,119	2,123	2,129	2,131	2,137	2,138	2,140
Real estate	1,253	1,304	1,319	1,325	1,327	1,329	1,336	1,341	1,345	1,347	1,359	1,360	1,363	1,370	1,372
Services	24,236	25,600	25,986	26,111	26,230	26,318	26,434	26,520	26,651	26,711	26,931	26,973	27,058	27,123	27,207
Business services	5,195	5,571	5,667	5,682	5,715	5,707	5,729	5,736	5,760	5,776	5,799	5,786	5,800	5,830	5,831
Health services	6,805	7,144	7,267	7,313	7,359	7,396	7,442	7,488	7,528	7,570	7,616	7,648	7,695	7,734	7,767
Government	17,010	17,372	17,484	17,525	17,523	17,545	17,587	17,597	17,626	17,687	17,723	17,751	17,804	17,903	17,997
Federal	2,943	2,971	2,986	2,983	2,981	2,978	2,982	2,982	2,982	2,999	2,995	3,000	2,999	3,016	3,004
State	3,967	4,063	4,081	4,085	4,085	4,084	4,095	4,102	4,111	4,119	4,136	4,145	4,154	4,214	4,224
Local	10,100	10,339	10,417	10,457	10,457	10,483	10,510	10,513	10,533	10,569	10,592	10,606	10,651	10,673	10,769

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

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

Industry	Annual average 1987	Annual average 1988	1988 Oct.	1988 Nov.	1988 Dec.	1989 Jan.	1989 Feb.	1989 Mar.	1989 Apr.	1989 May	1989 June	1989 July	1989 Aug.	1989 Sept.p	1989 Oct.p
PRIVATE SECTOR	34.8	34.7	34.8	34.7	34.7	34.8	34.6	34.7	34.9	34.6	34.6	34.8	34.6	34.7	34.8
MANUFACTURING	41.0	41.1	41.2	41.2	41.0	41.1	41.1	41.0	41.3	41.0	41.0	41.0	41.0	41.1	40.8
Overtime hours	3.7	3.9	4.0	3.9	3.9	3.9	3.9	4.0	3.9	3.8	3.8	3.9	3.8	3.8	3.8
Durable goods	41.5	41.8	41.9	41.9	41.7	41.8	41.8	41.7	41.9	41.5	41.5	41.5	41.6	41.6	41.4
Overtime hours	3.8	4.1	4.2	4.2	4.1	4.1	4.1	4.1	4.1	3.9	3.9	4.0	3.9	3.9	3.8
Lumber and wood products	40.6	40.3	40.7	40.3	40.3	40.3	39.6	40.0	40.5	39.7	39.8	39.6	40.2	40.2	40.4
Furniture and fixtures	40.0	39.4	39.4	39.5	39.4	39.8	39.7	39.8	39.9	39.4	39.4	39.5	39.6	39.6	39.4
Stone, clay, and glass products	42.3	42.3	42.5	42.6	42.4	42.5	42.2	42.2	42.5	41.9	42.2	42.3	42.5	42.2	42.3
Primary metal industries	43.1	43.6	43.7	43.7	43.5	43.6	43.4	43.5	43.3	43.2	43.3	43.0	42.9	42.8	42.7
Blast furnaces and basic steel products	43.4	44.0	44.2	44.0	43.8	44.0	43.8	44.1	43.5	43.6	43.7	43.2	43.4	42.9	43.2
Fabricated metal products	41.6	41.9	41.9	42.1	41.8	41.9	41.9	41.8	41.9	41.7	41.5	41.5	41.5	41.7	41.7
Machinery except electrical	42.2	42.6	42.7	42.5	42.5	42.5	42.6	42.5	42.7	42.5	42.5	42.4	42.2	42.3	42.0
Electrical and electronic equipment	40.9	41.0	41.0	41.0	40.8	40.9	40.9	40.6	41.0	40.7	40.7	40.6	40.9	41.1	41.0
Transportation equipment	42.0	42.7	43.1	43.1	42.8	42.8	43.1	43.1	42.8	42.5	42.5	42.6	42.7	42.8	41.5
Motor vehicles and equipment	42.2	43.5	43.9	44.1	43.7	43.6	43.9	43.9	43.3	42.8	42.7	42.6	43.0	43.4	43.3
Instruments and related products	41.4	41.5	41.8	41.6	41.1	41.5	41.5	41.1	41.5	41.1	41.3	41.4	41.1	41.0	41.1
Miscellaneous manufacturing	39.4	39.2	39.1	39.3	39.0	39.4	39.5	39.5	39.8	39.6	39.4	39.3	39.4	39.0	39.0
Nondurable goods	40.2	40.1	40.2	40.2	40.0	40.1	40.2	40.1	40.4	40.2	40.3	40.2	40.2	40.3	40.1
Overtime hours	3.6	3.7	3.7	3.6	3.6	3.6	3.7	3.8	3.8	3.7	3.8	3.6	3.7	3.7	3.7
Food and kindred products	40.2	40.3	40.4	40.6	40.2	40.1	40.3	40.4	40.7	40.5	40.7	41.0	40.8	41.1	40.8
Textile mill products	41.8	41.1	41.0	41.0	40.5	40.9	40.8	41.1	41.7	41.4	41.4	41.2	41.0	40.7	40.6
Apparel and other textile products	37.0	37.0	36.9	37.0	36.8	37.0	37.1	36.9	37.6	37.1	37.1	37.0	37.0	37.0	36.9
Paper and allied products	43.4	43.2	43.2	43.1	43.2	43.1	43.2	43.3	43.4	43.3	43.3	43.2	43.5	43.2	43.3
Printing and publishing	38.0	38.0	38.0	37.9	37.8	38.0	38.0	37.9	37.9	37.7	37.8	37.6	37.7	37.9	37.6
Chemicals and allied products	42.3	42.3	42.5	42.3	42.3	42.3	42.3	42.3	42.6	42.1	42.5	42.5	42.4	42.5	42.2
Rubber and miscellaneous plastics products	41.6	41.7	41.6	41.7	41.4	41.7	41.7	41.6	41.6	41.5	41.5	41.4	41.5	41.6	41.5
Leather and leather products	38.2	37.5	37.8	37.3	37.7	38.0	38.6	38.0	38.3	37.4	37.9	37.7	38.1	38.2	37.7
TRANSPORTATION AND PUBLIC UTILITIES	39.2	39.3	39.4	39.3	39.4	39.6	39.4	39.4	40.1	39.5	39.4	39.4	39.0	39.4	39.7
WHOLESALE TRADE	37.5	37.4	38.1	38.0	38.1	38.1	38.1	38.1	38.3	37.9	38.0	38.1	38.0	38.1	38.2
RETAIL TRADE	29.2	29.1	29.2	29.0	29.1	29.1	28.9	28.9	29.1	28.9	28.9	29.2	28.8	28.8	29.0
SERVICES	32.5	32.6	32.7	32.5	32.7	32.7	32.5	32.6	32.8	32.5	32.5	32.8	32.6	32.7	32.8

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, seasonally adjusted

Industry	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.p	Oct.p
PRIVATE SECTOR (in current dollars)[1]	$8.98	$9.29	$9.43	$9.42	$9.45	$9.49	$9.52	$9.54	$9.61	$9.60	$9.62	$9.69	$9.69	$9.74	$9.81
Construction	12.71	13.01	13.08	13.10	13.15	13.18	13.22	13.26	13.33	13.32	13.32	13.42	13.37	13.38	13.43
Manufacturing	9.91	10.18	10.29	10.30	10.31	10.33	10.37	10.40	10.40	10.42	10.45	10.48	10.52	10.55	10.57
Excluding overtime	9.48	9.72	9.80	9.83	9.85	9.87	9.89	9.92	9.92	9.97	9.99	10.01	10.05	10.08	10.10
Transportation and public utilities	12.03	12.32	12.41	12.39	12.36	12.45	12.48	12.50	12.52	12.54	12.54	12.61	12.57	12.66	12.76
Wholesale trade	9.60	9.94	10.14	10.06	10.11	10.19	10.18	10.21	10.36	10.28	10.33	10.44	10.39	10.46	10.56
Retail trade	6.12	6.31	6.38	6.40	6.43	6.44	6.45	6.47	6.51	6.49	6.52	6.54	6.57	6.58	6.62
Finance, insurance, and real estate	8.73	9.09	9.35	9.26	9.35	9.40	9.35	9.36	9.54	9.45	9.53	9.68	9.57	9.66	9.83
Services	8.49	8.91	9.07	9.05	9.10	9.15	9.19	9.24	9.32	9.33	9.34	9.46	9.43	9.49	9.59
PRIVATE SECTOR (in constant (1977) dollars)[1]	4.86	4.84	4.84	4.82	4.82	4.81	4.81	4.80	4.80	4.77	4.77	4.79	4.79	4.81	–

[1] Includes mining, not shown separately
– Data not available.
p = preliminary

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

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

Industry	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.p	Oct.p
PRIVATE SECTOR	$8.98	$9.29	$9.45	$9.46	$9.46	$9.54	$9.55	$9.56	$9.62	$9.59	$9.58	$9.63	$9.61	$9.77	$9.83
MINING	12.54	12.75	12.79	12.89	13.03	13.20	13.22	13.15	13.19	13.13	13.03	12.95	13.11	13.17	13.14
CONSTRUCTION	12.71	13.01	13.17	13.08	13.19	13.26	13.21	13.26	13.30	13.28	13.24	13.33	13.33	13.47	13.51
MANUFACTURING	9.91	10.18	10.25	10.31	10.37	10.37	10.38	10.41	10.41	10.42	10.44	10.47	10.44	10.55	10.54
Durable goods	10.44	10.71	10.79	10.85	10.90	10.90	10.91	10.93	10.93	10.94	10.98	10.99	10.98	11.10	11.08
Lumber and wood products	8.40	8.61	8.77	8.69	8.76	8.71	8.69	8.68	8.76	8.79	8.85	8.92	8.93	8.97	9.00
Furniture and fixtures	7.67	7.94	8.06	8.02	8.06	8.10	8.08	8.13	8.12	8.16	8.23	8.26	8.29	8.40	8.39
Stone, clay, and glass products	10.25	10.47	10.57	10.60	10.57	10.59	10.62	10.62	10.71	10.69	10.73	10.75	10.77	10.79	10.84
Primary metal industries	11.94	12.15	12.19	12.22	12.26	12.27	12.27	12.27	12.26	12.25	12.32	12.40	12.36	12.45	12.50
Blast furnaces and basic steel products	13.77	13.97	14.03	14.01	14.07	14.13	14.13	14.13	14.06	14.06	14.18	14.33	14.27	14.36	14.50
Fabricated metal products	10.00	10.26	10.34	10.36	10.44	10.45	10.46	10.47	10.48	10.49	10.51	10.53	10.50	10.64	10.59
Machinery, except electrical	10.72	11.01	11.11	11.22	11.24	11.21	11.23	11.25	11.26	11.29	11.32	11.35	11.32	11.41	11.44
Electrical and electronic equipment	9.88	10.13	10.16	10.24	10.29	10.27	10.26	10.30	10.31	10.33	10.37	10.41	10.40	10.48	10.47
Transportation equipment	12.94	13.31	13.45	13.56	13.59	13.58	13.59	13.65	13.60	13.58	13.65	13.61	13.70	13.89	13.86
Motor vehicles and equipment	13.53	14.00	14.09	14.18	14.23	14.20	14.19	14.28	14.20	14.17	14.22	14.07	14.18	14.48	14.48
Instruments and related products	9.72	9.98	10.08	10.07	10.13	10.12	10.14	10.17	10.17	10.17	10.25	10.31	10.29	10.31	10.35
Miscellaneous manufacturing	7.76	8.01	8.10	8.12	8.20	8.22	8.23	8.23	8.21	8.24	8.24	8.29	8.20	8.39	8.42
Nondurable goods	9.18	9.43	9.49	9.54	9.61	9.62	9.62	9.66	9.65	9.68	9.70	9.77	9.71	9.80	9.80
Food and kindred products	8.93	9.10	9.03	9.15	9.25	9.27	9.26	9.33	9.32	9.34	9.37	9.35	9.28	9.31	9.28
Tobacco manufactures	14.07	14.68	14.01	14.56	14.31	14.39	14.75	15.34	15.87	16.13	16.48	16.34	15.72	14.76	15.33
Textile mill products	7.17	7.37	7.45	7.47	7.52	7.60	7.59	7.59	7.60	7.62	7.65	7.66	7.69	7.76	7.77
Apparel and other textile products	5.94	6.12	6.22	6.25	6.29	6.32	6.32	6.34	6.32	6.32	6.33	6.28	6.32	6.41	6.40
Paper and allied products	11.43	11.65	11.68	11.74	11.81	11.78	11.80	11.84	11.83	11.89	11.91	12.04	11.90	11.99	11.93
Printing and publishing	10.28	10.52	10.68	10.67	10.70	10.73	10.74	10.79	10.73	10.76	10.75	10.83	10.89	11.05	11.06
Chemicals and allied products	12.37	12.67	12.78	12.86	12.90	12.85	12.88	12.91	12.92	12.98	12.98	13.12	13.08	13.18	13.21
Petroleum and coal products	14.58	14.98	15.14	15.18	15.21	15.24	15.45	15.46	15.50	15.34	15.23	15.34	15.23	15.50	15.69
Rubber and miscellaneous plastics products	8.92	9.14	9.23	9.26	9.31	9.32	9.31	9.33	9.35	9.40	9.41	9.45	9.44	9.48	9.47
Leather and leather products	6.08	6.27	6.33	6.41	6.44	6.48	6.49	6.54	6.55	6.58	6.59	6.54	6.53	6.60	6.62
TRANSPORTATION AND PUBLIC UTILITIES	12.03	12.32	12.42	12.46	12.42	12.47	12.50	12.46	12.51	12.49	12.48	12.58	12.56	12.69	12.77
WHOLESALE TRADE	9.60	9.94	10.10	10.07	10.14	10.23	10.23	10.21	10.36	10.28	10.31	10.40	10.35	10.46	10.52
RETAIL TRADE	6.12	6.31	6.39	6.43	6.43	6.48	6.47	6.48	6.52	6.49	6.49	6.49	6.50	6.61	6.63
FINANCE, INSURANCE, AND REAL ESTATE	8.73	9.09	9.29	9.27	9.32	9.46	9.47	9.43	9.59	9.48	9.48	9.59	9.50	9.62	9.77
SERVICES	8.49	8.91	9.09	9.11	9.16	9.25	9.28	9.29	9.34	9.30	9.26	9.33	9.29	9.49	9.60

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

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

Industry	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.p	Oct.p
PRIVATE SECTOR															
Current dollars	$312.50	$322.36	$329.81	$328.26	$330.15	$329.13	$327.57	$328.86	$334.78	$330.86	$333.38	$338.01	$335.39	$340.00	$343.07
Seasonally adjusted	–	–	328.16	326.87	327.92	330.25	329.39	331.04	335.39	332.16	332.85	337.21	335.27	337.98	341.39
Constant (1977) dollars	169.28	167.81	168.96	167.99	168.70	167.41	165.94	165.76	167.39	164.53	165.37	167.08	165.79	167.49	–
MINING	531.70	539.33	544.85	540.09	557.68	557.04	551.27	552.30	564.53	551.46	555.08	550.38	566.35	578.16	586.04
CONSTRUCTION	480.44	493.08	514.95	494.42	491.99	483.99	478.20	495.92	504.07	500.66	503.12	518.54	519.87	519.94	529.59
MANUFACTURING															
Current dollars	406.31	418.40	423.33	427.87	432.43	425.17	423.50	426.81	426.81	426.18	429.08	424.04	425.95	434.66	432.14
Constant (1977) dollars	220.10	217.80	216.87	218.97	220.97	216.26	214.54	215.13	213.41	211.92	212.84	209.61	210.55	214.12	–
Durable goods	433.26	447.68	453.18	457.87	463.25	455.62	452.77	455.78	455.78	454.01	457.87	449.49	453.47	462.87	459.82
Lumber and wood products	341.04	346.98	359.57	347.60	353.90	345.79	338.91	345.46	354.78	352.48	357.54	352.34	360.77	362.39	365.40
Furniture and fixtures	306.80	312.84	323.21	320.00	326.43	319.14	315.93	321.95	319.12	318.24	324.26	320.49	329.94	336.84	336.44
Stone, clay, and glass products	433.58	442.88	454.51	452.62	446.05	439.49	436.48	444.98	456.25	453.26	457.10	456.88	460.96	459.65	463.95
Primary metal industries	514.61	529.74	531.48	536.46	540.67	536.20	532.52	533.75	529.63	527.98	533.46	528.24	525.30	534.11	532.50
Blast furnaces and basic steel products	597.62	614.68	615.92	616.44	621.89	617.76	617.48	621.72	613.02	613.02	622.50	619.06	613.61	618.92	622.05
Fabricated metal products	416.00	429.89	434.28	441.34	445.79	438.90	435.14	436.60	437.02	435.34	438.27	428.57	432.60	444.75	442.66
Machinery, except electrical	452.38	469.03	473.29	480.22	488.94	477.55	477.28	479.25	478.55	477.57	482.23	475.57	472.04	482.64	480.48
Electrical and electronic equipment	404.09	415.33	416.56	423.94	430.12	422.10	416.56	417.15	419.62	417.33	423.10	416.40	423.28	430.73	430.32
Transportation equipment	543.48	568.34	579.70	591.22	591.17	582.58	584.37	591.05	584.80	579.87	581.49	566.18	572.66	594.49	576.58
Motor vehicles and equipment	570.97	609.00	619.96	632.43	633.24	619.12	621.52	631.18	620.54	613.56	611.46	582.50	589.89	628.43	628.43
Instruments and related products	402.41	414.17	420.34	422.94	425.46	420.99	420.81	419.00	420.02	414.94	423.33	420.65	419.83	422.71	425.39
Miscellaneous manufacturing	305.74	313.99	320.76	323.18	325.54	323.05	322.62	324.26	325.12	324.66	324.66	319.99	321.44	328.05	331.75
Nondurable goods	369.04	378.14	382.45	386.37	389.21	383.84	382.88	385.43	386.97	387.20	390.91	390.80	391.31	397.88	394.94
Food and kindred products	358.99	366.73	367.52	374.24	377.40	369.87	366.70	372.27	372.80	377.34	381.36	382.42	382.34	387.30	381.41
Tobacco manufactures	548.73	584.26	578.61	586.77	570.97	546.82	557.55	556.84	604.65	637.14	660.85	619.29	586.36	591.88	627.00
Textile mill products	299.71	302.91	306.94	309.26	308.32	309.32	307.40	311.19	313.12	313.94	318.24	311.00	317.60	318.94	317.02
Apparel and other textile products	219.78	226.44	230.76	233.13	233.99	232.58	233.21	233.95	234.47	233.84	236.74	230.48	234.47	237.17	237.44
Paper and allied products	496.06	503.28	505.74	509.52	519.64	508.90	506.22	509.12	509.87	512.46	514.51	516.52	514.08	523.96	517.76
Printing and publishing	390.64	399.76	406.91	406.53	410.88	404.52	404.90	408.94	405.59	402.42	402.05	405.04	411.64	423.22	416.96
Chemicals and allied products	523.25	535.94	540.59	547.84	553.41	544.84	544.82	546.09	549.10	546.46	551.65	553.66	550.67	560.15	556.14
Petroleum and coal products	641.52	665.11	676.76	670.96	673.80	662.94	679.80	667.87	686.65	673.43	679.26	679.56	665.55	689.75	693.50
Rubber and miscellaneous plastics products	371.07	381.14	384.89	388.92	391.95	390.51	387.30	387.20	388.03	390.10	391.46	385.56	388.93	394.37	393.95
Leather and leather products	232.26	235.13	239.91	239.73	246.65	244.94	245.32	244.60	247.59	247.41	255.03	247.21	250.75	252.12	250.90
TRANSPORTATION AND PUBLIC UTILITIES	471.58	484.18	490.59	489.68	490.59	490.07	488.75	488.43	497.90	490.86	494.21	500.68	494.86	501.26	508.25
WHOLESALE TRADE	365.76	378.71	385.82	382.66	387.35	387.72	386.69	386.96	395.75	389.61	392.81	398.32	394.34	398.53	403.97
RETAIL TRADE	178.70	183.62	185.95	185.18	190.33	184.03	183.10	184.68	188.43	186.91	189.51	194.05	192.40	191.03	191.61
FINANCE, INSURANCE, AND REAL ESTATE	316.90	326.33	334.44	330.94	333.66	341.51	339.03	337.59	348.12	337.49	339.38	348.12	340.10	343.43	353.67
SERVICES	275.93	290.47	297.24	296.08	298.62	301.55	300.67	301.00	306.35	301.32	302.80	308.82	305.64	309.37	314.88

– Data not available.
p = preliminary

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

18. Diffusion indexes of employment change, seasonally adjusted

(In percent)

Time span and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Private nonagricultural payrolls, 349 industries											
Over 1-month span:												
1987	55.6	59.3	61.0	61.9	58.6	59.7	65.3	60.6	63.0	67.8	64.5	60.7
1988	60.7	63.5	63.0	62.8	61.3	67.2	63.6	58.0	55.4	63.9	68.2	64.6
1989	68.3	60.5	61.0	58.2	55.6	59.7	55.6	57.4	47.4	58.2	–	–
Over 3-month span:												
1987	60.7	62.0	66.6	65.2	65.8	65.9	67.8	71.1	71.2	72.3	70.9	65.9
1988	64.8	65.6	69.5	70.2	71.1	71.9	71.2	64.2	65.3	70.1	73.4	74.6
1989	71.6	70.1	64.5	61.9	61.6	60.7	61.6	53.0	55.0	–	–	–
Over 6-month span:												
1987	67.3	65.8	64.8	66.8	67.6	69.5	71.3	73.5	73.2	71.5	71.8	72.2
1988	69.9	70.2	71.5	73.9	73.9	69.1	70.2	74.6	73.5	73.9	74.5	75.8
1989	75.1	69.5	68.2	66.0	63.0	58.5	60.9	–	–	–	–	–
Over 12-month span:												
1987	66.6	68.2	68.2	71.8	71.9	72.5	72.2	74.1	75.4	72.5	73.8	76.9
1988	76.2	76.1	74.8	74.6	75.8	74.9	78.1	75.5	75.5	74.8	74.9	74.1
1989	73.2	73.6	69.3	67.9	–	–	–	–	–	–	–	–
	Manufacturing payrolls, 141 industries											
Over 1-month span:												
1987	44.3	53.9	54.3	55.7	55.3	54.3	62.8	59.9	63.8	59.9	65.6	56.4
1988	58.5	56.0	55.0	59.9	58.5	61.7	59.6	51.1	49.3	62.8	64.9	58.5
1989	62.4	53.5	53.2	49.6	46.8	48.6	49.6	45.4	33.3	55.3	–	–
Over 3-month span:												
1987	52.1	51.4	59.6	61.3	58.5	62.8	67.0	71.6	68.4	70.6	67.7	64.5
1988	63.1	61.0	62.4	64.9	67.4	67.0	64.5	58.2	62.1	66.7	71.3	70.9
1989	67.4	63.8	55.7	51.8	49.3	48.6	47.9	32.6	42.2	–	–	–
Over 6-month span:												
1987	57.4	56.7	55.3	62.4	64.9	67.0	67.4	70.6	71.3	69.5	69.5	68.1
1988	66.3	66.3	67.7	69.5	66.7	64.2	66.0	70.9	68.8	69.9	71.6	74.1
1989	69.5	58.5	55.7	52.8	48.9	39.7	43.3	–	–	–	–	–
Over 12-month span:												
1987	55.3	58.5	58.5	63.5	66.3	67.4	71.6	72.7	71.6	69.1	68.4	72.3
1988	73.8	70.2	70.9	71.6	72.0	69.9	70.9	69.1	71.6	70.2	69.9	67.0
1989	63.1	63.8	56.0	54.3	–	–	–	–	–	–	–	–

– Data not available.

NOTE: Figures are the percent of industries with employment increasing plus one-half of the industries with unchanged employment, where 50 percent indicates an equal balance between industries with increasing and decreasing employment. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

19. Annual data: Employment status of the noninstitutional population

(Numbers in thousands)

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

20. Annual data: Employment levels by industry

(Numbers in thousands)

Industry	1980	1981	1982	1983	1984	1985	1986	1987	1988
Total employment	90,406	91,156	89,566	90,200	94,496	97,519	99,525	102,200	105,584
Private sector	74,166	75,126	73,729	74,330	78,472	81,125	82,832	85,190	88,212
Goods-producing	25,658	25,497	23,813	23,334	24,727	24,859	24,558	24,708	25,249
Mining	1,027	1,139	1,128	952	966	927	777	717	721
Construction	4,346	4,188	3,905	3,948	4,383	4,673	4,816	4,967	5,125
Manufacturing	20,285	20,170	18,781	18,434	19,378	19,260	18,965	19,024	19,403
Service-producing	64,748	65,659	65,753	66,866	69,769	72,660	74,967	77,492	80,335
Transportation and public utilities	5,146	5,165	5,082	4,954	5,159	5,238	5,255	5,372	5,548
Wholesale trade	5,275	5,358	5,278	5,268	5,555	5,717	5,753	5,844	6,029
Retail trade	15,035	15,189	15,179	15,613	16,545	17,356	17,930	18,483	19,110
Finance, insurance, and real estate	5,160	5,298	5,341	5,468	5,689	5,955	6,283	6,547	6,676
Services	17,890	18,619	19,036	19,694	20,797	22,000	23,053	24,236	25,600
Government	16,241	16,031	15,837	15,869	16,024	16,394	16,693	17,010	17,372
Federal	2,866	2,772	2,739	2,774	2,807	2,875	2,899	2,943	2,971
State	3,610	3,640	3,640	3,662	3,734	3,832	3,893	3,967	4,063
Local	9,765	9,619	9,458	9,434	9,482	9,687	9,901	10,100	10,339

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	1980	1981	1982	1983	1984	1985	1986	1987	1988
Private sector:									
Average weekly hours	35.3	35.2	34.8	35.0	35.2	34.9	34.8	34.8	34.7
Average hourly earnings (in dollars)	6.66	7.25	7.68	8.02	8.32	8.57	8.76	8.98	9.29
Average weekly earnings (in dollars)	235.10	255.20	267.26	280.70	292.86	299.09	304.85	312.50	322.36
Mining:									
Average weekly hours	43.3	43.7	42.7	42.5	43.3	43.4	42.2	42.4	42.3
Average hourly earnings (in dollars)	9.17	10.04	10.77	11.28	11.63	11.98	12.46	12.54	12.75
Average weekly earnings (in dollars)	397.06	438.75	459.88	479.40	503.58	519.93	525.81	531.70	539.33
Construction:									
Average weekly hours	37.0	36.9	36.7	37.1	37.8	37.7	37.4	37.8	37.9
Average hourly earnings (in dollars)	9.94	10.82	11.63	11.94	12.13	12.32	12.48	12.71	13.01
Average weekly earnings (in dollars)	367.78	399.26	426.82	442.97	458.51	464.46	466.75	480.44	493.08
Manufacturing:									
Average weekly hours	39.7	39.8	38.9	40.1	40.7	40.5	40.7	41.0	41.1
Average hourly earnings (in dollars)	7.27	7.99	8.49	8.83	9.19	9.54	9.73	9.91	10.18
Average weekly earnings (in dollars)	288.62	318.00	330.26	354.08	374.03	386.37	396.01	406.31	418.40
Transportation and public utilities:									
Average weekly hours	39.6	39.4	39.0	39.0	39.4	39.5	39.2	39.2	39.3
Average hourly earnings (in dollars)	8.87	9.70	10.32	10.79	11.12	11.40	11.70	12.03	12.32
Average weekly earnings (in dollars)	351.25	382.18	402.48	420.81	438.13	450.30	458.64	471.58	484.18
Wholesale trade:									
Average weekly hours	38.5	38.5	38.3	38.5	38.5	38.4	38.3	38.1	38.1
Average hourly earnings (in dollars)	6.96	7.56	8.09	8.55	8.89	9.16	9.35	9.60	9.94
Average weekly earnings (in dollars)	267.96	291.06	309.85	329.18	342.27	351.74	358.11	365.76	378.71
Retail trade:									
Average weekly hours	30.2	30.1	29.9	29.8	29.8	29.4	29.2	29.2	29.1
Average hourly earnings (in dollars)	4.88	5.25	5.48	5.74	5.85	5.94	6.03	6.12	6.31
Average weekly earnings (in dollars)	147.38	158.03	163.85	171.05	174.33	174.64	176.08	178.70	183.62
Finance, insurance, and real estate:									
Average weekly hours	36.2	36.3	36.2	36.2	36.5	36.4	36.4	36.3	35.9
Average hourly earnings (in dollars)	5.79	6.31	6.78	7.29	7.63	7.94	8.36	8.73	9.09
Average weekly earnings (in dollars)	209.60	229.05	245.44	263.90	278.50	289.02	304.30	316.90	326.33
Services:									
Average weekly hours	32.6	32.6	32.6	32.7	32.6	32.5	32.5	32.5	32.6
Average hourly earnings (in dollars)	5.85	6.41	6.92	7.31	7.59	7.90	8.18	8.49	8.91
Average weekly earnings (in dollars)	190.71	208.97	225.59	239.04	247.43	256.75	265.85	275.93	290.47

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

(June 1981=100)

Series	1987 Sept.	1987 Dec.	1988 Mar.	1988 June	1988 Sept.	1988 Dec.	1989 Mar.	1989 June	1989 Sept.	Percent change 3 months ended Sept. 1989	Percent change 12 months ended Sept. 1989
Civilian workers [2]	137.5	138.6	140.6	142.1	144.0	145.5	147.3	148.9	151.3	1.6	5.1
Workers, by occupational group:											
White-collar workers	141.2	142.2	144.2	145.7	147.9	149.7	151.9	153.4	156.4	2.0	5.7
Blue-collar workers	131.3	132.5	134.7	136.2	137.2	138.2	139.6	141.3	142.9	1.1	4.2
Service occupations	139.9	140.8	142.9	144.3	147.2	148.5	150.0	151.2	153.7	1.7	4.4
Workers, by industry division:											
Goods-producing	132.2	133.5	135.8	137.3	138.2	139.3	140.7	142.3	143.9	1.1	4.1
Manufacturing	132.7	134.1	136.8	138.1	139.0	140.1	141.9	143.5	145.1	1.1	4.4
Service-producing	140.8	141.7	143.6	145.1	147.6	149.2	151.4	152.9	155.9	2.0	5.6
Services	149.2	150.6	152.8	153.8	157.7	159.7	161.8	163.1	167.5	2.7	6.2
Health services	–	–	–	–	–	–	–	–	–	2.2	6.7
Hospitals	–	–	–	–	–	–	–	–	–	2.3	7.0
Public administration [3]	146.4	148.1	150.3	151.2	154.0	154.4	156.7	157.9	161.8	2.5	5.1
Nonmanufacturing	139.6	140.5	142.3	143.9	146.1	147.7	149.7	151.2	154.0	1.9	5.4
Private industry workers	135.1	136.0	138.1	139.8	141.2	142.6	144.4	146.1	147.9	1.2	4.7
Excluding sales occupations	135.5	136.6	138.7	140.2	141.7	142.9	144.7	146.2	147.9	1.2	4.4
Workers, by occupational group:											
White-collar workers	138.5	139.3	141.2	143.0	144.6	146.3	148.6	150.3	152.4	1.4	5.4
Excluding sales occupations	140.0	141.1	143.0	144.6	146.4	147.6	149.9	151.4	153.3	1.3	4.7
Professional specialty and technical occupations	–	–	–	–	–	–	–	–	–	1.8	5.0
Executive, administrative, and managerial occupations	–	–	–	–	–	–	–	–	–	.9	4.5
Sales occupations	–	–	–	–	–	–	–	–	–	1.9	8.4
Administrative support occupations, including clerical	–	–	–	–	–	–	–	–	–	1.2	4.7
Blue-collar workers	130.6	131.8	134.1	135.6	136.5	137.6	138.9	140.6	142.2	1.1	4.2
Precision production, craft, and repair occupations	–	–	–	–	–	–	–	–	–	1.2	4.0
Machine operators, assemblers, and inspectors	–	–	–	–	–	–	–	–	–	.9	4.5
Transportation and material moving occupations	–	–	–	–	–	–	–	–	–	1.2	3.3
Handlers, equipment cleaners, helpers, and laborers	–	–	–	–	–	–	–	–	–	1.3	4.4
Service occupations	135.9	136.7	138.6	140.1	142.2	143.9	145.4	146.5	148.1	1.1	4.1
Workers, by industry division:											
Goods-producing	131.9	133.2	135.6	137.1	137.9	139.0	140.4	142.0	143.6	1.1	4.1
Excluding sales occupations	131.6	132.9	135.2	136.8	137.6	138.7	140.2	141.7	143.3	1.1	4.1
Construction	–	–	–	–	–	–	–	–	–	1.2	4.0
Manufacturing	132.7	134.1	136.8	138.1	139.0	140.1	141.9	143.5	145.1	1.1	4.4
Durables	–	–	–	–	–	–	–	–	–	1.1	4.1
Nondurables	–	–	–	–	–	–	–	–	–	1.2	4.9
Service-producing	137.7	138.4	140.2	142.1	143.8	145.5	147.7	149.5	151.5	1.3	5.4
Excluding sales occupations	139.1	140.0	141.9	143.5	145.4	146.7	148.8	150.4	152.2	1.2	4.7
Transportation and public utilities	–	–	–	–	–	–	–	–	–	.7	3.3
Transportation	–	–	–	–	–	–	–	–	–	.5	3.0
Public utilities	–	–	–	–	–	–	–	–	–	1.0	3.8
Communications	–	–	–	–	–	–	–	–	–	1.0	–
Electric, gas, and sanitary services	–	–	–	–	–	–	–	–	–	1.0	–
Wholesale and retail trade	–	–	–	–	–	–	–	–	–	1.6	4.9
Excluding sales occupations	–	–	–	–	–	–	–	–	–	1.3	4.1
Wholesale trade	–	–	–	–	–	–	–	–	–	2.6	7.3
Excluding sales occupations	–	–	–	–	–	–	–	–	–	1.8	4.8
Retail trade	–	–	–	–	–	–	–	–	–	1.1	3.9
Food stores	–	–	–	–	–	–	–	–	–	.8	–
Finance, insurance, and real estate	–	–	–	–	–	–	–	–	–	.4	8.0
Excluding sales occupations	–	–	–	–	–	–	–	–	–	.1	4.8
Banking, savings and loan, and other credit agencies	–	–	–	–	–	–	–	–	–	.6	3.7
Insurance	–	–	–	–	–	–	–	–	–	–.1	–
Service	–	–	–	–	–	–	–	–	–	1.8	5.6
Business services	–	–	–	–	–	–	–	–	–	.7	4.7
Health services	–	–	–	–	–	–	–	–	–	1.9	6.6
Hospitals	–	–	–	–	–	–	–	–	–	1.9	7.1
Nonmanufacturing	136.4	137.1	138.9	140.8	142.4	143.9	145.9	147.6	149.5	1.3	5.0
State and local government workers	149.7	151.1	153.1	153.6	157.8	159.6	161.5	162.5	167.9	3.3	6.4
Workers, by occupational group:											
White-collar workers	151.2	152.7	154.8	155.2	159.6	161.8	163.7	164.6	170.5	3.6	6.8
Blue-collar workers	143.3	144.3	145.9	145.9	148.4	149.1	151.9	153.0	156.2	2.1	5.3

See footnotes at end of table.

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

(June 1981 = 100)

Series	1987		1988				1989			Percent change	
										3 months ended	12 months ended
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Sept. 1989	
Workers, by industry division:											
Services	151.8	153.1	155.2	155.6	160.5	163.0	164.6	165.5	171.8	3.8	7.0
Hospitals and other services[4]	145.1	146.3	150.3	150.4	153.2	155.2	157.2	158.7	162.6	2.5	6.1
Health services	–	–	–	–	–	–	–	–	–	3.1	6.8
Schools	154.1	155.5	156.8	157.3	163.1	165.7	167.2	167.8	175.1	4.4	7.4
Elementary and secondary	156.5	157.8	158.9	159.4	165.4	168.3	169.3	169.9	177.7	4.6	7.4
Public administration[3]	146.4	148.1	150.3	151.2	154.0	154.4	156.7	157.9	161.8	2.5	5.1

[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	1987		1988				1989			Percent change	
										3 months ended	12 months ended
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Sept. 1989	
Civilian workers [1]	135.2	136.1	137.4	138.7	140.5	141.9	143.4	144.6	146.9	1.6	4.6
Workers, by occupational group:											
White-collar workers	139.4	140.2	141.5	143.0	145.2	146.8	148.6	149.8	152.6	1.9	5.1
Blue-collar workers	128.3	129.4	130.4	131.6	132.5	133.4	134.6	136.0	137.4	1.0	3.7
Service occupations	136.0	136.6	138.0	139.3	141.8	142.9	143.9	144.8	146.8	1.4	3.5
Workers, by industry division:											
Goods-producing	129.8	131.0	132.2	133.4	134.1	135.1	136.3	137.7	139.0	.9	3.7
Manufacturing	130.8	132.2	133.3	134.4	135.1	136.2	137.4	138.8	140.0	.9	3.6
Service-producing	138.5	139.2	140.5	141.9	144.2	145.8	147.5	148.7	151.4	1.8	5.0
Services	146.8	148.2	149.5	150.4	154.0	155.7	157.4	158.4	162.4	2.5	5.5
Health services	–	–	–	–	–	–	–	–	–	2.0	6.1
Hospitals	–	–	–	–	–	–	–	–	–	2.2	6.5
Public administration [2]	142.6	143.8	145.5	146.4	148.9	149.4	150.9	151.8	155.0	2.1	4.1
Nonmanufacturing	137.1	137.8	139.0	140.5	142.7	144.1	145.8	147.0	149.6	1.8	4.8
Private industry workers	133.0	133.8	135.1	136.6	137.9	139.3	140.8	142.2	143.9	1.2	4.4
Excluding sales occupations	133.6	134.7	135.9	137.2	138.6	139.7	141.2	142.5	144.0	1.1	3.9
Workers, by occupational group:											
White-collar workers	137.0	137.6	139.0	140.8	142.4	144.0	145.9	147.3	149.3	1.4	4.8
Excluding sales occupations	139.1	140.1	141.5	142.9	144.7	146.0	147.8	149.0	150.8	1.2	4.2
Professional specialty and technical occupations	141.2	142.6	144.0	145.8	148.1	148.9	151.0	152.1	154.6	1.6	4.4
Executive, administrative, and managerial occupations	138.6	139.2	139.9	141.3	142.5	144.4	146.2	147.3	148.5	.8	4.2
Sales occupations	127.0	126.1	127.5	130.8	131.5	134.4	136.7	138.7	141.6	2.1	7.7
Administrative support occupations, including clerical	137.1	138.1	140.2	141.2	143.2	144.1	146.0	147.4	149.0	1.1	4.1
Blue-collar workers	127.7	128.9	129.9	131.1	131.9	132.9	134.0	135.4	136.7	1.0	3.6
Precision production, craft, and repair occupations	130.2	131.1	132.1	133.4	134.0	134.9	136.1	137.8	139.2	1.0	3.9
Machine operators, assemblers, and inspectors	127.5	129.2	129.9	131.2	131.9	133.3	134.5	135.9	136.7	.6	3.6
Transportation and material moving occupations	122.3	122.9	123.7	125.4	126.7	126.9	127.8	128.7	130.2	1.2	2.8
Handlers, equipment cleaners, helpers, and laborers	123.7	125.0	126.7	127.5	128.4	129.3	130.4	131.6	133.0	1.1	3.6
Service occupations	132.6	133.2	134.5	135.8	137.6	139.1	140.0	140.9	142.1	.9	3.3
Workers, by industry division:											
Goods-producing	129.6	130.8	132.0	133.2	133.9	134.9	136.1	137.4	138.8	1.0	3.7
Excluding sales occupations	129.5	130.8	131.8	133.2	133.8	134.9	136.1	137.4	138.8	1.0	3.7
Construction	123.8	124.7	125.9	127.6	128.6	129.4	130.4	131.6	133.0	1.1	3.4

See footnotes at end of table.

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

(June 1981=100)

Series	1987		1988				1989			Percent change	
										3 months ended	12 months ended
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Sept. 1989	
Manufacturing	130.8	132.2	133.3	134.4	135.1	136.2	137.4	138.8	140.0	0.9	3.6
Durables	129.7	131.1	132.1	133.1	133.7	134.6	135.9	137.3	138.3	.7	3.4
Nondurables	132.8	134.1	135.6	136.7	137.6	139.1	140.2	141.6	143.1	1.1	4.0
Service-producing	135.7	136.2	137.5	139.3	141.0	142.6	144.5	145.8	147.8	1.4	4.8
Excluding sales occupations	137.3	138.1	139.4	140.8	142.7	143.9	145.7	146.9	148.6	1.2	4.1
Transportation and public utilities	130.0	130.2	131.3	132.5	133.5	133.4	134.6	135.3	136.3	.7	2.1
Transportation	–	–	–	–	–	–	–	–	–	.6	1.5
Public utilities	–	–	–	–	–	–	–	–	–	1.1	2.8
Communications	–	–	–	–	–	–	–	–	–	1.1	–
Electric, gas, and sanitary services	–	–	–	–	–	–	–	–	–	1.0	–
Wholesale and retail trade	130.6	130.7	131.9	134.6	136.0	136.9	138.6	139.9	142.1	1.6	4.5
Excluding sales occupations	131.7	132.3	133.4	135.2	136.5	137.8	139.2	140.0	141.6	1.1	3.7
Wholesale trade	137.8	138.5	139.0	141.7	143.2	143.6	147.5	149.0	153.2	2.8	7.0
Excluding sales occupations	134.9	136.0	136.8	138.2	139.6	140.4	141.8	142.9	145.3	1.7	4.1
Retail trade	127.8	127.7	129.2	131.7	133.2	134.3	135.1	136.3	137.7	1.0	3.4
Food stores	–	–	–	–	–	–	–	–	–	.4	–
Finance, insurance, and real estate	131.8	131.6	132.9	134.9	134.9	139.9	142.7	145.2	146.0	.6	8.2
Excluding sales occupations	131.8	131.6	132.9	134.9	134.9	139.9	142.7	145.2	146.0	.6	8.2
Banking, savings and loan, and other credit agencies	–	–	–	–	–	–	–	–	–	1.1	4.3
Insurance	–	–	–	–	–	–	–	–	–	-.4	–
Services	145.9	147.1	148.6	149.8	152.9	154.4	156.4	157.8	160.4	1.6	4.9
Business services	–	–	–	–	–	–	–	–	–	.9	4.6
Health services	–	–	–	–	–	–	–	–	–	1.9	6.1
Hospitals	–	–	–	–	–	–	–	–	–	1.9	6.6
Nonmanufacturing	134.2	134.8	136.0	137.8	139.4	140.8	142.6	143.9	145.9	1.4	4.7
State and local government workers	146.1	147.4	148.7	149.1	153.0	154.5	155.8	156.6	161.4	3.1	5.5
Workers, by occupational group:											
White-collar workers	147.7	149.3	150.5	150.8	154.9	156.8	158.0	158.7	164.1	3.4	5.9
Blue-collar workers	139.0	139.6	141.1	141.1	143.5	144.1	146.1	146.8	149.6	1.9	4.3
Workers, by industry division:											
Services	148.2	149.5	150.7	151.1	155.6	157.6	158.6	159.3	165.0	3.6	6.0
Hospitals and other services [3]	141.2	142.2	144.5	144.7	147.4	148.7	150.2	151.5	155.3	2.5	5.4
Health services	–	–	–	–	–	–	–	–	–	2.7	6.3
Schools	150.3	151.8	152.6	153.0	158.0	160.3	161.2	161.7	168.1	4.0	6.4
Elementary and secondary	152.0	153.4	154.0	154.3	159.7	162.1	162.8	163.3	170.2	4.2	6.6
Public administration [2]	142.6	143.8	145.5	146.4	148.9	149.4	150.9	151.8	155.0	2.1	4.1

[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, benefits, private industry workers by occupation and industry group

(June 1981 = 100)

Series	1987		1988				1989			Percent change	
										3 months ended	12 months ended
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Sept. 1989	
Private industry workers	140.3	141.7	146.1	148.2	149.7	151.3	154.0	156.5	158.7	1.4	6.0
Workers, by occupational group:											
White-collar workers	142.4	143.7	147.3	149.3	150.9	152.7	156.1	158.8	161.1	1.4	6.8
Blue-collar workers	137.3	138.7	144.1	146.3	147.5	148.9	150.7	152.9	155.1	1.4	5.2
Workers, by industry group:											
Goods-producing	137.4	138.8	144.1	146.1	147.3	148.6	150.7	152.7	155.0	1.5	5.2
Service-producing	143.1	144.4	148.1	150.1	151.9	153.9	157.2	160.1	162.3	1.4	6.8
Manufacturing	136.9	138.4	144.5	146.4	147.8	149.0	152.3	154.2	156.6	1.6	6.0
Nonmanufacturing	142.6	143.8	147.2	149.3	150.9	152.9	155.2	158.0	160.2	1.4	6.2

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

(June 1981 = 100)

Series	1987		1988				1989			Percent change	
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	3 months ended	12 months ended
										Sept. 1989	
COMPENSATION											
Workers, by bargaining status[1]											
Union	132.0	133.4	135.6	136.9	137.9	138.6	139.7	141.1	142.3	0.9	3.2
Goods-producing	129.5	131.3	134.1	135.3	136.2	137.2	137.9	139.4	140.6	.9	3.2
Service-producing	135.9	136.7	138.0	139.4	140.5	140.9	142.6	143.9	145.1	.8	3.3
Manufacturing	129.5	131.5	135.0	136.2	137.0	138.2	139.9	141.3	142.5	.8	4.0
Nonmanufacturing	134.3	135.1	136.2	137.5	138.6	138.9	139.5	141.0	142.1	.8	2.5
Nonunion	136.1	136.9	138.9	140.7	142.2	143.9	146.0	147.7	149.8	1.4	5.3
Goods-producing	133.1	134.1	136.2	137.8	138.7	139.9	141.6	143.2	145.0	1.3	4.5
Service-producing	137.9	138.6	140.5	142.5	144.4	146.3	148.6	150.5	152.7	1.5	5.7
Manufacturing	134.6	135.6	137.8	139.2	140.1	141.3	143.1	144.8	146.5	1.2	4.6
Nonmanufacturing	136.8	137.5	139.4	141.5	143.2	145.0	147.3	149.1	151.2	1.4	5.6
Workers, by region[1]											
Northeast	140.3	141.9	143.7	145.9	147.8	150.4	153.5	155.5	158.3	1.8	7.1
South	134.2	135.4	137.1	139.3	140.4	141.3	142.7	144.1	145.8	1.2	3.8
Midwest (formerly North Central)	131.2	131.7	134.4	135.5	136.7	138.0	139.3	140.9	142.3	1.0	4.1
West	135.8	136.3	138.3	139.5	140.6	141.5	143.2	144.9	146.4	1.0	4.1
Workers, by area size[1]											
Metropolitan areas	135.8	136.7	138.9	140.5	142.0	143.6	145.6	147.4	149.4	1.4	5.2
Other areas	131.3	132.0	133.6	135.5	136.2	136.8	137.5	138.3	139.4	.8	2.3
WAGES AND SALARIES											
Workers, by bargaining status[1]											
Union	129.1	130.5	131.0	132.0	132.9	133.4	134.3	135.4	136.2	.6	2.5
Goods-producing	126.5	128.5	128.7	129.7	130.4	131.2	132.0	133.4	134.2	.6	2.9
Service-producing	132.9	133.6	134.4	135.4	136.7	136.8	137.8	138.4	139.3	.7	1.9
Manufacturing	127.0	129.3	129.6	130.4	131.0	132.1	133.0	134.4	135.1	.5	3.1
Nonmanufacturing	130.8	131.5	132.1	133.3	134.5	134.6	135.4	136.2	137.1	.7	1.9
Nonunion	134.3	135.0	136.4	138.1	139.5	141.1	142.9	144.4	146.3	1.3	4.9
Goods-producing	131.1	132.1	133.6	135.0	135.7	136.8	138.2	139.5	141.1	1.1	4.0
Service-producing	136.2	136.7	138.0	140.0	141.8	143.6	145.6	147.2	149.3	1.4	5.3
Manufacturing	133.0	133.9	135.5	136.7	137.4	138.6	139.9	141.4	142.8	1.0	3.9
Nonmanufacturing	134.9	135.4	136.8	138.8	140.4	142.2	144.1	145.6	147.7	1.4	5.2
Workers, by region[1]											
Northeast	138.3	139.7	140.9	142.9	144.6	147.3	150.1	152.0	154.7	1.8	7.0
South	132.1	133.0	134.0	136.1	137.1	137.8	138.9	140.0	141.7	1.2	3.4
Midwest (formerly North Central)	129.6	129.9	131.3	132.1	133.3	134.5	135.6	136.9	138.0	.8	3.5
West	133.1	133.5	134.9	136.0	137.4	138.1	139.4	140.7	141.8	.8	3.2
Workers, by area size[1]											
Metropolitan areas	133.7	134.6	135.8	137.3	138.7	140.2	141.9	143.4	145.2	1.3	4.7
Other areas	129.1	129.8	130.9	133.0	133.5	133.7	134.6	135.2	136.1	.7	1.9

[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.

26. 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							
			1987	1988				1989		
	1987	1988	IV	I	II	III	IV	Ip	IIp	IIIp
Specified adjustments:										
Total compensation [1] adjustments, [2] settlements covering 5,000 workers or more:										
First year of contract	3.0	3.1	3.4	1.8	3.1	3.4	3.5	3.2	5.0	3.9
Annual rate over life of contract	2.6	2.5	2.4	1.8	2.4	3.2	2.1	3.4	3.4	2.7
Wage adjustments, settlements covering 1,000 workers or more:										
First year of contract	2.2	2.5	2.4	2.1	2.6	2.7	2.6	3.2	3.9	3.6
Annual rate over life of contract	2.1	2.4	1.8	2.3	2.2	2.8	2.2	3.1	3.4	3.0
Effective adjustments:										
Total effective wage adjustment [3]	3.1	2.6	.8	.4	.9	.8	.5	.5	1.0	1.0
From settlements reached in period	.7	.7	.3	.1	.3	.2	.1	.1	.3	.4
Deferred from settlements reached in earlier periods	1.8	1.3	.3	.3	.5	.4	.2	.3	.5	.4
From cost-of-living-adjustments clauses	.5	.6	.2	.1	.1	.2	.2	.1	.2	.2

[1] Compensation includes wages, salaries, and employers' cost of employee benefits when contract is negotiated.
[2] Adjustments are the net result of increases, decreases, and no changes in compensation or wages.
[3] Because of rounding, total may not equal sum of parts.
p = preliminary.

27. 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--							
	1987	1988				1989		
	IV	I	II	III	IV	Ip	IIp	IIIp
Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:								
First year of contract	3.0	3.1	3.0	3.1	3.1	3.3	3.8	4.0
Annual rate over life of contract	2.6	2.5	2.3	2.5	2.5	2.6	3.0	2.8
Specified wage adjustments, settlements covering 1,000 workers or more:								
All industries:								
First year of contract	2.2	2.4	2.4	2.5	2.5	2.7	3.2	3.5
Contracts with COLA clauses	2.3	2.2	2.4	2.4	2.4	2.4	2.2	2.6
Contracts without COLA clauses	2.1	2.5	2.4	2.6	2.7	2.9	3.4	3.7
Annual rate over life of contract	2.1	2.2	2.0	2.2	2.4	2.5	2.9	3.0
Contracts with COLA clauses	1.5	1.4	1.5	1.5	1.8	1.8	1.8	2.0
Contracts without COLA clauses	2.5	2.7	2.5	2.8	2.8	2.9	3.2	3.2
Manufacturing:								
First year of contract	2.1	2.4	2.5	2.6	2.2	2.2	2.6	2.6
Contracts with COLA clauses	2.4	2.4	2.5	2.4	2.1	2.1	2.1	2.1
Contracts without COLA clauses	1.3	2.4	2.5	3.0	2.5	2.4	3.1	2.8
Annual rate over life of contract	1.3	1.5	1.6	1.9	2.1	2.1	2.4	2.5
Contracts with COLA clauses	1.0	1.0	1.3	1.4	1.8	1.8	1.7	1.7
Contracts without COLA clauses	2.1	2.7	2.5	3.1	2.6	2.7	3.1	2.9
Nonmanufacturing:								
First year of contract	2.3	2.3	2.3	2.4	2.8	3.0	3.5	3.8
Contracts with COLA clauses	1.9	1.6	2.2	2.4	2.9	2.9	3.0	3.0
Contracts without COLA clauses	2.4	2.5	2.4	2.5	2.7	3.0	3.5	3.9
Annual rate over life of contract	2.7	2.7	2.4	2.4	2.5	2.7	3.2	3.1
Contracts with COLA clauses	2.7	2.4	1.9	1.8	1.7	1.7	2.5	2.1
Contracts without COLA clauses	2.7	2.7	2.6	2.7	2.8	3.0	3.3	3.3
Construction:								
First year of contract	2.9	2.9	2.6	2.1	2.2	2.4	2.4	2.6
Contracts with COLA clauses	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(1)
Contracts without COLA clauses	(1)	(1)	2.6	2.1	2.2	2.4	2.4	(1)
Annual rate over life of contract	3.1	3.1	2.7	2.4	2.6	2.7	2.9	2.9
Contracts with COLA clauses	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(1)
Contracts without COLA clauses	(1)	(1)	2.7	2.4	2.6	2.7	2.9	(1)

[1] Data do not meet publication standards.
[2] Between -0.05 and 0.05 percent.
p = preliminary.

28. 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--						
	1988				1989		
	I	II	III	IV	Ip	IIp	IIIp
For all workers:[1]							
Total	3.2	3.0	2.9	2.6	2.7	2.8	3.0
From settlements reached in period	.8	1.0	1.0	.7	.7	.7	.9
Deferred from settlements reached in earlier period	1.8	1.6	1.4	1.3	1.3	1.3	1.3
From cost-of-living-adjustments clauses	.5	.5	.5	.6	.6	.8	.8
For workers receiving changes:							
Total	3.8	3.7	3.5	3.3	3.5	3.8	4.0
From settlements reached in period	2.9	2.9	2.9	3.1	3.2	3.5	3.7
Deferred from settlements reached in earlier period	3.3	3.3	3.0	3.0	3.2	3.2	3.4
From cost-of-living-adjustments clauses	2.7	2.3	2.5	2.7	2.9	3.2	3.8

[1] Because of rounding, total may not equal sum of parts.   p = preliminary.

29. 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		
	1987	1988	First 6 months 1989
Specified adjustments:			
Total compensation [1] adjustments, [2] settlements covering 5,000 workers or more:			
First year of contract	4.9	5.4	4.3
Annual rate over life of contract	4.8	5.3	4.4
Wage adjustments, settlements covering 1,000 workers or more:			
First year of contract	4.9	5.1	4.7
Annual rate over life of contract	5.1	5.3	4.7
Effective adjustments:			
Total effective wage adjustment [3]	4.9	4.7	1.6
From settlements reached in period	2.7	2.3	.5
Deferred from settlements reached in earlier periods	2.2	2.4	1.1
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.
– Data not available.

30. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Mayp	Junep	Julyp	Aug.p	Sept.p	Oct.p
Number of stoppages:															
Beginning in period	46	40	3	1	0	3	0	2	4	7	0	4	7	6	4
In effect during period	51	43	9	5	1	4	2	4	8	13	5	9	11	13	7
Workers involved:															
Beginning in period (in thousands)	174.4	118.0	8.6	2.3	.0	7.4	.0	30.3	6.6	54.7	.0	43.3	235.6	14.5	59.9
In effect during period (in thousands)	377.7	121.4	25.9	10.6	2.5	9.9	7.7	37.0	43.6	94.3	44.7	100.0	204.0	107.1	160.5
Days idle:															
Number (in thousands)	4,468.8	4,364.3	293.2	77.9	52.5	152.7	137.8	949.6	1,064.2	1,227.1	938.2	1,370.7	3,480.2	1,909.4	3,097.9
Percent of estimated working time[1]	.02	.02	.01	.04	.02	.01	.01	.04	.05	.05	.04	.06	.14	.08	.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 Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

(1982-84 = 100, unless otherwise indicated)

Series	Annual average 1987	Annual average 1988	1988 Oct.	1988 Nov.	1988 Dec.	1989 Jan.	1989 Feb.	1989 Mar.	1989 Apr.	1989 May	1989 June	1989 July	1989 Aug.	1989 Sept.	1989 Oct.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS:															
All items	113.6	118.3	120.2	120.3	120.5	121.1	121.6	122.3	123.1	123.8	124.1	124.4	124.6	125.0	125.6
All items (1967 = 100)	340.4	354.3	360.1	360.5	360.9	362.7	364.1	366.2	368.8	370.8	371.7	372.7	373.1	374.6	376.2
Food and beverages	113.5	118.2	120.3	120.2	120.6	122.0	122.7	123.3	124.0	124.7	124.9	125.4	125.6	125.9	126.3
Food	113.5	118.2	120.3	120.2	120.7	122.2	122.9	123.5	124.2	124.9	125.0	125.5	125.8	126.1	126.5
Food at home	111.9	116.6	119.0	118.7	119.1	121.2	122.0	122.7	123.5	124.4	124.3	124.8	124.9	125.0	125.4
Cereals and bakery products	114.8	122.1	125.6	125.9	126.6	127.9	128.9	129.7	130.4	131.5	132.1	133.3	134.1	134.6	135.0
Meats, poultry, fish, and eggs	110.5	114.3	116.8	116.4	116.1	118.5	118.2	120.5	120.6	120.7	121.4	121.6	122.3	122.9	122.4
Dairy products	105.9	108.4	109.9	110.6	111.4	112.6	113.4	113.8	114.1	113.8	113.6	114.1	114.5	116.1	118.2
Fruits and vegetables	119.1	128.1	131.7	129.5	131.0	134.8	137.1	135.7	138.0	142.7	140.2	140.1	138.8	136.6	137.1
Other foods at home	110.5	113.1	114.8	114.9	115.3	116.6	117.8	118.1	119.0	118.9	119.2	119.7	119.7	119.7	120.3
Sugar and sweets	111.0	114.0	116.0	115.9	116.7	117.2	117.8	118.0	117.9	118.1	119.2	120.1	120.6	120.8	121.3
Fats and oils	108.1	113.1	117.1	117.1	118.5	119.6	120.5	120.4	121.6	121.6	121.6	121.6	121.7	121.3	121.6
Nonalcoholic beverages	107.5	107.5	108.1	108.2	107.8	109.6	111.3	111.3	111.8	111.5	111.6	112.3	111.2	111.0	111.8
Other prepared foods	113.8	118.0	119.9	120.1	120.7	121.9	123.0	123.7	125.2	125.2	125.5	125.9	126.7	126.7	127.2
Food away from home	117.0	121.8	123.4	123.7	124.1	124.7	125.2	125.7	126.2	126.7	127.1	127.8	128.1	128.8	129.1
Alcoholic beverages	114.1	118.6	119.8	119.9	119.9	120.3	121.1	121.8	122.3	123.1	123.5	124.0	124.5	124.8	125.2
Housing	114.2	118.5	119.9	119.9	120.2	120.7	121.1	121.5	121.6	122.1	122.9	123.9	124.2	124.3	124.4
Shelter	121.3	127.1	128.8	129.1	129.3	129.8	130.3	131.2	131.2	131.8	132.3	133.6	134.1	134.1	134.8
Renters' costs (12/82 = 100)	128.1	133.6	134.8	134.2	134.1	135.2	136.3	138.6	137.9	137.8	138.7	141.5	141.5	139.4	140.0
Rent, residential	123.1	127.8	129.4	129.8	130.1	130.5	130.9	131.1	131.4	131.7	132.3	133.0	133.5	133.9	134.7
Other renters' costs	127.4	134.8	134.8	131.1	130.0	132.7	136.2	144.7	140.7	139.7	141.5	150.5	148.8	139.1	139.2
Homeowners' costs (12/82 = 100)	124.8	131.1	133.1	133.8	134.0	134.4	134.7	135.0	135.4	136.2	136.5	137.3	138.1	138.9	139.7
Owners' equivalent rent (12/82 = 100)	124.8	131.1	133.1	133.9	134.1	134.5	134.8	135.1	135.5	136.3	136.6	137.4	138.2	139.0	139.9
Household insurance (12/82 = 100)	124.0	129.0	130.4	130.2	130.6	130.9	131.2	131.3	131.4	132.1	132.8	133.1	133.3	133.6	133.7
Maintenance and repairs	111.8	114.7	115.0	115.4	115.8	116.1	117.1	117.1	117.3	117.4	118.3	118.4	118.5	118.6	118.6
Maintenance and repair services	114.8	117.9	117.6	118.2	118.4	118.7	119.9	119.6	119.8	120.2	121.0	121.1	121.3	120.9	121.0
Maintenance and repair commodities	107.8	110.4	111.6	111.7	112.4	112.8	113.4	113.8	114.1	113.8	114.7	115.0	114.8	115.6	115.5
Fuel and other utilities	103.0	104.4	105.4	104.3	105.0	106.0	105.9	105.9	106.2	107.0	109.2	109.7	109.7	109.7	108.0
Fuels	97.3	98.0	98.6	96.8	97.4	98.7	98.6	98.5	98.8	99.6	103.2	103.7	103.7	103.5	101.0
Fuel oil, coal, and bottled gas	77.9	78.1	74.6	75.0	76.8	80.5	81.4	81.5	82.5	81.5	80.2	79.7	78.9	79.3	82.0
Gas (piped) and electricity	103.8	104.6	105.8	103.7	104.1	105.1	104.9	104.8	105.0	106.1	110.5	111.1	111.3	111.0	107.6
Other utilities and public services	120.1	122.9	124.5	124.4	125.5	125.9	126.0	125.9	126.2	127.0	127.1	127.7	127.8	128.1	127.6
Household furnishings and operations	107.1	109.4	110.3	110.6	110.6	110.9	110.9	110.5	110.7	110.8	111.1	111.4	111.4	111.7	111.9
Housefurnishings	103.6	105.1	105.9	106.1	105.9	106.0	105.9	105.1	105.0	104.7	105.1	105.5	105.2	105.7	106.1
Housekeeping supplies	111.5	114.7	115.6	116.5	117.0	117.5	117.7	118.5	119.6	120.9	121.2	121.7	122.3	122.3	122.5
Housekeeping services	110.6	114.3	115.5	115.7	115.9	116.6	116.8	116.9	117.1	117.3	117.4	117.3	117.5	117.5	117.4
Apparel and upkeep	110.6	115.4	120.7	119.9	118.0	115.3	115.3	119.3	120.9	120.4	117.8	115.0	115.0	120.0	122.7
Apparel commodities	108.9	113.7	119.3	118.4	116.3	113.3	113.3	117.5	119.3	118.6	115.8	112.9	112.8	118.2	121.1
Men's and boys' apparel	109.1	113.4	117.6	118.2	117.3	115.1	114.2	115.9	117.2	117.8	115.9	114.7	114.7	117.7	120.3
Women's and girls' apparel	110.4	114.9	121.9	120.2	116.5	111.6	111.4	119.4	121.5	119.5	114.8	109.6	109.5	119.0	123.1
Infants' and toddlers' apparel	112.1	116.4	118.1	117.2	117.3	115.6	118.8	118.5	123.6	125.4	123.9	117.9	116.7	118.0	118.3
Footwear	105.1	109.9	115.9	114.5	113.5	112.2	112.7	114.1	115.3	114.9	114.0	113.4	112.6	114.1	117.6
Other apparel commodities	108.0	116.0	119.4	119.5	119.1	119.2	120.4	120.4	121.5	121.7	121.6	122.5	124.1	124.5	123.0
Apparel services	119.6	123.7	125.5	126.3	126.7	127.3	127.8	128.5	128.9	129.9	130.0	129.4	129.5	129.7	129.8
Transportation	105.4	108.7	110.0	110.7	110.8	111.1	111.6	111.9	114.6	116.0	115.9	115.4	114.3	113.7	114.5
Private transportation	104.2	107.6	109.0	109.6	109.6	109.8	110.3	110.7	113.6	115.0	114.9	114.3	113.1	112.4	113.3
New vehicles	114.4	116.5	117.2	118.4	119.0	119.4	119.5	119.4	119.2	119.2	118.9	118.5	117.7	117.1	118.5
New cars	114.6	116.9	117.7	118.7	119.1	119.5	119.6	119.6	119.4	119.5	119.1	118.6	117.7	117.0	118.6
Used cars	113.1	118.0	119.9	119.7	120.2	120.5	120.5	120.5	120.7	121.0	121.3	121.1	120.3	119.8	119.7
Motor fuel	80.2	80.9	81.6	81.5	80.3	79.6	80.3	81.5	92.1	96.6	96.0	94.4	91.0	88.8	88.9
Gasoline	80.1	80.8	81.6	81.4	80.3	79.4	80.1	81.3	92.1	96.7	96.2	94.6	91.1	88.8	88.8
Maintenance and repair	114.8	119.7	121.1	121.5	121.5	122.4	123.3	123.5	123.8	124.3	124.5	124.8	125.4	126.2	126.7
Other private transportation	120.8	127.9	131.0	132.1	132.5	133.5	134.3	134.5	134.7	135.6	135.9	135.6	135.7	135.7	137.1
Other private transportation commodities	96.9	98.9	99.3	99.4	100.3	101.0	101.2	100.1	100.8	101.5	101.9	101.3	102.0	102.0	101.9
Other private transportation services	125.6	133.9	137.7	139.1	139.3	140.4	141.4	141.9	142.0	142.9	143.2	143.0	142.9	142.9	144.8
Public transportation	121.1	123.3	124.2	125.3	126.5	127.5	128.1	128.2	128.4	128.9	129.6	129.7	130.1	130.1	130.6
Medical care	130.1	138.6	141.2	141.8	142.3	143.8	145.2	146.1	146.8	147.5	148.5	149.7	150.7	151.7	152.7
Medical care commodities	131.0	139.9	143.2	143.3	144.2	145.0	145.8	147.2	148.4	150.0	151.0	151.4	152.1	153.3	154.1
Medical care services	130.0	138.3	140.8	141.5	141.9	143.5	145.1	145.9	146.4	146.9	147.9	149.3	150.4	151.3	152.3
Professional services	128.8	137.5	139.8	140.4	140.8	142.2	143.5	144.4	144.9	145.2	146.1	147.0	147.5	148.0	148.6
Hospital and related services	131.6	143.9	148.5	149.7	150.8	152.9	155.1	155.8	156.6	157.3	158.5	160.8	162.7	164.3	166.0
Entertainment	115.3	120.3	121.8	122.2	122.8	123.8	124.3	124.7	125.4	125.5	126.2	126.9	127.3	127.8	128.4
Entertainment commodities	110.5	115.0	116.3	117.2	117.5	118.1	118.4	118.5	119.0	119.3	119.5	119.9	120.0	120.5	121.2
Entertainment services	122.0	127.7	129.4	129.3	130.0	131.6	132.3	132.9	134.0	133.9	135.0	136.1	136.7	137.2	137.8
Other goods and services	128.5	137.0	140.6	141.0	141.3	143.4	144.1	144.4	144.7	145.4	146.3	147.3	148.7	151.2	151.8
Tobacco products	133.6	145.8	149.3	149.7	149.9	157.0	158.5	159.2	159.5	161.1	164.2	167.5	168.8	168.2	168.8
Personal care	115.1	119.4	121.0	121.8	122.4	122.8	123.2	123.6	124.1	124.8	124.5	124.8	125.6	125.9	126.4
Toilet goods and personal care appliances	113.9	118.1	119.8	120.7	121.6	121.7	121.9	122.4	122.6	122.7	122.2	122.8	123.8	124.0	124.4
Personal care services	116.2	120.7	122.0	122.7	123.1	123.8	124.4	124.8	125.4	126.8	127.0	126.9	127.3	127.7	128.5
Personal and educational expenses	138.5	147.9	152.4	152.7	153.0	154.0	154.4	154.6	154.9	155.2	155.8	156.3	158.1	162.9	163.5
School books and supplies	138.1	148.1	152.0	152.1	152.2	153.3	155.0	155.1	155.2	155.2	155.6	155.8	156.6	163.0	163.6
Personal and educational services	138.7	148.0	152.7	152.9	153.2	154.2	154.6	154.7	155.1	155.4	156.0	156.5	158.4	163.1	163.7

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

(1982-84 = 100, unless otherwise indicated)

Series	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
All items	113.6	118.3	120.2	120.3	120.5	121.1	121.6	122.3	123.1	123.8	124.1	124.4	124.6	125.0	125.6
Commodities	107.7	111.5	113.5	113.5	113.5	113.9	114.3	115.2	116.7	117.5	117.2	117.0	116.7	117.3	118.1
Food and beverages	113.5	118.2	120.3	120.2	120.6	122.0	122.7	123.3	124.0	124.7	124.9	125.4	125.6	125.9	126.3
Commodities less food and beverages	104.0	107.3	109.2	109.4	109.0	108.9	109.1	110.1	112.2	112.9	112.4	111.7	111.1	111.9	113.0
Nondurables less food and beverages	101.1	105.2	107.8	107.7	106.9	106.4	106.9	108.9	112.5	113.6	112.7	111.6	110.9	112.4	113.6
Apparel commodities	108.9	113.7	119.3	118.4	116.3	113.3	113.3	117.5	119.3	118.6	115.8	112.9	112.8	118.2	121.1
Nondurables less food, beverages, and apparel	99.5	103.2	104.5	104.6	104.5	105.3	106.1	106.9	111.5	113.6	113.7	113.6	112.5	112.0	112.4
Durables	108.2	110.4	111.1	111.8	112.2	112.5	112.4	111.9	111.8	111.9	112.1	111.9	111.4	111.3	112.1
Services	120.2	125.7	127.6	127.8	128.1	128.9	129.4	130.0	130.2	130.8	131.6	132.5	133.1	133.4	133.7
Rent of shelter (12/82=100)	125.9	132.0	133.8	134.1	134.3	134.8	135.4	136.3	136.3	136.9	137.4	138.8	139.3	139.3	140.1
Household services less rent of' shelter (12/82=100)	113.1	115.3	116.6	115.6	116.2	117.0	116.9	116.9	117.2	118.0	120.1	120.6	120.7	120.7	119.0
Transportation services	121.9	128.0	130.6	131.6	132.1	133.0	133.9	134.3	134.5	135.2	135.6	135.5	135.7	135.9	137.1
Medical care services	130.0	138.3	140.8	141.5	141.9	143.5	145.1	145.9	146.4	146.9	147.9	149.3	150.4	151.3	152.3
Other services	125.7	132.6	135.5	135.7	136.2	137.3	137.8	138.2	138.8	139.2	139.8	140.4	141.5	143.8	144.3
Special indexes:															
All items less food	113.6	118.3	120.2	120.3	120.4	120.8	121.3	122.0	122.9	123.5	123.9	124.2	124.3	124.8	125.4
All items less shelter	111.6	115.9	117.9	118.0	118.1	118.7	119.2	119.9	121.0	121.7	122.0	122.0	122.0	122.6	123.1
All items less homeowners' costs (12/82=100)	115.1	119.5	121.5	121.5	121.6	122.3	122.9	123.7	124.7	125.3	125.6	125.9	125.9	126.3	126.8
All items less medical care	112.6	117.0	118.9	119.0	119.1	119.7	120.1	120.8	121.7	122.3	122.6	122.9	123.0	123.4	124.0
Commodities less food	104.3	107.7	109.5	109.7	109.4	109.2	109.5	110.5	112.5	113.2	112.8	112.1	111.6	112.4	113.4
Nondurables less food	101.8	105.8	108.3	108.2	107.5	107.1	107.6	109.4	112.8	113.9	113.1	112.2	111.5	112.9	114.1
Nondurables less food and apparel	100.3	104.0	105.2	105.4	105.3	106.0	106.8	107.6	111.7	113.6	113.8	113.7	112.8	112.4	112.8
Nondurables	107.5	111.8	114.2	114.1	113.9	114.3	114.9	116.2	118.4	119.3	119.0	118.7	118.4	119.3	120.1
Services less rent of' shelter (12/82=100)	123.1	128.3	130.5	130.6	131.1	132.1	132.7	133.0	133.4	134.0	135.2	135.8	136.3	137.0	137.0
Services less medical care	119.1	124.3	126.2	126.3	126.6	127.3	127.8	128.3	128.5	129.1	129.9	130.8	131.3	131.6	131.8
Energy	88.6	89.3	89.9	88.9	88.7	89.0	89.3	89.8	94.9	97.4	99.0	98.5	97.0	95.9	94.6
All items less energy	117.2	122.3	124.4	124.7	124.8	125.5	126.0	126.7	127.1	127.6	127.7	128.2	128.5	129.1	129.9
All items less food and energy	118.2	123.4	125.5	125.8	126.0	126.4	126.9	127.6	128.0	128.3	128.5	129.0	129.3	130.0	130.9
Commodities less food and energy	111.8	115.8	118.0	118.2	118.0	117.9	118.1	119.0	119.6	119.7	119.3	118.8	118.8	120.1	121.2
Energy commodities	80.2	80.8	81.0	80.9	80.1	79.9	80.6	81.7	91.2	95.0	94.4	92.9	89.8	88.0	88.3
Services less energy	122.0	127.9	129.9	130.3	130.6	131.4	132.0	132.7	132.9	133.4	133.9	134.8	135.4	135.8	136.5
Purchasing power of the consumer dollar:															
1982-84=$1.00	88.0	84.6	83.2	83.1	83.0	82.6	82.3	81.8	81.2	80.8	80.6	80.4	80.3	80.0	79.6
1967=$1.00	29.4	28.2	27.8	27.7	27.7	27.6	27.5	27.3	27.1	27.0	26.9	26.8	26.8	26.7	26.6
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS:															
All items	112.5	117.0	118.9	119.0	119.2	119.7	120.2	120.8	121.8	122.5	122.8	123.2	123.2	123.6	124.2
All items (1967=100)	335.0	348.4	354.2	354.6	355.0	356.7	358.0	360.0	362.9	364.9	365.9	366.8	367.0	368.3	369.8
Food and beverages	113.3	117.9	120.0	119.9	120.3	121.7	122.4	123.1	123.7	124.4	124.6	125.1	125.3	125.6	126.0
Food	113.3	117.9	120.1	119.9	120.4	121.9	122.6	123.3	123.9	124.6	124.8	125.3	125.5	125.8	126.2
Food at home	111.7	116.2	118.7	118.4	118.8	120.8	121.7	122.4	123.2	124.0	123.9	124.4	124.6	124.6	125.0
Cereals and bakery products	114.8	122.2	125.7	126.0	126.7	128.0	129.0	129.7	130.5	131.5	132.0	133.3	134.1	134.6	135.1
Meats, poultry, fish, and eggs	110.4	114.1	116.6	116.1	115.8	118.3	118.0	120.3	120.4	120.5	121.2	121.5	122.1	122.7	122.2
Dairy products	105.7	108.1	109.7	110.4	111.2	112.4	113.3	113.6	114.0	113.6	113.3	113.8	114.2	115.9	118.0
Fruits and vegetables	118.8	127.6	131.4	129.1	130.8	134.3	136.8	135.4	137.7	142.5	140.0	139.9	138.6	136.1	136.5
Other foods at home	110.4	113.0	114.7	114.8	115.1	116.5	117.7	118.0	118.9	118.8	119.0	119.6	119.6	119.6	120.2
Sugar and sweets	110.9	113.9	115.9	115.7	116.7	117.3	117.8	118.0	118.1	118.4	119.2	120.1	120.6	120.9	121.4
Fats and oils	107.9	113.0	117.0	117.0	118.3	119.5	120.4	120.3	121.5	121.5	121.5	121.5	121.6	121.2	121.5
Nonalcoholic beverages	107.5	107.7	108.3	108.4	107.8	109.8	111.4	111.4	111.9	111.5	111.6	112.2	111.1	111.0	112.0
Other prepared foods	113.6	117.8	119.7	119.9	120.5	121.7	122.8	123.6	125.0	125.0	125.3	125.7	126.5	126.6	127.0
Food away from home	116.9	121.6	123.2	123.5	124.0	124.6	125.1	125.5	126.1	126.5	127.0	127.6	128.0	128.6	129.0
Alcoholic beverages	113.9	118.3	119.5	119.5	119.5	119.8	120.8	121.4	122.0	122.8	123.2	123.6	124.0	124.4	124.7
Housing	112.8	116.8	118.2	118.3	118.5	119.0	119.3	119.6	119.8	120.3	121.1	122.1	122.4	122.5	122.5
Shelter	118.8	124.3	126.0	126.4	126.5	126.9	127.4	128.1	128.3	128.8	129.3	130.5	131.0	131.1	131.8
Renters' costs (12/84=100)	114.6	119.2	120.4	120.1	120.0	120.7	121.5	123.0	122.7	122.8	123.6	125.7	125.9	124.6	125.1
Rent, residential	122.9	127.5	129.0	129.4	129.7	130.1	130.4	130.7	131.0	131.2	131.8	132.5	133.0	133.4	134.2
Other renters' costs	128.2	135.2	135.1	131.4	129.2	131.8	135.2	144.2	140.9	139.9	142.3	153.7	152.0	140.9	140.4
Homeowners' costs (12/84=100)	113.8	119.5	121.3	122.0	122.2	122.5	122.8	123.0	123.4	124.1	124.4	125.2	125.8	126.6	127.3
Owners' equivalent rent (12/84=100)	113.7	119.5	121.4	122.1	122.2	122.5	122.8	123.1	123.5	124.2	124.5	125.2	125.9	126.7	127.4
Household insurance (12/84=100)	114.1	118.2	119.3	119.2	119.6	119.9	120.0	120.1	120.2	120.9	121.5	121.8	122.0	122.4	122.5
Maintenance and repairs	111.3	114.0	114.1	114.6	115.2	115.6	116.7	116.7	116.7	116.9	117.9	118.2	117.9	118.0	118.1
Maintenance and repair services	114.7	117.7	117.0	117.6	117.8	118.3	119.5	119.2	119.3	119.8	121.0	121.2	121.3	120.7	120.9
Maintenance and repair commodities	106.0	108.3	109.2	109.7	110.6	110.9	111.8	112.1	112.1	112.0	112.7	113.2	112.5	113.3	113.4
Fuel and other utilities	102.7	104.1	105.1	104.1	104.8	105.7	105.7	105.7	105.9	106.7	109.0	109.4	109.5	109.5	107.6
Fuels	97.1	97.7	98.3	96.6	97.2	98.4	98.3	98.2	98.5	99.2	103.0	103.4	103.5	103.3	100.6
Fuel oil, coal, and bottled gas	77.6	77.9	74.6	75.0	76.7	80.3	81.0	81.2	82.1	81.2	80.1	79.6	78.8	79.2	81.8
Gas (piped) and electricity	103.6	104.4	105.5	103.5	103.9	104.8	104.6	104.6	104.8	105.8	110.3	110.8	111.0	110.7	107.2
Other utilities and public services	120.1	122.9	124.7	124.6	125.6	126.2	126.3	126.2	126.5	127.2	127.4	127.9	128.0	128.3	127.8
Household furnishings and operations	106.7	108.9	109.9	110.2	110.2	110.4	110.4	110.0	110.1	110.1	110.4	110.8	110.8	111.0	111.2
Housefurnishings	103.1	104.5	105.4	105.6	105.4	105.5	105.4	104.5	104.3	104.0	104.4	104.8	104.6	105.0	105.3
Housekeeping supplies	111.8	115.1	116.1	116.9	117.4	117.9	118.1	118.9	120.0	121.2	121.6	122.0	122.6	122.6	122.7
Housekeeping services	110.9	115.0	116.3	116.4	116.5	116.9	117.0	117.1	117.2	117.4	117.6	117.4	117.6	117.6	117.5
Apparel and upkeep	110.4	114.9	120.1	119.5	117.6	114.8	114.7	118.4	120.0	119.4	116.9	114.4	114.5	119.3	122.0

(1982-84 = 100, unless otherwise indicated)

Series	Annual average		1988			1989									
	1987	1988	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Apparel commodities	108.8	113.4	118.9	118.1	116.0	113.0	112.8	116.7	118.4	117.7	115.0	112.3	112.4	117.6	120.5
Men's and boys' apparel	108.5	112.8	116.9	117.5	116.5	114.4	113.4	115.1	116.4	116.9	115.0	113.7	113.9	116.9	119.6
Women's and girls' apparel	110.3	114.5	121.5	119.9	116.2	111.3	110.7	118.3	120.2	118.1	113.5	108.7	108.9	118.1	122.0
Infants' and toddlers' apparel	114.0	118.6	120.6	120.1	120.3	118.5	121.8	121.7	126.7	128.3	126.7	121.9	120.4	122.0	122.2
Footwear	105.5	110.4	116.3	115.0	114.0	112.8	113.1	114.1	115.2	115.0	114.1	113.9	113.1	114.5	118.0
Other apparel commodities	107.4	114.9	117.9	118.2	117.8	117.8	119.0	118.5	119.6	119.8	119.8	120.7	122.4	122.5	121.9
Apparel services	119.2	123.0	124.7	125.4	125.8	126.4	126.8	127.7	128.1	128.9	129.0	128.6	128.7	128.8	129.0
Transportation	105.1	108.3	109.8	110.3	110.4	110.7	111.2	111.6	114.5	116.0	116.0	115.4	114.2	113.5	114.3
Private transportation	104.1	107.5	109.0	109.5	109.5	109.7	110.3	110.6	113.7	115.3	115.2	114.6	113.3	112.6	113.3
New vehicles	114.0	116.2	116.9	118.1	118.8	119.2	119.3	119.2	118.9	119.0	118.7	118.3	117.6	117.1	118.4
New cars	114.3	116.6	117.5	118.5	118.9	119.3	119.5	119.4	119.2	119.3	118.9	118.4	117.6	116.9	118.4
Used cars	113.1	117.9	119.8	119.5	120.1	120.3	120.4	120.3	120.5	120.9	121.1	120.9	120.1	119.6	119.5
Motor fuel	80.3	80.9	81.6	81.5	80.4	79.6	80.3	81.5	92.3	96.7	96.1	94.5	91.0	89.0	89.1
Gasoline	80.2	80.8	81.6	81.5	80.4	79.5	80.2	81.4	92.3	96.9	96.3	94.7	91.2	89.0	89.0
Maintenance and repair	115.1	119.8	121.3	121.5	121.5	122.4	123.3	123.5	123.9	124.4	124.6	124.8	125.4	126.2	126.7
Other private transportation	119.0	125.8	128.9	130.0	130.4	131.4	132.2	132.5	132.7	133.5	133.9	133.7	133.7	133.6	134.9
Other private transportation commodities	96.7	98.6	98.8	99.0	99.9	100.5	100.7	99.8	100.4	101.1	101.5	101.0	101.6	101.6	101.5
Other private transportation services	123.4	131.7	135.5	136.8	137.1	138.2	139.2	139.8	139.8	140.7	141.2	141.0	140.8	140.6	142.5
Public transportation	120.4	122.5	123.5	124.3	125.4	126.1	126.8	126.9	127.1	127.5	128.2	128.3	129.1	129.1	129.4
Medical care	130.2	139.0	141.7	142.2	142.8	144.2	145.6	146.5	147.2	147.9	148.8	150.1	151.1	152.1	153.0
Medical care commodities	130.2	139.0	142.1	142.2	143.1	143.9	144.7	146.0	147.4	148.9	149.9	150.3	150.9	152.2	153.1
Medical care services	130.3	139.0	141.6	142.2	142.7	144.2	145.8	146.7	147.2	147.6	148.6	150.0	151.1	152.1	153.0
Professional services	129.0	137.7	139.9	140.6	141.0	142.4	143.7	144.7	145.1	145.5	146.4	147.3	147.8	148.4	149.0
Hospital and related services	131.1	143.3	147.8	148.9	150.0	151.9	154.2	154.8	155.6	156.2	157.3	159.7	161.6	163.3	164.7
Entertainment	114.8	119.7	121.2	121.7	122.2	123.1	123.6	124.1	124.8	124.9	125.5	126.1	126.5	127.0	127.7
Entertainment commodities	110.6	115.1	116.5	117.3	117.6	118.1	118.4	118.7	119.1	119.5	119.7	120.1	120.1	120.6	121.3
Entertainment services	121.8	127.2	128.9	129.0	129.7	131.3	131.9	132.7	133.8	133.6	134.6	135.7	136.4	137.1	137.6
Other goods and services	127.8	136.5	139.9	140.3	140.6	143.0	143.7	144.0	144.4	145.2	146.3	147.5	148.8	150.8	151.4
Tobacco products	133.7	146.0	149.5	149.9	150.2	156.9	158.2	158.9	159.2	160.7	163.8	167.3	168.5	168.0	168.6
Personal care	115.0	119.3	120.9	121.7	122.3	122.7	123.0	123.5	123.9	124.7	124.4	124.6	125.4	125.7	126.3
Toilet goods and personal care appliances	113.9	118.0	119.9	120.6	121.5	121.7	121.9	122.3	122.7	122.9	122.4	122.8	123.8	124.1	124.6
Personal care services	116.1	120.5	122.0	122.7	123.0	123.6	124.2	124.6	125.2	126.7	126.9	126.8	127.1	127.5	128.2
Personal and educational expenses	138.2	147.4	151.7	152.0	152.3	153.3	153.7	153.9	154.3	154.6	155.3	155.7	157.3	161.8	162.5
School books and supplies	137.9	147.1	150.8	150.9	151.1	152.0	153.9	154.0	154.1	154.1	154.5	154.7	155.6	161.7	162.8
Personal and educational services	138.4	147.7	152.0	152.3	152.7	153.7	154.0	154.1	154.6	154.9	155.7	156.1	157.8	162.1	162.7
All items	112.5	117.0	118.9	119.0	119.2	119.7	120.2	120.8	121.8	122.5	122.8	123.2	123.2	123.6	124.2
Commodities	107.3	111.0	113.0	113.1	113.0	113.5	113.9	114.7	116.4	117.1	116.9	116.8	116.4	116.9	117.7
Food and beverages	113.3	117.9	120.0	119.9	120.3	121.7	122.4	123.1	123.7	124.4	124.6	125.1	125.3	125.6	126.0
Commodities less food and beverages	103.6	106.8	108.7	108.9	108.6	108.4	108.7	109.5	111.8	112.6	112.2	111.6	110.9	111.6	112.5
Nondurables less food and beverages	100.8	104.6	107.2	107.1	106.3	105.9	106.3	108.1	112.1	113.4	112.6	111.7	110.8	112.0	113.2
Apparel commodities	108.8	113.4	118.9	118.1	116.0	113.0	112.8	116.7	118.4	117.7	115.0	112.3	112.4	117.6	120.5
Nondurables less food, beverages, and apparel	99.2	102.9	104.1	104.3	104.1	104.9	105.6	106.5	111.6	113.9	114.0	113.9	112.6	112.0	112.3
Durables	106.6	108.9	109.7	110.4	110.7	111.0	111.0	110.6	110.5	110.6	110.7	110.6	110.1	110.0	110.6
Services	119.4	124.7	126.7	126.9	127.2	127.9	128.4	128.9	129.1	129.7	130.6	131.5	132.0	132.3	132.6
Rent of shelter (12/84 = 100)	114.0	119.4	121.1	121.4	121.5	121.9	122.4	123.1	123.2	123.7	124.2	125.4	125.9	126.0	126.7
Household services less rent of shelter (12/84 = 100)	104.0	105.9	107.2	106.2	106.8	107.5	107.4	107.4	107.6	108.3	110.5	110.9	111.0	111.0	109.3
Transportation services	120.8	127.1	129.9	130.9	131.2	132.2	133.1	133.5	133.7	134.4	134.4	134.8	134.9	135.0	136.3
Medical care services	130.3	139.0	141.6	142.2	142.7	144.2	145.8	146.7	147.2	147.6	148.6	150.0	151.1	152.1	153.0
Other services	124.7	131.4	134.2	134.5	135.0	136.1	136.5	137.0	137.6	137.9	138.6	139.1	140.1	142.3	142.9
Special indexes:															
All items less food	112.2	116.7	118.6	118.8	118.8	119.2	119.6	120.2	121.3	122.0	122.3	122.6	122.6	123.1	123.6
All items less shelter	111.0	115.2	117.2	117.3	117.4	118.0	118.5	119.1	120.4	121.1	121.3	121.4	121.3	121.8	122.3
All items less homeowners' costs (12/84 = 100)	106.4	110.4	112.2	112.3	112.4	113.0	113.4	114.1	115.2	115.8	116.1	116.3	116.3	116.6	117.1
All items less medical care	111.5	115.8	117.7	117.8	117.9	118.5	118.9	119.5	120.5	121.2	121.5	121.8	121.8	122.2	122.7
Commodities less food	103.9	107.2	109.0	109.2	108.9	108.8	109.0	109.9	112.1	112.9	112.5	112.0	111.4	112.0	112.9
Nondurables less food	101.4	105.3	107.8	107.6	106.9	106.5	107.0	108.7	112.4	113.6	113.0	112.1	111.4	112.5	113.6
Nondurables less food and apparel	100.0	103.7	104.9	105.1	104.9	105.6	106.4	107.2	111.7	113.8	114.0	113.9	112.8	112.3	112.7
Nondurables	107.2	111.5	113.8	113.7	113.5	114.0	114.6	115.8	118.1	119.1	118.8	118.6	118.3	119.1	119.8
Services less rent of shelter (12/84 = 100)	110.8	115.6	117.6	117.6	118.1	119.0	119.5	119.8	120.1	120.7	121.9	122.3	122.7	123.3	123.2
Services less medical care	118.2	123.3	125.2	125.3	125.6	126.3	126.7	127.2	127.4	128.0	128.9	129.7	130.1	130.4	130.6
Energy	88.0	88.6	89.3	88.4	88.1	88.3	88.6	89.2	94.8	97.4	98.9	98.3	96.6	95.5	94.2
All items less energy	116.0	121.0	123.1	123.4	123.6	124.2	124.7	125.3	125.8	126.2	126.4	126.8	127.1	127.7	128.5
All items less food and energy	116.8	121.9	124.0	124.3	124.4	124.8	125.3	125.9	126.3	126.6	126.8	127.3	127.6	128.3	129.1
Commodities less food and energy	110.8	114.7	116.9	117.1	117.0	116.9	117.1	117.9	118.4	118.5	118.2	117.9	117.9	119.0	120.1
Energy commodities	80.3	80.9	81.2	81.2	80.3	79.9	80.6	81.7	91.6	95.6	94.9	93.5	90.2	88.4	88.7
Services less energy	121.2	127.0	129.1	129.5	129.8	130.5	131.1	131.6	131.9	132.4	132.9	133.8	134.4	134.8	135.5
Purchasing power of the consumer dollar:															
1982-84 = $1.00	89.0	85.5	84.1	84.0	83.9	83.5	83.2	82.8	82.1	81.6	81.4	81.2	81.2	80.9	80.5
1967 = $1.00	29.9	28.7	28.2	28.2	28.2	28.0	27.9	27.8	27.6	27.4	27.3	27.3	27.2	27.2	27.0

32. 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]	All Urban Consumers							Urban Wage Earners						
		1988		1989					1988		1989				
		Oct.	Nov.	June	July	Aug.	Sept.	Oct.	Oct.	Nov.	June	July	Aug.	Sept.	Oct.
U.S. city average	M	120.2	120.3	124.1	124.4	124.6	125.0	125.6	118.9	119.0	122.8	123.2	123.2	123.6	124.2
Region and area size[3]															
Northeast urban	M	124.1	124.4	128.5	129.0	129.1	130.0	130.6	122.9	123.2	127.4	127.9	128.0	128.8	129.4
Size A - More than 1,200,000	M	124.9	125.1	129.1	129.3	129.5	130.6	131.1	122.9	123.1	127.1	127.3	127.5	128.7	129.1
Size B - 500,000 to 1,200,000	M	122.5	122.9	127.0	128.8	129.1	128.9	130.0	121.2	121.6	125.9	127.8	127.9	127.6	128.6
Size C - 50,000 to 500,000	M	121.7	122.7	127.6	127.9	127.8	128.1	128.9	124.2	125.1	130.3	130.3	130.2	130.8	131.5
North Central urban	M	118.1	118.1	121.8	122.0	122.0	122.5	123.0	116.1	116.2	119.9	120.1	120.0	120.4	120.9
Size A - More than 1,200,000	M	119.1	119.1	123.0	123.5	123.5	124.1	124.3	116.4	116.5	120.3	120.7	120.7	121.2	121.4
Size B - 360,000 to 1,200,000	M	118.2	118.0	120.9	120.7	120.9	121.0	122.5	115.7	115.7	118.5	118.5	118.6	118.6	120.0
Size C - 50,000 to 360,000	M	117.7	118.4	122.1	122.0	122.1	122.2	122.9	116.5	117.3	121.0	120.8	120.8	120.9	121.6
Size D - Nonmetropolitan (less than 50,0000	M	114.2	114.1	117.4	117.5	117.1	117.8	118.2	113.9	113.9	117.2	117.4	116.9	117.7	118.1
South urban	M	118.2	118.3	121.7	122.0	122.1	122.5	123.0	117.7	117.8	121.3	121.5	121.6	121.9	122.4
Size A - More than 1,200,000	M	118.9	118.9	122.4	122.6	122.8	123.5	123.9	118.1	118.0	121.7	121.9	122.0	122.5	122.9
Size B - 450,000 to 1,200,000	M	119.5	119.6	123.0	123.5	123.4	123.9	124.5	117.5	117.7	121.0	121.4	121.2	121.7	122.1
Size C - 50,000 to 450,000	M	117.1	117.4	120.4	120.5	121.0	120.9	121.7	117.7	117.9	121.1	121.2	121.6	121.5	122.2
Size D - Nonmetropolitan (less than 50,000)	M	116.0	116.3	120.4	120.1	120.0	120.2	120.7	116.8	117.0	121.3	120.9	121.1	121.0	121.6
West urban	M	120.7	120.7	124.6	125.1	125.3	125.6	126.1	119.4	119.4	123.3	123.8	123.9	124.2	124.6
Size A - More than 1,250,000	M	122.2	122.3	126.3	126.9	127.1	127.5	127.8	119.6	119.6	123.6	124.2	124.3	124.6	124.9
Size C - 50,000 to 330,000	M	119.4	119.0	122.4	122.7	122.6	122.8	123.7	118.7	118.4	121.7	122.0	121.9	122.1	123.0
Size classes:															
A (12/86=100)	M	109.2	109.2	112.7	113.1	113.2	113.8	114.2	109.1	109.1	112.7	113.0	113.1	113.7	114.0
B	M	119.7	119.7	123.3	123.9	124.0	124.2	125.2	118.3	118.4	122.0	122.6	122.6	122.8	123.6
C	M	118.5	118.9	122.5	122.7	122.9	122.9	123.7	118.9	119.3	123.0	123.0	123.1	123.3	124.0
D	M	116.8	117.0	120.5	120.5	120.5	120.8	121.3	117.1	117.3	120.8	120.9	120.9	121.2	121.7
Selected local areas															
Chicago, IL-Northwestern IN	M	121.6	121.0	125.7	126.4	126.4	127.1	126.8	117.8	117.4	121.8	122.6	122.5	123.1	122.9
Los Angeles-Long Beach, Anaheim, CA	M	124.0	124.1	128.7	129.0	128.9	130.1	130.0	121.0	120.9	125.3	125.7	125.5	126.5	126.5
New York, NY-Northeastern NJ	M	126.2	125.9	130.5	130.6	130.9	132.2	132.8	124.3	124.1	128.7	128.7	128.9	130.3	130.8
Philadelphia, PA-NJ	M	124.6	125.3	128.8	129.3	129.1	130.2	130.5	124.4	125.0	128.9	129.3	129.3	130.4	130.6
San Francisco-Oakland, CA	M	122.3	122.2	126.2	127.4	128.1	126.8	127.5	121.3	121.1	125.6	126.4	127.0	126.1	126.7
Baltimore, MD	M	–	121.2	–	124.9	–	125.9	–	–	120.8	–	124.6	–	125.4	–
Boston, MA	1	–	127.4	–	130.3	–	132.2	–	–	127.4	–	130.8	–	132.6	–
Cleveland, OH	1	–	118.0	–	124.4	–	123.7	–	–	113.0	–	118.8	–	118.2	–
Miami, FL	1	–	118.3	–	121.6	–	122.9	–	–	117.2	–	120.6	–	121.4	–
St. Louis, MO-IL	1	–	118.3	–	123.1	–	123.9	–	–	117.8	–	122.8	–	123.5	–
Washington, DC-MD-VA	1	–	123.2	–	127.8	–	130.1	–	–	122.6	–	127.3	–	129.5	–
Dallas-Ft. Worth, TX	1	117.9	–	120.0	–	120.0	–	121.4	117.7	–	120.0	–	119.8	–	121.1
Detroit, MI	2	118.6	–	122.1	–	122.2	–	124.6	115.6	–	119.3	–	119.2	–	121.5
Houston, TX	2	111.1	–	114.1	–	114.4	–	115.7	111.4	–	114.5	–	114.9	–	115.8
Pittsburgh, PA	2	116.3	–	120.4	–	120.8	–	121.7	111.7	–	115.9	–	116.0	–	116.8

[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.

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

(1982-84=100)

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

34. Producer Price Indexes, by stage of processing

(1982 = 100)

Grouping	Annual average		1988		1989									
	1987	1988	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Finished goods	105.4	108.0	109.8	110.0	111.1	111.7	112.1	113.0	114.2	114.3	114.0	113.3	113.5	114.8
Finished consumer goods	103.6	106.2	108.0	108.2	109.4	110.1	110.6	111.8	113.2	113.1	112.8	111.8	112.1	113.3
Finished consumer foods	109.5	112.6	114.9	115.1	116.7	117.2	118.3	117.7	119.1	118.6	119.0	118.7	118.5	119.5
Finished consumer goods excluding foods	100.7	103.1	104.6	104.8	105.8	106.6	106.8	108.8	110.3	110.4	109.7	108.4	109.0	110.3
Nondurable goods less food	94.9	97.3	98.4	98.7	100.0	100.9	101.3	104.2	106.0	106.0	105.3	103.5	104.4	104.8
Durable goods	111.5	113.8	116.1	116.1	116.6	117.0	116.6	116.4	117.1	117.5	116.7	116.8	116.7	120.1
Capital equipment	111.7	114.3	116.1	116.4	117.1	117.5	117.5	117.6	118.3	118.8	118.6	118.8	118.8	120.3
Intermediate materials, supplies, and components	101.5	107.1	108.9	109.4	110.6	111.0	111.5	112.4	112.7	112.7	112.6	112.1	112.4	112.3
Materials and components for manufacturing	105.3	113.2	116.2	116.8	118.0	118.3	118.7	118.9	118.9	118.4	118.2	117.9	117.8	117.9
Materials for food manufacturing	100.8	106.0	107.7	108.6	110.4	110.1	111.4	111.1	112.5	112.4	112.9	113.2	114.0	113.3
Materials for nondurable manufacturing	102.2	112.9	116.8	117.5	119.2	119.7	119.8	120.3	120.3	119.5	118.9	118.1	117.4	117.1
Materials for durable manufacturing	106.2	118.7	123.2	124.3	125.5	125.3	125.7	125.9	125.0	123.6	123.0	122.2	122.7	122.9
Components for manufacturing	108.8	112.3	113.8	114.1	114.9	115.3	115.7	115.8	116.1	116.4	116.5	116.7	116.9	117.1
Materials and components for construction	109.8	116.1	118.1	118.7	119.4	119.9	120.5	121.1	121.5	121.5	121.5	121.4	121.8	122.2
Processed fuels and lubricants	73.3	71.2	69.0	69.8	71.6	72.1	73.2	76.7	78.1	79.3	78.7	77.3	78.6	77.8
Containers	114.5	120.1	122.6	122.7	123.1	123.9	124.4	125.1	125.3	125.6	126.0	126.0	126.5	126.9
Supplies	107.7	113.7	116.2	116.2	117.2	117.4	118.0	118.0	118.2	118.1	118.4	118.2	118.4	118.3
Crude materials for further processing	93.7	96.0	94.5	97.3	101.4	101.2	103.2	104.4	106.1	104.1	103.7	101.0	102.0	101.8
Foodstuffs and feedstuffs	96.2	106.1	108.0	109.5	112.5	111.0	113.7	111.6	114.9	111.7	109.7	109.5	108.3	107.2
Crude nonfood materials	87.9	85.5	82.0	85.4	90.0	90.7	92.2	95.3	96.0	94.7	95.3	91.2	93.5	93.9
Special groupings:														
Finished goods, excluding foods	104.0	106.5	108.1	108.3	109.2	109.9	110.0	111.4	112.6	112.8	112.3	111.5	111.9	113.3
Finished energy goods	61.8	59.8	60.0	59.2	60.8	61.8	62.3	68.4	71.8	70.2	68.4	63.6	65.7	65.7
Finished goods less energy	112.3	115.8	117.8	118.2	119.2	119.8	120.1	120.0	120.8	121.2	121.2	121.3	121.2	122.7
Finished consumer goods less energy	112.5	116.3	118.5	118.9	120.0	120.6	121.1	120.9	121.8	122.1	122.1	122.3	122.1	123.5
Finished goods less food and energy	113.3	117.0	118.9	119.4	120.1	120.7	120.7	120.8	121.4	122.1	121.9	122.3	122.2	123.9
Finished consumer goods less food and energy	114.2	118.5	120.6	121.2	121.9	122.6	122.6	122.7	123.3	124.1	123.9	124.4	124.2	126.0
Consumer nondurable goods less food and energy	116.3	122.0	123.9	125.0	125.9	126.8	127.1	127.4	127.9	129.0	129.2	129.9	129.7	130.4
Intermediate materials less foods and feeds	101.7	106.9	108.7	109.2	110.4	110.8	111.4	112.3	112.6	112.7	112.5	112.0	112.3	112.3
Intermediate foods and feeds	99.2	109.5	113.4	113.0	115.6	114.0	115.2	113.7	114.2	112.9	114.3	113.1	114.0	112.4
Intermediate energy goods	73.0	70.9	68.7	69.5	71.2	71.8	72.9	76.4	77.7	78.9	78.3	76.9	78.2	77.4
Intermediate goods less energy	107.3	114.6	117.3	117.8	118.9	119.1	119.6	119.9	120.0	119.7	119.7	119.4	119.5	119.6
Intermediate materials less foods and energy	107.8	115.2	118.0	118.6	119.6	119.9	120.3	120.7	120.8	120.5	120.3	120.0	120.1	120.3
Crude energy materials	75.0	67.7	62.9	66.6	71.2	72.0	73.5	77.3	78.3	77.5	78.9	73.6	76.2	76.6
Crude materials less energy	100.9	112.6	114.7	116.1	119.3	118.1	120.4	118.8	121.0	118.0	115.8	116.0	115.4	114.6
Crude nonfood materials less energy	115.7	133.0	135.6	136.9	140.3	140.3	141.3	141.2	140.3	137.9	134.9	136.5	137.2	137.4

35. Producer Price indexes, by durability of product

(1982 = 100)

Grouping	Annual average		1988		1989									
	1987	1988	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Total durable goods	109.9	114.7	116.8	117.2	118.1	118.3	118.5	118.7	118.9	119.0	118.7	118.8	119.1	120.0
Total nondurable goods	97.5	101.1	102.0	102.8	104.8	105.2	106.1	107.4	108.6	108.2	108.0	106.7	107.2	107.2
Total manufactures	104.4	109.1	111.0	111.4	112.5	112.9	113.4	114.4	115.0	114.9	114.6	114.2	114.5	115.2
Durable	109.6	114.1	116.0	116.4	117.1	117.4	117.6	117.8	118.1	118.3	118.1	118.3	118.5	119.5
Nondurable	99.2	104.1	106.1	106.4	107.8	108.3	109.2	110.8	111.6	111.3	110.9	110.1	110.4	110.8
Total raw or slightly processed goods	94.2	95.9	94.8	96.7	99.9	100.1	101.1	101.5	103.3	102.6	102.5	100.3	101.0	100.2
Durable	122.6	148.0	154.8	157.5	162.6	161.9	161.0	159.0	157.5	151.5	145.0	146.5	146.9	145.8
Nondurable	92.9	93.4	92.0	93.9	97.0	97.2	98.2	98.8	100.8	100.3	100.5	98.2	98.9	98.0

36. Producer price indexes for the net output of major industry groups

(December 1984=100, unless otherwise indicated)

Industry	SIC	Annual average 1987	1988	1988 Nov.	Dec.	1989 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Total mining industries		75.0	70.6	68.3	70.8	74.6	75.5	74.9	77.2	78.2	77.4	78.1	74.1	76.4	76.0
Metal mining	10	100.1	100.7	108.3	111.1	112.7	105.9	104.8	103.9	100.6	96.0	92.1	96.4	98.2	99.8
Anthracite mining (12/85=100)	11	98.9	100.2	101.5	102.7	102.8	102.7	103.0	102.5	102.4	102.4	102.4	102.6	102.6	103.0
Bituminous coal and lignite mining (12/85=100)	12	96.0	94.6	93.9	93.9	93.8	93.0	92.9	93.4	93.9	94.0	94.9	94.8	94.7	94.9
Oil and gas extraction (12/85=100)	13	74.3	68.5	65.2	68.3	73.0	74.5	73.8	76.7	78.1	77.2	78.2	72.9	75.7	75.1
Mining and quarrying of nonmetallic minerals, except fuels	14	105.1	108.0	109.1	109.1	109.9	110.8	110.9	111.3	111.6	112.1	111.6	111.5	111.0	111.2
Total manufacturing industries		100.9	104.4	106.1	106.4	107.5	107.9	108.5	109.4	110.1	110.1	109.9	109.5	109.8	110.7
Food and kindred products	20	102.6	107.1	109.6	109.5	110.8	110.9	111.9	111.6	112.2	112.1	112.5	112.4	112.4	112.4
Tobacco manufactures	21	126.5	141.8	145.1	153.1	154.9	155.0	155.0	155.1	155.1	163.5	163.6	164.9	164.9	165.8
Textile mill products	22	102.6	106.8	107.6	107.8	108.3	108.3	108.6	108.8	108.8	109.4	109.1	109.7	109.9	109.8
Apparel and other finished products made from fabrics and similar materials	23	103.9	107.2	108.2	108.5	108.9	109.3	109.3	109.5	109.6	109.8	110.1	110.5	110.9	111.1
Lumber and wood products, except furniture	24	105.3	109.2	109.7	109.6	110.7	112.3	113.1	114.4	115.4	115.9	117.1	116.6	116.6	117.9
Furniture and fixtures	25	106.4	111.4	112.9	113.3	113.6	114.0	114.4	114.7	115.2	115.5	115.8	116.1	116.3	116.8
Paper and allied products	26	104.9	113.7	117.0	117.5	118.2	119.7	120.4	120.6	121.1	121.2	121.2	121.2	121.2	121.7
Printing, publishing, and allied industries	27	112.2	118.2	120.1	120.5	122.6	123.2	123.6	124.0	124.2	124.6	124.8	125.2	125.6	125.9
Chemicals and allied products	28	103.6	113.0	117.2	117.8	119.6	119.9	120.6	121.0	120.9	120.6	120.4	119.5	119.1	118.8
Petroleum refining and related products	29	70.5	67.7	67.2	66.8	68.5	69.3	71.5	79.9	82.9	80.4	77.6	73.0	75.6	77.3
Rubber and miscellaneous plastic products	30	100.9	106.7	108.5	108.7	109.3	109.6	110.2	110.5	110.5	110.4	110.2	110.2	110.2	110.2
Leather and leather products	31	106.6	113.4	114.9	115.1	115.8	116.6	117.0	117.2	117.4	117.3	117.8	118.7	119.5	119.4
Stone, clay, glass, and concrete products	32	104.5	105.8	106.2	106.3	106.5	106.7	107.2	107.9	107.9	108.1	108.4	108.3	108.3	108.3
Primary metal industries	33	101.0	113.0	117.5	118.5	119.7	119.4	120.1	120.1	119.8	118.9	118.4	117.9	118.5	118.7
Fabricated metal products, except machinery and transportation equipment	34	102.1	107.4	109.6	110.0	110.6	111.1	111.5	112.0	112.5	112.5	112.6	112.7	113.2	113.8
Machinery, except electrical	35	103.2	106.4	107.8	108.1	108.9	109.3	109.7	109.8	110.2	110.3	111.0	111.2	111.5	111.6
Electrical and electronic machinery, equipment, and supplies	36	103.3	104.6	105.2	105.3	106.0	106.4	106.4	106.6	106.8	107.1	107.5	107.6	107.6	107.8
Transportation equipment	37	105.9	107.8	110.3	110.9	111.4	111.7	111.2	110.9	111.6	111.8	111.0	111.1	110.7	114.6
Measuring and controlling instruments; photographic, medical, optical goods; watches, clocks	38	105.1	107.0	107.5	107.5	108.8	109.1	109.7	110.1	110.6	110.9	110.9	111.1	111.2	111.8
Miscellaneous manufacturing industries (12/85=100)	39	103.8	107.5	108.6	108.9	110.1	110.6	110.9	111.2	111.5	111.7	112.1	112.4	112.6	112.7
Service industries:															
Pipelines, except natural gas (12/86=100)	46	97.9	94.8	94.7	94.7	94.5	94.5	94.5	94.4	94.4	94.4	94.4	94.4	94.4	94.4

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

(1982=100)

Index	1980	1981	1982	1983	1984	1985	1986	1987	1988
Finished goods:									
Total	88.0	96.1	100.0	101.6	103.7	104.7	103.2	105.4	108.0
Consumer goods	88.6	96.6	100.0	101.3	103.3	103.8	101.4	103.6	106.2
Capital equipment	85.8	94.6	100.0	102.8	105.2	107.5	109.7	111.7	114.3
Intermediate materials, supplies, and components:									
Total	90.3	98.6	100.0	100.6	103.1	102.7	99.1	101.5	107.1
Materials and components for manufacturing	91.7	98.7	100.0	101.2	104.1	103.3	102.2	105.3	113.2
Materials and components for construction	91.3	97.9	100.0	102.8	105.6	107.3	108.1	109.8	116.1
Processed fuels and lubricants	85.0	100.6	100.0	95.4	95.7	92.8	72.7	73.3	71.2
Containers	89.1	96.7	100.0	100.4	105.9	109.0	110.3	114.5	120.1
Supplies	89.9	96.9	100.0	101.8	104.1	104.4	105.6	107.7	113.7
Crude materials for further processing:									
Total	95.3	103.0	100.0	101.3	103.5	95.8	87.7	93.7	96.0
Foodstuffs and feedstuffs	104.6	103.9	100.0	101.8	104.7	94.8	93.2	96.2	106.1
Nonfood materials except fuel	84.6	101.8	100.0	100.7	102.2	96.9	81.6	87.9	85.5
Fuel	69.4	84.8	100.0	105.1	105.1	102.7	92.2	84.1	82.1

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

(1985=100, unless otherwise indicated)

Category	1974 SITC	1987				1988				1989		
		Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
ALL COMMODITIES		99.9	102.2	102.8	104.9	106.5	109.5	111.9	111.6	113.3	113.2	112.4
Food	0	87.3	89.9	86.7	94.6	95.2	103.4	118.7	114.2	117.6	115.5	110.4
Meat and meat preparations	01	115.0	121.2	118.8	116.8	122.8	131.0	137.0	130.3	132.9	128.2	119.5
Fish and crustaceans	03	117.1	125.8	131.1	138.5	140.9	145.0	175.9	174.0	169.1	158.9	137.2
Grain and grain preparations	04	68.3	71.0	67.8	77.4	79.8	87.2	108.5	102.0	108.4	106.4	101.5
Vegetables and fruit	05	115.3	112.4	101.1	100.5	97.5	104.3	109.9	110.3	108.8	113.6	113.9
Animal feeds, excluding unmilled cereals	08	117.0	123.8	123.1	145.2	134.6	158.1	161.0	157.0	154.1	144.0	139.3
Miscellaneous food products	09	100.1	100.6	100.3	100.3	102.3	102.8	105.2	104.9	107.0	108.0	107.7
Beverages and tobacco	1	102.6	105.0	105.5	107.0	109.6	110.6	112.0	111.7	117.2	117.6	120.4
Tobacco and tobacco products	12	102.6	105.0	105.5	107.0	109.8	110.7	112.1	111.8	117.6	117.9	120.8
Crude materials	2	105.7	114.5	118.7	125.2	130.0	139.9	140.8	135.8	142.6	143.0	139.2
Raw hides and skins	21	131.9	149.6	147.7	157.1	171.4	166.8	156.7	136.8	146.7	149.9	156.1
Oilseeds	22	90.4	101.6	95.1	109.6	115.6	143.0	154.7	135.7	139.3	129.8	111.5
Crude rubber	23	99.9	101.0	102.8	105.3	104.5	106.1	109.1	109.9	111.1	114.6	117.7
Wood	24	111.2	116.2	141.7	146.0	150.2	149.6	150.0	148.6	157.3	170.7	177.7
Pulp and waste paper	25	144.2	149.9	153.0	160.4	171.2	179.5	181.7	182.1	192.9	193.5	193.2
Textile fibers	26	97.8	112.4	116.5	111.6	107.5	109.9	100.8	103.6	106.7	115.5	118.1
Crude minerals	27	94.4	94.0	91.6	91.6	92.8	94.2	94.8	94.8	98.8	99.2	99.3
Metal ores and metal scrap	28	98.8	107.0	117.4	125.9	131.8	146.0	145.0	150.4	163.5	157.2	150.4
Fuels and related products	3	81.3	82.8	84.6	82.5	79.3	82.1	79.5	79.4	81.7	86.0	88.0
Coal and coke	32	92.6	88.2	91.0	89.8	90.6	92.0	92.9	93.4	93.7	94.3	95.6
Crude petroleum and petroleum products	33	–	–	–	100.0	90.8	97.2	89.2	88.4	94.5	105.4	108.8
Fats and oils	4	73.9	78.8	78.5	81.6	92.7	97.3	101.5	91.5	90.3	87.3	83.8
Animal oils and fats	41	81.1	86.7	86.7	88.7	101.3	101.6	104.3	95.7	91.8	89.6	84.6
Fixed vegetable oils and fats	42	67.3	71.9	71.2	75.4	85.7	93.7	99.1	87.1	88.2	84.4	81.6
Chemicals and related products	5	99.6	106.7	107.7	112.9	117.9	121.6	124.9	125.5	125.5	121.9	117.7
Organic chemicals	51	101.9	118.4	116.1	123.5	135.1	144.6	153.3	150.8	149.6	145.0	134.0
Dyeing, tanning, and coloring materials	53	103.6	104.2	105.5	108.5	109.1	110.1	111.5	113.0	115.5	116.5	120.5
Medicinal and pharmaceutical products (12/85=100)	54	101.0	101.4	102.2	105.4	109.3	106.3	105.9	107.5	109.0	108.9	109.4
Essential oils, polish, and cleaning preparations	55	105.5	105.7	107.3	108.4	111.2	113.6	120.2	122.4	125.3	124.7	122.4
Fertilizers, manufactured	56	85.6	91.6	100.9	106.5	110.6	109.8	116.4	119.9	119.4	108.0	108.9
Artificial resins, plastics and cellulose	57	104.8	111.9	116.4	124.8	129.4	137.5	138.2	132.5	125.8	118.6	111.4
Chemical materials and products, n.e.s.	58	97.5	97.7	97.1	98.2	100.3	101.7	104.1	105.4	108.4	109.4	109.4
Intermediate manufactured products	6	106.4	107.9	110.3	111.2	114.4	117.7	119.6	120.6	122.6	123.1	122.8
Leather and furskins	61	123.6	126.9	128.7	118.0	125.7	125.1	128.6	125.0	118.3	120.7	121.5
Rubber manufactures	62	102.0	102.5	103.9	104.1	105.2	108.8	109.4	110.4	113.0	112.9	113.4
Paper and paperboard products	64	114.7	117.0	120.1	122.4	126.2	129.0	130.2	131.1	132.5	133.7	132.8
Textiles	65	103.3	103.7	104.1	105.2	106.5	107.9	108.6	111.6	113.9	115.4	115.7
Non-metallic mineral manufactures (9/85=100)	66	106.8	108.7	110.4	111.3	113.4	114.1	115.6	116.8	120.4	122.4	123.9
Iron and steel	67	102.9	102.9	100.7	102.9	106.1	110.8	111.4	112.1	116.0	117.2	116.7
Nonferrous metals	68	106.6	113.0	123.0	124.4	134.0	143.5	149.1	150.0	151.7	145.8	140.4
Metal manufactures, n.e.s.	69	101.5	101.3	102.3	103.4	104.5	107.6	109.9	110.9	112.6	113.9	114.3
Machinery and transport equipment, excluding military and commercial aircraft	7	101.7	101.8	102.1	102.4	103.2	104.0	104.8	105.8	106.7	107.2	107.9
Power generating machinery and equipment	71	104.6	103.7	104.8	105.2	107.0	108.4	108.5	109.3	111.8	112.8	114.1
Machinery specialized for particular industries	72	100.0	100.1	100.5	100.9	102.1	103.6	104.7	106.0	107.3	108.8	109.8
Metalworking machinery	73	105.8	106.7	107.8	108.2	109.3	110.8	111.0	114.4	115.7	117.3	117.9
General industrial machines and parts, n.e.s.	74	104.2	104.5	104.6	105.4	106.7	108.1	109.3	110.3	112.7	113.3	114.0
Office machines and automatic data processing equipment	75	96.0	96.1	95.7	95.5	95.8	95.7	96.8	96.4	95.8	94.8	94.8
Telecommunications, sound recording and reproducing equipment	76	101.9	101.4	101.4	101.9	102.8	104.6	104.1	105.1	106.7	107.5	108.5
Electrical machinery and equipment	77	101.7	102.1	102.5	101.8	103.1	103.4	105.3	105.7	106.1	106.5	107.4
Road vehicles and parts	78	103.1	103.5	103.8	104.6	104.5	104.9	105.4	106.8	107.2	107.8	108.8
Other transport equipment, excluding military and commercial aviation	79	104.5	105.5	105.8	106.6	107.4	109.6	109.7	111.9	113.5	114.7	114.8
Miscellaneous manufactured articles	8	104.6	105.2	105.4	105.6	106.9	108.1	108.9	110.5	111.4	112.8	113.5
Furniture and parts	82	106.7	107.6	107.6	110.0	111.2	111.4	111.7	114.2	114.3	117.3	117.5
Professional, scientific, and controlling instruments and apparatus	87	104.4	105.5	106.3	107.1	110.0	111.1	112.5	113.9	115.5	118.2	119.4
Photographic apparatus and supplies, optical goods, watches, and clocks	88	102.7	102.5	99.0	97.9	97.6	100.1	99.4	99.9	98.5	99.2	99.5
Miscellaneous manufactured articles, n.e.s.	89	105.2	104.8	105.9	105.8	105.4	106.5	106.5	108.7	110.2	110.1	110.2

– Data not available.

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

(1985=100, unless otherwise indicated)

Category	1974 SITC	1987		1988				1989		
		Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
ALL COMMODITIES		110.9	112.5	113.8	116.8	115.3	117.6	119.7	119.8	118.2
ALL COMMODITIES, EXCLUDING FUELS		117.5	120.8	123.7	126.7	126.1	129.1	129.6	128.5	127.7
Food and live animals	0	109.1	112.5	114.1	114.0	112.7	114.3	114.1	111.3	106.1
Meat and meat preparations	01	114.4	113.4	111.5	107.0	111.2	108.7	111.2	109.7	124.1
Dairy products and eggs	02	121.7	125.1	125.6	125.0	122.2	125.8	124.0	120.2	119.7
Fish and crustaceans	03	130.4	131.0	132.5	129.3	125.9	126.7	127.0	122.7	121.6
Bakery goods, pasta products, grain, and grain preparations	04	124.8	130.7	135.8	139.8	136.9	142.2	140.4	140.2	141.6
Fruits and vegetables	05	110.0	116.2	115.4	120.3	123.7	127.7	123.4	123.2	119.1
Sugar, sugar preparations, and honey	06	109.0	107.0	109.6	110.0	112.1	110.8	109.8	111.8	114.5
Coffee, tea, cocoa	07	85.1	90.6	94.3	93.3	87.4	90.6	91.2	85.3	62.4
Beverages and tobacco	1	112.2	113.5	116.0	116.2	115.3	116.2	117.0	117.2	118.9
Beverages	11	114.8	116.2	118.7	120.0	118.9	119.9	120.7	120.7	122.8
Crude materials	2	120.3	122.1	129.2	137.8	135.4	143.2	146.2	144.3	137.5
Crude rubber (including synthetic and reclaimed)	23	110.7	120.1	121.7	151.1	133.3	121.5	123.0	103.4	98.3
Cork and wood	24	117.4	108.8	112.4	111.4	109.7	107.8	112.1	112.4	113.3
Pulp and waste paper	25	133.4	141.0	151.0	160.5	169.6	174.7	184.7	190.0	189.6
Textile fibers	26	128.1	135.2	137.8	145.5	141.9	145.6	151.5	145.4	141.9
Crude fertilizers and crude minerals	27	99.2	99.9	100.4	101.0	97.2	100.2	103.3	104.7	101.2
Metalliferous ores and metal scrap	28	128.7	137.9	151.2	167.6	172.2	205.4	204.3	212.3	185.4
Crude animal and vegetable materials, n.e.s.	29	107.6	118.3	135.8	148.2	122.0	139.5	138.5	110.3	108.5
Fuels and related products	3	74.3	67.2	60.6	63.4	57.7	56.4	66.8	73.3	67.9
Crude petroleum and petroleum products	33	75.2	67.8	60.4	63.6	57.7	56.1	67.3	74.4	68.6
Fats and oils	4	96.4	102.1	106.4	111.2	114.0	112.3	112.5	117.4	107.0
Fixed vegetable oils and fats (9/87=100)	42	100.0	105.7	111.1	116.1	119.2	117.4	117.3	122.6	111.0
Chemicals and related products	5	105.6	110.1	114.2	116.4	119.2	122.2	123.6	120.4	117.8
Organic chemicals	51	98.2	103.0	105.8	107.3	111.3	115.1	117.6	114.0	110.5
Inorganic chemicals	52	89.8	90.1	92.0	92.3	93.0	96.1	93.1	86.6	85.7
Medicinal and pharmaceutical products	54	124.3	126.3	135.3	140.3	145.4	146.4	154.9	153.5	150.1
Essential oils and perfumes	55	119.2	123.0	125.7	126.2	127.5	130.5	130.3	130.2	126.2
Manufactured fertilizers	56	109.3	133.6	133.7	136.3	136.5	139.9	143.5	142.1	132.4
Artificial resins and plastics and cellulose	58	114.4	117.6	121.6	124.3	127.6	129.5	129.5	129.8	130.5
Chemical materials and products, n.e.s.	59	120.6	124.8	138.7	148.5	153.4	156.5	154.8	151.6	149.8
Intermediate manufactured products	6	116.3	119.8	124.4	132.2	132.3	135.0	137.3	136.1	135.3
Leather and furskins	61	117.8	124.4	131.8	137.0	136.6	134.9	134.6	133.8	133.9
Rubber manufactures, n.e.s.	62	103.2	104.6	106.0	107.7	109.1	111.1	111.7	112.2	113.2
Cork and wood manufactures	63	128.3	128.2	133.8	138.2	136.1	134.1	136.9	139.8	141.5
Paper and paperboard products	64	110.3	112.3	117.2	118.3	119.5	119.9	120.6	120.8	119.9
Textiles	65	114.6	118.6	120.0	120.6	119.1	120.5	120.5	122.1	121.8
Nonmetallic mineral manufactures, n.e.s.	66	130.4	133.4	137.4	142.5	139.7	141.9	147.5	149.5	151.2
Iron and steel	67	109.4	114.0	120.0	127.2	129.9	130.7	132.6	133.6	133.7
Nonferrous metals	68	120.9	125.8	132.7	159.7	158.9	169.1	172.8	158.6	150.8
Metal manufactures	69	114.6	117.8	121.1	126.9	127.5	130.7	132.4	132.6	133.5
Machinery and transport equipment	7	119.9	123.1	125.4	127.3	126.7	129.9	130.1	129.2	129.0
Machinery (including SITC 71-77)	7hyb	118.7	122.6	124.6	126.4	125.9	128.7	129.2	128.4	127.9
Machinery specialized for particular industries	72	134.3	142.1	146.8	149.8	143.7	150.8	149.1	145.7	145.8
Metalworking machinery	73	130.2	135.5	139.9	142.4	139.7	144.1	142.9	139.5	144.0
General industrial machinery and parts, n.e.s.	74	130.1	137.0	140.4	143.7	139.6	144.2	144.7	143.0	143.3
Office machines and automatic data processing equipment	75	114.8	118.3	118.1	119.5	118.7	118.7	119.6	119.3	117.4
Telecommunications, sound recording and reproducing apparatus	76	110.2	112.1	112.8	113.8	113.9	115.5	115.7	115.7	115.0
Electrical machinery and equipment	77	115.1	118.2	122.2	124.2	125.9	129.3	130.5	129.6	129.0
Road vehicles and parts	78	120.6	122.6	125.5	127.6	127.1	130.8	130.5	129.6	129.5
Miscellaneous manufactured articles	8	118.5	121.8	124.2	125.7	124.2	126.6	126.6	126.6	127.2
Plumbing, heating, and lighting fixtures	81	116.2	121.0	123.4	126.9	124.5	127.2	130.0	131.5	132.8
Furniture and parts	82	119.0	124.3	125.4	129.6	128.0	129.1	127.2	127.9	128.7
Travel goods, handbags, and similar goods (6/85=100)	83	98.2	103.0	105.8	107.3	111.3	115.1	117.6	114.0	110.5
Clothing	84	111.9	112.3	115.6	114.9	116.7	117.2	118.5	119.9	120.9
Footwear	85	119.0	124.3	125.4	129.6	128.0	129.1	127.2	127.9	128.7
Professional, scientific, and controlling instruments and apparatus	87	132.7	138.7	140.0	142.5	135.8	141.9	141.1	136.5	136.5
Photographic apparatus and supplies, optical goods, watches, and clocks	88	122.1	127.3	129.2	129.3	125.4	130.6	130.2	127.9	126.4
Miscellaneous manufactured articles, n.e.s.	89	122.3	127.3	129.2	132.1	128.2	131.4	131.7	131.4	131.5

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

(1985 = 100 unless otherwise indicated)

Category	1987		1988				1989		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Foods, feeds, and beverages	88.0	96.6	98.5	110.1	124.5	117.4	120.8	117.2	110.3
Industrial supplies and materials	109.1	111.8	114.2	118.3	118.7	118.6	120.7	120.9	119.5
Capital goods	101.8	102.1	103.4	104.3	104.9	105.7	106.7	107.4	108.2
Automotive	104.0	104.5	104.3	104.8	106.5	107.7	108.1	108.6	109.4
Consumer goods	106.9	108.0	110.1	110.6	111.3	112.9	115.3	115.6	116.4
Consumer nondurables, manufactured, except rugs	104.6	106.3	107.4	108.7	109.3	110.0	111.4	111.5	111.6
Consumer durables, manufactured	107.3	107.9	110.4	110.4	110.7	112.6	115.4	115.4	116.4
Agricultural (9/88=100)	92.1	99.3	101.1	110.9	120.6	114.0	117.7	116.1	111.2
All exports, excluding agricultural (9/88=100)	104.9	106.2	107.7	109.7	110.8	111.6	112.9	113.1	113.0

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

(1985=100)

Category	1987		1988				1989		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
All imports, excluding petroleum (6/88=100)	117.0	120.3	123.2	126.2	125.4	128.3	129.0	128.0	127.1
Foods, feeds, and beverages	109.0	112.1	113.7	113.7	112.7	114.2	113.8	111.7	107.1
Industrial supplies and materials	95.3	93.7	92.7	97.8	95.2	96.4	102.1	104.2	100.2
Petroleum and petroleum products, excluding natural gas	74.7	67.6	60.3	63.5	57.5	56.2	67.2	74.1	68.2
Industrial supplies and materials, excluding petroleum	112.6	115.6	119.6	126.4	126.4	129.6	131.2	129.4	126.9
Capital goods, except automotive	121.9	126.6	128.6	131.0	129.0	132.3	132.4	131.0	130.8
Automotive vehicles, parts and engines	118.4	120.6	123.7	125.8	126.0	129.2	129.1	128.2	128.2
Consumer goods except automotive	118.2	121.4	124.2	126.3	125.0	127.4	128.7	129.1	129.4
Nondurables, manufactured	116.8	120.2	123.3	124.2	123.8	125.4	126.5	127.5	128.5
Durables, manufactured	117.9	121.0	123.5	125.5	124.5	127.4	127.9	127.9	127.7

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

(1985=100)

Industry group	1987		1988				1989		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Manufacturing:									
Food and kindred products	107.1	116.3	120.8	125.1	128.9	123.5	124.5	122.7	119.4
Lumber and wood products, except furniture	138.9	142.5	146.1	145.4	146.1	144.0	151.7	164.4	171.2
Furniture and fixtures	108.7	111.2	112.5	112.9	112.9	115.3	115.2	116.0	116.2
Paper and allied products	115.5	119.3	124.6	129.8	133.1	135.6	139.9	141.4	141.5
Chemicals and allied products	108.7	113.8	118.4	122.3	125.4	125.5	125.9	122.5	118.6
Petroleum and coal products	81.4	78.8	73.0	77.8	73.7	75.4	79.8	86.9	88.8
Primary metal products	122.3	126.6	126.9	133.8	133.5	133.6	130.8	125.7	122.4
Machinery, except electrical	99.4	99.7	100.6	101.3	102.2	102.8	103.4	103.7	104.4
Electrical machinery	102.5	102.2	102.9	103.7	104.9	105.4	106.3	106.8	107.8
Transportation equipment	106.9	107.8	108.1	109.1	109.4	110.9	111.8	112.7	113.4
Scientific instruments; optical goods; clocks	106.6	107.1	109.2	110.8	112.0	113.4	114.5	116.7	117.6

[1] SIC-based classification.

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

(1985=100)

Industry group	1987		1988				1989		
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.
Manufacturing:									
Food and kindred products	108.4	110.6	114.0	114.4	115.0	115.4	114.9	114.0	114.8
Textile mill products	119.4	124.3	127.4	128.9	127.0	127.8	139.0	139.8	137.6
Apparel and related products	112.3	113.4	116.6	115.8	117.0	117.5	118.9	120.3	121.3
Lumber and wood products, except furniture	120.3	115.4	119.5	120.3	118.6	117.0	120.5	122.2	123.6
Furniture and fixtures	118.3	118.9	122.2	124.0	124.8	128.0	126.3	126.1	128.7
Paper and allied products	110.9	113.6	119.1	121.3	123.8	125.2	127.4	128.2	127.4
Chemicals and allied products	107.2	112.2	116.8	121.3	123.5	130.6	130.7	130.0	123.8
Petroleum refining and allied products	138.4	127.4	114.5	119.2	110.8	111.6	121.3	139.1	127.3
Rubber and miscellaneous plastics products	112.3	115.7	117.2	119.0	117.7	122.6	122.3	123.1	124.1
Leather and leather products	113.3	118.4	120.8	124.6	123.7	124.0	122.8	123.5	124.6
Stone, clay, glass, and concrete products	129.6	133.9	138.2	141.5	140.5	144.3	145.1	144.8	147.4
Primary metal products	115.2	120.0	122.6	137.0	136.2	140.2	140.6	135.2	132.1
Fabricated metal products	119.8	123.2	127.3	133.3	133.0	136.3	138.9	140.3	141.2
Machinery, except electrical	127.8	133.9	135.9	138.2	135.0	138.4	138.6	136.7	135.8
Electrical machinery and supplies	110.2	112.5	114.7	116.1	116.7	119.0	119.7	119.4	119.0
Transportation equipment	122.5	124.6	127.3	129.5	129.3	132.8	132.6	131.9	132.0
Scientific instruments; optical goods; clocks	128.8	134.0	135.8	137.0	132.2	137.7	136.7	133.8	133.0
Miscellaneous manufactured commodities	121.4	123.8	127.7	133.1	130.6	132.2	136.6	137.7	138.1

[1] SIC - based classification.

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

(1977=100)

Item	Quarterly Indexes										
	1987				1988				1989		
	I	II	III	IV	I	II	III	IV	I	II	III
Business:											
Output per hour of all persons	110.0	110.7	111.7	112.5	113.2	112.6	113.4	113.5	113.8	114.2	114.6
Compensation per hour	188.3	189.5	191.8	195.1	196.4	199.1	201.9	204.5	206.9	210.4	212.8
Real compensation per hour	101.9	101.4	101.7	102.5	102.3	102.5	102.8	103.0	102.8	102.9	103.5
Unit labor costs	171.2	171.3	171.6	173.5	173.5	176.9	178.0	180.2	181.9	184.1	185.7
Unit nonlabor payments	162.6	166.5	168.9	167.2	168.9	168.8	171.8	173.7	174.7	176.3	176.1
Implicit price deflator	168.2	169.6	170.7	171.3	171.9	174.1	175.8	177.9	179.4	181.4	182.3
Nonfarm business:											
Output per hour of all persons	107.7	108.6	109.5	110.2	111.0	110.5	111.5	112.0	111.6	111.9	112.5
Compensation per hour	187.1	188.3	190.5	193.8	195.0	197.5	200.2	203.0	205.5	208.3	211.0
Real compensation per hour	101.3	100.7	101.0	101.8	101.5	101.7	101.9	102.3	102.1	101.9	102.7
Unit labor costs	173.6	173.4	173.9	175.8	175.7	178.7	179.6	181.3	184.1	186.1	187.6
Unit nonlabor payments	164.1	167.6	170.3	168.7	170.3	169.8	172.1	176.3	174.6	176.5	177.2
Implicit price deflator	170.3	171.4	172.6	173.4	173.8	175.6	177.0	179.6	180.8	182.8	184.0
Nonfinancial corporations:											
Output per hour of all employees	110.4	111.6	113.0	113.5	114.6	114.7	115.1	114.9	114.5	114.5	–
Compensation per hour	183.7	184.8	186.9	189.5	190.9	193.1	195.5	197.8	200.2	202.8	–
Real compensation per hour	99.4	98.9	99.1	99.6	99.4	99.5	99.5	99.6	99.5	99.3	–
Total unit costs	171.0	170.8	170.8	172.1	171.9	173.6	175.2	177.5	180.4	182.9	–
Unit labor costs	166.3	165.5	165.3	167.0	166.6	168.4	169.9	172.1	174.9	177.1	–
Unit nonlabor costs	185.0	186.3	186.9	187.2	187.8	188.9	191.0	193.3	196.9	200.1	–
Unit profits	118.1	122.5	129.3	122.0	127.0	129.1	127.5	131.6	119.6	116.6	–
Unit nonlabor payments	161.6	163.9	166.7	164.4	166.5	168.0	168.8	171.7	169.8	170.9	–
Implicit price deflator	164.7	165.0	165.8	166.1	166.5	168.2	169.5	172.0	173.1	175.0	–
Manufacturing:											
Output per hour of all persons	131.5	133.3	134.3	134.7	135.5	136.3	137.8	138.6	139.4	140.7	141.2
Compensation per hour	188.8	189.0	190.4	191.7	194.3	195.3	197.4	200.2	201.9	203.2	206.2
Real compensation per hour	102.2	101.1	100.9	100.7	101.2	100.6	100.5	100.8	100.3	99.4	100.3
Unit labor costs	143.5	141.8	141.8	142.3	143.4	143.3	143.2	144.4	144.8	144.4	146.0

– Data not available.

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

(1977=100)

Item	1960	1970	1973	1978	1980	1982	1983	1984	1985	1986	1987
Private business											
Productivity:											
Output per hour of all persons	67.3	88.4	95.9	100.8	99.2	100.3	103.0	105.6	107.9	110.3	111.2
Output per unit of capital services	103.7	102.7	105.6	101.9	94.1	86.6	88.3	92.7	92.9	93.0	93.7
Multifactor productivity	78.5	93.1	99.2	101.2	97.4	95.2	97.6	100.9	102.4	103.9	104.7
Output	55.3	80.2	93.0	105.8	106.6	105.4	109.9	119.2	124.3	128.7	133.4
Inputs:											
Hours of all persons	82.2	90.8	96.9	105.0	107.5	105.2	106.7	112.9	115.2	116.7	120.0
Capital services	53.3	78.1	88.0	103.8	113.3	121.8	124.4	128.6	133.8	138.5	142.4
Combined units of labor and capital input	70.5	86.1	93.7	104.6	109.4	110.7	112.6	118.1	121.4	123.9	127.4
Capital per hour of all persons	64.9	86.1	90.8	98.9	105.4	115.8	116.6	113.9	116.1	118.7	118.6
Private nonfarm business											
Productivity:											
Output per hour of all persons	70.7	89.2	96.4	100.8	98.7	99.1	102.5	104.7	106.2	108.3	109.1
Output per unit of capital services	104.9	103.5	106.3	101.9	93.3	85.1	87.3	91.3	91.0	90.8	91.5
Multifactor productivity	81.2	93.8	99.7	101.2	96.9	94.1	97.0	99.9	100.7	102.0	102.7
Output	54.4	79.9	92.9	106.0	106.6	104.8	110.1	119.3	124.0	128.3	133.2
Inputs:											
Hours of all persons	77.0	89.6	96.3	105.1	108.0	105.7	107.4	114.0	116.8	118.5	122.0
Capital services	51.9	77.2	87.3	104.0	114.2	123.3	126.1	130.6	136.3	141.3	145.5
Combined units of labor and capital input	67.1	85.2	93.2	104.7	110.0	111.4	113.5	119.4	123.1	125.8	129.6
Capital per hour of all persons	67.4	86.2	90.7	99.0	105.7	116.6	117.4	114.6	116.7	119.3	119.2
Manufacturing											
Productivity:											
Output per hour of all persons	62.2	80.8	93.4	101.5	101.4	105.9	112.0	118.1	123.6	127.7	131.9
Output per unit of capital services	103.0	99.1	112.0	102.0	91.0	81.6	86.7	95.5	97.3	98.4	102.0
Multifactor productivity	72.0	85.3	98.0	101.6	98.6	99.2	105.0	112.1	116.4	119.5	123.6
Output	52.5	78.6	96.3	106.0	103.2	98.4	104.7	117.5	122.0	124.7	130.1
Inputs:											
Hours of all persons	84.4	97.3	103.1	104.4	101.7	92.9	93.5	99.5	98.7	97.7	98.6
Capital services	51.0	79.3	86.0	103.9	113.4	120.5	120.8	123.0	125.4	126.8	127.6
Combined units of labor and capital inputs	72.9	92.1	98.3	104.2	104.6	99.2	99.7	104.8	104.8	104.4	105.3
Capital per hour of all persons	60.4	81.5	83.4	99.5	111.5	129.8	129.3	123.7	127.1	129.8	129.4

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

(1977=100)

Item	1960	1970	1973	1977	1979	1981	1982	1983	1984	1985	1986	1987	1988
Business:													
Output per hour of all persons	66.1	87.6	95.2	100.0	99.7	101.0	100.2	102.6	105.2	107.3	109.8	111.1	113.0
Compensation per hour	32.9	57.2	70.3	100.0	119.3	144.1	154.9	160.8	167.4	174.8	183.8	191.0	200.2
Real compensation per hour	67.3	89.4	96.0	100.0	99.5	96.1	97.3	97.8	97.6	98.4	101.7	101.9	102.5
Unit labor costs	49.7	65.3	73.8	100.0	119.6	142.7	154.5	156.7	159.1	162.8	167.5	171.9	177.1
Unit nonlabor payments	46.4	59.4	72.6	100.0	112.3	134.4	136.3	146.2	156.4	160.9	162.1	166.3	170.9
Implicit price deflator	48.5	63.2	73.4	100.0	117.0	139.8	148.1	153.0	158.2	162.2	165.6	170.0	174.9
Nonfarm business:													
Output per hour of all persons	69.5	88.4	95.8	100.0	99.4	100.0	99.1	102.0	104.2	105.6	107.7	108.9	111.1
Compensation per hour	34.5	57.6	70.7	100.0	119.0	144.0	154.7	160.8	167.2	174.0	182.9	189.8	198.7
Real compensation per hour	70.7	90.0	96.4	100.0	99.3	96.0	97.1	97.8	97.5	98.0	101.1	101.2	101.8
Unit labor costs	49.7	65.2	73.8	100.0	119.8	144.0	156.1	157.6	160.4	164.9	169.8	174.2	178.8
Unit nonlabor payments	46.3	60.0	69.4	100.0	110.3	133.2	136.1	148.1	156.3	161.9	163.3	167.7	172.2
Implicit price deflator	48.5	63.4	72.3	100.0	116.5	140.3	149.2	154.3	159.0	163.8	167.6	172.0	176.5
Nonfinancial corporations:													
Output per hour of all employees	71.9	90.2	96.8	100.0	99.9	99.9	100.2	103.0	105.5	107.2	109.6	112.1	114.7
Compensation per hour	36.1	58.6	71.0	100.0	118.9	143.7	154.1	159.1	165.0	171.6	179.9	186.1	194.1
Real compensation per hour	74.0	91.6	96.9	100.0	99.3	95.8	96.8	96.8	96.3	96.7	99.5	99.3	99.4
Total unit costs	49.4	64.8	72.7	100.0	118.2	147.7	159.5	159.5	160.8	164.1	168.5	171.2	174.6
Unit labor costs	50.2	65.0	73.4	100.0	119.0	143.8	153.8	154.5	156.5	160.2	164.1	166.1	169.3
Unit nonlabor costs	47.0	64.2	70.7	100.0	115.8	159.1	176.4	174.3	173.6	175.8	181.7	186.4	190.3
Unit profits	59.8	52.3	65.6	100.0	94.5	98.1	78.5	110.9	136.5	133.0	123.1	123.0	128.8
Unit nonlabor payments	51.5	60.1	68.9	100.0	108.4	137.8	142.1	152.1	160.6	160.8	161.2	164.2	168.8
Implicit price deflator	50.7	63.3	71.9	100.0	115.4	141.7	149.8	153.7	157.9	160.4	163.1	165.4	169.1
Manufacturing:													
Output per hour of all persons	60.7	80.2	92.6	100.0	101.6	104.0	106.6	112.2	118.2	123.5	128.2	132.9	136.5
Compensation per hour	35.6	57.0	68.2	100.0	118.9	145.7	158.7	162.7	168.1	176.3	184.3	189.2	196.0
Real compensation per hour	73.0	89.0	93.1	100.0	99.2	97.1	99.6	99.0	98.1	99.3	101.9	100.9	100.4
Unit labor costs	58.7	71.0	73.7	100.0	117.0	140.1	148.8	145.1	142.3	142.7	143.8	142.3	143.6
Unit nonlabor payments	60.0	64.1	70.8	100.0	98.9	111.7	113.7	128.3	138.5	130.3	135.2	137.6	–
Implicit price deflator	59.1	69.0	72.8	100.0	111.7	131.8	138.6	140.2	141.2	139.1	141.3	141.0	–

– Data not available.

47. Annual productivity indexes for selected industries

(1977 = 100)

Industry	SIC	1970	1973	1975	1979	1980	1981	1982	1983	1984	1985	1986	1987
Iron mining, crude ore	1011	99.9	113.2	112.7	122.7	124.7	132.8	100.9	139.0	173.3	187.9	200.3	267.5
Iron mining, usable ore	1011	111.1	122.6	117.8	122.8	123.2	130.6	98.2	138.6	171.7	187.9	197.8	262.0
Copper mining, crude ore	1021	84.8	92.0	87.2	109.1	99.5	102.0	106.4	129.9	140.3	164.2	195.4	193.1
Copper mining, recoverable metal	1021	85.5	85.8	77.2	98.2	91.6	97.7	116.2	130.9	155.4	193.1	228.9	209.8
Coal mining	111,121	141.1	125.5	105.3	99.4	112.5	122.2	119.2	136.1	151.3	154.0	167.3	179.7
Bituminous coal and lignite mining	121	142.3	126.3	105.2	99.6	112.6	122.7	120.0	136.9	152.3	154.6	168.2	180.6
Nonmetallic minerals, except fuels	14	89.7	97.2	90.6	102.7	96.5	94.7	89.3	98.2	105.5	107.5	108.2	107.9
Crushed and broken stone	142	83.1	94.0	91.4	106.9	101.3	96.7	94.1	103.9	105.8	104.5	104.9	102.7
Red meat products	2011,13	77.3	82.8	84.4	101.7	107.0	107.9	112.3	115.9	117.0	119.5	117.3	114.0
Meatpacking plants	2011	78.7	88.7	88.6	104.6	108.9	113.9	119.5	123.4	125.6	130.1	126.2	124.1
Sausages and other prepared meats	2013	72.8	69.1	74.8	95.0	102.3	95.0	96.5	100.0	99.5	98.8	98.7	94.7
Poultry dressing and processing	2016,17	78.3	77.5	87.9	106.1	105.7	116.4	125.6	131.7	130.3	133.2	127.3	–
Fluid milk	2026	73.7	88.4	95.5	115.6	123.9	128.0	135.3	142.4	147.7	152.3	157.0	164.2
Preserved fruits and vegetables	203	79.7	93.1	93.7	98.9	100.8	99.2	107.9	110.4	112.4	111.7	118.3	–
Grain mill products	204	79.7	81.7	87.1	101.0	105.3	110.9	121.0	125.5	132.8	144.9	146.6	–
Flour and other grain mill products	2041	76.6	80.4	85.8	97.3	94.8	96.7	104.1	110.4	114.9	122.9	130.6	129.0
Rice milling	2044	82.0	81.5	90.4	96.3	111.8	117.9	104.5	103.3	93.2	103.2	112.6	118.4
Bakery products	205	87.5	93.6	93.4	95.0	93.7	96.2	103.3	106.9	106.8	108.5	114.4	–
Sugar	2061,62,63	85.9	96.3	94.0	103.1	100.1	98.8	90.4	98.6	99.7	105.5	110.1	127.4
Raw and refined cane sugar	2061,62	86.1	93.4	90.8	101.5	99.3	98.8	87.6	100.0	94.7	108.7	109.6	118.5
Beet sugar	2063	92.9	100.0	98.1	104.6	102.1	98.7	94.8	94.5	108.8	100.7	111.8	142.6
Malt beverages	2082	56.7	73.7	86.1	109.9	116.0	118.3	122.6	131.3	137.9	130.3	152.3	154.8
Bottled and canned soft drinks	2086	70.0	79.0	89.5	103.4	106.9	110.6	114.1	121.5	131.0	136.7	146.6	157.3
Total tobacco products	2111,21,31	86.8	89.5	93.9	102.1	102.1	100.5	100.7	105.1	110.3	113.4	117.2	119.2
Cigarettes, chewing and smoking tobacco	2111,31	85.3	88.7	93.3	102.4	101.8	99.6	99.5	104.1	107.2	111.7	115.5	121.2
Cigars	2121	88.4	89.5	93.7	101.4	106.4	107.3	111.4	112.3	141.4	129.3	133.1	111.1
Cotton and synthetic broad woven fabrics	2211,21	–	76.6	86.7	100.7	104.9	107.4	112.5	121.8	119.9	123.7	132.9	133.7
Hosiery	2251,52	65.5	74.6	94.3	107.9	107.4	122.0	114.2	118.0	119.9	118.5	121.0	121.1
Nonwool yarn mills	2281	84.3	85.0	101.2	103.8	99.7	103.1	118.2	128.5	129.6	134.5	141.1	142.8
Men's and boys' suits and coats	2311	75.1	84.2	95.2	96.9	97.3	98.8	95.2	90.2	96.9	106.3	107.5	114.8
Sawmills and planing mills, general	2421	90.0	100.2	98.8	106.3	104.2	107.9	115.1	126.8	132.3	139.2	155.1	151.6
Millwork	2431	95.9	102.3	100.2	92.2	93.6	96.4	86.1	87.9	88.7	85.7	90.1	–
Veneer and plywood	2435,36	83.2	87.5	97.8	94.5	102.8	106.9	114.4	121.1	120.0	125.1	126.6	–
Household furniture	251	82.2	97.3	97.5	101.5	99.9	103.0	104.7	110.1	112.2	112.5	118.5	115.9
Wood household furniture	2511,7	83.5	103.9	98.0	101.6	97.2	97.3	98.2	103.8	105.5	104.4	111.9	–
Upholstered household furniture	2512	84.4	91.3	97.2	105.1	102.3	110.5	115.9	121.6	122.7	124.6	127.1	–
Mattresses and bedsprings	2515	67.7	88.4	96.9	102.8	112.1	114.0	104.3	108.6	109.5	108.8	117.9	128.3
Office furniture	252	78.2	90.6	85.5	107.2	112.1	108.8	107.4	112.0	117.8	116.7	117.8	122.6
Paper, paperboard, and pulp mills	2611,21,31,61	77.5	91.5	86.7	105.4	105.2	104.4	111.3	119.5	121.0	123.1	133.5	141.8
Paper and plastic bags	2643	75.8	94.1	99.8	98.0	94.6	92.3	95.3	102.9	105.6	107.1	112.3	–
Folding paperboard boxes	2651	77.4	92.8	98.5	104.6	101.6	104.5	104.2	104.5	102.4	99.6	101.4	98.1
Corrugated and solid fiber boxes	2653	73.1	86.1	96.2	106.9	111.0	109.8	111.9	114.0	118.9	122.5	126.7	128.9
Industrial inorganic chemicals	281	–	102.1	86.5	112.2	94.3	91.4	86.3	94.0	104.5	101.4	105.4	–
Industrial inorganic chemicals, not elsewhere classified	2819 pt.	–	98.5	84.0	114.6	90.3	89.3	80.8	85.8	95.0	91.5	90.6	–
Synthetic fibers	2823,24	53.8	79.5	84.5	115.0	115.7	120.9	103.6	126.2	125.3	135.8	146.2	155.7
Pharmaceutical preparations	2834	74.8	84.8	92.5	105.3	106.0	104.2	107.0	114.3	116.4	118.1	121.8	124.0
Cosmetics and other toiletries	2844	65.9	87.2	94.0	94.0	83.6	76.1	84.0	86.2	85.2	87.3	94.3	–
Paints and allied products	2851	74.9	82.2	94.2	104.8	100.8	99.8	106.5	113.8	121.5	125.6	125.2	128.5
Industrial organic chemicals, not elsewhere classified	2869	65.5	90.4	85.3	113.4	98.9	103.9	87.2	105.3	113.9	112.5	119.5	–
Agricultural chemicals	287	–	86.7	86.7	102.0	97.2	97.7	94.5	106.2	119.8	115.6	108.8	–
Petroleum refining	2911	73.8	93.6	88.7	94.9	94.2	83.7	79.4	81.8	92.5	102.6	113.8	118.8
Tires and inner tubes	3011	87.6	95.1	91.8	107.3	102.4	118.1	128.2	136.1	146.8	146.7	151.4	167.8
Miscellaneous plastic products	3079	–	93.6	86.2	94.8	95.7	98.5	110.1	107.2	110.5	113.0	114.1	–
Footwear	314	100.3	98.5	101.3	100.2	99.1	95.6	106.4	103.9	105.7	107.3	109.5	104.5
Glass containers	3221	87.2	92.6	98.5	102.4	105.2	110.1	105.8	108.5	128.0	127.0	138.9	143.0
Hydraulic cement	3241	84.8	99.7	84.7	96.0	87.0	91.1	94.0	108.4	125.3	128.3	135.5	142.2
Structural clay products	325	78.2	91.1	91.0	95.9	97.6	100.7	102.6	105.4	111.3	112.8	115.6	118.7
Clay construction products	3251,53,59	77.4	90.6	89.1	91.6	94.0	97.3	103.3	101.1	110.4	112.6	114.5	116.2
Brick and structural clay tile	3251	81.1	90.1	93.1	85.4	84.9	84.3	88.6	85.7	93.4	100.4	98.9	102.9
Clay refractories	3255	82.1	93.6	95.5	110.2	109.6	111.1	100.0	121.6	115.1	114.1	122.9	131.4
Concrete products	3271,72	82.3	92.4	91.9	92.7	90.4	88.5	91.0	97.6	99.2	100.5	105.9	–
Ready-mixed concrete	3273	91.1	103.5	97.5	99.9	93.1	95.4	90.6	93.7	96.3	97.4	100.1	–
Steel	331	87.6	106.6	93.3	106.9	102.9	112.0	90.9	116.8	131.3	139.5	141.8	151.7
Gray iron foundries	3321	79.8	94.5	97.0	96.8	90.8	92.7	93.7	98.3	106.8	104.2	107.4	104.8
Steel foundries	3324,25	90.6	101.9	107.5	100.6	99.8	91.6	89.0	89.9	98.8	95.6	100.3	94.3
Steel foundries, not elsewhere classified	3325	–	100.9	107.7	100.4	99.8	90.0	88.4	90.2	103.5	101.0	104.3	101.9
Primary copper, lead, and zinc	3331,32,33	78.1	94.8	85.3	106.5	103.7	118.6	128.0	141.2	148.0	181.5	210.8	221.1
Primary copper	3331	79.8	90.6	83.0	113.3	105.3	124.4	128.5	138.3	151.9	189.8	229.2	228.2
Primary aluminum	3334	92.5	99.4	96.2	99.7	100.0	103.8	103.0	111.5	125.4	125.4	134.0	143.5
Copper rolling and drawing	3351	76.8	93.2	76.8	98.1	94.1	97.9	106.0	121.1	128.1	122.0	127.2	139.8
Aluminum rolling and drawing	3353,54,55	66.0	94.0	87.5	100.3	100.0	96.8	99.2	110.4	116.2	115.9	125.0	141.6
Metal cans	3411	78.8	81.6	87.0	103.6	102.6	108.1	118.5	120.5	123.0	125.6	126.0	134.3
Hand and edge tools	3423	91.0	101.8	93.9	103.9	98.4	95.2	92.8	89.3	90.1	90.6	89.8	–
Heating equipment, except electric	3433	–	85.0	80.4	95.8	99.7	94.6	102.3	93.2	102.0	101.6	105.0	–
Fabricated structural metal	3441	102.2	113.0	97.4	102.1	102.1	98.5	99.5	103.0	107.9	117.7	117.7	–
Metal doors, sash, and trim	3442	82.1	92.0	89.3	92.8	90.6	90.4	96.0	99.7	102.8	106.3	104.1	–
Metal stampings	3465,66,69	86.4	97.1	93.2	102.3	99.9	101.4	98.1	104.7	110.4	104.7	108.7	–
Valves and pipe fittings	3494	93.6	103.3	92.4	105.3	102.8	105.4	101.3	103.6	105.1	104.5	104.5	–
Farm and garden machinery	352	75.7	94.8	97.7	100.5	93.3	95.1	94.9	95.1	105.2	101.5	103.0	–

See footnotes at end of table.

47. Continued—Annual productivity indexes for selected industries

(1977=100)

Industry	SIC	1970	1973	1975	1979	1980	1981	1982	1983	1984	1985	1986	1987
Construction machinery and equipment	3531	83.4	94.0	93.9	100.3	97.4	96.1	88.9	88.2	102.6	104.1	107.1	99.3
Oilfield machinery and equipment	3533	86.4	105.7	107.9	105.6	104.0	104.7	98.4	91.8	87.5	80.1	70.1	78.9
Machine tools	3541,42	91.7	107.3	103.0	102.0	98.8	96.5	88.0	83.0	93.6	96.7	98.5	101.9
Metal-cutting machine tools	3541	89.5	105.5	102.9	103.0	100.6	98.9	89.2	81.1	93.3	96.4	105.1	100.2
Metal-forming machine tools	3542	98.5	114.1	104.0	99.2	93.5	89.4	85.0	87.6	93.7	96.6	97.1	104.6
Pumps and compressors	3561,63	85.8	97.9	91.4	102.9	100.2	102.4	95.9	100.2	106.1	106.8	108.7	–
Ball and roller bearings	3562	85.5	103.1	97.5	105.8	95.4	94.3	83.3	86.3	94.4	92.1	95.6	101.2
Refrigeration and heating equipment	3585	88.4	103.0	89.9	101.4	93.8	99.4	100.1	100.9	105.5	103.7	101.5	–
Carburetors, pistons, rings, and valves	3592	–	120.4	100.1	94.6	90.3	91.7	92.0	99.6	110.3	114.0	111.1	–
Transformers	3612	89.1	96.9	89.3	108.4	110.6	106.9	99.6	99.1	97.6	99.3	99.4	94.6
Switchgear and switchboard apparatus	3613	83.3	101.5	93.4	102.8	103.2	99.5	101.3	106.1	107.4	110.6	110.7	109.3
Motors and generators	3621	87.8	100.7	93.0	99.3	96.7	100.4	102.4	104.3	107.9	110.5	112.3	115.9
Major household appliances	3631,32,33,39	70.2	89.5	93.6	108.7	105.8	107.6	108.6	117.6	123.6	127.2	134.1	139.2
Household cooking equipment	3631	68.7	84.9	97.8	108.9	103.9	105.7	112.6	120.8	131.9	135.6	158.4	168.1
Household refrigerators and freezers	3632	71.7	95.6	94.5	112.3	114.4	117.4	116.1	127.1	127.5	136.8	133.5	131.6
Household laundry equipment	3633	70.7	88.5	93.6	108.1	102.1	103.9	105.4	112.2	117.5	118.2	123.1	133.0
Household appliances, not elsewhere classified	3639	70.4	85.2	88.8	102.6	99.1	100.4	94.7	103.7	109.8	110.0	113.1	117.3
Electric lamps	3641	88.3	90.1	96.4	105.2	103.2	106.9	108.4	124.8	131.9	126.9	131.1	146.9
Lighting fixtures	3645,46,47,48	78.1	93.8	89.2	94.6	93.3	88.7	91.0	96.3	102.2	107.0	113.8	116.5
Radio and television receiving sets	3651	70.6	87.9	90.1	118.5	116.9	133.6	163.9	196.1	236.9	249.8	278.1	300.5
Semiconductors and related devices	3674	–	53.6	56.0	138.1	149.4	171.6	197.9	211.5	229.2	206.1	210.5	260.1
Motor vehicles and equipment	371	70.5	85.7	87.7	97.8	90.8	93.1	96.9	109.6	115.7	121.2	121.7	125.2
Instruments to measure electricity	3825	–	90.8	95.9	100.2	108.4	111.9	119.2	121.8	133.7	130.4	122.2	–
Railroad transportation, revenue traffic	401 Class I	77.7	96.4	89.5	104.7	107.3	111.5	115.8	141.9	152.6	162.1	178.6	208.3
Railroad transportation, car-miles	401 Class I	89.1	101.4	98.3	102.9	107.9	107.6	110.1	128.9	137.7	138.9	148.2	166.8
Class 1 bus carriers	411,13,14 pts.	107.3	106.2	97.0	98.3	100.9	90.7	98.8	95.4	90.9	87.4	86.8	–
Intercity trucking	4213 pt.	83.5	96.6	89.2	116.7	107.7	116.3	108.0	130.7	135.1	130.2	134.5	–
Intercity trucking, general freight	4213 pt.	76.8	91.7	88.4	116.4	107.5	117.2	107.8	136.0	137.6	131.7	140.9	–
Air transportation	4511,4521 pt.	71.4	85.5	87.6	113.1	106.2	104.9	114.9	126.8	131.7	136.5	138.2	146.4
Petroleum pipelines	4612,13	79.5	97.8	95.7	101.7	93.0	86.0	89.2	94.3	104.5	104.9	107.0	106.6
Telephone communications	4811	62.1	74.6	85.9	110.8	118.1	124.4	129.1	145.1	143.0	149.8	161.3	166.1
Gas and electric utilities	491,92,93	84.6	93.6	95.7	97.6	96.2	94.4	89.3	88.1	91.4	90.5	89.1	92.7
Electric utilities	491,493 pt.	77.1	88.4	92.9	95.4	94.0	93.0	89.5	90.9	94.4	93.5	96.2	101.0
Gas utilities	492,493 pt.	102.1	104.5	101.4	103.4	102.1	98.1	89.0	81.1	83.6	82.1	73.0	74.8
Hardware stores	5251	–	98.7	97.8	114.8	111.6	107.5	109.2	111.4	121.1	124.6	137.4	149.5
Department stores	5311	77.5	86.6	89.7	104.4	103.8	109.9	112.4	119.5	126.6	129.2	135.3	137.2
Variety stores	5331	126.1	121.2	122.9	102.1	107.3	118.4	112.5	119.7	123.7	114.3	101.2	–
Retail food stores	54	107.0	102.3	98.8	98.3	100.3	97.1	95.5	95.5	96.1	96.6	94.6	92.8
Grocery stores	5411	–	100.8	98.6	99.0	100.1	97.9	97.9	98.6	100.1	98.4	96.3	94.3
Retail bakeries	546	–	110.3	93.1	98.6	102.5	97.9	90.6	93.0	87.2	81.6	85.5	86.3
Franchised new car dealers	5511	86.1	96.3	95.0	97.7	99.6	98.1	100.4	109.4	110.4	109.7	110.7	105.3
Gasoline service stations	5541	74.6	86.2	85.3	107.4	105.1	106.7	111.8	122.5	129.1	134.3	143.9	145.7
Apparel and accessory stores	56	81.3	99.5	105.0	112.9	117.9	123.9	126.4	132.9	141.0	146.5	153.7	146.4
Men's and boys' clothing stores	5611	82.7	103.4	102.3	108.6	107.1	116.4	116.6	120.6	127.4	135.0	139.5	135.0
Women's ready-to-wear stores	5621	76.5	94.2	106.5	116.0	117.9	127.8	142.0	151.3	158.3	162.8	176.4	171.9
Family clothing stores	5651	75.2	109.1	109.5	108.2	123.7	132.4	140.7	149.2	145.8	138.5	136.0	130.9
Shoe stores	5661	95.3	100.5	95.1	112.8	110.3	114.2	110.2	107.6	110.1	117.4	125.8	124.0
Furniture, home furnishings, and equipment stores	57	80.1	95.3	91.9	107.6	107.4	112.6	109.2	118.4	129.4	133.5	144.6	145.2
Furniture and home furnishings stores	571	79.3	96.3	90.1	104.8	98.0	101.2	97.6	104.1	113.1	108.7	115.5	116.0
Appliance, radio, television, and music stores	571,73	81.2	94.1	94.8	112.4	124.0	132.4	128.7	143.4	155.1	180.0	199.5	199.8
Household appliance stores	572	–	91.2	89.5	111.3	109.9	114.9	102.0	111.8	139.2	154.6	178.8	185.2
Radio, television, and music stores	573	–	97.9	98.0	112.7	131.5	140.5	142.4	159.5	165.9	190.2	206.5	204.3
Eating and drinking places	58	100.6	103.4	100.8	99.5	99.8	97.3	96.9	95.3	91.1	87.9	89.7	90.4
Drug and proprietary stores	5912	83.4	97.1	94.2	103.8	107.0	107.6	107.9	111.4	106.2	106.5	105.6	105.9
Liquor stores	5921	–	100.9	96.3	96.6	102.2	104.0	108.1	101.6	98.7	107.1	98.0	91.6
Commercial banking	602	85.5	95.9	90.0	99.3	92.7	90.5	93.2	101.3	104.3	109.7	111.7	–
Hotels, motels, and tourist courts	7011	85.1	92.1	89.7	100.0	95.0	91.6	88.8	95.4	102.1	97.5	92.8	88.0
Laundry and cleaning services	721	94.7	98.6	96.6	97.7	91.0	88.4	90.6	90.4	92.3	87.3	85.0	84.0
Beauty and barber shops	7231,41	–	100.7	98.7	107.4	102.9	109.2	108.3	114.0	103.9	98.6	97.3	99.2
Beauty shops	7231	–	106.2	100.1	108.0	106.2	114.7	113.1	120.1	112.3	104.1	98.8	100.4
Automotive repair shops	753	–	104.5	102.0	100.4	95.9	93.3	87.4	86.1	88.3	96.1	93.2	98.4

– Data not available.

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

Country	Annual average		1988				1989		
	1987	1988	I	II	III	IV	I	II	III
Total labor force basis									
United States	6.1	5.4	5.6	5.4	5.4	5.3	5.1	5.2	5.2
Canada	8.8	7.7	7.8	7.6	7.8	7.7	7.5	7.6	7.3
Australia	8.0	7.2	7.5	7.4	6.9	6.8	6.6	6.1	6.0
Japan	2.9	2.5	2.7	2.5	2.6	2.4	2.4	2.3	–
France	10.5	10.1	10.2	10.1	10.2	10.0	9.9	9.9	9.9
Germany	6.3	6.3	6.3	6.3	6.3	6.1	5.8	5.7	5.6
Italy [1], [2]	7.7	7.8	7.8	7.8	7.8	7.8	7.6	7.8	–
Sweden	1.9	1.6	1.7	1.6	1.6	1.4	1.4	1.3	1.3
United Kingdom	10.2	8.2	9.0	8.6	8.0	7.5	7.0	6.5	6.2
Civilian labor force basis									
United States	6.2	5.5	5.7	5.5	5.5	5.3	5.2	5.3	5.2
Canada	8.8	7.8	7.8	7.7	7.8	7.7	7.6	7.6	7.4
Australia	8.1	7.2	7.6	7.5	7.0	6.8	6.6	6.1	6.0
Japan	2.9	2.5	2.7	2.5	2.6	2.4	2.4	2.3	–
France	10.8	10.4	10.4	10.4	10.4	10.2	10.1	10.1	10.2
Germany	6.4	6.4	6.4	6.4	6.4	6.2	5.9	5.8	5.7
Italy[1], [2]	7.9	7.9	7.9	7.9	8.0	7.9	7.7	8.0	–
Sweden	1.9	1.6	1.7	1.6	1.6	1.4	1.4	1.3	1.3
United Kingdom	10.2	8.3	9.0	8.6	8.0	7.6	7.0	6.6	6.2

[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.

– 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.

49. Annual data: Employment status of the civilian working-age population, approximating U.S. concepts, 10 countries

(Numbers in thousands)

Employment status and country	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Labor force										
United States	104,962	106,940	108,670	110,204	111,550	113,544	115,461	117,834	119,865	121,669
Canada	11,231	11,573	11,899	11,926	12,109	12,316	12,532	12,746	13,011	13,275
Australia	6,519	6,693	6,810	6,910	6,997	7,135	7,300	7,588	7,758	7,974
Japan	55,210	55,740	56,320	56,980	58,110	58,480	58,820	59,410	60,050	60,860
France	22,660	22,800	22,950	23,160	23,140	23,300	23,360	23,440	23,540	23,580
Germany	26,250	26,520	26,650	26,700	26,650	26,760	26,970	27,090	28,360	28,550
Italy	20,850	21,120	21,320	21,410	21,590	21,670	21,800	22,290	22,350	22,660
Netherlands	5,630	5,860	6,080	6,140	6,170	6,260	6,280	6,370	6,490	6,560
Sweden	4,262	4,312	4,327	4,350	4,369	4,385	4,418	4,443	4,480	4,530
United Kingdom	26,350	26,520	26,590	26,720	26,750	27,170	27,370	27,540	27,860	28,110
Participation rate[1]										
United States	63.7	63.8	63.9	64.0	64.0	64.4	64.8	65.3	65.6	65.9
Canada	63.4	64.1	64.8	64.1	64.4	64.8	65.3	65.7	66.2	66.7
Australia	61.6	62.1	61.9	61.7	61.4	61.5	61.8	63.0	63.0	63.3
Japan	62.7	62.6	62.6	62.7	63.1	62.7	62.3	62.1	61.9	61.9
France	57.5	57.2	57.1	57.1	56.6	56.6	56.3	56.1	55.8	55.6
Germany	53.3	53.2	52.9	52.6	52.3	52.4	52.6	52.6	55.0	55.2
Italy	48.0	48.2	48.3	47.7	47.5	47.3	47.2	47.8	47.9	48.4
Netherlands	54.1	55.3	56.6	56.5	56.1	56.2	55.7	55.9	56.3	56.4
Sweden	66.6	66.9	66.8	66.8	66.7	66.6	66.9	67.0	67.3	67.8
United Kingdom	62.6	62.5	62.2	62.2	61.9	62.5	62.6	62.6	63.0	63.3
Employed										
United States	98,824	99,303	100,397	99,526	100,834	105,005	107,150	109,597	112,440	114,968
Canada	10,395	10,708	11,001	10,618	10,675	10,932	11,221	11,531	11,861	12,244
Australia	6,111	6,284	6,416	6,415	6,300	6,494	6,697	6,974	7,129	7,398
Japan	54,040	54,600	55,060	55,620	56,550	56,870	57,260	57,740	58,320	59,310
France	21,300	21,330	21,200	21,240	21,170	20,980	20,920	20,950	21,010	21,140
Germany	25,470	25,750	25,560	25,140	24,750	24,790	24,960	25,230	26,550	26,730
Italy	19,930	20,200	20,280	20,250	20,320	20,390	20,490	20,610	20,590	20,870
Netherlands	5,340	5,510	5,540	5,510	5,410	5,490	5,640	5,730	5,840	5,900
Sweden	4,174	4,226	4,219	4,213	4,218	4,249	4,293	4,326	4,396	4,458
United Kingdom	24,940	24,670	23,800	23,720	23,610	23,990	24,310	24,460	25,010	25,780
Employment-population ratio[2]										
United States	59.9	59.2	59.0	57.8	57.9	59.5	60.1	60.7	61.5	62.3
Canada	58.7	59.3	59.9	57.1	56.8	57.5	58.5	59.4	60.4	61.6
Australia	57.8	58.3	58.4	57.3	55.3	56.0	56.6	57.9	57.9	58.7
Japan	61.4	61.3	61.2	61.2	61.4	61.0	60.6	60.4	60.1	60.4
France	54.0	53.5	52.8	52.3	51.8	51.0	50.4	50.2	49.8	49.9
Germany	51.7	51.7	50.8	49.6	48.6	48.5	48.7	49.0	51.5	51.7
Italy	45.9	46.1	45.9	45.2	44.7	44.5	44.4	44.2	44.1	44.6
Netherlands	51.3	52.0	51.6	50.7	49.2	49.3	50.0	50.2	50.6	50.7
Sweden	65.3	65.6	65.1	64.7	64.4	64.5	65.0	65.2	66.0	66.7
United Kingdom	59.2	58.1	55.7	55.2	54.7	55.2	55.6	55.6	56.6	58.0
Unemployed										
United States	6,137	7,637	8,273	10,678	10,717	8,539	8,312	8,237	7,425	6,701
Canada	836	865	898	1,308	1,434	1,384	1,311	1,215	1,150	1,031
Australia	408	409	394	495	697	641	603	613	629	576
Japan	1,170	1,140	1,260	1,360	1,560	1,610	1,560	1,670	1,730	1,550
France	1,360	1,470	1,750	1,920	1,970	2,320	2,440	2,490	2,530	2,440
Germany	780	770	1,090	1,560	1,900	1,970	2,010	1,860	1,810	1,820
Italy	920	920	1,040	1,160	1,270	1,280	1,310	1,680	1,760	1,790
Netherlands	290	350	540	630	760	770	640	640	650	660
Sweden	88	86	108	137	151	136	125	117	84	72
United Kingdom	1,420	1,850	2,790	3,000	3,140	3,180	3,060	3,080	2,850	2,330
Unemployment rate										
United States	5.8	7.1	7.6	9.7	9.6	7.5	7.2	7.0	6.2	5.5
Canada	7.4	7.5	7.5	11.0	11.8	11.2	10.5	9.5	8.8	7.8
Australia	6.3	6.1	5.8	7.2	10.0	9.0	8.3	8.1	8.1	7.2
Japan	2.1	2.0	2.2	2.4	2.7	2.8	2.6	2.8	2.9	2.5
France	6.0	6.4	7.6	8.3	8.5	10.0	10.4	10.6	10.8	10.4
Germany	3.0	2.9	4.1	5.8	7.1	7.4	7.5	6.9	6.4	6.4
Italy	4.4	4.4	4.9	5.4	5.9	5.9	6.0	7.5	7.9	7.9
Netherlands	5.2	6.0	8.9	10.3	12.3	12.3	10.2	10.0	10.0	10.1
Sweden	2.1	2.0	2.5	3.1	–	3.1	2.8	2.6	1.9	1.6
United Kingdom	5.4	7.0	10.5	11.2	11.7	11.7	11.2	11.2	10.2	8.3

[1] Labor force as a percent of the civilian working-age population.
[2] Employment as a percent of the civilian working-age population.
– Data not available.

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

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

(1977=100)

Item and country	1960	1970	1973	1976	1977	1978	1980	1981	1982	1983	1984	1985	1986	1987	1988
Output per hour															
United States	62.2	80.8	93.4	97.1	100.0	101.5	101.4	103.6	105.9	112.0	118.1	123.6	127.7	132.0	136.2
Canada	50.7	75.6	90.3	94.8	100.0	101.1	98.2	102.9	98.3	105.4	114.4	117.3	117.7	120.5	124.3
Japan	23.2	64.8	83.1	94.3	100.0	108.0	122.7	127.2	135.0	142.3	152.5	161.1	163.7	176.5	190.0
Belgium	33.0	60.4	78.8	95.3	100.0	106.1	119.2	127.6	135.2	148.1	155.0	158.6	164.5	170.5	–
Denmark	37.2	65.6	83.3	98.2	100.0	101.5	112.3	114.2	114.6	120.2	119.6	120.3	116.2	117.2	117.2
France	37.4	71.4	83.8	94.4	100.0	104.6	110.6	113.9	122.0	125.1	127.5	132.7	135.2	136.8	144.1
Germany	40.3	71.2	84.0	96.4	100.0	103.1	108.6	111.0	112.6	119.2	123.7	128.4	128.3	129.9	135.9
Italy	37.2	69.8	83.4	97.9	100.0	106.5	122.1	125.4	128.5	135.3	148.8	156.8	158.3	162.3	167.1
Netherlands	32.4	64.3	81.5	95.8	100.0	106.4	113.9	116.9	119.4	127.9	139.2	145.1	144.8	145.9	153.2
Norway	54.3	81.3	94.4	100.4	100.0	101.2	107.5	108.0	109.2	117.2	124.1	126.8	125.9	132.2	–
Sweden	42.3	80.7	94.8	101.7	100.0	102.8	112.7	113.2	116.5	125.5	131.0	136.1	136.0	141.8	145.0
United Kingdom	55.9	80.3	95.4	99.1	100.0	101.4	101.9	107.1	113.5	123.1	129.9	134.1	138.6	147.6	154.9
Output															
United States	52.5	78.6	96.3	93.1	100.0	106.0	103.2	104.8	98.4	104.7	117.5	122.0	124.7	130.1	138.1
Canada	41.3	73.5	93.5	96.5	100.0	104.6	103.6	107.4	93.6	99.6	112.5	118.8	121.9	128.5	136.0
Japan	19.2	69.9	91.9	94.8	100.0	106.7	124.1	129.8	137.3	148.2	165.4	177.0	177.8	190.8	212.3
Belgium	41.9	78.6	96.4	99.7	100.0	101.4	106.8	105.6	110.1	114.7	118.0	119.6	121.4	123.3	–
Denmark	49.2	82.0	95.9	99.6	100.0	99.7	110.1	106.6	108.3	115.6	121.0	124.9	125.9	121.1	118.4
France	36.5	75.5	90.5	95.6	100.0	102.3	104.6	102.9	104.0	103.8	102.6	103.0	102.8	101.8	105.7
Germany	50.0	86.6	96.1	98.0	100.0	101.8	106.6	104.9	102.4	103.6	106.4	110.0	110.8	111.6	116.3
Italy	33.0	69.0	83.5	96.5	100.0	104.9	121.9	119.9	118.7	119.7	125.3	129.0	131.9	137.3	145.3
Netherlands	44.8	84.4	95.8	99.0	100.0	102.8	106.6	106.7	105.0	107.0	113.3	116.7	118.1	118.7	123.8
Norway	54.8	86.5	99.2	102.1	100.0	97.7	99.5	98.6	96.8	97.2	102.7	106.5	106.9	108.3	–
Sweden	52.6	92.5	100.3	106.1	100.0	97.3	104.0	100.6	100.1	105.2	111.5	115.3	114.7	119.2	124.0
United Kingdom	71.2	94.9	104.7	98.1	100.0	100.6	91.8	86.3	86.4	88.8	92.5	94.8	95.6	101.0	108.2
Total hours															
United States	84.4	97.3	103.1	95.9	100.0	104.4	101.7	101.1	92.9	93.5	99.5	98.7	97.7	98.6	101.4
Canada	81.4	97.2	103.6	101.8	100.0	103.4	105.5	104.3	95.2	94.5	98.3	101.2	103.6	106.6	109.4
Japan	82.7	107.9	110.7	100.6	100.0	98.8	101.2	102.0	101.7	104.2	108.5	109.8	108.6	108.1	111.7
Belgium	127.1	130.2	122.3	104.6	100.0	95.5	89.6	82.8	81.4	77.5	76.1	75.4	73.8	72.3	–
Denmark	132.4	125.1	115.2	101.4	100.0	98.3	98.0	93.4	94.5	96.2	101.2	103.8	108.4	103.3	101.0
France	97.6	105.7	107.9	101.3	100.0	97.8	94.6	90.3	85.2	83.0	80.4	77.6	76.1	74.4	73.4
Germany	123.8	121.7	114.4	101.6	100.0	98.7	98.1	94.6	91.0	86.9	86.1	85.7	86.4	85.9	85.5
Italy	88.9	98.9	100.1	98.6	100.0	98.5	99.8	95.6	92.4	88.5	84.2	82.3	83.3	84.6	87.0
Netherlands	138.4	131.2	117.6	103.3	100.0	96.6	93.6	91.2	88.0	83.6	81.4	80.5	81.5	81.3	80.8
Norway	101.1	106.4	105.1	101.7	100.0	96.5	92.6	91.3	88.6	82.9	82.8	84.0	84.9	81.9	–
Sweden	124.4	114.6	105.7	104.3	100.0	94.6	92.3	88.9	85.9	83.9	85.1	84.7	84.3	84.0	85.5
United Kingdom	127.3	118.1	109.8	99.0	100.0	99.1	90.1	80.6	76.2	72.2	71.2	70.7	69.0	68.5	69.8
Compensation per hour															
United States	36.5	57.4	68.8	92.1	100.0	108.2	132.4	145.2	157.5	162.4	168.0	176.4	183.0	186.9	193.5
Canada	27.5	47.9	60.0	90.3	100.0	107.6	131.3	151.1	167.0	177.2	185.6	194.4	203.5	214.0	227.1
Japan	8.9	33.9	55.1	90.7	100.0	106.6	120.7	129.8	136.6	140.7	144.9	151.4	158.9	162.5	171.3
Belgium	13.8	34.9	53.5	89.5	100.0	107.8	130.2	144.5	150.7	159.8	173.1	183.6	190.8	194.7	–
Denmark	12.6	36.3	56.1	90.4	100.0	110.2	135.9	149.7	162.9	174.2	184.1	196.5	203.5	225.9	230.1
France	15.0	36.3	51.9	87.8	100.0	113.0	148.5	172.0	204.0	225.2	244.9	265.4	278.7	291.4	301.9
Germany	18.8	48.0	67.5	91.2	100.0	107.8	125.6	134.5	141.0	148.3	155.5	164.6	171.5	178.1	185.5
Italy	9.2	27.1	41.2	84.5	100.0	115.2	163.7	197.9	233.3	273.1	313.3	352.0	367.4	391.2	416.3
Netherlands	12.5	39.0	60.5	91.9	100.0	108.4	123.6	129.1	137.5	144.5	148.6	156.9	162.2	167.0	172.8
Norway	15.8	37.9	54.6	88.9	100.0	110.0	128.0	142.8	156.1	173.5	188.3	204.3	224.2	257.4	–
Sweden	14.7	38.5	54.2	91.5	100.0	111.4	133.6	148.1	158.9	173.3	189.7	212.4	228.7	244.8	261.1
United Kingdom	15.2	31.4	47.9	88.4	100.0	116.7	168.6	193.4	211.7	226.6	242.3	258.8	277.8	295.7	319.3
Unit labor costs: National currency basis															
United States	58.7	71.0	73.7	94.9	100.0	106.6	130.6	140.1	148.7	145.0	142.2	142.7	143.3	141.7	142.1
Canada	54.2	63.4	66.5	95.3	100.0	106.5	133.7	146.7	170.0	168.1	162.3	165.7	172.8	177.5	182.7
Japan	38.4	52.3	66.4	96.2	100.0	98.7	98.4	102.0	101.2	98.9	95.0	94.0	97.1	92.1	90.2
Belgium	41.7	57.8	67.9	93.9	100.0	101.6	109.2	113.2	111.5	107.9	111.7	115.8	116.0	114.2	–
Denmark	33.8	55.4	67.4	92.1	100.0	108.6	121.0	131.1	142.2	144.9	153.9	163.3	175.1	192.8	196.3
France	40.2	50.8	62.0	93.0	100.0	108.0	134.3	151.0	167.2	179.9	192.0	200.0	206.2	213.0	209.6
Germany	46.6	67.4	80.3	94.6	100.0	104.5	115.7	121.2	125.2	124.4	125.8	128.3	133.7	137.1	136.4
Italy	24.7	38.8	49.4	86.3	100.0	108.1	134.0	157.8	181.6	201.9	210.6	224.5	232.0	241.0	249.1
Netherlands	38.5	60.7	74.3	96.0	100.0	101.8	108.5	110.4	115.2	113.0	106.8	108.1	112.0	114.4	112.8
Norway	29.2	46.6	57.8	88.5	100.0	108.7	119.1	132.2	142.9	148.0	151.8	161.1	178.1	194.7	–
Sweden	34.8	47.7	57.2	90.0	100.0	108.4	118.6	130.9	136.3	138.1	144.8	156.1	168.2	172.6	180.0
United Kingdom	27.2	39.1	50.2	89.2	100.0	115.0	165.5	180.6	186.5	184.1	186.5	193.0	200.4	200.4	206.2
Unit labor costs: U.S. dollar basis															
United States	58.7	71.0	73.7	94.9	100.0	106.6	130.6	140.1	148.7	145.0	142.2	142.7	143.3	141.7	142.1
Canada	59.4	64.5	70.6	102.7	100.0	99.3	121.5	130.0	146.3	144.9	133.2	128.9	132.1	142.3	157.8
Japan	28.5	39.1	65.6	86.9	100.0	126.8	116.8	123.8	108.8	111.5	107.2	105.6	154.4	170.5	188.4
Belgium	30.0	41.7	62.7	87.2	100.0	115.8	134.0	109.6	87.2	75.6	69.3	69.9	93.1	109.5	–
Denmark	29.5	44.4	67.2	91.5	100.0	118.4	129.0	110.3	102.3	95.1	89.3	92.5	129.9	169.0	174.8
France	40.3	45.2	68.6	95.8	100.0	117.9	156.4	136.4	124.9	116.1	108.1	109.5	146.3	174.2	172.9
Germany	25.9	42.9	70.4	87.3	100.0	121.0	147.9	124.9	119.7	113.1	102.6	101.2	143.0	177.0	180.3
Italy	35.1	54.7	75.0	91.8	100.0	112.4	138.4	122.4	118.4	117.3	105.9	103.8	137.4	164.0	168.8
Netherlands	25.1	41.2	65.6	89.1	100.0	115.7	134.1	108.9	105.8	97.1	81.6	80.0	112.2	138.6	139.9
Norway	21.8	34.7	53.5	86.4	100.0	110.4	128.4	122.5	117.8	107.9	99.0	99.8	124.7	153.7	–
Sweden	30.1	41.1	58.7	92.3	100.0	107.2	125.3	115.4	96.9	80.4	78.2	81.1	105.4	121.5	131.1
United Kingdom	43.7	53.7	70.5	92.3	100.0	126.5	220.6	209.6	186.8	160.0	142.9	143.5	168.6	188.3	210.5

– Data not available.

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

Industry and type of case[1]	Incidence rates per 100 full-time workers[2]								
	1980	1981	1982	1983	1984	1985	1986	1987	1988
PRIVATE SECTOR[3]									
Total cases	8.7	8.3	7.7	7.6	8.0	7.9	7.9	8.3	8.6
Lost workday cases	4.0	3.8	3.5	3.4	3.7	3.6	3.6	3.8	4.0
Lost workdays	65.2	61.7	58.7	58.5	63.4	64.9	65.8	69.9	76.1
Agriculture, forestry, and fishing[3]									
Total cases	11.9	12.3	11.8	11.9	12.0	11.4	11.2	11.2	10.9
Lost workday cases	5.8	5.9	5.9	6.1	6.1	5.7	5.6	5.7	5.6
Lost workdays	82.7	82.8	86.0	90.8	90.7	91.3	93.6	94.1	101.8
Mining									
Total cases	11.2	11.6	10.5	8.4	9.7	8.4	7.4	8.5	8.8
Lost workday cases	6.5	6.2	5.4	4.5	5.3	4.8	4.1	4.9	5.1
Lost workdays	163.6	146.4	137.3	125.1	160.2	145.3	125.9	144.0	152.1
Construction									
Total cases	15.7	15.1	14.6	14.8	15.5	15.2	15.2	14.7	14.6
Lost workday cases	6.5	6.3	6.0	6.3	6.9	6.8	6.9	6.8	6.8
Lost workdays	117.0	113.1	115.7	118.2	128.1	128.9	134.5	135.8	142.2
General building contractors:									
Total cases	15.5	15.1	14.1	14.4	15.4	15.2	14.9	14.2	14.0
Lost workday cases	6.5	6.1	5.9	6.2	6.9	6.8	6.6	6.5	6.4
Lost workdays	113.0	107.1	112.0	113.0	121.3	120.4	122.7	134.0	132.2
Heavy construction contractors:									
Total cases	16.3	14.9	15.1	15.4	14.9	14.5	14.7	14.5	15.1
Lost workday cases	6.3	6.0	5.8	6.2	6.4	6.3	6.3	6.4	7.0
Lost workdays	117.6	106.0	113.1	122.4	131.7	127.3	132.9	139.1	162.3
Special trade contractors:									
Total cases	15.5	15.2	14.7	14.8	15.8	15.4	15.6	15.0	14.7
Lost workday cases	6.7	6.6	6.2	6.4	7.1	7.0	7.2	7.1	7.0
Lost workdays	118.9	119.3	118.6	119.0	130.1	133.3	140.4	135.7	141.1
Manufacturing									
Total cases	12.2	11.5	10.2	10.0	10.6	10.4	10.6	11.9	13.1
Lost workday cases	5.4	5.1	4.4	4.3	4.7	4.6	4.7	5.3	5.7
Lost workdays	86.7	82.0	75.0	73.5	77.9	80.2	85.2	95.5	107.4
Durable goods									
Lumber and wood products:									
Total cases	18.6	17.6	16.9	18.3	19.6	18.5	18.9	18.9	19.5
Lost workday cases	9.5	9.0	8.3	9.2	9.9	9.3	9.7	9.6	10.0
Lost workdays	171.8	158.4	153.3	163.5	172.0	171.4	177.2	176.5	189.1
Furniture and fixtures:									
Total cases	16.0	15.1	13.9	14.1	15.3	15.0	15.2	15.4	16.6
Lost workday cases	6.6	6.2	5.5	5.7	6.4	6.3	6.3	6.7	7.3
Lost workdays	97.6	91.9	85.6	83.0	101.5	100.4	103.0	103.6	115.7
Stone, clay, and glass products:									
Total cases	15.0	14.1	13.0	13.1	13.6	13.9	13.6	14.9	16.0
Lost workday cases	7.1	6.9	6.1	6.0	6.6	6.7	6.5	7.1	7.5
Lost workdays	128.1	122.2	112.2	112.0	120.8	127.8	126.0	135.8	141.0
Primary metal industries:									
Total cases	15.2	14.4	12.4	12.4	13.3	12.6	13.6	17.0	19.4
Lost workday cases	7.1	6.7	5.4	5.4	6.1	5.7	6.1	7.4	8.2
Lost workdays	128.3	121.3	101.6	103.4	115.3	113.8	125.5	145.8	161.3
Fabricated metal products:									
Total cases	18.5	17.5	15.3	15.1	16.1	16.3	16.0	17.0	18.8
Lost workday cases	8.0	7.5	6.4	6.1	6.7	6.9	6.8	7.2	8.0
Lost workdays	118.4	109.9	102.5	96.5	104.9	110.1	115.5	121.9	138.8
Machinery, except electrical:									
Total cases	13.7	12.9	10.7	9.8	10.7	10.8	10.7	11.3	12.1
Lost workday cases	5.5	5.1	4.2	3.6	4.1	4.2	4.2	4.4	4.7
Lost workdays	81.3	74.9	66.0	58.1	65.8	69.3	72.0	72.7	82.8
Electric and electronic equipment:									
Total cases	8.0	7.4	6.5	6.3	6.8	6.4	6.4	7.2	8.0
Lost workday cases	3.3	3.1	2.7	2.6	2.8	2.7	2.7	3.1	3.3
Lost workdays	51.8	48.4	42.2	41.4	45.0	45.7	49.8	55.9	64.6
Transportation equipment:									
Total cases	10.6	9.8	9.2	8.4	9.3	9.0	9.6	13.5	17.7
Lost workday cases	4.9	4.6	4.0	3.6	4.2	3.9	4.1	5.7	6.6
Lost workdays	82.4	78.1	72.2	64.5	68.8	71.6	79.1	105.7	134.2
Instruments and related products:									
Total cases	6.8	6.5	5.6	5.2	5.4	5.2	5.3	5.8	6.1
Lost workday cases	2.7	2.7	2.3	2.1	2.2	2.2	2.3	2.4	2.6
Lost workdays	41.8	39.2	37.0	35.6	37.5	37.9	42.2	43.9	51.5
Miscellaneous manufacturing industries:									
Total cases	10.9	10.7	9.9	9.9	10.5	9.7	10.2	10.7	11.3
Lost workday cases	4.4	4.4	4.1	4.0	4.3	4.2	4.3	4.6	5.1
Lost workdays	67.9	68.3	69.9	66.3	70.2	73.2	70.9	81.5	91.0

See footnotes at end of table.

51. 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]								
	1980	1981	1982	1983	1984	1985	1986	1987	1988
Nondurable goods									
Food and kindred products:									
Total cases	18.7	17.8	16.7	16.5	16.7	16.7	16.5	17.7	18.5
Lost workday cases	9.0	8.6	8.0	7.9	8.1	8.1	8.0	8.6	9.2
Lost workdays	136.8	130.7	129.3	131.2	131.6	138.0	137.8	153.7	169.7
Tobacco manufacturing:									
Total cases	8.1	8.2	7.2	6.5	7.7	7.3	6.7	8.6	9.3
Lost workday cases	3.8	3.9	3.2	3.0	3.2	3.0	2.5	2.5	2.9
Lost workdays	45.8	56.8	44.6	42.8	51.7	51.7	45.6	46.4	53.0
Textile mill products:									
Total cases	9.1	8.8	7.6	7.4	8.0	7.5	7.8	9.0	9.6
Lost workday cases	3.3	3.2	2.8	2.8	3.0	3.0	3.1	3.6	4.0
Lost workdays	62.8	59.2	53.8	51.4	54.0	57.4	59.3	65.9	78.8
Apparel and other textile products:									
Total cases	6.4	6.3	6.0	6.4	6.7	6.7	6.7	7.4	8.1
Lost workday cases	2.2	2.2	2.1	2.4	2.5	2.6	2.7	3.1	3.5
Lost workdays	34.9	35.0	36.4	40.6	40.9	44.1	49.4	59.5	68.2
Paper and allied products:									
Total cases	12.7	11.6	10.6	10.0	10.4	10.2	10.5	12.8	13.1
Lost workday cases	5.8	5.4	4.9	4.5	4.7	4.7	4.7	5.8	5.9
Lost workdays	112.3	103.6	99.1	90.3	93.8	94.6	99.5	122.3	124.3
Printing and publishing:									
Total cases	6.9	6.7	6.6	6.6	6.5	6.3	6.5	6.7	6.6
Lost workday cases	3.1	3.0	2.8	2.9	2.9	2.9	2.9	3.1	3.2
Lost workdays	46.5	47.4	45.7	44.6	46.0	49.2	50.8	55.1	59.8
Chemicals and allied products:									
Total cases	6.8	6.6	5.7	5.5	5.3	5.1	6.3	7.0	7.0
Lost workday cases	3.1	3.0	2.5	2.5	2.4	2.3	2.7	3.1	3.3
Lost workdays	50.3	48.1	39.4	42.3	40.8	38.8	49.4	58.8	59.0
Petroleum and coal products:									
Total cases	7.2	6.7	5.3	5.5	5.1	5.1	7.1	7.3	7.0
Lost workday cases	3.5	2.9	2.5	2.4	2.4	2.4	3.2	3.1	3.2
Lost workdays	59.1	51.2	46.4	46.8	53.5	49.9	67.5	65.9	68.4
Rubber and miscellaneous plastics products:									
Total cases	15.5	14.6	12.7	13.0	13.6	13.4	14.0	15.9	16.3
Lost workday cases	7.4	7.2	6.0	6.2	6.4	6.3	6.6	7.6	8.1
Lost workdays	118.6	117.4	100.9	101.4	104.3	107.4	118.2	130.8	142.9
Leather and leather products:									
Total cases	11.7	11.5	9.9	10.0	10.5	10.3	10.5	12.4	11.4
Lost workday cases	5.0	5.1	4.5	4.4	4.7	4.6	4.8	5.8	5.6
Lost workdays	82.7	82.6	86.5	87.3	94.4	88.3	83.4	114.5	128.2
Transportation and public utilities									
Total cases	9.4	9.0	8.5	8.2	8.8	8.6	8.2	8.4	8.9
Lost workday cases	5.5	5.3	4.9	4.7	5.2	5.0	4.8	4.9	5.1
Lost workdays	104.5	100.6	96.7	94.9	105.1	107.1	102.1	108.1	118.6
Wholesale and retail trade									
Total cases	7.4	7.3	7.2	7.2	7.4	7.4	7.7	7.7	7.8
Lost workday cases	3.2	3.1	3.1	3.1	3.3	3.2	3.3	3.4	3.5
Lost workdays	48.7	45.3	45.5	47.8	50.5	50.7	54.0	56.1	60.9
Wholesale trade:									
Total cases	8.2	7.7	7.1	7.0	7.2	7.2	7.2	7.4	7.6
Lost workday cases	3.9	3.6	3.4	3.2	3.5	3.5	3.6	3.7	3.8
Lost workdays	58.2	54.7	52.1	50.6	55.5	59.8	62.5	64.0	69.2
Retail trade:									
Total cases	7.1	7.1	7.2	7.3	7.5	7.5	7.8	7.8	7.9
Lost workday cases	2.9	2.9	2.9	3.0	3.2	3.1	3.2	3.3	3.4
Lost workdays	44.5	41.1	42.6	46.7	48.4	47.0	50.5	52.9	57.6
Finance, insurance, and real estate									
Total cases	2.0	1.9	2.0	2.0	1.9	2.0	2.0	2.0	2.0
Lost workday cases	.8	.8	.9	.9	.9	.9	.9	.9	.9
Lost workdays	12.2	11.6	13.2	12.8	13.6	15.4	17.1	14.3	17.2
Services									
Total cases	5.2	5.0	4.9	5.1	5.2	5.4	5.3	5.5	5.4
Lost workday cases	2.3	2.3	2.3	2.4	2.5	2.6	2.5	2.7	2.6
Lost workdays	35.8	35.9	35.8	37.0	41.1	45.4	43.0	45.8	47.7

[1] Total cases include fatalities.

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

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

[3] Excludes farms with fewer than 11 employees since 1976.

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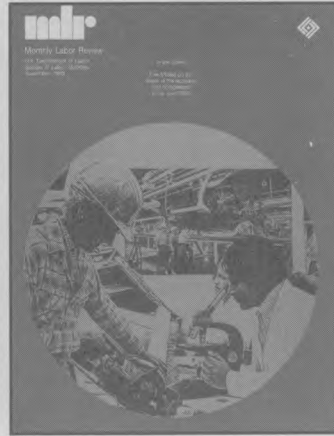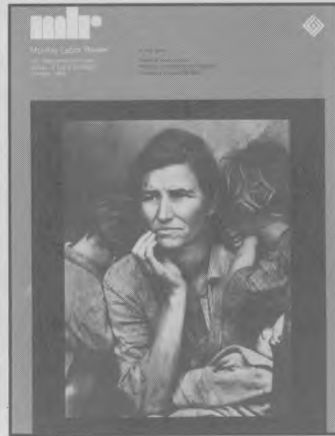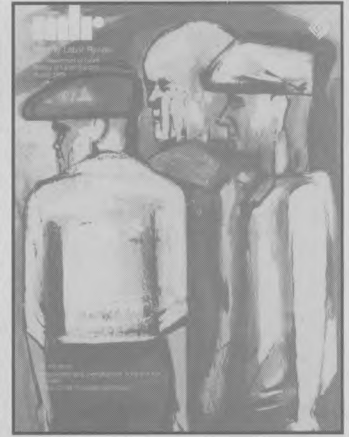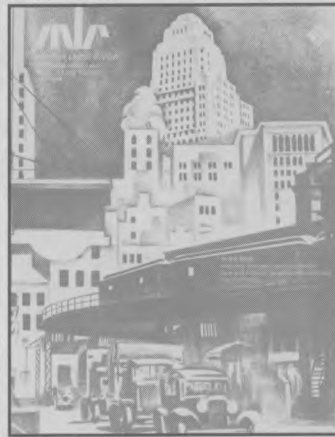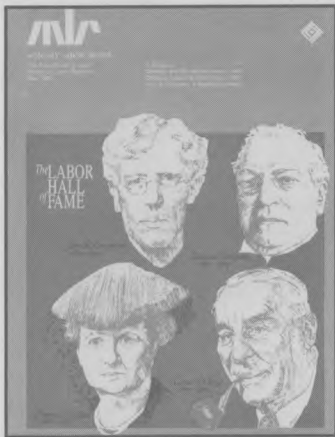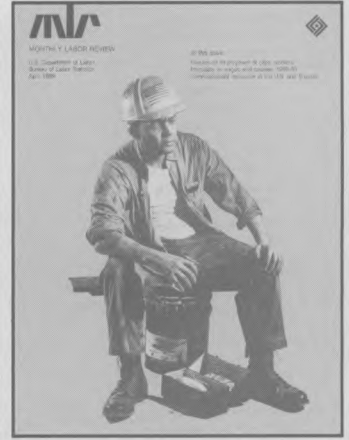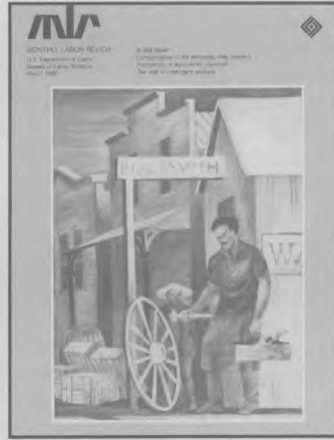
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BOOK REVIEWS AND NOTES
(Listed by author of book.)

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Belous, Richard S., Sar A. Levitan, and Frank Gallo. *What's Happening to the American Family? Tensions, Hopes, Realities.* 1989 June. 44.

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Productivity and costs:							
Nonfinancial corporations	December 6	3rd quarter					2; 44–47
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Real earnings	December 19	November	January 18	December	February 21	January	14–17
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