Monthly Labor Review

U.S. Department of Labor
Bureau of Labor Statistics
April 1990

In this issue:

U.S. Department of Labor
Elizabeth Dole, *Secretary*

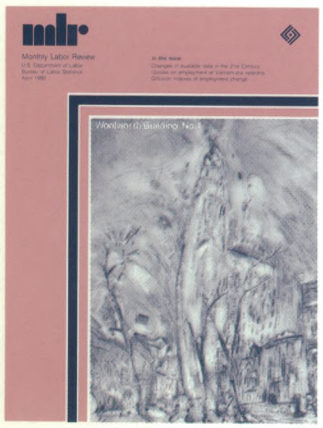
Bureau of Labor Statistics
Janet L. Norwood, *Commissioner*

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

Subscription price per year—$20 domestic; $25 foreign. Single copy, $5 domestic; $6.25 foreign. Subscription prices and distribution policies for the *Monthly Labor Review* (ISSN 0098-1818) and other Government publications are set by the Government Printing Office, an agency of the U.S. Congress. Send correspondence on circulation and subscription matters (including address changes) to:
Superintendent of Documents,
Government Printing Office,
Washington, DC 20402.

Make checks payable to Superintendent of Documents.

The Secretary of Labor has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Second-class postage paid at Washington, DC, and at additional mailing addresses.



April cover:

Woolworth Building, No.1,
a 1913 etching by John Marin;
photograph courtesy of the
National Gallery of Art, (Avalon Fund)
Washington, DC.

Cover design by Melvin B. Moxley

Regional Offices and Commissioners

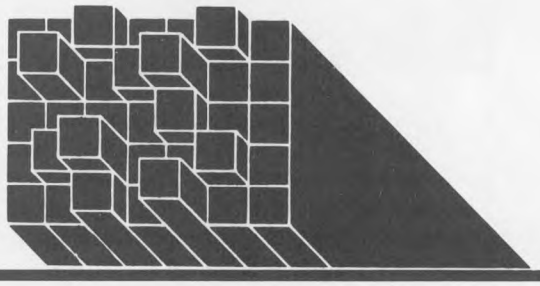
Region I Connecticut Maine Massachusetts New Hampshire Rhode Island Vermont		Anthony J. Ferrara Kennedy Federal Building Suite 1603 **Boston**, MA 02203 Phone: (617) 565-2327
Region II New Jersey New York Puerto Rico Virgin Islands		Samuel M. Ehrenhalt Room 808 201 Varick Street **New York**, NY 10014 Phone: (212) 337-2400
Region III Delaware District of Columbia Maryland Pennsylvania Virginia West Virginia		Alvin R. Margulis 3535 Market Street P. O. Box 13309 **Philadelphia**, PA 19101 Phone: (215) 596-1154
Region IV Alabama Florida Georgia Kentucky Mississippi	North Carolina South Carolina Tennessee	Donald M. Cruse 1371 Peachtree Street, N.E. **Atlanta**, GA 30367 Phone: (404) 347-4416
Region V Illinois Indiana Michigan Minnesota Ohio Wisconsin		Lois L. Orr 9th Floor Federal Office Building 230 South Dearborn Street **Chicago**, IL 60604 Phone: (312) 353-1880
Region VI Arkansas Louisiana New Mexico Oklahoma Texas		Bryan Richey Room 221 Federal Building 525 Griffin Street **Dallas**, TX 75202 Phone: (214) 767-6970
Region VII Iowa Kansas Missouri Nebraska	**Region VIII** Colorado Montana North Dakota South Dakota Utah Wyoming	Gunnar Engen 911 Walnut Street **Kansas City**, MO 64106 Phone: (816) 426-2481
Region IX American Samoa Arizona California Guam Hawaii Nevada Trust Territory of the Pacific Islands	**Region X** Alaska Idaho Oregon Washington	Sam M. Hirabayashi 71 Stevenson Street P. O. Box 3766 **San Francisco**, CA 94119 Phone: (415) 744-6600

Monthly Labor Review

April 1990
Volume 113, Number 4

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

Labor month in review



KLEIN AWARD. The Lawrence R. Klein Award trustees selected three authors of articles published in the *Monthly Labor Review* in 1989 as winners of the 2lst annual Klein Award. The authors:

- Bruce W. Klein and Philip L. Rones, economists in the Division of Labor Force Statistics, Bureau of Labor Statistics, for "A profile of the working poor," which appeared in the October issue.

- Mark S. Littman, a sociologist in the Poverty and Wealth Statistics Branch, Bureau of the Census, for "Poverty in the 1980's: are the poor getting poorer?" published in June, and "Reasons for not working: are the poor getting poorer?", which appeared in the August issue .

The 1989 Klein Award will be presented at the Bureau of Labor Statistics annual awards ceremony May 10 in the GAO auditorium.

The Klein–Rones article focuses on persons who are in the labor force but who live in poor families. The authors contrast the situation of these workers—the working poor—with that of workers who are not poor.

The working poor accounted for about one–third of all persons aged 16 and older who were impoverished in 1987. More than 6 million of these workers had family incomes below the official poverty level, even though they worked or looked for work at least half of the year.

Klein and Rones found that two- thirds of the poor who worked full time fell below a "low earnings" threshold. Unmarried women maintaining families were the workers with the greatest risk of living in poverty, the authors note. Almost one–fourth of single–earner families headed by women were poor.

When a family had more than one worker, the probability of poverty was sharply reduced. In particular, poverty was rare when both spouses were employed, according to the authors.

In the first of his two articles, "Poverty in the 1980's: are the poor getting poorer?", Littman finds that poor persons were no closer to their particular poverty thresholds in 1986 than at the beginning of the decade.

In fact, the aggregate income deficit of the poor rose from $29.7 billion in 1980 to $49.2 billion in 1986. The deficit, Littman notes, is the amount of money needed "to raise the money incomes of all poor famiies and unrelated persons just above the poverty level applicable to their family size in any given year."

Littman also measures the average income deficit, the amount of money "separating the income of a given family or unrelated person from the appropriate poverty threshold." Adjusted for inflation, the deficit for families was $4,394 in 1986, unchanged from 1982.

In his second article, "Reasons for not working: poor and nonpoor compared," Littman compares the work experience of family household heads who are poor (income below the poverty line) to the experience of those who are not poor (income above the poverty line).

The proportion of the working poor was relatively unchanged in the 1980's, after falling "precipitously" in the 1970's and 1960's, Littman observes. He finds that the increase in the proportion of poor families headed by women is the largest factor explaining the decline in the labor force participation of poor householders.

About the award. Trustees of the Klein Award Fund are Lawrence R. Klein; Charles D. Stewart, president; Ben Burdetsky, secretary-treasurer; Peter Henle; Harold Goldstein; Howard Rosen; and Henry Lowenstern. The award was established in 1968 in honor of Klein, editor–in–chief of the *Monthly Labor Review* for 22 years until his retirement in 1968. Instead of accepting a retirement gift, Klein donated it and matched the amount collected to initiate the fund. Since then, he has contributed regularly to the fund, as have others. The purpose of the award is to encourage *Review* articles that (1) exhibit originality of ideas or method of analysis, (2) adhere to the principles of scientific inquiry, and (3) are well written. Each winning article carries a cash prize.

Tax–deductible contributions to the fund may be sent to Ben Burdetsky, Secretary–Treasurer, Lawrence R. Klein Fund, c/o School of Government and Business Administration, The George Washington University, Washington, DC 20052. □

Labor force data in the next century

A BLS manager envisages possible enhancements in data collection, analysis, and dissemination, with expansion of both household and establishment surveys and much greater use of administrative data

To help mark the Monthly Labor Review*'s 75th year, the editors asked both data users and data producers to speculate about programs and data needs in 2015, when the* Review *will mark its centennial. This article and the article beginning on page 9 deal with the Bureau's employment programs.*

Thomas J. Plewes

Over the past 3 years, much attention has been focused on the shape and composition of the labor market in the year 2000. The two sets of Bureau of Labor Statistics projections to the year 2000[1] and the Hudson Institute's *Workforce 2000* report[2] have received media and academic attention far beyond the usual labor market information audience.

The long-term projections are based primarily on analysis of current labor force data. Among their many valuable functions, these projections permit us to respond to the challenges and opportunities that lie in the future. In addition, they have to be taken into account in managing the programs that produce current labor force statistics. Labor statistics, like the educational and training institutions they serve, must be fine-tuned to assure that adequate measures are in place as the work force of the future evolves. It is sometimes said that statistical programs face a special challenge. To be useful, they must stay ahead of the trends, for their function is to identify events and measure those trends as they happen. Staying ahead, in turn, means that the programs must be in place before the projected changes they measure occur. The challenge to all statisticians who deal with projections—but to BLS statisticians in particular, given the Bureau's reputation for providing reliable, useful statistics on a timely basis—is to pay close and constant attention to the projections. While the projections are based on the Bureau's best current data, it is recognized that those data are themselves only as good as past projections and resource investments have allowed them to be.

Timing of change

Statistical programs require long lead times before fundamental changes in approach and scope can be implemented. Hence, the likeliest scenario for the turn of the century is that most labor statistics programs will appear to their users much as they do today. Change will be evolutionary, rather than revolutionary.

The long horizon of change in major statistical efforts is exemplified in the ongoing effort to modernize the Current Population Survey (CPS), the premier household survey in the labor force field. A joint BLS–Census Bureau committee has been meeting for more than 2 years to plan for a post-1990 redesign of the survey. The opportunity to redesign this household survey comes just once each decade, because the information from the decennial census is needed for the redesign. The planning and budget process in the Federal Government is such that formal

Thomas J. Plewes is Associate Commissioner, Office of Employment and Unemployment Statistics, Bureau of Labor Statistics.

plans for work that must take place this year (fiscal year 1990) in preparation for the post-1990 census redesign had to be included in agency budget requests formulated back in April 1988. Even though preparation begins in earnest in 1990, the incorporation of decennial census results into the sample redesign will delay the completion of the redesign until 1995.[3] From inception to implementation, the modernization of the CPS will require at least 6 years. The next opportunity to introduce a significantly revised survey will be in the year 2005, with planning required to be completed as early as 1998.

We will see the emergence of a paperless environment that will bring about vast changes in data collection, transmission, editing, and publication.

Components of change

The scope and depth of changes in the labor statistics programs will depend on the future course of the three principal components of any statistical program: methodology, technology, and resources. In each of these, the exact direction of change is uncertain. Accordingly, what follows is a vision of the future; whether reality will bear it out remains, of course, to be seen.

From today's vantage point, a scenario of quantum advancement in methodology and technology is quite probable, while the limiting factor will clearly be resources—both human and financial.

Methodology. Methodological enhancements are cascading into the Bureau's statistical programs as never before, driven by concerns over quality, made possible by advancements in computing technology, and sustained by innovative statistical design practices. The pioneering work beginning to come from the Bureau's Cognitive Laboratory is an example. In this laboratory, an interdisciplinary team is testing the cognitive aspects of questionnaires on individuals and business respondents, challenging and refining not only the questions, but also the ways in which they are asked and the concepts to which they pertain.

Model-based estimation techniques, introduced into the computation of State employment and unemployment estimates just this past year, hold promise for future applications. More changes employing these techniques will come as we learn to incorporate theoretical concepts that found their first practical use in engineering applications to the large, complex statistical operations that produce labor force information.

Innovations in methodology will change the way that the Bureau develops and tests questionnaires, draws survey panels, computes estimates, and measures reliability.[4] The torrent of methodological innovations that pours out of the minds of theoreticians practically daily is fully expected to increase. At a minimum, innovations in methodology will be needed to maintain a sound statistical base for the work of the Bureau in a resource-constrained environment.

Technology. As with methodology, the pace of technology is fast increasing, and its impact is only now becoming understood.[5] Within the next decade, we will see the emergence of a paperless environment that will bring about vast changes in data collection, transmission, editing, and publication. At the same time, advances in artificial intelligence and expert systems will change forever the way statistical agencies code, edit, and analyze data. These technologies, for the most part, are available today. The issue is not where the programs will go with technology, but how far and how fast it will carry them.

The Bureau's relationship with its reporters will be rethought. Because even the smallest companies will computerize their work force data, there will be mounting interest in direct links between companies and the Bureau's data bases. Direct links to reporters will be only one of a number of radical differences in the Bureau's methods of data collection.

One of the most promising techniques for cutting down on the total amount of labor in data collection and for reducing errors is computer-assisted telephone interviewing. In a number of Bureau surveys, interviewers call respondents, asking questions that appear on computer screens and entering the interviewees' responses into the computer. An extension of this facility is touch-tone data entry, which more than 1,000 companies are currently using monthly to transmit data to BLS cooperating State agencies. Talking to the computer is the next step. Though still in the early stages of testing and development, with about 100 live cases under investigation, the technology for voice collection—in which a machine-generated voice can ask questions, record responses, and convert voice answers into machine-readable text—is right around the corner.

Distribution of data will be enhanced by the evolution of standard data exchange formats. The capabilities of optical disks and their stand-alone successors will permit wide distribution of high-volume historical data. Even if there is no expansion of the ability of statistical agencies to electronically disseminate their data directly to users, all users will benefit from the increasing capability of BLS to produce master data bases in formats that are widely useful.

Resources. Enhancements in methods and technology certainly promise to make opera-

tions more efficient, and to substitute capital for some of the more labor-intensive statistical activities. However, the achievement of these breakthroughs requires up-front investment, which may not be possible in a period of tight budget constraints and competing needs.

A sharper focus for demographic data

The projections to the year 2000 paint a portrait of a labor force emerging over the next decade that is quite different from the labor force of the past. This new labor force will be increasingly composed of minorities, women, and mature workers. In other words, the groups that will grow the most are those which customarily have experienced the greatest difficulty in the labor market, have suffered more labor market-related economic hardship, and presently are most difficult to measure using current concepts, techniques, and procedures.

Despite the emergence of complementary surveys, such as the Census Bureau's Survey of Income and Program Participation, the monthly Current Population Survey, conducted by the same Census Bureau for BLS, will continue to be the primary analytical vehicle for understanding these groups and their labor force trends. Like other household surveys, the CPS best illuminates information on the demographic composition of the work force, the interaction between the family and the work force, and the reasons for the behavior of the work force. More than other surveys, the CPS provides the size, scope, flexibility, and continuity needed to depict changes in the status of groups of workers.

To the outside observer in the year 2015, the basics of the CPS will probably appear to have stayed much the same. It will still be a monthly survey using rotation panels in a 4–8–4 configuration and pertaining to a reference week that includes the 12th of the month. Yet, the survey in the year 2015 will be substantially different from the survey of 1989. This difference will be the result of the earlier mentioned comprehensive redesign and modernization that will follow the 1990 Decennial Census of Population and Housing. Ideas already under consideration for this major redesign of the survey include the following:

- Modernizing the questionnaire to sharpen measurements and improve information on occupations and industries of workers.
- Redesigning the sample to incorporate updated materials from the decennial census, thus increasing the efficiency of the survey.
- Enhancing the reliability of State estimates by expanding the sample in mid-decade to permit sample-based estimates for all States on a monthly basis.
- Improving coverage of minorities.
- Automating data collection by widespread use of computer-assisted collection technology.
- Extending the ability of the survey to focus longitudinally on the labor force by improving the basic coding of information from one snapshot view of the labor force to another.

Plans are also under way to initiate a separate longitudinal panel to follow persons continually over long periods of time, perhaps 24 months. The data on aggregate changes in labor force status from one month to the next (gross flows), which are now compiled but not generally used in analysis, will be improved to allow for analysis of the causes of movements in the data. This improvement should aid in understanding the sometimes erratic movement in the over-the-month employment situation.[6]

To further assist in identifying the underlying economic importance of month-to-month movements in the employment and unemployment statistics, the process of adjusting for seasonality of the data will be enhanced. The Bureau is testing the concept of concurrent seasonal adjustment—that is, revising seasonal adjustment factors each month as new data become available—and appending the test series to the Commissioner's monthly testimony before the Joint Economic Committee.

The new processing environment also will change the way in which CPS data are used. Building on current trends, the Bureau will make CPS microdata, which are now available in public-use format (that is, purged of personal identifiers), more immediately available to all users on an ongoing basis. This enhancement in data access is expected to permit users to generate as much or as little detail as is desired. Freed from the limitations imposed by restricted data access, a flood of innovative analyses by university and private-sector economists and statisticians will supplement the Federal Government's analytical efforts.

Advances in artificial intelligence and expert systems will change forever the way statistical agencies code, edit, and analyze data.

Even with this more elaborate household survey data system, the scope of the surveys and their coverage of the work force will continue to be severely limited. Household surveys are expensive to initiate and maintain; they impose a considerable burden on their respondents and require cadres of skilled enumerators, who are expected to be increasingly difficult to hire and retain. Thus, traditional surveys like the CPS have a constrained potential for further expansion.

Less frequent, but more complete, enumerations are also difficult to justify. For example, a

mid-decade census, required by law for some time, would fill the void in geographic detail between decennial census years. However, given the current budget climate, such a census is not very likely. As a result, for the foreseeable future, labor force analysts will increasingly be forced to look to administrative data, together with supplementary surveys of limited scope and quick turnaround, to extend work force information.

Extended use of administrative data

A powerful new longitudinal data base on employers will be available that will support research into the process of job creation.

Despite the great promise of extended use of administrative data for labor market analysis, the United States has thus far seen mostly limited direct use of administrative records in the labor field. This stands in sharp contrast to practices in the Scandinavian countries and much of Europe, where extensive use has been made of an elaborate set of administrative records for functions that range from estimation of unemployment to time-use studies and analysis of income distribution. In large measure, the lesser use of administrative data in this country stems from a perceived tension between the administrative necessities of Government operations and the statistical opportunities the data represent. Statistical uses have been deemed an expensive nuisance by managers of programs that were established to pay benefits, collect taxes, or perform other governmental functions.

Building on a carefully developed and firm foundation laid only over the past few years, that perception is changing in the work force information field. Increasingly, the fit between the information gathered by the States as they manage the unemployment insurance system and the needs of State and Federal agencies for statistical data has come to be seen as symbiotic. The unemployment insurance data system (known as the ES-202 system, after the name of the form used in aggregating the data) has emerged over the past few years as a powerful means of understanding the workings of the labor market, identifying the process of job creation, focusing on how businesses operate, and detailing the labor force characteristics of persons. Improvements in the quality of information about establishments and persons served by the States' programs has strengthened both the statistics and program management. Thus, while many purely Federal sources of administrative data have lost much of their utility, because of both restrictions on their use for nonadministrative purposes and lack of investment in their statistical infrastructure, the Federal-State unemployment insurance system holds the promise of future potential.

Over the past several years, BLS and cooperating State agencies have devoted considerable resources to expansion of the unemployment insurance data base. These efforts began in the 1970's with standardizing claims information and improving the identification of the place of residence of the unemployed for purposes of improving local area unemployment statistics. Later, the process of affixing current industrial classification coding to business records was enhanced when all States adopted a standard 3-year update cycle and converted to a BLS-developed verification format for collecting the desired information. More recently, the emphasis has shifted to obtaining workplace information on all establishments, thus improving the information on where business activity actually takes place.

The potential for an ever more significant role for these administrative data in the labor market information portfolio is significant. Early in the next decade, a powerful new longitudinal data base on employers will be available that will support research into the process of job creation. Analysts will be able to trace the birth, expansion, structural transformation, and demise of American businesses as never before, and survey designers will be able to incorporate this information into more efficient sample designs. The new power thereby gleaned to study the life cycle of businesses using a broadly based list with quarterly coverage of all industries and sizes of establishments will transform the way that analysts look at U.S. industry. The potential of this data base for economic development and other applications at the Federal, State, and local levels is unbounded.

A number of steps will have been taken to bring this transformation about, under the umbrella of the Bureau's Business Establishment List program. The ultimate objective of this program will be to provide the basis for a single standard listing of nonagricultural businesses for common use by Federal Government statistical agencies. It is expected that the Bureau will be able to begin sharing the enhanced data in 1992.[7]

Technical and procedural changes will foster additional uses of the data. The processing environment will shift from a focus on maintaining aggregates to maintaining microdata for the establishments. Tape transmittals of input data from the States and thence to users will be a thing of the past, with new transmission media allowing for better access to, and archiving of, the data. These initiatives will also mean that data will be available at least 2 months earlier than today's capabilities allow.

The classification system will, of course, have to be modernized to match the potential of

the data system. Standard Industrial Classification (SIC) coding will be standardized and simplified. In this regard, the 1997 SIC revision may provide a new way to look at industrial coding that could include both multiproduct and conventional means at a greater level of detail (5–7 digits), thus making it possible to better associate product with place.

High technology in business surveys

Although improvements in the administrative data base will increase the usefulness and speed the inception of this census-type information, the natural lag in administrative records processing and the limitation on the kind of data available in the administrative files suggest the need for a continued monthly survey of businesses to measure employment, hours, earnings, and other characteristics of economic interest. The survey program that now serves that role—the Current Employment Statistics program—is a massive Federal-State operation involving mail and telephone collection of data from nearly 350,000 businesses each month, generation of two preliminary estimates followed by a "final" estimate, and an annual benchmark revision that reanchors the survey to the administrative data base. Steps have already been taken to prepare this survey to reflect technological advancements, including computer-assisted telephone interviewing, touch-tone data entry, voice recognition, computer-assisted personal interviewing for response analysis surveys, and many more useful enhancements as they come on line after testing and demonstration.

Data collection from business establishments will be even more closely tied to the unemployment insurance administrative data base and share most concepts with it, particularly in the earnings area. In the future, the survey could provide current data for all metropolitan statistical areas, expanding beyond the 180 areas for which data are now available monthly. The 2 months of preliminary estimates now required because of shortfalls in survey receipt when estimates are prepared will be reduced and perhaps even eliminated as technology and improved sample design allow BLS and cooperating States to focus on getting responses from key firms in a timely manner.

The survey operation will be extended to include more kinds of compensation and working conditions of employees. Currently, the survey collects only hourly earnings information, yet BLS studies have shown that nonwage items are an increasingly important part of workers' compensation.[8] A model for collection of these additional items exists in the Statistics Canada program; a similar program could be implemented on an annual basis following a period of testing and evaluation.

Occupational data with meaning

Although the pace of labor force and employment growth over the next decade is expected to slow, an analysis of the changing occupational structure of employment leads to the inevitable conclusion that the combination of industry employment trends, technological change, and other factors will increase our need to enlarge our understanding of occupations, including their skill requirements and demographic profiles. Today, the major sources of information about the occupational profile of the work force and of the Nation's employers are, respectively, the Current Population Survey and the Occupational Employment Survey. Many of the general improvements to the CPS—for example, better coding schemes and the ability to compare information from previous interviews with the current collection of interviews—will enhance the occupational data collected from individuals, and updated Census Bureau occupational classifications will increase the value of these data. But on the other hand, occupational data collected from households may be expected to continue to have notorious shortfalls. These data suffer from improper specification, skill level inflation, underreporting, and imprecision. Accordingly, for many purposes, occupational analysis, particularly in an industrial context, will continue to rely primarily on information collected from establishments.

Analysts will be able to trace the birth, expansion, structural transformation, and demise of American businesses as never before.

The Occupational Employment Survey of the next century will be a more generalized survey, serving additional users and permitting collection of additional data elements, such as earnings and demographic characteristics. The survey will be more precise, based on a completely new Standard Occupational Classification system that will have been developed for the Government in the early 1990's by a group under the leadership of the Office of Management and Budget. The Dictionary of Occupational Titles program, managed by the Department of Labor's Employment and Training Administration, will be closely integrated with this classification system. The Dictionary provides a basis for reconciling worker skills and traits, educational requirements, and occupational identification. With the vast changes in the skills that will be required for the jobs of the future, an upgraded Dictionary is a necessary first step toward making the worlds of education and work coincide more closely.

A depth of local detail

The likelihood of a continuation of areas of plenty and of poverty within the United States, within the States, and within local jurisdictions makes high-quality collection, analysis, and dissemination of State and local data paramount. In cooperation with the State agencies, the Bureau now produces unemployment statistics for some 5,000 subnational areas on a monthly basis. It is difficult to contemplate extending that detail further without a significant improvement in the availability of raw data about small-area labor markets. Therefore, any improvements achieved will be in quality and timeliness.

Current local area unemployment estimates are based on a "handbook" procedure, which assigns values to the local area based on those of larger areas for which data are available. The Local Area Unemployment Statistics program will be modernized, with estimates for all areas based on procedures akin to the model-based estimation that has been used to compute estimates at the State level for the past 2 years.

The local estimates will be processed in a multilevel environment using the next generation of PC-based software the Bureau is providing to its State partners in the State Systems Project. This environment will enhance the quality of the data and allow data production of State and local estimates to be speeded up significantly.

IN SUMMARY, the labor force scenario for the year 2015 and beyond envisions three core sources of data with analytical and dissemination programs built around them in a satellite configuration:

- A monthly household survey.
- An unemployment insurance–covered wage and employment data base at the establishment level, designed to yield quarterly aggregations of the universe of business establishments and a current monthly survey of establishments, to obtain employment linked to the unemployment insurance universe together with hours and earnings; an annual survey of those same establishments to obtain additional compensation items; a periodic occupational employment survey in some detail; and an annual occupational employment survey to collect demographic data.
- An unemployment insurance individual-record data base that will provide the basis for local unemployment estimates and information on layoffs, plant closings, and other actions of public interest.

The labor force data programs of the future will be much more oriented toward individual records, utilizing the emerging power of the computer to process those records on demand to provide tailored aggregations of characteristics of interest. This new power will simplify data storage and the job of the analyst, but will require artificial intelligence or other advanced applications to reduce the nearly infinite number of possible cross-tabulations to a manageable, understandable few. The microdata orientation will also place a new pressure on the Bureau and other statistical agencies to develop new means of making public-use files available while protecting the confidentiality of the data.

Finally, the new environment in the year 2015 will have caused us, in the interim, to reflect together on the fitness of our decentralized national and Federal-State cooperative statistical systems to meet the challenges posed. As we thus reflect on the strengths and weaknesses of our administrative system in the light of a long-term vision of the data for which we are stewards, we stand assured that we can, and will, provide for the coming expansion in the availability of high-quality labor force data. □

Footnotes

[1] The most recent BLS projections to the year 2000 are found in a series of five articles in the November 1989 *Monthly Labor Review*.

[2] William B. Johnston and Arnold E. Packer, *Workforce 2000, Work and Workers for the Twenty-first Century* (Indianapolis, The Hudson Institute, 1987).

[3] William P. Butz and Thomas J. Plewes, "A Current Population Survey for the 21st Century," *Proceedings, Fifth Annual Research Conference* (Washington, Bureau of the Census, 1989), pp. 12–13.

[4] George Werking, Alan Tupek, and Richard Clayton, "CATI and Touchtone Self-Response Applications for Establishment Surveys," *Journal of Official Statistics*, vol. 4, no. 4, 1988, pp. 349–63.

[5] Carl J. Lowe, "Statistical Processing in the Year 2015—What Can We Expect?" paper presented at Fourth International Roundtable on Business Survey Frames, Newport, United Kingdom, November 1989.

[6] Butz and Plewes, "A Current Population Survey," p. 11.

[7] Brian MacDonald, "Progress Report: Bureau of Labor Statistics," paper presented at Fourth International Roundtable on Business Survey Frames, Newport, United Kingdom, November 1989.

[8] *Employment Cost Indexes and Levels, 1975–1989*, Bulletin 2339 (Bureau of Labor Statistics, October 1989).

A data user's look back from 2015

An academic analyst of BLS employment programs steps 25 years into the future, where the kinds and amounts of data and the technology for assessing them are greatly expanded

To mark the 75th year of the Monthly Labor Review, *the editors invited several producers and users of BLS data to speculate on changes they foresee in the next 25 years. The author of this article looks back from an imaginary vantage point in the year 2015.*

Daniel S. Hamermesh

For someone like me, whose academic career began in 1965, empirical research on the labor market in 1989 was phenomenally easy. But by today's (2015) standards, our 1989 methods were primitive technology. Today's young labor economists surely are as incapable of appreciating the difficulties, in the 1980's, of conducting empirical research using data tapes that had to be obtained and manipulated with great effort as their young counterparts in 1989 must have been of appreciating the difficulties of doing research on data that, in the 1960's, had to be hand-copied and keypunched onto small cards. No doubt they would be equally flabbergasted by the paucity of data available in 1989. The dual revolution—in the technology of using data and in the kind and amount of data available—has, to some extent, resulted from decisions made in BLS during the 1990's.

Perhaps the most important of these decisions was the recognition that problems of confidentiality of establishment data could be overcome and those data made readily available to researchers outside of Government. This obviated the need for such worthy, but partial, approaches as the Census Bureau's Longitudinal Employment Database, an annual panel of manufacturing establishments that was only accessible to researchers who became sworn Government employees and who worked with the data at the Census Bureau. The change was facilitated by the development, in the late 1990's, of essentially error-free transmission mechanisms from BLS computers to individual users around the country via fiber-optic methods. As a result, researchers now can sit by their home or office computer and operate on data files located at BLS, extracting the data they desire or performing statistical analyses on BLS data files. BLS computers are programmed to prevent the export of data or the calculation of summary statistics that might violate promises of confidentiality. Blanket prohibitions on access are no longer needed—restriction is on a case-by-case basis, making access interactive and immediate.

We academic researchers pride ourselves on working on timeless issues; but very little research in the social sciences is timeless (or even very long-lasting). In the 1970's and 1980's, the difficulties of obtaining data made it necessary for us to do much of the testing of theories about the labor market on data that were 10 or even 20

Daniel S. Hamermesh, professor of economics at Michigan State University and research associate, National Bureau of Economic Research, expects to be retired from regular teaching and research in 2015.

years old. Technological developments have changed that and added a new currency to academic research. The large sets of microeconomic data that we now can obtain usually include information that is no more than 6 months old. Since 1996, Current Population Survey enumerators have been able to code data into their portable computers during their interviews for transmission immediately after; and establishments participating in employer-based surveys have responded electronically since 1993. The only lag in the process is the brief time needed to ensure the data are error-free before BLS allows public access.

By 2015, the monthly Current Employment Statistics survey should be enhanced to obtain information by occupation and by sex.

Establishment survey expanded

Naturally, the increasing ease of access to nearly-contemporaneous data stirred users' interest in the kinds of data that were accessible, and no more so than with the previously neglected establishment data. The scope of these data was greatly expanded, although the data collection was mostly an extension and rationalization of what already existed in 1989. The monthly Current Employment Statistics survey (BLS–790), which provided the published series on weekly earnings, hours, and establishment-based employment by industry, was enhanced to obtain information by occupation and by sex. With some encouragement and guidance, employers have been willing to submit the required data.

Most important, information on employee benefits, training and other nonwage labor costs, on the output of each establishment, and on job vacancies was included in the data. The neglect of nonwage costs had made the BLS–790 data increasingly irrelevant for research on the determinants of compensation and for studies of employers' decisions about hiring and firing. With the collection of information on these costs, researchers in 2015 are able to conduct serious studies of how these costs affect employers' decisions about adjusting their work forces. With the collection of data on output by establishment, we now can explicitly link shocks to product demand to the costs of changing employment. The creation of a continuing sample of job vacancy information has provided a long-needed analog to the unemployment information in the Current Population Survey and has fulfilled the promise of the aborted job-vacancy programs of the late 1960's. With all these changes, immediate information on the structure of employment in relation to wages and product demand thus became available to researchers.

In the 1980's, economists realized that employment change was largely a reflection of plant openings and closings.[1] With access to these establishment-based data, researchers have been able to identify the dynamics of employment, *both in continuing plants and in those that opened or closed,* in a systematic and comprehensive way. Instead of merely charting the sizes of flows of jobs, the inclusion of employment cost and output data has enabled us to measure the determinants of these flows as well. We can now study worker displacement at the appropriate level, that of the individual plant.

The stock-in-trade of labor economists has always been the analysis of wage differentials. The development of these accessible, large-scale sets of establishment data has enabled us to study wage differentials, or, more correctly, compensation differentials, at the plant level and to include the characteristics of the individual establishments. This has allowed us to test theories of macroeconomic adjustment based on so-called efficiency wages that were in vogue in the 1980's and 1990's. It has permitted us to dispose of a variety of questions on the hoary issue of compensating wage differentials (and, given the nature of research, to create new questions that cannot yet be answered by existing data).

The excessive concentration of data on the manufacturing sector has finally ended. With fewer than 15 percent of jobs in the U.S. economy remaining in manufacturing in 2015, this broadening of information has been vital to understanding trends in wages and wage differentials. It has provided the chance to study questions about the determinants of wage differentials, flows of job opportunities and their causes, and employment adjustment outside the narrow context of manufacturing. In short, these broader data have enabled researchers to develop and test theories of labor demand generally, not just within manufacturing.

Household, establishment data linked

As crucial as these developments have been in redressing the imbalances between household- and establishment-based data, they would not by themselves have been revolutionary. What has been revolutionary is their link to household data. By allowing checks on individuals' reports of their earnings and hours, this link has enabled BLS to develop programs that removed much of the substantial measurement error that caused some of us to question research on wage determination using the household-based data of the 1970's and 1980's.[2]

Even more important than the enhanced quality of the household data has been the ability this

linkage has given labor economists to study wage and employment determination *in a market* rather than merely from the employer's or worker's side. With information on samples of particular firms' employees, we can examine how changes in the demand for labor lead to adjustments in behavior of the worker and members of the worker's household. We finally have been able to identify the relations that generate wage differentials, so that we can actually specify changes in a worker's or employer's behavior and predict their impact on the structure of wages. The development of data during the 1970's and 1980's enabled us to produce sophisticated tests of complex theories of labor supply and demand that had their origins between the 1930's and 1960's; the development of linked establishment-household data in the 1990's enabled us to test the contracting theories that had their origins in the 1970's and 1980's.

The resources, both monetary and time, devoted to expanding establishment surveys and making them accessible were not, of course, free. But there was sufficient political will to spend resources in an area that loomed increasingly important. At the same time, enough resources still were available to finance the continued expansion and refinement of the Current Population Survey. Expansion of the CPS enabled researchers to examine the detailed structure of labor force dynamics in a few of the largest labor markets. Its increased size allowed researchers to test hypotheses about the changing structure of the labor force and of unemployment within particular demographic groups which the smaller sample sizes had previously not permitted. The enlarged sample even allowed us to trace the impact on local labor markets of large-scale plant closings, so that the CPS data could function like the European job registration data in this regard. With a larger sample, we also had sufficient observations to make the linkage with the establishment data noted above.

Longitudinal CPS

Some of the longitudinal household data sets financed by the Federal Government, but organized and collected privately, continue to this day; but much of the academic interest in them has been supplanted by attention paid to the Longitudinal CPS that started in the mid-1990's when outgoing rotation groups began to be interviewed systematically. Initially, these interviews were only for 2 years. That soon expanded; some of the households now have been in the Longitudinal CPS for 10 years. The obvious advantages of a larger sample size engendered many new possibilities for studying subgroups of the labor force. These data have enabled researchers to examine the determinants of transitions between labor force states with a precision that was impossible using the earlier longitudinal household data sets. No longer do labor economists debate the purely "counting" questions of the relative importance of incidence and duration of unemployment over the cycle, or of the magnitude of transition probabilities by demographic group among employment, unemployment, and nonparticipation. These data have changed the focus of the debate to allow us to construct and test economic theories of the determinants of these probabilities and of unemployment incidence and duration within particular demographic groups.

The Current Population Survey has continued to function as a vehicle to which supplements that provide data to examine topics of current interest can be attached. If anything, these have increased in number, as researchers and civil servants have recognized the ease of obtaining data in this way. (The effect the supplements have on the quality of the regular CPS data is not yet certain.) As examples, one supplement responded to concerns about nonmonetary aspects of employment by asking detailed questions about working conditions, employees' perceptions of the nature of their work, and their knowledge of conditions in the business. This gave policy analysts the information necessary to examine the incidence of various safety and health problems that the old establishment-based data could not disclose. It gave academics the ability to formulate models based on workers' perceptions and expectations, thus allowing us to examine much better the intermediating role of expectations in economic behavior. A supplement in 2005 concentrated on workers between ages 45 and 55 and obtained information about the economic status and demographic characteristics of the "baby-boom" generation in middle age.

We academics still pay too little attention to, and are still woefully ungrateful for, the quality of the data provided to us by government agencies. Particularly noteworthy were the improvements in the quality of data that have occurred since 1990. Partly these have resulted from the improved technology of data handling—the substitution of direct data entry for most of the paperwork has reduced error rates considerably. Partly, too, these have occurred because of the increased sophistication of the algorithms for assigning values to missing data points. Perhaps most important, though, they have been generated by the increased concern of all data users that the raw material of their analyses be as free of error as is possible, and the recognition of

In 2015, expansion of the CPS will enable researchers to examine the detailed structure of labor force dynamics in a few of the largest labor markets.

policymakers that the research that occasionally informs their endeavors should not be based on unnecessarily dirty data.

The burgeoning supply of data has improved research in yet another way: less professional payoff is acquired by those who obtain data and perform a few simple analyses, and more is now given to those who think and analyze carefully. Admittedly, this was not true in the 1990's when the new wealth of data resources was a novelty; but as the novelty wore off, and the increased ease of doing research became apparent, ideas, not just manipulation of data, became more heavily rewarded. This paralleled the earlier moves away from the novel, but uninformed, "regression-running" of the 1960's, and from the excessive concern with the structure of error terms by "laborometricians" in the 1980's.

Looking ahead, 2015–40

The one constant among economists is our desire for more data. New expectations and hopes spring up as soon as our old requests are satisfied. Just as the development of economic theory stimulated and was stimulated by the creation of new sets of data before 1990, and between 1990 and 2015, no doubt that synergy will affect the development of data during the next 25 years. As before 1990, and as between 1990 and 2015, emerging social issues will focus researchers' attention on generating new economic approaches to thinking about them, and will create a demand for new types of data. I doubt that the next generation of economists will be any more satisfied with the data at their disposal than we are with our data, or our predecessors were with theirs. Just as we are far more fortunate in this regard than economists working in the late 1980's, though, I have no doubt that our successors will look back at us and marvel at the underdeveloped state of our analyses and the data that underlie them. □

Footnotes

[1] For example, see Timothy Dunne, Mark Roberts, and Larry Samuelson, "Plant Turnover and Gross Employment Flows in the U.S. Manufacturing Sector," *Journal of Labor Economics,* January 1989, pp. 48–71.

[2] Greg J. Duncan and Daniel Hill, "An Investigation of the Extent and Consequences of Measurement Error in Labor-Economic Survey Data," *Journal of Labor Economics,* October 1985, pp. 508–32.

Diffusion indexes: a barometer of the economy

BLS diffusion indexes measure the breadth of employment change across industries, which is helpful in assessing the overall state of the economy, while also serving as a potential leading indicator of manufacturing employment levels

Patricia M. Getz
and
Mark G. Ulmer

The Bureau of Labor Statistics has improved the diffusion index of employment produced as part of the Bureau's Current Employment Statistics program. The old diffusion index, which included 185 industries, was replaced with a broader-based index, with 349 component industries.[1] This expanded index, which covers all nonagricultural industries, is supplemented by a new 141-industry diffusion index for manufacturing. Both diffusion indexes of employment are published each month in table 18 of the Current Labor Statistics section of the *Monthly Labor Review*.

A diffusion index is a measure of the dispersion of change. A diffusion index of employment provides insight into the breadth of employment change, which can be important in assessing overall economic trends. For example, increases of similar magnitude in total employment may be caused by growth in a few industries or growth in many industries. A sharp overall employment increase caused by increases in only a few industries can have different economic and policy implications than one caused by more widespread increases. The new diffusion indexes for employment change improve the potential for analysis of employment trends because they provide a broader-based measure for all private nonagricultural industries and a separate measure for the cyclically sensitive manufacturing sector.

The previously published index was based on the most comprehensive employment data available at the time of its introduction in December 1974. The component industries were, for the most part, 3-digit Standard Industrial Classification (SIC) levels in manufacturing and the less detailed 2-digit SIC levels for other industry divisions. As a result, manufacturing industries had a disproportionately large representation in the index. However, because of the expansion of data for the service-producing sector in recent years, 3-digit SIC estimates in all industry divisions now are available. This has allowed employment diffusion index computation to "catch up" with service sector expansion and to be more analytically useful than it had been. Nonetheless, it is important to note that the present SIC structure still provides more detail for manufacturing than for service sector industries. Consequently, the 349-industry index still gives greater weight to employment changes in manufacturing than to those in services.

The addition of a diffusion index for manufacturing provides more analytical possibilities. Because the previous series was primarily composed of manufacturing industries, it was fre-

Patricia M. Getz and Mark G. Ulmer are economists in the Division of Monthly Industry Employment Statistics, Bureau of Labor Statistics.

quently used to analyze factory employment trends. With the broadening of the all-industry measure, the Bureau has also introduced a "pure" manufacturing index to fill this analytical need.

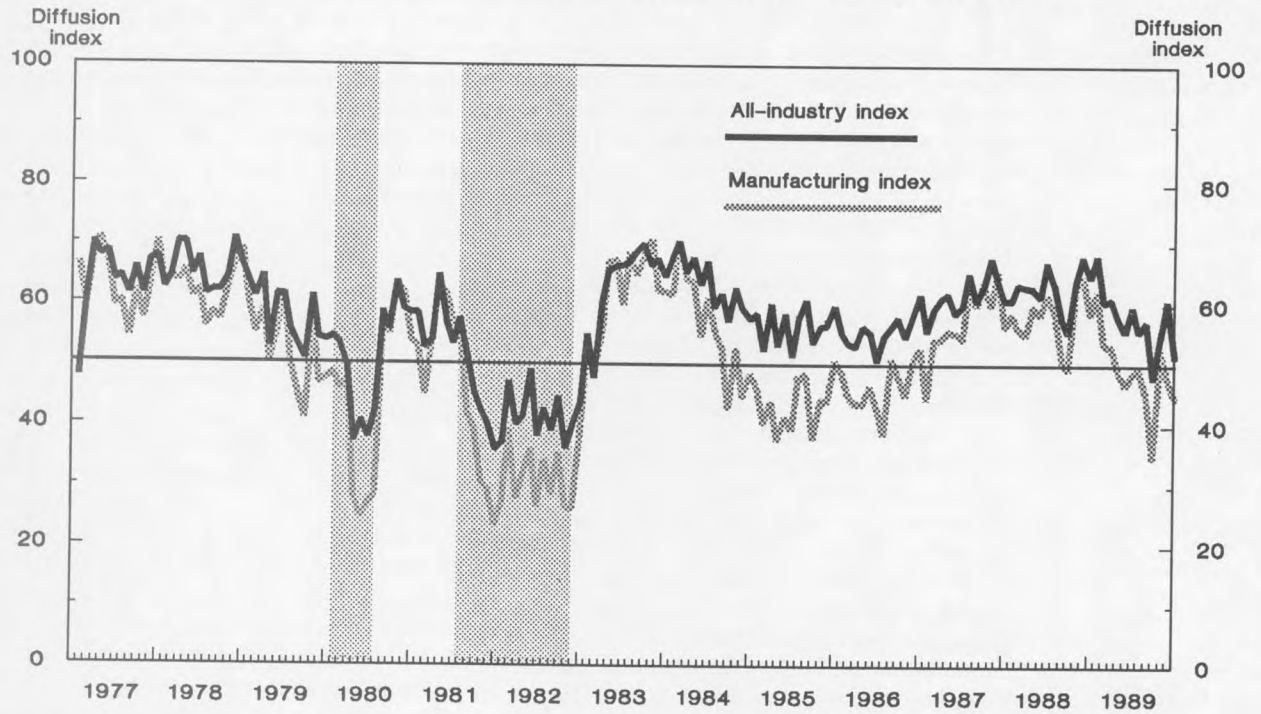
Historical series beginning in January 1977 are available for both the manufacturing and the new all-industry diffusion indexes for four timespans: 1 month, 3 months, 6 months, and 12 months. These data are presented in tables 1 and 2. Table 3 compares the industry composition of the old and new all-industry indexes. In the new index, the representation of the manufacturing component has dropped dramatically, from nearly 75 percent of the total number of industries to 40 percent, much more in line with the proportion of private nonfarm employment accounted for by manufacturing—22 percent. Services and retail trade have the most marked increases in representation.

History of diffusion indexes

The original diffusion index concept was introduced as an aid in identifying business cycles and business cycle turning points.[2] Further details on the purposes and properties of diffusion indexes were developed over several years. *Business Cycle Indicators,* published in 1961,[3] presented diffusion indexes for 21 economic indicators, including total nonagricultural employment. Two principal uses for diffusion indexes were suggested in that publication. The first was as a measure of dispersion for the corresponding aggregate economic activity. This measure of breadth or diffusion of change was considered important in determining when a business cycle turning point had been reached. The second proposed use of diffusion indexes was as leading economic indicators. This proposal arose from a noted tendency in the series studied for diffusion index turning points to lead aggregate activity by 6 to 12 months. Predictive value in anticipating business cycle turning points was not claimed, but it was noted that the indexes could provide auxiliary help in recognizing these events at the time they were occurring.

Diffusion indexes now are published for many economic time series. The U.S. Department of Commerce publication *Business Conditions Digest*[4] provides a compendium of the major diffusion indexes currently produced, presenting such indexes for more than 20 series, including composite indexes for leading, coinci-

Chart 1. **Seasonally adjusted diffusion indexes, 1-month span, 1977-89**



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

Exhibit 1. Turning points in employment levels versus diffusion indexes, using the 1-month span

Total private employment		All-industry index		
Date	Turning point	Date	Turning point	Relation to total private employment (in months)
September 1981	Peak	March 1978	Peak	—
December 1982	Trough	April 1980	Trough	—
		April 1981	Peak	led 5
		December 1981	Trough	led 12
		February 1984	Peak	—
		June 1986	Trough	—
		January 1989	Peak	—
Manufacturing employment		**Manufacturing index**		
Date	Turning point	Date	Turning point	Relation to manufacturing employment (in months)
June 1979	Peak	—	—	—
July 1980	Trough	May 1980	Trough	led 2
July 1981	Peak	October 1980	Peak	led 9
December 1982	Trough	December 1981	Trough	led 12
August 1984	Peak	October 1983	Peak	led 10
January 1987	Trough	April 1985	Trough	led 21
March 1989	Peak	November 1987	Peak	led 16

dent, and lagging economic indicators. Individual diffusion index series include, in addition to employment, average workweek in manufacturing, initial claims for unemployment insurance, stock prices, net manufacturing profits, and industrial production.

At the Bureau of Labor Statistics, the diffusion index was first published in 1974.[5] Its stated purposes were to serve as a measure of dispersion of employment change and as a leading indicator for employment levels. Currently, however, the Bureau focuses on the diffusion index only as a measure of dispersion, and not as a leading indicator. As discussed in detail later in this article, the leading indicator properties of the all-industry diffusion index currently appear to be tenuous.

Index computation and interpretation

The computation of a standard diffusion index is straightforward. Each component series is assigned a value of 0, 50, or 100 percent, depending on whether its employment showed a decrease, no change, or an increase over the given timespan. (Assigning a value of 50 percent to the unchanged components effectively counts one-half of them as rising and one-half as declining.) The average (mean) value is then calculated, and this percent is the diffusion index number.

Diffusion indexes are calculated for various timespans. As indicated earlier, the employment diffusion index is published for four timespans; seasonally adjusted data are used in the 1-, 3-, and 6-month series, and unadjusted data are used for the 12-month series. The index is reported for the center month of the span. For example, the published diffusion index value for the 6-month span for March 1989 measures the diffusion of change over the 6-month period from January 1989 to June 1989. It is calculated by comparing employment for each component industry in January 1989 with that in June 1989 to determine whether employment rose, fell, or remained unchanged. For the 1-month span, the diffusion index value is reported for the month to which the change is calculated. Thus, the published diffusion index for June 1989 represents change from May 1989 to June 1989.

There are several different interpretations possible, and useful, for diffusion index analysis. Diffusion indexes are sometimes described as representing the percent of components that increased over a given timespan. In the case of

Table 1. **Diffusion indexes of employment change, private nonagricultural payrolls, 349 industries,[1] seasonally adjusted**

[Percent]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Over 1-month span											
1977	63.5	60.5	70.3	67.9	68.6	63.8	64.5	61.3	65.9	61.3	67.0	67.9
1978	62.5	64.3	70.2	70.1	64.6	67.6	61.6	62.2	62.0	64.3	70.9	66.6
1979	63.9	61.0	64.8	52.7	61.6	61.3	55.7	53.2	50.7	61.3	54.2	53.9
1980	54.6	53.4	49.7	37.4	40.8	38.0	42.3	59.0	55.7	63.8	59.3	58.6
1981	58.5	52.7	54.0	64.5	57.0	53.3	57.7	51.3	45.8	42.3	40.3	36.0
1982	37.2	47.3	40.1	41.5	49.3	38.1	42.8	39.1	44.7	36.2	40.1	43.6
1983	55.0	47.9	60.2	65.6	66.3	66.5	67.2	68.9	70.1	66.6	67.6	64.6
1984	67.8	70.6	65.2	67.8	63.3	67.2	59.6	61.9	57.2	62.9	59.3	57.7
1985	58.5	52.3	60.2	53.2	58.5	51.4	57.6	60.7	53.6	56.3	56.6	59.7
1986	55.4	53.7	53.2	56.3	55.2	50.7	54.7	56.3	57.9	54.6	58.0	61.7
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	47.9	55.3	60.9	51.9
	Over 3-month span											
1977	70.2	74.5	76.4	79.2	74.8	72.1	69.3	72.1	70.5	73.5	73.6	72.5
1978	71.9	73.8	76.9	76.9	74.9	71.1	69.2	65.8	68.3	73.5	74.8	76.2
1979	69.5	71.8	65.8	66.2	62.0	64.0	58.9	53.3	57.6	58.6	62.2	56.2
1980	56.6	51.4	42.0	38.3	35.5	37.4	42.8	50.9	65.3	66.9	68.5	64.3
1981	59.5	55.6	58.9	64.6	63.3	60.7	57.0	52.4	43.3	40.0	34.0	30.9
1982	31.2	34.8	37.7	41.5	40.3	40.3	34.8	38.3	35.4	35.8	34.0	46.6
1983	48.4	57.0	62.6	71.9	72.1	74.4	72.6	77.2	77.2	74.6	71.6	73.6
1984	74.9	75.5	78.2	72.8	73.6	68.8	67.8	65.5	64.6	62.2	61.9	61.6
1985	58.3	58.3	55.6	59.0	55.4	57.6	56.6	58.7	58.5	56.9	59.5	59.3
1986	57.7	53.0	54.4	55.4	53.3	51.4	52.9	58.7	57.0	59.7	62.0	62.0
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	53.4	54.6	55.7	57.2	61.7[p]
	Over 6-month span											
1977	79.1	81.8	78.7	78.4	78.1	79.7	76.2	76.2	77.5	76.6	78.1	78.4
1978	77.8	81.4	81.2	79.8	78.7	76.2	73.6	76.9	75.6	76.8	76.1	77.8
1979	74.6	73.9	71.2	66.8	63.2	57.9	62.9	59.5	57.7	58.6	60.9	57.7
1980	48.6	44.7	41.1	37.4	37.1	37.5	44.4	51.9	61.2	70.9	68.9	66.2
1981	66.5	65.2	62.9	64.9	61.3	58.0	50.3	43.0	39.0	32.2	32.5	28.7
1982	28.5	29.7	33.0	38.8	37.2	36.8	34.5	33.8	34.8	38.1	39.1	43.1
1983	55.2	62.2	67.3	71.1	76.4	78.2	79.4	79.5	78.2	77.2	78.1	77.7
1984	78.7	78.9	80.2	77.1	74.4	72.6	70.1	68.6	64.9	63.9	61.6	62.6
1985	58.7	59.7	58.2	57.6	58.6	57.6	57.6	56.2	59.5	59.7	58.3	55.6
1986	55.6	56.6	52.7	52.9	53.4	56.0	55.6	57.0	62.3	61.6	62.9	63.2
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	57.9	57.7	60.2	53.4	59.0[p]	58.2[p]	—
	Over 12-month span											
1977	79.2	80.1	81.8	81.9	84.8	84.7	84.5	83.4	83.7	83.0	82.5	82.1
1978	81.9	82.2	81.8	81.9	83.0	82.8	83.4	81.4	81.7	75.8	78.1	75.5
1979	75.9	75.4	74.8	72.1	68.2	66.0	66.0	63.6	59.7	57.6	52.0	48.7
1980	47.0	46.4	46.8	45.3	43.7	43.8	43.6	42.8	44.3	50.6	57.2	62.2
1981	71.2	68.3	68.1	61.3	53.4	48.0	42.3	38.8	36.4	33.1	34.1	32.2
1982	32.4	31.1	29.7	30.4	30.4	31.4	35.0	35.1	38.8	43.4	46.7	51.4
1983	57.0	61.9	66.5	72.8	75.8	77.2	76.8	80.7	80.4	81.4	83.0	81.9
1984	81.7	79.5	78.7	77.1	76.2	74.1	73.1	70.2	69.1	65.2	63.8	61.5
1985	59.5	59.2	59.2	56.9	56.6	58.5	55.9	55.9	56.7	55.6	55.2	53.7
1986	54.4	54.6	53.9	55.6	55.2	56.3	57.2	59.3	60.0	62.0	61.3	63.6
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	43.6	69.6	67.6	66.6	62.6	63.9[p]	64.0[p]	—	—	—	—

[1] Based on seasonally adjusted data for 1-, 3-, and 6-month spans and unadjusted data for the 12-month span. Data are centered within the span.

p = preliminary.

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.

Establishment survey estimates are currently projected from March 1988 benchmark levels. When more recent benchmark data are introduced, all unadjusted data (beginning April 1988) and all seasonally adjusted data (beginning January 1985) are subject to revision.

Table 2. Diffusion indexes of employment change, manufacturing payrolls, 141 industries,[1] seasonally adjusted

[Percent]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Over 1-month span											
1977	66.0	59.9	68.4	70.9	67.0	59.6	60.3	54.3	62.1	57.4	63.1	70.2
1978	63.1	64.5	63.8	65.6	61.0	62.4	56.0	58.5	57.1	62.8	66.3	69.1
1979	60.3	55.0	58.9	50.4	55.7	61.7	50.0	45.0	41.1	57.4	46.8	47.9
1980	48.6	46.1	47.5	28.4	24.8	27.0	28.7	58.2	55.0	63.1	61.7	53.9
1981	53.2	45.0	55.0	63.1	61.3	56.7	56.0	42.2	39.4	30.5	29.4	23.4
1982	27.0	39.4	28.0	31.9	36.2	26.6	34.4	28.4	35.5	26.6	26.2	39.4
1983	53.2	48.6	55.3	67.0	67.4	59.9	68.8	64.9	68.1	70.9	62.4	62.1
1984	61.7	70.6	64.5	63.8	54.6	61.0	56.0	52.8	42.9	52.8	44.7	48.6
1985	46.5	40.4	44.0	37.6	41.5	39.4	47.9	48.6	37.9	44.3	44.0	50.7
1986	48.9	45.0	43.6	43.6	46.5	43.3	38.7	51.1	48.6	45.0	50.7	52.8
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	34.8	52.1	48.2	44.7
	Over 3-month span											
1977	70.6	77.0	78.7	78.7	72.0	66.7	62.4	64.9	62.4	67.7	69.1	76.2
1978	77.0	72.3	72.3	69.9	69.1	62.8	61.3	58.2	62.4	67.0	70.9	73.4
1979	64.9	62.8	59.6	59.9	58.5	59.2	50.0	36.5	44.0	43.6	52.5	42.9
1980	44.7	40.4	28.4	20.2	18.4	19.5	27.7	39.7	64.2	67.7	67.4	61.3
1981	51.8	50.4	56.4	64.5	66.7	64.9	55.0	42.6	28.0	25.5	17.7	17.4
1982	17.0	19.1	21.3	22.0	22.0	22.3	18.1	18.8	20.6	18.4	17.7	33.3
1983	46.1	53.9	61.7	71.3	70.9	73.8	70.6	76.2	77.0	74.1	72.0	67.4
1984	71.6	71.6	75.2	65.6	65.2	58.9	57.1	50.7	47.5	42.9	45.7	44.7
1985	43.6	37.9	32.6	33.0	31.2	37.6	40.8	37.9	38.3	36.5	42.9	46.8
1986	45.0	40.8	38.3	38.7	39.4	37.2	37.2	44.0	46.5	47.5	52.5	49.3
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	34.0	41.8	41.5	46.5	42.9[P]
	Over 6-month span											
1977	81.6	81.9	79.1	77.3	75.2	74.8	67.7	68.4	70.9	75.2	80.5	77.7
1978	77.7	79.8	78.0	72.3	73.0	68.8	63.5	68.1	69.9	71.3	67.0	69.9
1979	68.4	66.3	62.1	58.2	52.1	43.6	48.2	41.5	39.7	40.1	42.6	42.9
1980	33.0	27.0	23.4	16.7	17.4	19.1	26.2	39.7	52.8	70.6	67.4	65.2
1981	65.2	62.8	62.8	68.1	61.7	55.3	40.1	29.1	22.3	17.0	18.4	12.4
1982	10.3	10.6	13.5	20.6	15.6	15.2	12.4	12.1	14.5	18.1	21.3	27.3
1983	46.8	59.6	64.9	67.0	75.5	76.2	78.7	77.3	76.2	73.8	75.9	74.8
1984	75.2	72.3	72.7	70.2	62.1	58.2	54.6	52.5	48.6	44.7	39.4	41.8
1985	35.5	34.8	29.4	31.9	33.3	33.0	31.9	32.6	38.3	40.1	38.3	37.6
1986	37.6	38.7	35.5	33.3	34.0	38.3	37.9	41.1	45.4	49.6	50.4	51.1
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	39.0	40.1	41.8	34.4	38.3[P]	39.7[P]	—
	Over 12-month span											
1977	77.0	77.7	75.9	76.6	81.2	82.6	84.0	81.9	83.3	80.5	78.0	77.3
1978	75.2	77.7	76.2	77.0	77.0	77.0	75.2	70.6	70.9	65.6	69.1	64.9
1979	67.0	64.2	62.4	57.4	51.8	48.6	48.9	47.5	42.2	36.5	29.1	24.8
1980	20.6	22.3	23.8	25.2	23.0	22.3	21.3	22.7	23.8	30.5	45.7	59.6
1981	72.0	69.1	69.1	52.8	40.4	35.1	27.7	21.6	17.7	15.2	13.8	12.4
1982	12.1	12.4	9.2	11.3	8.2	9.9	13.5	14.2	15.2	21.6	25.5	33.7
1983	43.3	50.0	56.0	66.0	71.6	75.5	76.2	78.4	78.0	78.7	80.1	76.2
1984	77.0	72.3	68.1	66.0	62.4	61.0	57.8	54.6	50.4	44.0	40.1	33.7
1985	31.6	30.9	30.1	28.4	27.7	28.4	29.1	29.8	32.6	30.9	32.6	29.8
1986	30.9	30.1	34.8	34.8	36.2	39.0	38.3	39.7	42.9	46.1	48.6	50.0
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	57.1	53.5	49.6	42.9	43.6[P]	42.6[P]	—	—	—	—

[1] Based on seasonally adjusted data for 1-, 3-, and 6-month spans and unadjusted data for the 12-month span. Data are centered within the span.

P = preliminary.

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.

Establishment survey estimates are currently projected from March 1988 benchmark levels. When more recent benchmark data are introduced, all unadjusted data (beginning April 1988) and all seasonally adjusted data (beginning January 1985) are subject to revision.

the employment index, however, it must be remembered that one-half of the unchanged components are counted as increasing. A more precise interpretation is to consider the reference point for a diffusion index as 50 percent, the value which indicates that the same number of component industries have increased as have decreased. Index numbers above 50 show that more industries had increasing employment, and values below 50 show that more had decreasing employment. The margin between the percent that increased and the percent that decreased is equal to the difference between the index number and its complement, which is 100 minus the index. For example, an index of 65 percent means that 30 percent more industries had increasing employment than had decreasing employment [(65 − (100 − 65) = 30)].

For dispersion analysis, the direction and distance of the index number from the 50-percent reference point are the most significant observations, for they indicate whether growing or declining industries predominate and by what magnitude. For example, a diffusion index value of 75 percent in a given month would indicate that growing industries predominated, and by a much larger margin than an index of 55 percent suggests. Similarly, an index of 35 percent would indicate that declining industries predominated, and by a much larger margin than if the index were 45 percent.

Performance of the index

The old index values fall between the broader-based index and the new manufacturing index values, but are closer to the manufacturing index. As indicated earlier, this reflects the more detailed breakout of manufacturing than of nonmanufacturing industries in the old all-industry index. For simplification, the following discussion focuses on the two new indexes. The main emphasis of analysis of employment from the establishment survey is current over-the-month employment change. Therefore, the analysis concentrates on the 1-month span of the diffusion indexes.

Both the broad-based all-industry diffusion index and the manufacturing index show similar trends over time; they are lowest in recession years and climb most steeply during the early months of a recovery. (See chart 1.) There are some striking differences, however, in the magnitude of the trend swings. In assessing the performance of the all-industry versus the manufacturing diffusion index, the analysis can be divided into five distinct periods: 1977–82, 1983, 1984–first-quarter 1987, second-quarter 1987–1988, and 1989.

Prior to 1983, the all-industry index yielded generally higher values than the manufacturing index, the difference being especially pronounced during the recessions of the early 1980's. The manufacturing index is characterized by both lower peaks and deeper troughs than the broad-based index. This can be attributed both to the continuing growth in many of the service-producing industries and to the cyclical sensitivity of the manufacturing industries. It is well documented that, in terms of employment, the U.S. economy has gradually shifted over time from a goods-producing to a predominantly service-producing base. Even during the two recessions of the early 1980's, most of the service-producing industries posted steady employment gains. As a result, the all-industry index never fell below 36 and averaged 44. Conversely, the cyclically sensitive manufacturing industries suffered widespread and sustained job losses, as reflected by index values dipping as low as 23 and averaging 34 throughout the 1980 and 1981–82 recessionary periods.

It is interesting to note that the manufacturing index reflected a severe drop approximately 4 to 6 months prior to each of the two recessions, indicating possible leading indicator properties. The concept of leading indicators with respect to the diffusion indexes is addressed later in this article.

During 1983, at the beginning stage of the recovery, the two indexes tracked very closely, both rebounding sharply from the depressed levels encountered during the prior two recessions. In October 1983, the manufacturing index reached its peak level (70.9) and in some months was actually slightly above the broad-based index. This, while very uncommon, is probably attributable to the restoration over sev-

Table 3. Composition of old and new diffusion indexes by industry division

Industry division	Percent of employment, 1989 annual averages	Diffusion indexes			
		Old index		New index	
		Number of series	Percent of total series	Number of series	Percent of total series
Total private	100.0	185	100.0	349	100.0
Mining	.8	5	2.7	14	4.0
Construction	5.8	3	1.6	14	4.0
Manufacturing	21.6	136	73.5	141	40.4
Transportation and public utilities	6.3	9	4.9	31	8.9
Wholesale trade	6.9	2	1.1	18	5.2
Retail trade	21.5	8	4.3	41	11.7
Finance, insurance, and real estate	7.5	8	4.3	26	7.4
Services	29.6	14	7.6	64	18.3

Exhibit 2. Turning points in the reference cycle versus diffusion indexes, using the 1-month span

Business cycle		All-industry index			Manufacturing index		
Date	Turning point	Date	Turning point	Relation to reference cycle (in months)	Date	Turning point	Relation to reference cycle (in months)
January 1980	Peak	March 1978	Peak	led 22	—	—	—
July 1980	Trough	April 1980	Trough	led 3	May 1980	Trough	led 2
July 1981	Peak	April 1981	Peak	led 3	October 1980 ...	Peak	led 9
November 1982 ..	Trough	December 1981 ..	Trough	led 11	December 1981 ..	Trough	led 11
		February 1984 ...	Peak	—	October 1983 ...	Peak	—
		June 1986	Trough	—	April 1985	Trough	—
		January 1989	Peak	—	November 1987 .	Peak	—

eral months of many manufacturing jobs which were lost during the recessions of the early 1980's. Both indexes held at consistently high levels in the second half of 1983, as many industries continued to add workers to their previously shrunken payrolls. This marked a dramatic turnaround from the low levels experienced during the 1981–82 recession.

Beginning in 1984, well into the current economic expansion, the gap between the two indexes widened, with the all-industry index generally holding between 10 to 20 points above the manufacturing index through the first quarter of 1987. During this period, the all-industry index was always above the 50-percent level, while the manufacturing index was usually below this reference point.

The sharp declines in the manufacturing index in the second quarter of 1984 were a signal of the imminent manufacturing employment declines that originated in late 1984 and persisted throughout the next couple of years. Once again, the difference in the indexes reflects the widely dispersed growth in the service-producing industries as opposed to manufacturing, which experiences more-confined growth in good economic times.

From the second quarter of 1987 through the fourth quarter of 1988, the gap between the two indexes narrowed, with the difference usually in the 5- to 10-percentage-point range. The manufacturing index yielded values above the 50-percent level in every month but one. After establishing a postrecession employment trough in January 1987, many manufacturing industries have shown renewed strength. Indeed, job levels in some industries approached those recorded prior to the recessions of the early 1980's.

The employment diffusion indexes fell steadily through the first three quarters of 1989 before rebounding in the fourth quarter, and the difference between the two indexes is again growing. The all-industry index declined markedly during most of 1989, but, except for the September observation (47.9), the index remained above 50. Total private employment continued to increase, but at a slower rate. The declining diffusion index shows that the employment growth has been confined to fewer industries, underscoring the breadth of the slowing economy.

During the first three quarters of 1989, the manufacturing index declined even more sharply, from 62.4 in January 1989 to 34.8 in September, before increasing slightly in the fourth quarter. The September value is low by recovery period standards, and marks the first time since the prolonged manufacturing employment declines experienced throughout 1985 and 1986 that the index has fallen below 40. Since peaking in March 1989, manufacturing employment declined in every remaining month of 1989. This marks the first consecutive quarterly decline since the third and fourth quarters of 1986. Interestingly, the recent employment declines were prefaced by a sharp decrease in the manufacturing diffusion index beginning in February 1989, suggesting some leading aspects of the index. Moreover, the diffusion index was under 50 percent for each month in the second and third quarters, illustrating that the employment declines were widespread among manufacturing industries—more of the 141 manufacturing industries were losing jobs than were gaining.

Leading indicator properties

In addition to measuring the breadth of change, a second property often attributed to diffusion indexes is as leading indicators for changes in

aggregate levels.[6] Most economic changes, including those in employment levels, rarely occur as sudden, dramatic shifts. Instead, some industries will begin to experience increases (decreases) in employment well in advance of others. Theoretically then, over the short term, a diffusion index should lead changes in direction by the aggregate series. In other words, the number of industries increasing employment will maximize before the employment growth maximizes and a diffusion index thus will reach its peak (trough) well in advance of an employment peak (trough).

The new diffusion indexes improve the potential for analysis of employment trends.

An employment diffusion index may also be regarded as a leading indicator for economy-wide trends, because business cycle turning points usually coincide closely with employment level turning points. If an employment diffusion index leads changes in employment level turning points, it follows that the index should lead changes in business cycle turning points.

To examine leading indicator properties for the all-industry and manufacturing diffusion indexes, turning points for all spans (1, 3, 6, and 12 months) were identified through standard National Bureau of Economic Research (NBER) methodology.[7] The turning points for the two indexes for the 1-month span are measured against turning points for total private and manufacturing employment in exhibit 1.

In regard to total private employment level turning points, the all-industry index shows poor leading indicator qualities for the period researched (January 1977–present). As exhibit 1 illustrates, there are only two employment level turning points identified through standard NBER methodology, while there are seven turning points identified for the all-industry index, indicating a preponderance of false leads by the index.

The manufacturing index, however, reveals much stronger leading indicator qualities in regard to manufacturing employment levels. Standard NBER methodology identified seven manufacturing employment level turning points and six manufacturing diffusion index turning points for the period studied. The manufacturing index led all six corresponding employment turning points, with the leads ranging from 2 to 21 months; there was a mean lead of 12 months and a median lead of 11 months. Thus, the manufacturing diffusion index presents a strong case as a leading indicator for manufacturing employment levels.

Exhibit 2 compares identifiable turning points of the two indexes to the NBER official business cycle turning points (which define official recessionary periods) for January 1977 to the present. The all-industry index led all four NBER business cycle turning points (two peaks and two troughs), though not by a consistent amount; leads ranged from 3 to 22 months, resulting in a mean lead of 11 months and a median lead of 7 months. This index, however, identified two peaks and a trough subsequent to the last NBER-designated turning point in November 1982, thereby providing three false signals.

The manufacturing diffusion index performance is less effective in predicting business cycle turning points. In fact, this index rates rather poorly as a cyclically sensitive economy-wide indicator. It has no identifiable turning point to coincide with the January 1980 business cycle peak. Further, it designates three turning points subsequent to the NBER November 1982 trough, indicating a preponderance of false leads for the index. The three corresponding turning points tracked fairly closely, with leads of 2, 9, and 11 months, respectively; nevertheless, the number of false leads mitigates its usefulness as a leading indicator. While the manufacturing diffusion index performs well as a leading indicator for manufacturing employment levels, it is not as satisfactory an indicator of overall economy-wide trends.

Six-month span diffusion indexes sometimes prove to be the most cyclically sensitive and portray the best leading indicator properties. For example, in the Federal Reserve Board's diffusion index for industrial production, the 6-month span is cited as "generally showing more pronounced cyclical patterns when compared to indexes based on changes over shorter periods."[8] Some of this may be because longer spans remove the "noise" or distortions caused by erratic over-the-month changes and focus on the underlying trends. However, there is no conclusive evidence, based on the limited number of observations during the period studied, to support this theory for employment diffusion indexes. The 6-month span does demonstrate some characteristics of a leading indicator of reference and employment turning points, but there is no evidence that its leading indicator properties outperform the other spans.

Finally, as evidenced earlier, the BLS employment diffusion indexes function as summary indicators—assessing the overall state of the economy. The index number measures whether increasing or decreasing industries predominate, and to what extent. Further, while the indexes' leading indicator properties currently appear tenuous, there is evidence that the manufacturing diffusion index does lead movements in manufacturing employment levels. However, more time is needed to discern the usefulness of the indexes as leading indicators. □

Footnotes

[1] Patricia M. Getz, "Introduction of New Diffusion Indexes," *Employment and Earnings*, February 1989, pp. 7–8.

[2] Geoffrey Moore, "Occasional Paper 31" (Cambridge, MA, National Bureau of Economic Research, 1950).

[3] Geoffrey Moore, *Business Cycle Indicators*, vol. 1 (Princeton University Press, 1961).

[4] *Business Conditions Digest* is a monthly publication of the U.S. Department of Commerce, Bureau of Economic Analysis.

[5] John F. Early, "Introduction of Diffusion Indexes," *Employment and Earnings*, December 1974.

[6] Moore, *Business Cycle Indicators*.

[7] Gerherd Bry and Charlotte Boschan, *Cyclical Analysis of Time Series: Selected Procedures and Computer Programs* (National Bureau of Economic Research, Columbia University Press, 1971).

[8] See "Table 7. Industrial Production: Diffusion Indexes," *Federal Reserve Statistical Release*, Dec. 14, 1988.

A people-oriented corporate culture

Today's work place assumes a far greater role in the personal lives of workers than ever before. It is no longer possible for workers to leave their personal problems at home, as company cultures dictate—because someone is rarely home to solve them. The demands for a more supportive work environment come at a time when business must invest more in its people. According to several management experts, respect for human capital is the prescribed antidote to plunging productivity.

A more people-oriented corporate culture also may be a way to attract talented people in a time of labor shortages. Not only is there a shrinking labor pool, but it is becoming increasingly diverse—with more women and minorities than ever before. This new diversity challenges company recruitment efforts, benefits plans, productivity incentives, and work schedules that were designed primarily for male breadwinners. It is becoming obvious that the grease which kept the work force running smoothly in the industrial era may not keep the squeaks out of the human machinery of the post-industrial age. Management finds itself pushing the same old buttons, but no longer getting the desired responses from its workers. Without accommodations to family needs, some companies are losing their ability to attract and retain productive workers. These are only some of the reasons why family issues are becoming a bottom-line concern of business.

—Dana E. Friedman and Wendy B. Gray
"A Life Cycle Approach to
Family Benefits and Policies,"
Perspectives, No. 19 (The Conference Board,
Inc., 1989), p. 1.

Employment and unemployment among Vietnam-era veterans

Veterans whose tour of duty was in Southeast Asia, and those who incurred service-connected disabilities, continued to be at a disadvantage in the labor market; other veterans fared no worse than did nonveterans

Sharon R. Cohany

Most of the men and women who served in the Armed Forces during the Vietnam era appear to have had the same degree of success in the labor market as their contemporaries who did not serve in the military. However, those who actually served in the Southeast Asian theater, and especially those with service-connected disabilities, continue to experience greater employment-related difficulties than their peers.

These findings are from a special supplement to the Current Population Survey (CPS), conducted in November 1987, in which men and women who served during the Vietnam era were asked about aspects of their prior military experience, including their disability status and location of service.[1] (Information was also obtained on the disability status of all other veterans.) The special survey was sponsored jointly by the Department of Veterans Affairs (formerly the Veterans Administration) and two Department of Labor agencies: the Veterans Employment and Training Service and the Bureau of Labor Statistics. A similar survey of veterans was conducted in April 1985.[2]

Sharon R. Cohany is an economist in the Division of Labor Force Statistics, Bureau of Labor Statistics.

Labor force status

As of November 1987, there were 7.9 million male veterans who had served during the Vietnam era, defined as the period from August 1964 to April 1975. Nearly all (93 percent) were between the ages of 30 and 54, with the highest concentration (67 percent) between the ages of 35 and 44. These individuals comprise a significant part of their generation: about 1 in 3 men in the 35- to 44-year age group is a veteran. About half of these veterans actually served in the Vietnam theater of operations—that is, Vietnam, Laos, Cambodia, and nearby waters and airspace.[3] (See table 1.) Information on the 250,000 female veterans of the era and on male veterans from other service periods is provided in separate sections at the end of the article.

While a few Vietnam-era veterans have only recently retired from military service, most made the transition to civilian life more than a decade ago. There is a strong expectation that these men will be in the labor force, because at their ages, they typically have significant financial responsibility for themselves and their families. Thus, one important measure of the economic performance of Vietnam-era veterans is their labor force participation rate, or the proportion of the total that are working or seeking work. The vast majority of both Vietnam-theater and nontheater veterans are, in fact, in the labor force—92 percent as of November 1987. Their participation rate was little different

Table 1. **Characteristics of male veterans and nonveterans age 18 and over, November 1987, not seasonally adjusted**

[Percent distribution]

Characteristic	Veterans[1]						Nonveterans
	Total	Vietnam-era veterans			Other war periods	Other service periods	
		Total	Vietnam theater	Outside Vietnam theater			
Total (thousands)	25,521	7,902	3,835	4,067	12,612	5,007	57,898
Race or ethnicity:							
White	90.1	88.8	88.8	88.8	91.8	87.6	85.2
Black	8.4	9.3	9.6	9.0	7.0	10.7	11.1
Hispanic	3.1	3.8	4.8	3.0	2.4	3.7	9.3
Age:							
18–24	1.1	(1)	(1)	(1)	(1)	5.9	21.3
25–34	9.6	11.1	6.4	15.5	(1)	31.4	31.7
25–29	4.1	.5	.2	.9	(1)	20.1	16.3
30–34	5.5	10.5	6.2	14.6	(1)	11.3	15.5
35–44	22.8	66.8	70.6	63.3	(1)	10.8	18.8
35–39	10.5	30.9	32.2	29.6	(1)	4.9	11.1
40–44	12.3	35.9	38.4	33.7	(1)	5.9	7.7
45–54	18.3	15.9	16.3	15.4	9.7	43.7	11.5
55–64	26.7	4.9	5.4	4.4	48.5	6.1	5.9
65 and over	21.5	1.4	1.4	1.4	41.8	2.2	10.8
Disability status:							
Not disabled	87.3	86.0	83.1	88.8	86.1	92.3	—
Disabled, total[2]	9.2	10.3	13.8	6.9	10.7	3.7	—
Less than 30 percent	5.2	5.9	7.9	4.1	5.9	2.3	—
30 to 50 percent	2.1	2.2	2.7	1.6	2.6	1.0	—
60 percent or greater	1.3	1.6	2.3	.9	1.5	.3	—
Presence of disability not reported	3.5	3.7	3.1	4.3	3.2	4.0	—

[1] Because of the aging of the population, there were no longer any Vietnam-era veterans under 25 years of age or any other war veterans under 45 years of age.

[2] Categories of disability ratings may not sum to totals, because specific ratings were not available for some disabled veterans.

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

Dashes indicate data not available.

from that of nonveterans of the same ages. (Because nearly all of the veterans were between the ages of 30 and 54, references to nonveterans will be based on this age group, except where noted.)

Race. Blacks constituted 9 percent of Vietnam-era veterans and Hispanics made up 4 percent. As is true for the general population, black Vietnam-era veterans lagged behind their white counterparts in the proportion who were labor force participants. Nonetheless, black veterans were somewhat *more* likely than other black men to be in the labor force. By contrast, there is no real difference in labor force participation rates according to veteran status for white and Hispanic men. As the following tabulation shows, the participation rate for black veterans was within 5 percentage points of the rate for their white counterparts. By contrast, the black-white participation gap for nonveterans was nearly 9 points.

	Labor force participation rates			
Men, 30–54 years	*Total*	*White*	*Black*	*Hispanic*
Vietnam-era veterans	94.6	95.0	90.4	93.7
Vietnam theater	93.6	94.1	88.6	93.5
Outside Vietnam theater	95.4	95.8	92.4	94.8
Nonveterans	93.5	94.5	86.0	92.5

While it is not possible to identify through this survey the specific reasons for the black veterans' relative advantage compared with other black men, the data confirm the military's role as a source of upward mobility for the less advantaged, who historically have benefited from the intensive job training and experience that the Armed Forces provide. It should be noted, however, that there may have been differences between the men who entered the military and those who did not, particularly in characteristics such as educational attainment and family history.[4]

Disability

Some 810,000 Vietnam-era veterans, about 10 percent of the total, reported a service-connected disability. Of those who served in Southeast Asia, 14 percent reported such a disability. Having a service-connected disability means that one's ability to work was affected by an injury or illness that was determined to have been caused or aggravated during military service.[5] Disability ratings range from 0 to 100 percent, depending on the severity of the disability. Three-fifths of Vietnam-era veterans had ratings of less than 30 percent, while 16 percent reported ratings of 60 percent or more.[6]

Not surprisingly, the effect of a disability on an individual's labor force status was closely related to the severity of the disability.[7] Veterans with disability ratings under 30 percent had a labor force participation rate virtually identical to that of the nondisabled—about 92 percent. However, among men with ratings between 30 and 50 percent, fewer than three-fourths were in the labor force, and among the most severely disabled (ratings of 60 percent or higher), only one-third were in the labor force. (See table 2.)

The relationship between disability and labor force attachment reflects several factors. One is the effect of the disability itself on the capability to work. The survey included questions for disabled veterans who were not working regarding whether they believed that their disability hindered them in finding or holding a job. As might be expected, the higher the disability rating, the more likely were the veterans to perceive their condition as an obstacle to employment success. At ratings of less than 30 percent, relatively few ascribed their employment difficulties to their medical condition; at ratings of 60 percent or more, nearly all reported such a link.

Another, related factor affecting the labor force participation of the disabled is the availability of other income, specifically federally issued compensation benefits, which are designed to adjust for reduced earnings capacity and which

Table 2. **Employment status of male Vietnam-era veterans age 25 and over,[1] by period of service, presence of service-connected disability, and disability rating, November 1987, not seasonally adjusted**

[Numbers in thousands]

Period of service, presence of disability, and disability rating	Civilian noninstitutional population	Civilian labor force					Not in labor force
		Total	Percent of population	Employed	Unemployed		
					Number	Percent of labor force	
Total, Vietnam era							
With service-connected disability	811	633	78.1	594	39	6.2	178
Less than 30-percent disability rating	469	432	92.1	404	27	6.3	38
30- to 50-percent disability rating	170	120	70.6	112	8	6.7	50
60-percent or higher disability rating	129	42	32.6	41	1	(2)	87
Disability rating not reported	43	39	(2)	36	3	(2)	4
Without service-connected disability	6,798	6,409	94.3	6,107	302	4.7	389
Presence of disability not reported	293	256	87.4	250	6	2.2	37
Vietnam theater							
With service-connected disability	529	420	79.4	395	25	5.9	109
Less than 30-percent disability rating	304	276	90.8	257	19	6.8	28
30- to 50-percent disability rating	103	80	77.7	79	2	2.5	21
60-percent or higher disability rating	90	36	40.0	34	1	(2)	55
Disability rating not reported	32	28	(2)	24	3	(2)	4
Without service-connected disability	3,188	2,986	93.7	2,829	156	5.2	202
Presence of disability not reported	118	108	91.5	106	2	1.6	10
Outside Vietnam theater							
With service-connected disability	282	213	75.5	198	14	6.8	69
Less than 30-percent disability rating	165	156	94.5	147	9	5.5	10
30- to 50-percent disability rating	67	40	(2)	34	6	(2)	28
60-percent or higher disability rating	38	7	(2)	7	(2)	(2)	32
Disability rating not reported	11	11	(2)	11	(2)	(2)	(2)
Without service-connected disability	3,610	3,424	94.8	3,278	146	4.3	186
Presence of disability not reported	175	148	84.6	144	4	2.7	27

[1] Because of the aging of the population, there were no longer any Vietnam-era veterans under 25 years of age.

[2] Data not shown where base is less than 75,000.

Table 3. **Employment status of male Vietnam-era veterans and nonveterans age 25 and over,[1] by race and Hispanic origin, November 1987, not seasonally adjusted**

[Numbers in thousands]

Veteran status, race, and Hispanic origin	Civilian noninstitutional population	Civilian labor force					Not in labor force
		Total	Percent of population	Employed	Unemployed		
					Number	Percent of labor force	
Total							
Vietnam-era veterans	7,902	7,298	92.4	6,951	347	4.8	604
Vietnam theater	3,835	3,514	91.6	3,331	183	5.2	321
Outside Vietnam theater	4,067	3,784	93.0	3,620	165	4.3	283
Nonveterans	45,594	36,900	80.9	35,308	1,592	4.3	8,694
White							
Vietnam-era veterans	7,016	6,493	92.5	6,215	278	4.3	523
Vietnam theater	3,406	3,131	91.9	2,981	149	4.8	275
Outside Vietnam theater	3,611	3,362	93.1	3,234	128	3.8	248
Nonveterans	39,059	31,905	81.7	30,705	1,201	3.8	7,154
Black							
Vietnam-era veterans	737	667	90.5	608	60	8.9	70
Vietnam theater	370	328	88.6	301	27	8.3	42
Outside Vietnam theater	367	339	92.4	307	32	9.5	28
Nonveterans	4,838	3,602	74.5	3,275	327	9.1	1,236
Hispanic origin							
Vietnam-era veterans	302	285	94.4	259	27	9.3	17
Vietnam theater	183	172	94.0	152	19	11.2	11
Outside Vietnam theater	120	114	95.0	106	7	6.5	6
Nonveterans	4,096	3,533	86.3	3,266	267	7.5	563

[1] Because of the aging of the population, there were no longer any Vietnam-era veterans under 25 years of age.

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

are generally tied to the level of the disability rating. For example, a veteran with a 10-percent degree of disability would receive compensation of only $75 per month, while some totally disabled veterans are eligible for a monthly compensation of $1,500 or more.[8]

Unemployment

About 350,000 Vietnam-era veterans were actively seeking work in November 1987 and were thus classified as unemployed. The unemployment rate for this group was 4.8 percent, while the rate for nonveterans of the same age was 4.3 percent. Whereas, as mentioned earlier, black veterans seemed to gain some advantage relative to other black men in the extent to which they participated in the labor force, they were no more successful when it came to finding a job: the jobless rates of black veterans and nonveterans were both around 9 percent, more than twice that of white veterans (4.3 percent). For Hispanic veterans, the unemployment rate was also near 9 percent. (See table 3.)

The greater labor market difficulties of both disabled and war theater veterans were evident in their unemployment experiences. For instance, Vietnam-era veterans with disabilities had an unemployment rate of 6.2 percent, compared with 4.7 percent for those without disabilities. Those with lower disability ratings actually had higher unemployment rates than the more seriously disabled veterans, because relatively few of the latter were likely to seek work at all.

At 5.2 percent, jobless rates for those who actually served in Southeast Asia were higher than the rates for men who served elsewhere and for nonveterans—4.3 percent for both groups. However, it would be misleading to assume that this difference necessarily resulted from their varying military experiences. Previous studies have documented marked differences—especially in educational status—in these two groups of

Table 4. Employed male Vietnam-era veterans age 25 and over,[1] by class of worker and disability status, November 1987, not seasonally adjusted

[Percent distribution]

Period of service and disability status[2]	Total employed (thousands)	Wage and salary workers				Self-employed and unpaid family workers
		Private	Government			
			Total	Federal	State and local	
Vietnam era	6,951	68.6	21.5	9.0	12.5	9.9
Disabled, total	594	56.1	35.9	23.1	12.8	7.9
Less than 30 percent	404	58.7	34.4	21.0	13.6	6.9
30 percent or more	154	46.8	44.2	31.2	12.3	9.0
Not disabled	6,107	69.9	20.1	7.7	12.4	10.0
Vietnam theater	3,331	66.8	22.4	9.9	12.5	10.7
Disabled, total	395	57.5	33.9	21.3	12.4	8.6
Less than 30 percent	257	61.1	33.5	20.2	13.2	5.4
30 percent or more	113	46.9	40.7	26.5	14.2	12.4
Not disabled	2,829	68.2	21.0	8.4	12.6	10.8
Outside Vietnam theater	3,620	70.3	20.6	8.1	12.5	9.1
Disabled, total	198	53.0	39.9	26.8	13.1	6.6
Less than 30 percent	147	54.4	36.1	22.4	14.3	8.8
30 percent or more	40	(3)	(3)	(3)	(3)	(3)
Not disabled	3,278	71.5	19.3	7.1	12.2	9.2
Nonveterans, 25 years and over	35,313	75.8	12.3	2.1	10.2	11.9

[1] Because of the aging of the population, there were no longer any Vietnam-era veterans under 25 years of age.

[2] Categories may not sum to totals, because information on presence and degree of disability was not reported for some veterans.

[3] Data not shown where base is less than 75,000.

Table 5. Employed male Vietnam-era veterans and nonveterans age 25 and over,[1] by occupation, November 1987, not seasonally adjusted

[Percent distribution]

Occupation	Vietnam-era veterans			Nonveterans
	Total	Vietnam theater	Outside Vietnam theater	
Total, 25 years and over (in thousands)	6,951	3,331	3,620	35,313
Percent	100.0	100.0	100.0	100.0
Managerial and professional specialty	27.3	25.5	29.0	28.2
Executive, administrative, and managerial	16.8	16.4	17.2	14.3
Professional specialty	10.4	9.0	11.7	13.9
Technical, sales, and administrative support	21.3	21.6	21.0	19.0
Technicians and related support	3.8	3.4	4.3	2.8
Sales occupations	10.4	10.1	10.6	11.1
Administrative support, including clerical	7.1	8.1	6.1	5.1
Service occupations	8.4	8.3	8.5	7.7
Protective service	4.6	4.7	4.6	2.3
Other service occupations	3.8	3.6	3.9	5.5
Precision production, craft, and repair	22.1	21.6	22.7	20.4
Mechanics and repairers	8.3	8.0	8.6	—
Construction trades	7.9	7.5	8.2	—
Other precision production, craft, and repair	5.9	6.1	5.8	—
Operators, fabricators, and laborers	18.7	20.5	17.1	20.1
Machine operators, assemblers, and inspectors	6.9	7.4	6.5	7.9
Transportation and material moving occupations	8.0	9.1	6.9	7.1
Handlers, equipment cleaners, helpers, and laborers	3.9	4.0	3.7	5.1
Farming, forestry, and fishing	2.2	2.6	1.8	4.6

[1] Because of the aging of the population, there were no longer any Vietnam-era veterans under 25 years of age.

NOTE: Dashes indicate data not available.

Vietnam-era veterans prior to their military service. For instance, according to one study, inductees who had dropped out of high school were one and a half times more likely to serve in the war theater than were college graduates.[9] In general, high school dropouts, regardless of their veteran status, tend to have a higher incidence of unemployment than do workers with more education.

Employment

Service in the Armed Forces affords a variety of educational and training experiences that are widely applicable to civilian jobs. While on active duty, even during wartime, most members of the military perform jobs that are comparable to civilian positions.[10] And, following their military discharge, many veterans participate in educational and vocational programs that further aid them in adjusting to the civilian labor market.[11] Partly as a result of these efforts, and also reflecting the fact that most of the veterans have now been civilians for many years, veterans of the Vietnam era were as likely to be employed as other men their age; about 90 percent of both groups had a job in November 1987.

Industries. Among the programs aiding veterans' transitions to civilian jobs were several that emphasized job counseling, training, and placement in both the private and public sectors. Most of these programs were in place by 1970, when large numbers of military personnel began to be discharged and to reenter the civilian work force. By 1987, nearly two decades later, veterans were employed in much the same industries as nonveterans. About 1 in 4 employed men, regardless of veteran status, held a job in manufacturing, and one-fifth were in services. The remainder were found primarily in trade, transportation, and construction.

The industry distribution of the veterans was strikingly different from that of the nonveterans in one respect, however: the veterans were far more likely to be employed in the public sector—particularly at the Federal level—than were nonveterans. This was especially true for disabled veterans, 23 percent of whom were employed by the Federal Government alone. Among the more seriously disabled (with ratings of 30 percent or higher), the proportion holding Federal jobs was nearly one-third. Even among the nondisabled veterans, 8 percent were Federal employees. By contrast, the proportion of nonveterans in Federal jobs was only 2 percent. (See table 4.) Clearly, the Federal Government is a popular career choice for veterans of the Vietnam era, and the disabled in particular, due in part to special hiring preferences and an active recruitment program targeting these groups.[12]

Occupations. Vietnam-era veterans were found in a wide variety of occupations, as were nonveterans. However, the veterans were less likely to work as professionals and machine operators and more likely to be managers, protective service workers, and clerical workers. Among the veterans themselves, some differences were noted by theater of service and disability. For example, the men who had actually served in the war theater were less likely than the other veterans to be employed as managers and professionals. (See table 5.) Also, the veterans with some disability were more often found in clerical and laborer jobs compared with the nondisabled and less often working in managerial and precision craft positions.

Work schedules. The work schedules of most Vietnam-era veterans were very similar to those of nonveterans. All but about 5 percent of both groups usually worked full time (at least 35 hours per week). However, of the more seriously disabled veterans (30 percent rating or higher), a relatively high proportion—10 percent—were employed part time. Even among full-time workers, the disabled veterans worked fewer hours on average. For example, 29 percent of the nondisabled worked at least 49 hours per week, compared with 20 percent of the more seriously disabled. These differences contributed to a somewhat shorter workweek of 40 hours for those with more severe disabilities, compared with about 44 hours for other veterans.

Program participation

Traditionally, some of the most highly valued benefits of military service are those that provide postservice education and training. In the November 1987 survey, information was collected for the first time on veterans' participation in three such programs: the GI Bill, and Department of Veterans Affairs–sponsored on-the-job training and vocational rehabilitation. About one-half (4 million) of all male Vietnam-era veterans were reported as having taken advantage of at least one of these programs.[13] Program participation was higher among disabled than nondisabled veterans (59 percent versus 52 percent) and higher for veterans of the war theater than for those who served elsewhere (55 percent versus 47 percent).

By far, the most frequently named program was the GI Bill, which was designed to restore "lost educational opportunities to those service men and women whose careers have been inter-

rupted or impeded by reason of active duty."[14] The bill does this by providing a stipend to veterans attending educational institutions—mainly colleges and universities—and vocational training and apprenticeship programs. Use of the GI Bill was reported by nearly all of the veterans who had availed themselves of any of the programs, or almost half of all veterans from the period.

The survey also pointed up significant differences between veterans who participated in the educational and training programs and those who did not. For example, those who had participated in at least one program had lower unemployment rates on average than did nonparticipants (4.4 percent versus 5.5 percent). Veterans of the war theater who had not participated at all had a particularly high jobless rate of 7.2 percent. However, as is often the case with these data, it is not possible to distinguish the effects of a particular course of action—in this case, taking advantage of postdischarge educational programs—from preexisting differences between program participants and nonparticipants, such as one's educational attainment prior to the service and one's motivation.

Veterans of other service periods

About 12.6 million male veterans served in the military during wartime periods other than the Vietnam era—namely, World Wars I and II and the Korean conflict. Their relatively low labor force participation rate of 49 percent largely reflected their age. Most were older than 55 years, and more than 40 percent were at least 65 years old. Service-connected disabilities also kept some out of the labor force. Of the 1.3 million (11 percent) with disabilities, only one-third were in the labor force. As with Vietnam-era veterans, disabled veterans from earlier wars experienced higher joblessness than did those without disabilities—5.3 percent versus 2.9 percent.

Another 5 million men were peacetime veterans, mainly from two periods: that between World War II and the Korean conflict, and the post-Vietnam period. Although relatively few (4 percent) of the peacetime veterans had disabilities, those who did were less likely to be in the labor force than were the nondisabled (81 percent versus 91 percent).

Women

The Vietnam era saw a substantial increase in the participation of women in the military, which accelerated with the shift to an all-volunteer force beginning in 1973. By 1975, the number of women in the active-duty military had risen to about 100,000, a considerable increase over the 40,000 on active duty in the late 1960's.[15] Still, women's armed service roles throughout the era were limited to the traditional ones, namely, administrative occupations—such as clerical, supply, and procurement positions—and medical occupations.[16]

A total of about 250,000 women served in the Armed Forces during the Vietnam era, accounting for 3 percent of the veterans from the period. Roughly 10 percent were stationed in Southeast Asia, predominantly as nurses. The nature of the war was such that those in "support" positions were frequently exposed to high-risk, combatlike situations, and this is reflected in these women's disability status.[17] About 14 percent, or 35,000, of the women from the era had

Table 6. **Employment status of women age 18 and over, by veteran status and period of service, November 1987, not seasonally adjusted**

[Numbers in thousands]

Veteran status and period of service	Civilian noninstitutional population	Civilian labor force					Not in labor force
		Total	Percent of population	Employed	Unemployed		
					Number	Percent of labor force	
Total veterans[1]	1,052	576	54.8	530	46	8.0	476
War veterans	684	301	44.0	284	17	5.7	383
Vietnam era	247	188	76.1	177	11	5.8	59
Vietnam theater	33	19	(2)	17	1	(2)	15
Outside Vietnam theater	214	169	79.0	160	10	5.6	44
Other war veterans	437	113	25.9	106	6	5.6	324
Other service veterans	368	275	74.7	247	29	10.4	93
Nonveterans	91,500	52,311	57.2	49,521	2,790	5.3	39,190

[1] Because of the aging of the population, there were no longer any Vietnam-era veterans under 25 years of age or any other war veterans under 45 years of age.

[2] Data not shown where base is less than 75,000.

service-connected disabilities.

Although a detailed analysis of the labor market difficulties of women veterans from the Vietnam era is not possible due to their relatively small numbers, the study did show that their labor force participation rate (76 percent) and unemployment rate (5.8 percent) were very similar to the rates for women of the same ages who did not serve in the military.

In addition to those who were veterans of the Vietnam era, another 440,000 women served during earlier wartime periods, especially World War II and the Korean conflict. Their low labor force participation rate (26 percent) reflects both their advanced age and the fact that they are part of a generation in which women—especially married women—had a relatively weak attachment to the labor force.[18] (See table 6.)

Another 370,000 women served during peacetime, mostly in the post-Vietnam period, and their participation rate (75 percent) is comparable to that of nonveterans of the same ages.[19] Their relatively high unemployment rate (10.4 percent) may reflect in part the recent discharge of some of them and the accompanying, and usually short-lived, difficulties experienced in undergoing the transition to civilian jobs. □

Footnotes

[1] Information from the November 1987 CPS supplement was released initially as news release USDL 88-489, "BLS Reports on Labor Market Situation among Disabled Veterans of the Vietnam Era," Sept. 30, 1988. Historical data on Vietnam-era veterans are found in *Employment and Earnings*, a monthly BLS publication, and *The Employment Situation*, a monthly BLS news release.

The CPS, a survey of about 60,000 households, is conducted monthly for the Bureau of Labor Statistics by the Bureau of the Census. The CPS provides information on the employment status of the civilian noninstitutional population, as well as the demographic, occupational, and other characteristics of the employed, the unemployed, and persons not in the labor force. The November 1987 survey was taken during the week of the 15th through the 21st and refers to the status of individuals during the preceding week (November 8 through 14).

As with any sample survey, the CPS is subject to both sampling and nonsampling errors. Several possible sources of nonsampling error are of particular interest with respect to the veterans' supplement. One such source is the use of proxy respondents. The CPS respondent ordinarily is any responsible member of the household age 14 or over. However, due to the subjective nature of some of the supplementary items, interviewers were instructed to make three attempts to contact the actual veteran before asking the questions of another household member. Proxy responses were obtained for approximately 25 percent of the veterans surveyed. Another potential source of nonsampling error is the long recall period, which may be 20 years or even more for some Vietnam-era veterans. For a further description of the survey and possible sampling and nonsampling errors, see the section "Explanatory Notes" of *Employment and Earnings*.

[2] See Sharon R. Cohany, "Labor force status of Vietnam-era veterans," *Monthly Labor Review,* February 1987, pp. 11–17.

[3] Note that service in the war theater does not necessarily imply exposure to combat. For a study that includes an analysis of the effects of combat, see *Myths and Realities: A Study of Attitudes toward Vietnam Era Veterans, Submitted by the Veterans Administration to the Committee on Veterans' Affairs, U.S. House of Representatives, July 1980.*

[4] Martin Binkin and Mark J. Eitelberg, *Blacks and the Military* (Washington, The Brookings Institution, 1982), chapter 4. Other researchers have found a premium in the earnings of black veterans compared with black nonveterans. See Joshua D. Angrist, "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administration Records" (Princeton, NJ, Princeton University Industrial Relations Section Working Paper No. 251, April 1989).

[5] *United States Code,* title 38, chapter 11, section 301.

[6] Disabilities were reported by a total of 810,000 Vietnam-era veterans. Some 6.8 million reported no disabilities, and for 290,000 the presence or absence of disability was not known. Specific disability ratings were not available for 43,000 of the disabled.

[7] For a general assessment of the physical and mental health of Vietnam-era veterans, see "Health Status of Vietnam Veterans," *Journal of the American Medical Association,* May 13, 1988, pp. 2701–20, which reports the findings of the Vietnam Experience Study, conducted by the Centers for Disease Control. For a study of work-related disabilities among the general population, see *Labor Force Status and Other Characteristics of Persons with a Work Disability: 1981 to 1988,* Series P-23, No. 160 (Bureau of the Census, 1989).

[8] *Federal Benefits for Veterans and Dependents* (Department of Veterans Affairs, 1989), pp. 3–4.

[9] *Myths and Realities,* p. 10.

[10] Carol Boyd Leon, "Working for Uncle Sam—a look at members of the Armed Forces," *Monthly Labor Review,* July 1984, pp. 3–9.

[11] For a discussion of these employment and training programs, see Elizabeth Waldman and Kathryn R. Gover, "Employment situation of Vietnam Era veterans," *Monthly Labor Review,* September 1971, pp. 3–11.

[12] For example, see "Vietnam Era and Disabled Veterans—a World of Federal Employment Opportunities!" ORSPP-3 (Office of Personnel Management, September 1987); and "Veterans' Preference in Federal Employment," WEE-2 (Office of Personnel Management, September 1985).

[13] For an explanation of the programs, see *Federal Benefits*, pp. 7–18.

[14] *United States Code,* title 38, chapter 34, section 1651.

[15] *Statistical Abstract of the United States* (Department of Commerce, 1975), p. 324.

[16] See June A. Willenz, *Women Veterans: America's Forgotten Heroes* (New York, Continuum, 1983).

[17] *Survey of Female Veterans—a Study of the Needs, Attitudes and Experiences of Women Veterans* (Veterans Administration, 1985).

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

[19] For further information on data available from the CPS on women veterans, see Maria L. Roca, "Women veterans total 1 million in first half of 1986," *Monthly Labor Review,* December 1986, pp. 30–31.

Productivity in scrap and waste materials processing

Higher capacity machinery, growing demand, and industry consolidation spurred gains in output per hour of all persons over the 1977–87 period

Mark Scott Sieling

Changes in demand and output, processing machinery, and industry structure helped spur long-term productivity gains in the scrap and waste materials industry. A Bureau of Labor Statistics new measure of industry productivity shows that output per hour of all persons in the industry increased at an average annual rate of 3.0 percent between 1977 and 1987, identical to the rate for all manufacturing industries combined.[1] The all person hours index declined 1.2 percent a year, while output increased 1.7 percent. (See table 1.)

The demand for processed scrap and waste materials increased over the 1977–87 period due to growing exports and changes in steel and paper manufacturing processes, while increased recycling efforts made more unprocessed scrap and waste materials available. The installation of higher capacity processing equipment and a reduction in the number of marginal processing establishments (typically small-size firms) also spurred productivity gains over the period, especially since the early 1980's.

Average annual productivity gains varied considerably over shorter periods. For example, from 1977 to 1980, output per hour of all persons increased at an average annual rate of 2.4 percent, with output increasing faster than all person hours—5.7 percent, compared with 3.2 percent. These trends, however, were reversed during the 1980–82 period, when output per hour of all persons declined 2.4 percent a year, as output declined faster than hours and employment. Between 1980 and 1982, output fell by about one-fifth, as domestic and foreign demand shrank, while hours and employment each declined by about one-sixth.

Since 1982, improvements in processing technologies and machinery as well as continued strong demand for scrap metal and wastepaper contributed to above-average productivity gains. Over the 1982–87 period, output per hour of all persons increased by an average 5.2 percent per year, compared with a 4.5-percent annual increase for all manufacturing combined. Output increased 7.1 percent per year, overshadowing average annual increases in hours (1.8 percent) and employment (1.4 percent).

Year-to-year productivity changes reflected swings in demand, output, and other factors. For example, between 1982 and 1983, output per hour of all persons increased 19.9 percent. Output increased by 14 percent, reflecting strong foreign and domestic demand, while hours and employment declined because a large number of small-size establishments left the industry (primarily as a result of the 1981–82 recession).[2] In contrast, output per hour declined 0.1 percent between 1978 and 1979, as output, hours, and employment all increased by about 10 percent.

Output and demand

The scrap and waste materials industry processes a variety of materials, from scrap copper and gold to rags and fur cuttings. However,

Mark Scott Sieling is an economist in the Division of Industry Productivity Studies, Bureau of Labor Statistics.

Table 1. **Productivity and related indexes in the scrap and waste materials industry, 1977–87**

[1977=100]

Year	Output per hour of all persons	Output	Hours of all persons	All persons
1977	100.0	100.0	100.0	100.0
1978	110.7	108.9	98.4	98.0
1979	110.6	120.6	109.0	108.3
1980	108.2	116.2	107.4	109.0
1981	104.8	109.7	104.7	104.6
1982	103.0	92.5	89.8	91.7
1983	123.5	105.5	85.4	85.6
1984	122.2	114.7	93.9	94.3
1985	127.9	118.2	92.4	93.5
1986	133.8	124.0	92.7	92.5
1987	138.7	135.1	97.4	96.8
	Average annual rates of change (in percent)			
1977–82	−.1	−1.2	−1.0	−.7
1982–87	5.2	7.1	1.8	1.4
1977–87	3.0	1.7	−1.2	−1.2

ferrous scrap metal and wastepaper represent the bulk of the industry's output. In 1982, ferrous scrap tonnage accounted for about nine-tenths of total metal scrap processed by the industry, while wastepaper tonnage accounted for about three-fourths of total nonmetallic waste.[3]

Scrap ferrous metal processors and dealers collect scrap such as junked autos, old equipment, steel from obsolete buildings, and waste from metalworking industries. They sort this "obsolete scrap" into one of more than 80 separate scrap metal grades, then process it into forms usable by steel manufacturers and foundries.[4] Obsolete scrap is a primary feedstock for iron and steel manufacturing and foundry operations, along with pig iron, directly reduced iron ore, and "home scrap"—scrap generated by steel and iron manufacturing operations and metalworking industries.

A number of factors influence the demand for, and output of, obsolete ferrous scrap. Traditionally, demand has closely reflected the level of domestic and foreign steel and iron manufacturing.[5] But recent changes in steelmaking technology have partially broken that bond.

Between 1977 and 1987, shifts and changes in steel manufacturing techniques, such as the increased use of electric arc furnaces which primarily use scrap as a feedstock, spurred demand for processed obsolete scrap.[6] Although the production of primary iron and steel fell by about one-third over this period, domestic consumption of obsolete scrap increased from 38 million tons to 42 million tons.[7]

Reductions in the production of home scrap also influenced the demand for obsolete scrap. Because of improvements in steel manufacturing, such as continuous casting and improved metalworking technologies, as well as the closing of older, less efficient steel mills which traditionally produced large amounts of home scrap, the output of home scrap fell from just under 50 million tons in 1977 to 25 million tons in 1987.[8] This 50-percent reduction in the production of home scrap, combined with the increasing use of scrap in basic iron and steel manufacturing, led to greater demand for obsolete scrap.

Although the output of obsolete ferrous scrap increased over the 1977–87 period, the industry still maintained a processing capacity far in excess of demand. For example, in 1984, the industry's processing capacity was 130 million tons: it actually produced about 49 million tons.[9] This gap between capacity and actual production partially reflects demand factors and the industry's traditional one-shift-per-day operations.[10]

While overall output of obsolete scrap increased between 1977 and 1987, there were significant regional variations. Generally, output of ferrous scrap in the Great Lakes, Midwest, and Northeast regions declined, as steel mills closed. Output increased in the South, Southwest, and West, largely attributable to the growth of minimills which rely heavily on scrap as their primary feedstock.[11] It should be noted that most scrap processors are in close proximity to their customers, mainly because of transportation costs.[12] However, long distance trade among States, regions, and countries does occur, and in some cases, increases in foreign demand have compensated for declining local demand.

In addition to the increase in domestic consumption of obsolete scrap, foreign consumption of U.S. ferrous scrap rose significantly between 1977 and 1987. In 1977, exports totaled 5.9 million tons or about one-eighth of total obsolete scrap produced; by 1987, exports had grown to 10.4 million tons, representing one-fifth of total production.[13]

Regardless of the changes in basic steel manufacturing technologies that have influenced the long-term demand for obsolete ferrous scrap, year-to-year changes in domestic steel production still strongly affect the output of obsolete scrap. Between 1986 and 1987, both raw steel and obsolete scrap production increased by 8 percent; between 1981 and 1982, domestic shipments of obsolete scrap dropped 31 percent,

primarily reflecting a 38-percent decline in steel production.

Wastepaper processors collect various types of used paper products such as newspapers, business and computer paper, and corrugated boxes. They sort them into one of 70 separate grades, then bundle them for use by paper mills and building supply manufacturers. Between 1977 and 1987, the annual domestic consumption of wastepaper increased from 15 million tons to 20 million tons; exports more than doubled from 1.9 million tons to 4.4 million tons.

About one-third of the approximately 600 paper and pulp mills in the United States use processed wastepaper products as their primary feedstock. In an additional 300 mills, recycled fibers account for 15 percent to 25 percent of the feedstock.[14] (It should be noted that large integrated paper mills usually cannot substitute wastepaper for woodpulp in the manufacturing process.[15])

Foreign consumption of U.S. ferrous scrap rose significantly between 1977 and 1987.

During the 1977–87 period, corrugated scrap annually accounted for between two-fifths and one-half of total wastepaper output; newspaper and mixed grade waste each accounted for about one-sixth; and high grade de-inked and pulp substitutes, such as brown paper bags and computer and ledger paper, for one-fifth.[16] In most cases, the proportion of processed wastepaper used in manufacturing various paper products increased significantly between 1977 and 1987. In 1977, wastepaper feedstocks accounted for just over 15 percent of total newspaper production; by 1986, the proportion had risen to 27 percent. A similar increase was recorded for tissue paper, which used just over 40 percent wastepaper feedstock in 1987, compared with 28 percent in 1977. Manufacturers of kraft paperboard, however, only moderately increased their use of wastepaper feedstocks, from 4.2 percent to 7.9 percent.[17]

Because there is some substitution between woodpulp and wastepaper, yearly demand for wastepaper does not always exactly match the output of paper products. During the 1981–82 period, some domestic paper manufacturers substituted wastepaper for woodpulp as a feedstock because of price differentials, even though overall paper production declined by about 4 percent. Woodpulp consumption declined about 7 percent during this period, while consumption of wastepaper products fell only 3 percent.[18]

Exports also affect the demand for, and output of, processed wastepaper. Many countries rely heavily on imported wastepaper as a basic feedstock for paper manufacturing because they do not have large domestic supplies of woodpulp or the prices of U.S. wastepaper may be competitive with native-produced woodpulp.[19] Since the 1960's, the importance of exports has grown dramatically. Exports accounted for less than 3 percent of total processed wastepaper in the 1960's, for about 10 percent of total production in the late 1970's, and for almost one-fourth of overall production by 1986. Exports to the Far East (mainly from West Coast processors) currently account for about two-third of total U.S. wastepaper exports.

Like scrap processing, wastepaper processing is highly regional, mainly because of transportation costs. Between 1977 and 1986, annual and long-term changes in output varied greatly among regions. During this period, consumption of processed wastepaper increased by almost two-thirds in Southern States—from 2.5 million tons to just over 4 million tons, and declined by about one-eighth in mid-Atlantic States—from 2.6 million tons to 2.3 million tons.[20]

Employment and hours

Between 1977 and 1987, the number of persons engaged in scrap and waste processing decreased slightly from 120,400 to 116,600, reflecting a decline in the number of self-employed and unpaid family members. The number of self-employed workers and unpaid family members fell from about 37,000 to 30,000, while the number of paid employees increased by about 3,000. As processing equipment and land grew more expensive, many small-scale scrap and waste dealers and processors left the industry.[21]

Average hours of all persons working in the scrap and waste materials industry remained fairly constant over the 1977–87 period at about 40 hours per week—similar to the average for all manufacturing combined. Average weekly hours of both employed and self-employed persons were about the same. These hours, however, obscure the seasonal pattern of processing. Because most scrap processing occurs out of doors, processing typically slows during winter months in Northeastern and North Central States: employees in these areas usually work fewer hours during the winter than during other seasons. In some cases, it is not unusual to find their average weekly hours exceeding 45 or 50 in the spring, summer, or fall.[22]

Weather also is important in wastepaper processing. While the weekly hours pattern in scrap processing has been somewhat attenuated in recent years because of year-round collection and recycling efforts, wastepaper collection, particularly in Northeastern and Midwestern States, traditionally declines during summer and winter months.[23]

Occupational structure

The occupational structure of the scrap and waste materials industry remained basically unchanged between 1977 and 1987, with the vast majority of paid employees operating various pieces of processing equipment and material movement vehicles or engaged in maintenance activities. The remainder of the work force consists of clerical workers and sales personnel, with salespersons accounting for about 10 percent of total paid employees.

Because of the variety of processing equipment in the industry, workers are trained to operate more than one type of machinery. In scrap processing establishments, especially, workers may be assigned various tasks depending on the level and type of processing being done. For example, baler operators are often trained to operate other pieces of processing equipment, such as shears or shredders. Material movement operators—forklift and crane operators and truckdrivers, for example—are also capable of operating more than one type of vehicle.

Industry structure

The scrap and waste materials industry consists of three types of establishments—scrap dealers, whose primary function is to collect and sort scrap metal for distribution to processors; scrap processors, who use power equipment to process scrap into marketable forms; and waste and secondary materials dealers and processors, who primarily collect and bundle various types of wastepaper. Between 1977 and 1987, the number of scrap dealer establishments increased from 1,741 to 1,864; scrap processors, from 2,065 to 3,893; and waste and secondary materials dealers and processors, from 3,655 to 4,007. Despite the relatively large number of establishments, there appears to be a fair amount of economic concentration in the industry. In 1976, for example, estimates show that the 100 largest wastepaper dealers accounted for about one-half of total wastepaper processed.[24] Likewise, the 50 largest scrap processors accounted for only 5 percent of all establishments, but for more than one-fourth of total industry value of shipments. It should be noted that because markets for scrap metal and wastepaper are highly localized, many metropolitan market areas are dominated by a small number of processors and dealers.

Although the number of scrap processing establishments increased slightly between 1977 and 1982, there was a significant shift in industry structure towards larger size establishments. In 1974, 439 small-size establishments capable of processing less than 6,000 tons of scrap per year accounted for one-third of all scrap processing establishments; by 1984, 352 small-size establishments accounted for only one-quarter of all establishments.[25] During the same period, the number of larger size establishments capable of processing 30,000 tons or more of scrap a year increased from 372 to 568.

Unlike scrap processors, the configuration of wastepaper establishments remained fairly constant during the 1977–87 period. Between 1977 and 1982, the number of establishments employing 14 or fewer employees increased by 16 percent (from 2,388 to 2,777), a percentage increase similar to that for establishments employing 20 workers or more. While establishments employing fewer than 14 workers account for about four-fifths of all wastepaper processing establishments, they account for only about one-third of wastepaper value of shipments and employment.

Processing techniques and technologies

Ferrous scrap is sorted and processed into more than 80 different grades using a variety of equipment. The basic equipment are shears, balers, shredders, turning crushers, briquetters, and motor block breakers; with shears, balers, and shredders accounting for the bulk of processed output. Shears are used to cut pieces of heavy scrap, such as structural steel beams, into uniform lengths. Alligator shears, introduced in the 1920's, use mechanical pressure, somewhat like a pair of scissors, to cut scrap. Guillotine shears, first introduced in the late 1950's, use hydraulic pressure to operate the cutting blades, and can process heavier grades of scrap than can alligator shears. Balers compress a variety of lighter weight scrap, such as flat rolled steel used in consumer goods, into high density bundles. Introduced in the early 1960's, shredders rip automobile hulks and used consumer and industrial products into small pieces, separating ferrous from nonferrous scrap and nonmetal materials, using air or water jets and magnets. In addition to processing equipment, scrap processors also use a wide variety of cranes, trucks, and loaders.[26]

The largest factor likely to affect wastepaper processing in the future is the growth of municipal recycling efforts.

Since the 1970's, the profile of processing equipment used by the industry has changed dramatically, with the emphasis shifting from sheared to shredded scrap. For example, in 1974, shredders were used to process 7.3 million tons of scrap, or about 14 percent of total processed scrap. In 1984, shredders processed 11.2 million tons of scrap, or 29 percent of total output. At the same time, the production of sheared scrap fell from 19 million tons to 13 million tons. This shift toward shredded scrap is reflected in the decrease in the number of shears

in operation over the 1974–84 period, from just under 3,000 to 1,400, while the number of shredders increased from 120 to 200.

Shredders are more expensive to operate than are shears, but their average output per employee hour is typically much higher.[27] For example, crew size for a guillotine shear is typically three to five employees and production averages about 15 tons per hour. Shredders, however, typically have five to seven crew members with an average production rate of 52 tons per hour.

Because of the variety of processing equipment in the industry, workers are trained to operate more than one type of machinery.

In addition to the shift toward shredded scrap since the mid-1970's, the industry has also been installing higher capacity processing machinery. In 1974, for example, guillotine shears with a capacity to process 25 tons or more of scrap per hour accounted for just 6 percent of all guillotine shears installed nationwide; by 1984, that proportion had doubled to 12 percent. Many of these newer generations of processing equipment also require less power to operate and have lower maintenance requirements than did previous generations.[28]

Since the late 1970's, other changes in manufacturing technologies and processes have also contributed to increased scrap processing productivity, such as the introduction of quicker methods of loading processed scrap on railroad gondolas, trucks, barges, and ships, and improvements in the movement of materials within processing facilities.

In recent years, a number of safety, environmental, and quality issues have affected scrap processing methods. Although shredders produce fewer emissions than did previous scraping techniques, such as incineration of auto hulks, they also increase the amount of hand processing operations required prior to machine processing. For example, autos must be stripped of potentially hazardous equipment before being shredded, and residual gasoline, grease, and airbag cylinders can cause explosions if they are not removed prior to processing. Scrap processors must also identify other potential contaminants and dangerous substances in incoming unprocessed scrap. Sophisticated monitoring devices must be used to detect radioactive scrap and scrap contaminated with PCB. Also, testing apparatus is used to determine the level of alloys present in ferrous scrap. Because the amount of unprocessed scrap made up of such alloyed steels has increased over the past decade, and because steel mills are demanding purer forms of processed scrap, processors are expending more efforts to test and analyze unprocessed scrap.[29]

Although wastepaper processors employ fewer types of processing and material movement equipment than do scrap processors, advances in automation and material movement techniques were made during the 1977–87 period. Since the mid-1970's, new types of paper balers—the chief piece of processing machinery—automatically bind bundles of compressed wastepaper with wire bands and are usually flush mounted into the floor of the processing facility, which allows for easier loading of loose wastepapers.[30]

Capital investments

Capital requirements are significantly higher for scrap processors than for wastepaper processors, mainly because of the cost of processing equipment. For instance, the typical cost of a wastepaper baler is currently about $100,000 to $250,000, while the cost of a moderate capacity shredder is between $2 million to $3 million.[31] The total current-dollar replacement value of capital equipment used in scrap processing increased from $1.8 billion in 1974 to $3.4 billion in 1984.[32] Since the late 1970's, the cost of scrap processing equipment has risen significantly—reflecting not only general price increases, but also growing complexity. For example, environmental concerns have prompted the installation of pollution control devices on existing and new processing machinery; the cost of these devices can amount to a significant proportion of capital equipment costs.[33] For instance, a pollution or effluent control device can add from 10 percent to 15 percent to the cost of processing equipment (primarily shredders and briquetters). While these control devices do not significantly increase the cost of processing a ton of scrap, the additional investment can significantly affect profit margins.

Outlook

Future changes in output per hour of all persons in the scrap and waste materials industry will hinge on developments in processing equipment and technologies and changes in the demand for, and supply of, processed scrap and waste materials.

Three major trends are evident in scrap processing equipment and manufacturing processes: continued advances in machine capacity, material handling methods, and pollution control technologies; increasing emphasis on scrap quality; and changes in demand.

Between 1985 and 1990, scrap processors plan to expand processing capacity by about 5 million tons.[34] In addition, improved materials handling, workflow, and operations could significantly increase output per hour of all persons by as much as 5 percent to 10 percent.

Partially offsetting these improvements are such factors as increased concern over scrap quality and continuing changes in steel manufacturing technologies and processes. As the demand for high quality scrap increases, scrap processors will have to expend more employee hours to analyze and sort incoming unprocessed scrap as well as identify hazardous materials. In addition, future changes in steelmaking technologies and processes, such as more efficient ways to manufacture steel from directly reduced iron and the shift to just-in-time deliveries of processed scrap, could dampen potential gains in output per hour. In 1984, it was estimated that an uninterrupted, continuous market demand for scrap could have prompted the production of an additional 20–25 million tons of scrap through better and higher utilization of existing processing machinery.[35]

The largest factor likely to affect wastepaper processing in the future is the growth of municipal recycling efforts. While a few municipalities sell wastepaper directly to paper mills, bypassing traditional wastepaper processors, large-scale mandatory recycling would increase the supply of, but not necessarily the demand for, wastepaper. Wastepaper processors have traditionally paid for unprocessed wastepaper; however, in localities where supply greatly outpaces demand, processors are paid just to receive and warehouse unprocessed wastepaper—increasing their inventories of unprocessed wastepaper and the number of employee hours required to maintain them.[36]

Research and development also will play an important role in future scrap and waste processing. For example, an ongoing cooperative venture between the Bureau of Mines and the Institute of Scrap Recycling Industries is designed to prod the development of more efficient processing methods and enhance the exchange of information relating to scrap metal and waste materials.[37] □

Footnotes

[1] The scrap and waste materials industry is designated as SIC 5093 by the 1987 *Standard Industrial Classification Manual* of the U.S. Office of Management and Budget. The industry consists of establishments primarily engaged in assembling, breaking up, sorting, and wholesale distribution of scrap and waste materials. It should be noted that although the industry is classified as a wholesale industry, each State classifies it as a manufacturing industry for tax purposes.

In November 1976, the Institute of Steel and Iron Scrap (precursor to the current Institute of Scrap Recycling Industries) petitioned an interagency committee of the Federal Government, the Technical Committee on Industrial Classification, to change the industrial classification of scrap processors from wholesaling to manufacturing, citing advantages in zoning, taxation, and inventory accounting procedures. The request was denied on the grounds that it would be too difficult to separate processors from collectors, sorters, agents, and brokers. Agents and brokers who do not physically take possession of processed scrap and waste, but act as middlemen between suppliers and consumers, accounted for less than 5 percent of all establishments in the industry in 1982, less than 8 percent of total industry value of shipments, and about 2 percent of all workers. See K. W. Palmer, "Iron and Steel Scrap," *Bureau of Mines Minerals Yearbook, 1977,* p. 530; and industry sources.

Average annual rates of change are based on the linear least squares of the logarithms of the index numbers. Extensions of the indexes will appear in the Bureau of Labor Statistics annual bulletin, *Productivity Measures for Selected Industries*.

[2] Franklin D. Cooper, "Iron and Steel Scrap," *Bureau of Mines Minerals Yearbook, 1983,* pp. 502–03.

[3] Because of the higher intrinsic value of nonferrous scrap, the proportion of industry value of shipments accounted for by nonferrous scrap is higher than these physical tonnage proportions would indicate. Scrap copper, for example, is currently worth about $750 per ton, compared with about $25 per ton for ferrous scrap steel. This large difference does not reflect differences in value added by the scrap processing industry—in fact, less processing is usually performed on nonferrous than on ferrous scrap. Rather, it reflects the relative scarcity or abundance of different metals.

[4] Overall, 30 percent to 40 percent of obsolete ferrous scrap is obtained from discarded automobiles. The second largest source is structural iron and steel coming from the demolition of domestic or industrial structures. Scrapping of obsolete ships usually occurs in overseas scrap yards because of the relatively labor-intensive nature of the work, which involves extensive use of hand-operated cutting torches, and environmental problems associated with asbestos. See James W. Sawyer, Jr., *Automotive Scrap Recycling: Processes, Prices, and Prospects* (Washington, Resources for the Future, 1974), pp. 4–14; and Franklin D. Cooper, "Iron and Steel Scrap," *Bureau of Mines Minerals Yearbook, 1984,* p. 530.

[5] The supply and demand functions for obsolete scrap are very complex. Supply and demand depend on the relative costs of various inputs used in steel manufacturing, and upon vagaries of local supply and demand conditions. For example, an increase in the demand for a particular type of obsolete scrap in a locality will cause prices and supplies to rise until local supplies are exhausted or the limit of local scrap processing capacity is reached. At that point, the supply function shifts dramatically from being highly elastic to totally inelastic—regardless of the price offered, local supply does not change. See Sawyer, *Automotive Scrap Recycling,* pp. 103–10.

[6] From 1977 to 1987, the proportion of total raw steel production accounted for by electric arc furnaces increased from just under one-fifth to one-third. This shift to electric arc furnaces marks the second major shift in steel manufacturing technologies since the 1950's. The previous shift was the supplanting of open hearth furnaces with basic oxygen furnaces. In 1959, basic oxygen furnaces accounted for 8 percent of total steel production; by 1969, the proportion was 43 percent. Both open hearth and basic oxygen furnaces

can use 30 percent to 40 percent scrap in their charges, compared with close to 100-percent scrap charges used in electric arc furnaces. See Josapht Plater-Zyberk, Jr., "The Economics of Ferrous Scrap Recycling" (Ph. D. diss., Drexel University, June 1972), pp. 62–69; and Gregory L. Miles, "U.S. Minimills Launch a Full-Scale Attack," *Business Week,* June 13, 1988, pp. 100–02.

[7] Current-dollar value of industry shipments increased from $10,350,085,000 in 1977 to $12,260,267,000 in 1982. While, in general, these figures reflect the value of industry output, they do not reflect the value of the industry's final (net) output because they include the value of shipments from dealers to processors, as well as the value of final processed scrap and waste shipped by the industry to end users.

[8] Raymond E. Brown, "Iron and Steel Scrap," *Bureau of Mines Minerals Yearbook, 1987,* p. 3.

[9] Since 1956, the supply of low-grade unprocessed scrap has grown steadily. In 1987, for example, the Institute of Scrap Recycling Industries estimated that there were more than 800 million tons of unprocessed ferrous scrap residing in involuntary inventories due to lack of markets.

[10] *The Processing Capacity of the Ferrous Scrap Industry,* Research Report (Columbus, OH, Battelle Columbus Laboratories, Oct. 7, 1985, p. 18, and Aug. 10, 1976, p. 19).

[11] Raymond E. Brown, "Iron and Steel Scrap," *Bureau of Mines Minerals Yearbook, 1986,* p. 3.

[12] Transportation fees are usually calculated in terms of cents-per-mile, with railroad and over-the-road cartage being more expensive than barge or ship transportation. A scrap processor would typically incur losses on processed scrap if it were shipped more than 100–200 miles. See Sawyer, *Automotive Scrap Recycling,* pp. 39–40.

[13] Although increasing from 6 million tons to 11 million tons between 1977 and 1987, annual exports of obsolete ferrous scrap have traditionally fluctuated between 5 million tons and 11 million tons since the 1930's. From the late 19th century to the present, the United States has been an exporter of scrap, and today accounts for about one-third of total worldwide ferrous scrap export trade. Other major scrap exporting nations are France, Federal Republic of Germany, United Kingdom, and the U.S.S.R. United States imports of ferrous scrap currently amount to about 2 percent of total annual domestic scrap consumption. See Edwin C. Barringer, *The Story of Scrap* (Washington, Institute of Scrap Iron and Steel, 1954), pp. 60–67; and *Bureau of Mines Minerals Yearbook,* various issues.

[14] "Recycling Waste Paper," *Phoenix Quarterly,* vol. 19, no. 3, Fall 1987, p. 10.

[15] Thomas Plaut and Gene Steiker, *Characteristics of Wastepaper Markets and Trends in Scrap Paper Recycling, Prices, Demand and Availability: A National and Regional Overview,* Discussion Paper Series No. 103 (Regional Science Research Institute, April 1978), pp. 10–11.

[16] American Paper Institute, *1986 Annual Statistical Summary Waste Paper Usage;* and industry sources.

[17] The degree of wastepaper recycling has varied dramatically over the years. During World War II, for example, an estimated 35 percent of all paper was recycled, a figure not attained since, even though the recycling rate increased during the 1970's to about 25 percent. See "Recycling Waste Paper," p. 9.

[18] While the consumption of wastepaper varies with trends in overall paper production, the supply of wastepaper available for processing and recycling remained fairly constant over the 1977–87 period. Given this rather steady supply but variable demand, the demand and supply of unprocessed wastepaper is very price inelastic—as the demand for processed wastepaper increases, the price will increase a great deal while the quantity available for processing will increase relatively little; conversely, if demand falls, the price will decline sharply while the available supply of unprocessed wastepaper will decline relatively little. During periods of declining or low prices, wastepaper processors significantly reduce their output of processed wastepaper and purchases of unprocessed wastepaper. See Thomas Plaut, *An Econometric Analysis of Regional Wastepaper Markets,* Discussion Paper Series No. 104 (Regional Science Research Institute, June 1978).

[19] "Recycling Waste Paper," p. 10.

[20] Southern States include Alabama, Delaware, Florida, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. Mid-Atlantic States include New Jersey, New York, and Pennsylvania.

[21] Franklin D. Cooper, "Iron and Steel Scrap," *Bureau of Mines Minerals Yearbook, 1983,* p. 501.

[22] *The Processing Capacity of the Ferrous Scrap Industry,* 1976, p. 19.

[23] Plaut and Steiker, *Characteristics of Wastepaper Markets,* pp. 22–24; and industry sources.

[24] Plaut and Steiker, *Characteristics of Wastepaper Markets,* p. 14.

[25] *The Processing Capacity of the Ferrous Scrap Industry,* 1985, p. 8.

[26] In 1984, the industry possessed more than 2,700 scrap processing machines and about 33,000 pieces of transportation, materials handling, and other miscellaneous equipment. See *The Processing Capacity of the Ferrous Scrap Industry,* 1985, p. 13.

[27] *The Processing Capacity of the Ferrous Scrap Industry,* 1976. Daily production rates of various pieces of processing equipment largely depend on the type of scrap being processed, operating conditions, and machine capacity. Shredders, for example, can process between 15 tons to 100 tons of scrap per hour, while guillotine shears producing pieces 3 feet and under can consistently achieve greater efficiencies than shears producing 2-foot pieces.

[28] Franklin D. Cooper, "Iron and Steel Scrap," 1984, p. 575.

[29] *Ibid,* pp. 529–30.

[30] Industry sources.

[31] Even in 1974, prices of scrap processing machinery were relatively high, with alligator shears costing between $8,000 to $35,000; guillotine shears between $60,000 and $1,600,000; and shredders, $400,000 to $4,000,000. See *The Processing Capacity of the Ferrous Scrap Industry,* 1976, p. 18.

[32] *The Processing Capacity of the Ferrous Scrap Industry,* 1976, p. 18.

[33] See Sawyer, *Automotive Scrap Recycling,* pp. 121–23.

[34] *The Processing Capacity of the Ferrous Scrap Industry,* 1985, pp. 18–19.

[35] *Ibid.,* p. 19.

[36] In early 1989, just such a situation arose in some Northeastern metropolitan areas, where a glut of unprocessed papers overturned the traditional market role of processors. Both reflecting and compounding the problem was a simultaneous decline in prices for exported wastepaper. See Jerry Johnson, "Who Wants Yesterday's Papers?" *City Paper,* June 9–15, 1989, pp. 16–21.

Because the nature of reclaimed municipal ferrous scrap,

mainly tin-plated steel cans, limits its use as a raw material for steel production, scrap processors will not face this problem in the foreseeable future. See Raymond E. Brown, "Iron and Steel Scrap," p. 5.

[37] Franklin D. Cooper, "Iron and Steel Scrap," 1984, p. 586.

APPENDIX: Measurement techniques and limitations

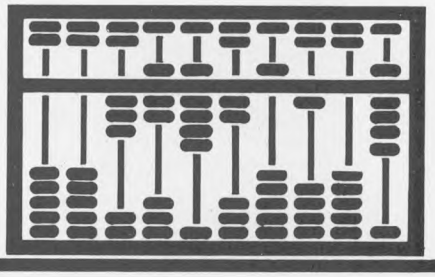
Indexes of output per hour of all persons measure changes in the relationship between the output of an industry and hours expended on that output. An index of output per all person hours is derived by dividing an index of output by an index of industry all person hours.

The preferred output index for an industry is obtained using data on quantities of the various goods produced by the industry, each weighted (multiplied) by the hours required to produce one unit of each good in some specified base period. Thus, those goods which require more labor time to produce are given more importance in the index. This technique was used to develop the output index for the scrap and waste processing industry. The output measure is based on physical quantities of various groups of industry products weighted together using labor weights.

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

The complete data series for the industry, including indexes of output per hour of all persons, hours of all persons, all persons, and matrixes showing year-to-year least squares percent changes in the indexes are available from the Bureau.

Technical notes



Employment Cost Index rebased to June 1989

Albert E. Schwenk

Beginning with the publication of March 1990 data, the Employment Cost Index has been rebased from June 1981 to June 1989.[1] All published ECI series are affected and now have a common base. The employment weights will continue to be those obtained from the 1980 census. While rebasing changes the reference point from which cumulative changes are measured, it does not affect percent changes calculated from the index, except for rounding.

This technical note describes the ECI, explains why it was rebased, and discusses the interpretation of the rebased index and subindexes and how rebasing differs from reweighting.

What the index measures

The ECI is an employment-weighted measure of change in the cost of employing a fixed set of labor inputs. Labor costs measured by the ECI include wages, salaries, and the employer cost for employee benefits. As noted, the weights currently used are employment counts from the 1980 census.

The ECI, a quarterly series, relates to payroll periods including the 12th of March, June, September, and December. The data are presented as index levels and 3-month and 12-month changes.

Like other indexes, the ECI indexes permit users to tell at a glance the cumulative change in a series from the base month to any date for which data are available. For example, as shown in table 1, the September 1989 index level for civilian worker compensation costs was 151.3, which means that those costs had risen 51.3 percent from the June 1981 base.

Indexes also permit users to directly compare cumulative changes between series that have a common base. For example, table 1 also shows that by September 1983, compensation costs for State and local government workers had risen 20.8 percent since June 1981, while costs for private industry workers had risen 15.6 percent. By September 1989, these costs had increased 67.9 percent and 47.9 percent.

Reason for rebasing

Although indexes are useful for economic analysis, they were not available for all ECI series. For most new series, only percent changes were published. A review of the development of indexes from the ECI will show why some were not published and why rebasing permits indexes to be published for all series.

Index numbers from the ECI were first published in early 1982. June 1981 was selected as the base for the indexes because that month marked the beginning of quarterly series in State and local governments. Previously, data had been available for private industry only. With June 1981 as the base, indexes could be developed for all series published as of March 1982.

Over the 8 years since then, the number of published series has more than doubled, to over 200. Among the new series have been wage and compensation cost changes for hospitals and all health services, as well as business services, communications, food stores, and insurance. Also added have been measures of benefit cost changes for major occupational and industry groups.

Publication of most of the additional series was made possible by a substantial increase in the ECI sample, the result primarily of an effort by the Bureau of Labor Statistics to improve the information available on the service-producing sector of the economy.[2] However, indexes for the new series could not be extended back to June 1981. By the September 1989 quarter, indexes were available for fewer than half of all ECI published series.

It would have been possible to provide indexes for new series without changing the index base (June 1981 = 100) for old series. This could have been done by selecting as the base for each series the date when data of publishable quality were first available. For example, 3-month changes for hospitals became publishable in the June-to-September-1986 quarter; thus, June 1986 could have been the base for this series. The following tabulation presents compensation cost indexes for hospitals with the June 1986 base and for private industry with the June 1981 base:

	June 1986	*June 1987*	*June 1989*
Private industry .	129.9	133.8	146.1
Hospitals	100.0	104.6	118.4

Note that the indexes are not comparable because they have different bases. The use of quarterly and annual percent changes avoids this problem. Therefore, only these percent changes have been published for new series lacking data back to 1981.

Examples of rebasing

Rebasing of the ECI was done, using indexes with base June 1981 = 100, by dividing the index value for June 1989 into the other index values and multiplying by 100.[3] To illustrate, in table 1, the civilian worker index level for September 1989 with June 1989 as base is found by dividing the former index by the latter:

$$151.3/148.9 = 1.016$$

Albert E. Schwenk is an economist in the Division of Employment Cost Trends, Bureau of Labor Statistics.

and then multiplying the relative change by 100, yielding an index of 101.6.

Similarly, the index level for civilian worker compensation costs in September 1983 with June 1989 as base is found by dividing the former index by the latter:

$$116.5/148.9 = 0.782$$

and then multiplying the relative change by 100 to yield an index of 78.2.

The change in the index from one quarter to another or from one year to another is not affected by rebasing (except for rounding). The percent change in the index for private industry workers between June 1989 and September 1989 is the same whether the index used to calculate the quarterly change has as a base June 1981, September 1983, or June 1989.

Rebasing compared to reweighting

In contrast to rebasing, reweighting (the introduction of new employment weights by industry and occupation) alters the interpretation of percent changes calculated from indexes but leaves index numbers before reweighting unaltered.[4] For example, prior to introduction of new ECI weights in 1986, the published percent changes measured the change in the cost of the 1970 set of labor inputs. After 1986, the changes measured the change in the cost of the 1980 set of labor inputs. The indexes for June 1986, using the new weights, were linked to those for March 1986, using the old weights, and the indexes for the period prior to June 1986 were not changed. After June 1986, the user cannot tell, from the published indexes alone, what the index change would have been had 1970 weights continued to be used. □

Table 1. **Employment Cost Index, compensation costs, selected series and periods**

[June 1981=100]

Series	June 1981	Sept. 1983	Sept. 1985	June 1989	Sept. 1989
Civilian workers[1]	100.0	116.5	128.4	148.9	151.3
Private industry workers	100.0	115.6	126.8	146.1	147.9
State and local government workers	100.0	120.8	136.5	162.5	167.9

[1] Excludes farm, household, and Federal Government workers.

Footnotes

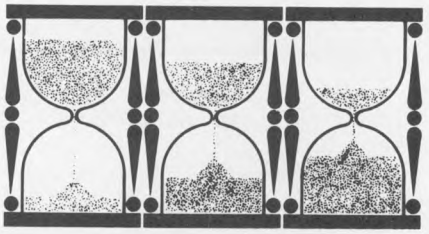
[1] The March 1990 ECI press release, to be issued April 25, presents indexes with the new base. A complete listing of ECI historical data, including indexes with the new base, is available. Historical indexes will appear in the ECI annual bulletin, to be published in the fall. Rebased ECI indexes will be published in the Current Labor Statistics section, beginning with the June 1990 issue. A complete historical listing of indexes on the old base will be available upon request for two years.

[2] In addition, in March 1989, BLS began publishing wage, benefit, and compensation cost changes for detailed aerospace industries. The new series were made possible when the Aerospace Industries Association provided funds for their development and maintenance.

[3] Unpublished indexes with a base later than June 1981 also were rebased.

[4] See Albert E. Schwenk, "Introducing new weights for the Employment Cost Index," *Monthly Labor Review*, June 1985, pp. 22–27. The study showed that the reweighting had very little impact on the indexes.

Major agreements expiring next month



This list of selected collective bargaining agreements expiring in May 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

Construction

Allied Construction Employers Association, Inc., Milwaukee, WI; Laborers, 1,200 workers

Allied Construction Employers Association, Inc., Milwaukee, WI; Carpenters, 1,800 workers

Associated Brick Mason Contractors, New York, NY; Laborers, 4,000 workers

Associated Bricklayers and Mason Contractors, White Plains, NY; Bricklayers, 1,700 workers

Associated General Contractors of Ohio, Inc., Akron, OH; Carpenters, 1,000 workers

Associated General Contractors, Builders Chapter, AZ; Carpenters, 1,500 workers

Associated General Contractors, Southern Michigan; Carpenters, 1,500 workers

Associated General Contractors, WI; Carpenters, 1,500 workers

Associated Steel Erectors, Chicago, IL; Iron Workers, 1,800 workers

Association of Master Painters and Decorators, New York, NY; Painters, 5,000 workers

Building Contractors Association and Construction League, Indianapolis, IN; Carpenters, 4,000 workers

Concrete Contractors Association of Greater Chicago and others, Chicago, IL; Plasterers and Cement Masons, 2,000 workers

Construction Employers of Hudson Valley, Inc., Newburgh, NY; Laborers, 1,000 workers

Construction Industries of Massachusetts and others, MA; Operating Engineers, 3,000 workers

Construction Industry Employers Association, Buffalo, NY; Carpenters, 1,862 workers

Construction Industry Employers Association, Buffalo, NY; Laborers, 1,200 workers

Construction Industry Employers Association, Buffalo, NY; Operating Engineers, 1,200 workers

Contract Administration Fund of Northeastern Colorado and Refrigeration and Air Conditioning Association, Denver, CO; Plumbers, 2,062 workers

Electrical Contractors Association, Chicago, IL; Electrical Workers (IBEW), 7,000 workers

Independent contractors, Detroit, MI; Bricklayers, 1,800 workers

Independent employers, New York, NY; Laborers, 2,500 workers

Mason Contractors Association, St. Louis, MO; Bricklayers, 1,200 workers

Master Builders Association and independent contractors, Western Pennsylvania; Carpenters, 2,700 workers

Master Builders Association, Western Pennsylvania; Laborers, 5,000 workers

Master Builders Association (commercial and heavy industry), Western Pennsylvania; Operating Engineers, 1,000 workers

Mechanical Contractors Association, Chicago, IL; Plumbers, 7,500 workers

Mid-America Regional Bargaining Association (heavy and highway), IL; Operating Engineers, 2,000 workers

Mid-America Regional Bargaining Association, Chicago, IL; Operating Engineers, 2,000 workers

Mid-America Regional Bargaining Association, IL; Bricklayers, 5,000 workers

Mid-America Regional Bargaining Association, IL; Carpenters, 8,000 workers

National Electrical Contractors Association, Dallas, TX; Electrical Workers (IBEW), 1,000 workers

National Electrical Contractors Association, Detroit, MI; Electrical Workers (IBEW), 3,000 workers

National Electrical Contractors Association, Interstate; Electrical Workers (IBEW), 3,000 workers

National Electrical Contractors Association, Las Vegas, NV; Electrical Workers (IBEW), 1,000 workers

National Electrical Contractors Association, Orange County, CA; Electrical Workers (IBEW), 1,200 workers

National Electrical Contractors Association, Rocky Mountain Chapter, CO; Electrical Workers (IBEW), 1,800 workers

National Electrical Contractors Association, San Francisco, CA; Electrical Workers (IBEW), 1,300 workers

National Electrical Contractors Association, Washington, DC; Electrical Workers (IBEW), 3,000 workers

National Electrical Contractors Association, Cincinnati, OH; Electrical Workers (IBEW), 1,000 workers

Plumbing Contractors Association, Cook County, IL; Plumbers, 3,500 workers

Sheet Metal Contractors Association, Chicago, IL; Sheet Metal Workers, 4,000 workers

Southwestern Michigan Contractors, Association, Southwestern Michigan; Laborers, 1,000 workers

Textile mill products

Cone Mills Corp., Greensboro, NC; Clothing and Textile Workers, 2,500 workers

Lumber and wood products, except furniture

Woodworkers Association, Chicago, IL; Carpenters, 1,500 workers

Paper and allied products

Consolidated Paper, Inc., WI; Paperworkers, 2,332 workers

Paper and allied products—Continued

Longview Fibre Co., Longview, WA; Pulp and Paperworkers (Ind.), 1,300 workers

Scott Paper, West Coast Div., Everett, WA; Paperworkers, 1,100 workers

Union Camp Corp., Savannah, GA; Paperworkers, 1,000 workers

Chemicals and allied products

E.I. Du Pont de Nemours & Co., Waynesboro, VA; United Workers, Inc. (Ind.), 1,460 workers

Primary metals

Keystone Consolidated Industries, Inc., Keystone Steel and Wire Div., Peoria, IL; Keystone Independent Employees Association (Ind.), 1,200 workers

Ormet Corp., Hannibal, OH; Steelworkers, 1,200 workers

Industrial and commercial machinery

Sperry Rand Corp., Univac Div., St. Paul, MN; Electrical Workers (IBEW), 2,014 workers

Transportation equipment

McDonnell Douglas Corp., St. Louis, MO; Machinists, 10,547 workers

Communications

General Telephone Co. of the Northwest, Interstate; Electrical Workers (IBEW), 3,450 workers

Utilities

Boston Edison Co., MA; Utility Workers, 3,000 workers

Houston Lighting and Power Co., Houston, TX; Electrical Workers (IBEW), 4,900 workers

Niagara Mohawk Power Corp., upstate New York; Electrical Workers (IBEW), 8,100 workers

Northern Indiana Public Service Co., IN; Steelworkers, 3,700 workers

Panhandle Eastern Pipe Line Co., Interstate; Oil, Chemical and Atomic Workers, 1,200 workers

Wisconsin Power and Light Co., WI; Electrical Workers (IBEW), 1,770 workers

Retail trade—general merchandise

Macy's and Emporium department stores, San Francisco, CA; Food and Commercial Workers, 3,000 workers

Retail trade—food stores

Albertson's Stores (grocery department), Denver, CO; Food and Commercial Workers, 1,000 workers

Albertson's Stores (meat department), Denver, CO; Food and Commercial Workers, 1,000 workers

King Sooper Stores (grocery department), Denver, CO; Food and Commercial Workers, 4,000 workers

King Sooper Stores (meat department), Denver, CO; Food and Commercial Workers, 1,400 workers

Kroger Food Stores, Interstate; Food and Commercial Workers, 4,500 workers

Kroger Food Stores, Dallas–Ft. Worth, TX; Food and Commercial Workers, 6,500 workers

Safeway Food Stores (grocery department), Denver, CO; Food and Commercial Workers, 4,500 workers

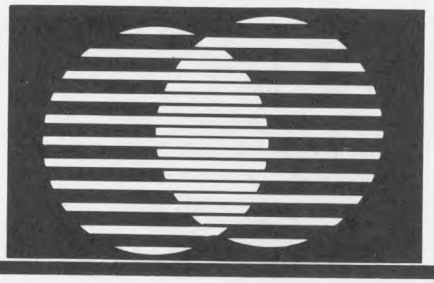
Safeway Food Stores (meat department), Denver, CO; Food and Commercial Workers, 1,400 workers

Services

Council of Hawaii Hotels, Neighbor Islands agreement, HI; Longshoremen and Warehousemen (Ind.), 6,000 workers

Hotel Association of New York City, New York, NY; Hotel and Motel Trades Council, 25,000 workers.

Developments in industrial relations



Oil settlement

Amoco and the Oil, Chemical and Atomic Workers (OCAW) reached a 3-year agreement, covering 4,500 workers at several of the company's facilities across the Nation. The accord sets the pattern for settlements at other major companies in the industry.

Nearly 40,000 employees in the petroleum industry are represented by OCAW in collective bargaining for some 300–350 agreements across the country. Although the union bargains at the local level, bargaining objectives for certain issues, such as wages and health benefits, are determined at the national level through the union's National Oil Bargaining Policy Committee.

At its conference last year, the Oil Bargaining Policy Committee set as bargaining goals a 2-year agreement providing wage increases of $1.25 per hour in each year and company contributions to the health plan equal to 90 percent of premiums. Other bargaining objectives included fully paid dental benefits; maintenance of all previous terms and conditions of employment; a $1 million death benefit for survivors of an employee killed on the job; provision for a guaranteed work force, or minimum staffing levels; use of accrued sick leave for dependent child care; provision for company paid training for Department of Transportation driving license tests; identical pay rates for a specific skilled craft job at all companies within the industry; a 50-cent increase in shift differentials for both midnight (to $1.50) and evening (to $1) shifts, and the establishment of a differential for daylight shiftwork (50 cents); and cooperation in environmental monitoring, including adding a new classification ("operator/monitor") at the highest rate paid to an operating employee.

Negotiations at the various oil companies began at the end of 1989. After intermittent bargaining, the OCAW rejected the first two offers from Amoco. The union threatened to strike, but agreed to extend the expiring contract for 24-hour periods. Amoco and the union reached an agreement immediately after the expiration of their existing contract.

The new accord provides for an 80-cent-an-hour increase in wages in the first year, a 5-percent increase in the second year, and a 4.5-percent increase in the third year. (The union estimates the average wage for refinery workers will increase $2.36 over the current rate of $15.18 per hour.) The company will increase its monthly contribution to health care insurance by $55 in the first year (formerly, $200.50), $45 in the second year, and $50 in the third year for family coverage, and by $21 (formerly, $78.11), $19, and $20, respectively, for single coverage. Other terms include a $250,000 death benefit for survivors of an employee killed on the job; company paid training of marketing and transportation employees who must take the Department of Transportation's driving license tests; and up to 26 weeks of leave at full pay for an absence due to occupational illness or injury, and an additional 26 weeks at half pay. The union and company were, however, unable to agree on environmental monitoring.

Boeing settlement

In Seattle, WA, a 3-year agreement, covering some 15,000 engineers and scientists, was reached between the Seattle Professional Engineering Employees Association and The Boeing Co. Negotiations had resulted in a tentative settlement in November, in which most of the union's demands were met, except for those covering general wage increases, lump-sum payments, and cost-of-living allowances. The union had asked for wage increases of 19 percent in the first year and 8 percent in each of the second and third years, as well as lump-sum payments of 10 percent of gross earnings during the preceding 12 months in the first year, 5 percent in the second year, and 4 percent in the last year of the contract. The company's final offer included a 3-percent wage increase retroactive to December 3, 1989, and "selective adjustments" (for certain employees) of 2 percent every 6 months during the remaining term of the contract. (See *Monthly Labor Review,* March 1990, pp. 63–64.) The rank and file overwhelmingly rejected this tentative agreement, but did not authorize a job action. Negotiations were resumed early this year, and an accord was reached.

The new agreement provides for a 3-percent general wage increase retroactive to December 2, 1989; an immediate lump-sum payment equal to 10 percent of an employee's gross earnings during the preceding 12 months, followed by a similar 5-percent payment in December 1991 and a 4-percent payment in December 1992; and six 2-percent semiannual selective wage adjustment increases.

Other terms include a limit on mandatory overtime work, to 144 hours (formerly, 200) in a quarter and to no more than two consecutive weekends (formerly, four), and overtime pay at base rate plus $6.50 per hour for professional unit employees; improvements in health care, including coverage of routine physical exams and well-baby care, and enhanced benefits

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

for vision, inhome health and hospice care, organ donor expenses, and substance abuse and eating disorder treatment; a $500 increase in the annual maximum dental benefit (to $1,500) and $300 in the orthodontia maximum (to $1,500); a pretax dependent care spending account in 1991; and various retirement plan changes, including a $30 minimum monthly benefit for all years of credited service for active employees and an increase in retired employees' benefits, up to a maximum of $200 per month.

New York building pact

Facing a strike deadline, the New York Realty Advisory Board on Labor Relations and the Service Employees reached a 3-year agreement covering some 30,000 building and service maintenance workers in New York City. The Board bargains for the owners of commercial office and loft-manufacturing buildings in four boroughs in the city.

Under the terms of the agreement, wage rates for building supervisors were raised 67.5 cents an hour on January 1, 1990, 70 cents on January 1, 1991, and 75 cents on January 1, 1992. Workers in other job classifications received increases of 55 cents, 57.5 cents, and 62.5 cents on the same dates. In addition, the contract continues the cost-of-living allowances each year, equal to 4 cents per hour (up to 20 cents annually) for each 1-percent rise in the BLS Consumer Price Index for Urban Wage Earners (CPI–W) in excess of 8.5 percent in the first year and 8 percent in the second year.

The contract also calls for the companies to pay all costs of a new benefit package. Weekly employer contributions to the health and welfare plans were set at $52.05 per employee (previously, $40.38), increasing to $61.83 on January 1, 1991, and $70.83 on January 1, 1992. The maximum monthly pension benefit for active employees was increased to $550 on January 1, 1990 (from $525), and advances to $575 on January 1, 1992; pension benefits for retirees were increased by 5 percent, up to the maximum rate for active employees. Life insurance benefits increased to $25,000 on January 1, 1992 (previously, $20,000).

Other terms include improvements in dental benefits, legal services, and meal allowances; establishment of unpaid parental leave of up to 2 weeks for employees working in buildings with more than three employees; and a $100 bonus for employees with perfect yearly attendance.

Airline developments

After intensive bargaining sessions conducted by a National Mediation Board mediator, USAir and the Air Line Pilots Association settled on a new 3-year contract, covering 6,170 pilots, including 2,700 who had been flying for Piedmont Airlines before the merger between the two air carriers. The Air Line Pilots union previously had represented pilots at both airlines under separate contracts.

Terms of the new agreement, retroactive to September 1, 1988, call for a two-tiered wage system similar to that at Northwest Airlines. Salaries for pilots on the A-scale (those with more than 5 years' service) were increased 2 percent in 1988, 2.5 percent in 1989, and 2 percent in 1990. For pilots on the B-scale (those with 5 years or fewer of service), rates were set at 70 percent of the original single-tiered wage system (previously, about 54 percent).

Other terms include the switch to a managed care health insurance system; the extension of an optional lump-sum retirement benefit and joint survivor's benefits to all pilots; placement of limitations on the amount of flying time that can be transferred from USAir to an "alter ego" or subsidiary carrier; extension of loss-of-license insurance to all pilots; and a change in work rules to allow training to go beyond midnight.

Elsewhere, in the air transportation industry, pilots (flight deck crew members) at the United Parcel Service Co.'s (UPS) air express hub in Louisville, KY, repudiated the incumbent union, the Teamsters, in a representation election conducted by the National Mediation Board. The Teamsters had been voluntarily recognized by UPS in August 1987, when the company's air express service was started. Of the 811 pilots eligible to vote, 757 voted for a newly formed independent union, the Independent Pilots Association.

In another representation dispute, the National Mediation Board found that America West Airlines, a Phoenix-based air carrier, violated its employees' right to "freedom of choice" in selecting a representative under the Railway Labor Act in an election for about 1,200 flight attendants. The Board held that the carrier's action during the election campaign contaminated the "laboratory conditions" necessary for a fair election. According to the Board, America West "improperly interfered with, influenced, and coerced its flight attendants in their freedom of choice by the 'totality' of its conduct" by announcing and implementing certain work rule changes, by implementing increases in layover benefits, and by distributing profit-sharing bonuses during the election campaign. As a remedy for the airline's actions, the Board ordered a re-run election among the flight attendants and distributed special notices to all employees, as well as ballot materials, informing eligible voters of the carrier's past actions and the employees' right to select a representative without America West's influence or interference.

Port agreement

Ending a 3-day job action, the Steamship Trade Association and five International Longshoremen's Association (ILA) local unions agreed on a new 10-month contract on local issues covering about 2,300 dockworkers in the Port of Baltimore. Baltimore was the only port where a local contract was not signed by October 1, 1989, the target date set last summer when the Longshoremen at East Coast and Gulf Coast ports ratified a 14-month extension of their master labor agreement. (The master contract covers wages, hours, benefit fund contributions, and automation issues, while the local contract covers benefit levels and local work rules and practices. See *Monthly Labor Review,* September 1989, p. 46, for terms of the extended contract.)

Although a tentative agreement had been reached a week earlier, it unraveled, as disagreement between two locals surfaced over staffing levels and

work rules. Under the tentative pact, job opportunities for cargo handlers, represented by Local 333, would have been enhanced, while staffing for the clerks and checkers, represented by Local 953, would have been cut by as many as 200 jobs. National union officials claimed the provisions affecting staffing levels for the clerks and checkers conflicted with language under the master contract.

The new contract, which expires in 10 months to coincide with the expiration of the master labor agreement that covers all ILA-represented ports on the Atlantic and Gulf Coasts, reportedly contains contract language which protects "jurisdiction under the master contract." Terms of the agreement include a restructuring of job duties and classifications, including a new classification (utility worker); an increase in the size of container crews (from 20 to 23); restoration of some of the jobs the clerks and checkers would have lost; clarification of contract language dealing with the union's jurisdiction over dockworkers' jobs; and $1.50 an hour premium pay for working in snow or rain, as well as company supplied rain gear. In addition, a 45-cent-an-hour increase in employer contributions to the pension and welfare fund was incorporated into the agreement.

Elsewhere, 1,540 dockworkers in the port of New York and New Jersey opted to retire under a 3-month enhanced pension buyout program offered under the contract negotiated last fall between the New York Shipping Association and the ILA. To decrease the excess number of registered dockworkers, special retirement benefits were offered to about 2,500 of the port's 5,800 workers who were age 55 with at least 25 years' service. (Dockworkers in the port have an annual guaranteed pay of 1,900 hours, or about $34,000.)

Under the terms of the contract, the retirees will receive special monthly pension benefits ranging from $1,000 to $1,600, compared with the regular monthly pensions of $880 to $1,045. Retirees will also receive annual royalty benefits (currently around $3,000) for the next 3 years and full medical and clinic benefits until age 65, or for a minimum of 3 years.

Utility agreement

Two local unions of the Steelworkers negotiated separate 3-year contracts in coordinated bargaining with the Northern Indiana Public Service, covering about 2,300 production and 800 clerical workers. The employees had been working under a 2-year extension of an agreement that originally was to expire on May 31, 1988.

The pacts call for general wage increases of 2 percent in June of 1991 and 1992, and a lump-sum payment in June 1990 equal to 7 percent of an employee's base wage as of May 31, 1990. In addition, the accords provide for improved job security. Effective January 1, 1991, the company will provide reassignments for all employees whose jobs are about to be eliminated, rather than only for those with 10 or more years of service as occurred under the previous agreements. The clerical contract also places a maximum on the number of temporary positions and requires the company to convert about 50 such positions to full-time jobs.

Several improvements were made in the health and insurance plans, effective June 1, 1990. Major medical coverage was increased $200,000 a year (to $450,000) and life insurance coverage was increased $10,000 (to $50,000). A separate cap was established for psychiatric coverage, $250,000 annually and $500,000 lifetime (previously, under the major medical coverage cap).

Other terms include liberalized retirement eligibility requirements that will allow employees whose combined age and years of service equal 90 to retire with full benefits on January 1, 1991, and those whose age and service equal 80, on January 1, 1992. (Previously, employees had to be age 60 to retire with full benefits.) The minimum monthly pension for future retirees increases to $250 (from $200) for employees with 10 years' service and to $350 (from $250) for those with more than 10 years' service. Current retirees' monthly pensions will increase 4 percent. Part-time employees are now eligible for sick and personal leave.

Grocery settlement

The Greater St. Louis Employers Council and the Food and Commercial Workers agreed on a new 45-month contract covering 2,000 meat, deli, and seafood department workers employed at three area grocery chains in the St. Louis, MO, area. The three chains the Council bargained for were Schnucks Markets, National Supermarkets, and Dierbergs.

Wage rates for all job classifications were increased 10–12 percent over the term. All employees—head meatcutters, journeymen meatcutters, service journeymen, full-time wrappers, clean-up workers, and deli and seafood employees—received a 70-cent-per-hour increase retroactive to September 3, 1989, and will receive 25-cent-per-hour increases in September of 1990, 1991, and 1992. Part-time employees at the top rate of the wage progression schedule in the deli and seafood departments received wage increases of 40 cents per hour (to $6.90) in September 1990, and 35 cents in September 1991. In addition, the period to progress to the next wage level for part-timers was cut from 1,040 hours to 520.

The accord also called for improvements in the health and welfare plans. To maintain the level of health and welfare benefits for full-time workers, the companies agreed to increase their contributions to the plan by up to 5 percent on January 1, 1990, and up to 7 percent in August of 1990, 1991, and 1992. Benefit levels for part-timers were also preserved, with company contributions increasing 20 percent over the term. In addition, company contributions to the plan were increased $9.28 per month (to $164.73) per employee to fund early retirement benefits. Early retirement benefits were liberalized by decreasing the maximum penalty for early retirement from 60 percent to 20 percent of normal retirement benefits for employees who retire between ages 52 and 62.

The union defeated company attempts to continue lump-sum payments instead of granting wage increases. It also turned back company proposals to sell prepackaged meats.

Teacher contracts

The St. Paul School Board and the St. Paul Federation of Teachers negotiated a new 2-year contract covering 2,600 teachers in St. Paul, MN. The settlement, which is retroactive to July 1, 1989, provides for 5-percent general wage increases in both years, with teachers having 2–10 years of experience receiving additional first-year increases of $200–$1,260, depending on their position in the salary schedule. Base pay for teachers with no previous experience was increased to $22,347 annually (previously, $21,423) in the first year, and to $22,465 in the second year.

The time in service to qualify for longevity pay increases was reduced to 15 years and 20 years of service (previously, 20 and 25). For teachers without a degree, the longevity pay increase will be $500 after 15 years, and an additional $500 after 20 years. Teachers with a degree and 45 graduate credits will receive comparable payments of $700 each, while teachers with a degree and 60 graduate credits will be paid $900 and $1,000, respectively.

Other terms include a $15 a month increase per teacher in the school district's maximum payment to health insurance premiums (to $230) in the first year and an additional $12 in the second year; up to 5 days of sick leave (previously, 2) to care for sick family members; 2 days of paid personal leave per school year (previously, 1); use of pretax pay up to a $5,000 maximum for both child care and health care; pay raises for teachers who serve as driver education instructors or as team leaders; up to 5 days casual leave without pay (was 2), depending on the teacher's seniority; and the establishment of various joint committees to discuss school related issues, such as class sizes and peer review procedures.

The Oklahoma City Federation of Teachers signed a 1-year agreement, retroactive to July 1, 1989, covering 2,200 teachers in Oklahoma City, OK. The accord provides for a 2.5-percent general wage increase, plus a 2.2-percent longevity step increase for teachers with at least 18 years of experience. With the wage boosts, teachers with a bachelor's degree will earn $17,785–$26,375 annually (formerly, $17,000–$25,340); those with a master's degree, $19,205–$28,185 (formerly, $18,050–$26,900); and with a doctorate, $19,800–$29,255 (formerly, $18,800–$27,950). In addition, teachers with 18 years of experience receive a one-time $400 lump-sum payment in March 1990, plus an additional 2.2 percent or $400 longevity step increase. Teachers with advanced degrees will receive an additional $200 per year, plus an additional $200 if their advanced degree is in reading.

Other terms include a $10 per month increase (to $65) in the school district's contribution to health premiums for each teacher; annual school district payments to the retirement fund of $1,375 for each teacher earning $25,000 or less, and $1,575 for those earning more than $25,000; a $2 increase (to $12) in the "sick leave buyback," in which teachers who retire are reimbursed for unused sick leave days; a $250 increase (to $750) in education assistance to teachers in declining enrollment areas; and "severance" payments equal to 20 percent of earnings to teachers who are forced to resign or retire during a reduction-in-force.

State government settlements

More than 2,400 teachers were covered by a settlement between Minnesota's seven State universities and the Inter Faculty Organization. Faculty pay, which had ranged from $19,432 a year for instructors to $47,598 for full professors, will be increased by an average of 5 percent in the first year and 6.36 percent in the second year.

Other important provisions included a compression of the salary schedules, from a four-track system to a two-track system which, according to the union, will allow for more salary advancement without promotion; increases in payments for professional improvement and in study and travel; a $550 increase (to $1,000) in the maximum annual employee contribution to a supplemental retirement fund, which is matched dollar-for-dollar by the State; and elimination of nontenure track positions.

For the first time in their bargaining history, the State of Michigan and the Auto Workers, which represents 22,000 State employees, negotiated an agreement with a duration exceeding 1 year. The 2-year agreement, which covers wages only, provided for two adjustments which will boost average annual pay more than $3,650 during the life of the contract. The increases are 4 percent, or 50 cents an hour, whichever is greater, and will become effective on October 1 of 1990 and 1991.

Supreme Court decisions

The Supreme Court recently issued two decisions which impinge on important labor relations issues. The first relates to preemption of Federal law in collective bargaining and the second, to age discrimination.

In *Golden State Transit* v. *Los Angeles,* the Court ruled that State and local governments can be sued for damages if they improperly interfere in labor disputes. The decision permits Golden State Transit, a California taxi company, to sue the City of Los Angeles under a Reconstruction-era law, the Civil Rights Act of 1871, commonly referred to as Section 1983.

The case arose when the city refused to renew Golden State Transit's franchise at the time the company was involved in a bitter dispute with the Teamsters union. The company then sued the city, alleging that it had violated Golden State Transit's civil rights under Federal labor law.

Writing for the six-member majority, Justice John Paul Stevens stated that in an earlier phase of the case in 1986, the Supreme Court had found that the city violated the company's Federal rights to conduct its collective bargaining activities without interference from the city, that is, conditioning the renewal of Golden State's franchise on settlement of the pending labor dispute with the Teamsters. The Court cited the doctrine under which States are preempted from regulating activities, such as labor negotiations, that are properly regulated by Federal law. In the current phase of the case, the Court decided that the National Labor Relations Act granted the company rights enforceable under Section

1983 and, thus, the body of law permits suits for damages.

In *Hoffman–La Roche Inc.* v. *Sperling*, the Supreme Court affirmed a district court decision which held that Federal courts may assist employees involved in alleged age discrimination cases to contact other employees who potentially may be eligible to join the lawsuit. The district court had ordered Hoffman–La Roche Inc., a subsidiary of F. Hoffman–La Roche Co. of Switzerland, to provide the names and addresses of some 200 employees who were potentially eligible to join the class-action suit against the company so that they might be contacted.

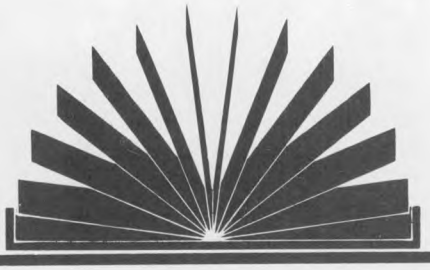
The suit arose out of action by the company in 1985 to lay off or downgrade workers as part of their effort to cut 1,200 jobs. Two employees filed an age discrimination suit against the company and were subsequently joined by 400 other workers. The workers then petitioned the court to notify an additional 200 employees who had accepted early retirement of their potential interest in the lawsuit.

In the majority opinion written by Justice Anthony Kennedy, the Court found that when an age discrimination suit is filed, a Federal court may notify other potentially affected workers and may require a company to provide names and addresses of these workers. This decision could affect future lawsuits because age bias suits specifically require formal notification to the court of employees' interests in the suit, unlike other Federal class actions which assume all "similarly situated" persons are eligible to participate in the lawsuit unless they formally notify the court that they are relinquishing their interests. □

A note on communications

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

Book reviews



The rewards of pioneering

The TUC Overseas: The Roots of Policy. By Marjorie Nicholson. London, Allen & Unwin, Ltd., 1988, 329 pp. Available in the United States from Allen & Unwin, New York.

We often forget now at the end of the 1980's that just a couple of decades ago trade union officials in the newly independent nations were being heralded as the "leaders of the future." Conventional wisdom had it that colonial powers had so stifled leadership potential among the colonized that only two institutions could produce qualified candidates, that is, the noncommissioned officer ranks of colonial armies and indigenous trade unions. Indeed, a number of new states were guided to democratic development by former trade union leaders, many of whom possessed remarkable qualities for political leadership and the vision to change former subjects into citizens capable of transforming colonial institutions into democratic ones. More often, though, the mantle of leadership seemed to be taken by the ex-soldiers, who, while having learned something about organization, had rarely acquired the gifts that are required for democratic nation building.

In her book, *The TUC Overseas: The Roots of Policy,* Marjorie Nicholson has examined in detail the efforts of one of the world's great trade union institutions, the Trades Union Congress (TUC), to build a base of trade unionism in the British colonies. Although one might assume that the roots of colonial trade unionism were first planted during the period of the post-World War II Labor Government in Britain, the roots go back quite a bit further and Nicholson, a longtime staff member at the TUC, has done a thorough job of bringing them to view.

When the British Trades Union Congress began to explore international contacts in the early part of this century, a natural link existed with the Dominions. By 1913, the TUC was exchanging fraternal delegates with the Canadian Labor Congress. Nicholson examines in detail the historic confluence of events and personalities characterizing the TUC's involvement with labor movements throughout the Commonwealth and beyond. The author takes us to the TUC Congress of 1945 at which George Meany, then secretary of the American Federation of Labor, appeared as a fraternal delegate. In a vigorous speech, he denounced Soviet "worker groups" and cautioned delegates about cooperating with state-controlled organizations. It was not the message that TUC delegates wanted to hear, poised as they were to embark on a mission to Paris to help found a new world labor federation.

This book stops short of the post-World War II experience that propelled the TUC and other national trade union centers into the midst of Third World trade union development. But in this work, the author masterfully traces the steps taken by the TUC between World War I and World War II to establish its presence among newly emerging trade union movements. The experience gained by TUC leaders in this period working with (and sometimes against) the interests of British Government ministries was invaluable for the future roles that they and their successors would play in the role of the TUC overseas.

This book is an invaluable reference source for students interested in international trade union expansion and for those who are curious about how the TUC engaged in trade union development in the former British Empire and Commonwealth.

—Roger C. Schrader
Vienna, VA

Flexibility in employment

Labor Market Flexibility: A Comparative Anthology. Edited by Hedva Sarfati and Catherine Kobrin. Brookfield, VT, Gower, 1988. 355 pp.

One of the services of the International Labour Office to practitioners and students of industrial relations is the quarterly, *Social and Labour Bulletin*. It is a useful, succinct, and reliable update on recent developments in labor matters throughout the world. In recent years, the editors of the *Bulletin* have added commentaries on some of the more important issues of the day. They have also published abstracts on collective bargaining developments and on the industrial relations aspects of technological change. *Labor Market Flexibility*, edited by Hedva Sarfati and Catherine Kobrin, is of this kind.

Lack of flexibility in the labor market has been put forward as a contributory factor in the failure of many of the advanced market economies to achieve satisfactory economic growth and lower unemployment. In the debate—which has been particularly active in European countries—attention has been drawn to, for example, the adequacy of wage flexibility and labor mobility, and laws regarding collectively agreed provisions and traditional work practices which, arguably, unduly restrict the operational efficiency of enterprises. In line with the new thinking about flexibility, steps have been taken in some European countries to facilitate more flexible working-time arrangements; to ease restrictions on dismissals; to reduce demarcation barriers between skills; and to extend irregular forms of employment.

This present compilation includes a comprehensive introductory review of the flexibility debate by the editors, followed by notes on various aspects

by representatives of unions, employers, government, and academic circles, and selected reports of developments. Notes and reports were taken from various editions of the *Bulletin* beginning in 1984, and touched on the major elements of the debate. The editors conclude that there is indeed a general movement toward greater flexibility, although the extent and means of change vary between countries. They note that the originally simplistic positions commonly taken by the parties have given way to more sophisticated and less categorical views. They do not fail to point out some of the dangers involved in increasing flexibility, diminishing workers' protection, and increasing segmentation the labor market, for example. Finally, they see a joint approach and participation as being desirable in moves to more flexible utilization of labor.

Except for the introduction, this is not a book to read straight through. It is, rather, a store of information which will be useful to those who want to keep track of developments in other countries where flexibility is involved, to ascertain the different approaches followed, and the extent of change. For such purposes, and to form a judgment on the flexibility debate, it is a particularly valuable resource.

—Oliver Clarke
Department of Industrial Relations
University of Western Australia
Perth

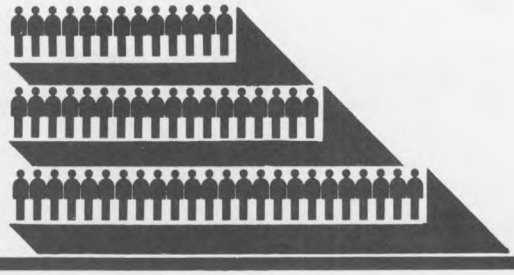
Balancing work and family responsibilities

The newer family-supportive benefits are not just for protecting employees and their families from calamities, but from the stresses of everyday life—or the ability to balance work and family responsibilities. Employee surveys at major corporations document the stress and strains of this delicate balancing act. Workers with child care or elder care responsibilities are three to six times more likely to experience difficulty combining work and family responsibilities. Even if successful, other problems, such as finding and paying for child care, negatively affect work performance.

Parents usually piece together several child care arrangements to cover their needs. Yet, the more arrangements, the more likely they are to break down. Various studies show that when arrangements fall apart, parents either leave early or arrive late—or miss the day altogether. Even when a stable arrangement is achieved, emergencies and illnesses are inevitable. Most studies indicate that parents are absent about five days each year as a result of sick children. Elder care concerns lead to similar results. In a study at Wang Laboratories, one-third of caregivers said that elder care responsibilities negatively affected their work. Caregivers were absent about five days per year due to elder care.

—Dana E. Friedman and Wendy B. Gray
"A Life Cycle Approach to
Family Benefits and Policies,"
Perspectives, No. 19 (The Conference Board,
Inc., 1989), p. 5.

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 1 and 4–10 were revised in the February 1990 issue of the *Review* and reflect the experience through 1989. 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 appearing on the back cover of this issue. 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 biennally 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 1989. 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), and for additional data, *Handbook of Labor Statistics*, Bulletin 2340 (Bureau of Labor Statistics, 1989). 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 employment (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 September, 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 Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988). For additional data, see *Handbook of Labor Statistics*, Bulletin 2340 (Bureau of Labor Statistics, 1989).

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 *BLS 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 2340 (Bureau of Labor Statistics, 1989).

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 2340 (Bureau of Labor Statistics, 1989).

Other compensation data

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

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

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

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

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

Price Data

(Tables 2; 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 2340 (Bureau of Labor Statistics, 1989).

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 2340 (Bureau of Labor Statistics, 1989).

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 2340 (Bureau of Labor Statistics, 1989). 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 combined labor and capital inputs). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

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

Definitions

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

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

Compensation per hour is the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, and the wages, salaries, and supplementary payments for the self-employed (except for nonfinancial corporations in which there are no self-employed)—the sum divided by hours at work. **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 compen-

sation 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.

Combined units of labor and capital inputs are derived by combining changes in labor and capital input 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

The output measure 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, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and materials; the organization of production; managerial skill; and the characteristics and efforts of the work force.

Additional sources of information

Descriptions of methodology underlying the measurement of output per hour and multifactor productivity are found in the *BLS Handbook of Methods,* Bulletin 2285 (Bureau of Labor Statistics, 1988). Historical data are provided in *Handbook of Labor Statistics,* Bulletin 2340 (Bureau of Labor Statistics, 1989).

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 Reserve 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*, Bulletin 2322 (Bureau of Labor Statistics, 1989). For additional information about the methodology for computing the industry productivity measures, see *BLS 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 1 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 cooperative program and the data must meet the needs of participating State agencies, an independent sample is selected for each State. The sample is selected to represent all private industries in the States and territories. The sample size for the survey is dependent upon (1) the characteristics for which estimates are needed; (2) the industries for which estimates are desired; (3) the characteristics of the population being sampled; (4) the target reliability of the estimates; and (5) the survey design employed.

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

The survey is based on stratified random sampling with a Neyman allocation and a ratio estimator. The characteristics used to stratify the establishments are the Standard Industrial Classification (SIC) code and size of employment.

Definitions

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

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

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

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

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

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

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

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

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

Notes on the data

Estimates are made for industries and employment-size classes and for severity

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

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

Comparable data for individual States are available from the BLS Office of Safety, Health, and Working Conditions.

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

Additional sources of information

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

The definitions of occupational injuries and illnesses and lost workdays are from *Recordkeeping Requirements under the Occupational Safety and Health Act of 1970*. For additional data, see *Occupational Injuries and Illnesses in the United States, by Industry*, annual Bureau of Labor Statistics bulletin; *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988); *Handbook of Labor Statistics*, Bulletin 2340 (Bureau of Labor Statistics, 1989), 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	1988	1989	1988				1989			
			I	II	III	IV	I	II	III	IV
Employment data										
Employment status of the civilian noninstitutionalized population (household survey):[1]										
Labor force participation rate	65.9	66.5	65.8	65.8	66.0	66.1	66.3	66.5	66.5	66.5
Employment-population ratio	62.3	63.0	62.0	62.2	62.3	62.6	62.9	63.0	63.0	63.0
Unemployment rate	5.5	5.3	5.7	5.5	5.5	5.3	5.2	5.3	5.3	5.3
Men	5.5	5.2	5.6	5.4	5.5	5.3	5.2	5.1	5.2	5.3
16 to 24 years	11.4	11.4	11.9	11.2	11.5	11.1	11.2	11.1	11.4	11.8
25 years and over	4.2	3.9	4.3	4.2	4.2	4.1	3.9	3.9	3.9	4.0
Women	5.6	5.4	5.8	5.6	5.5	5.3	5.2	5.4	5.4	5.4
16 to 24 years	10.6	10.4	11.0	10.7	10.5	10.3	10.2	10.4	10.5	10.4
25 years and over	4.3	4.2	4.5	4.3	4.3	4.1	4.1	4.2	4.2	4.3
Unemployment rate, 15 weeks and over	1.3	1.1	1.4	1.3	1.3	1.2	1.1	1.1	1.1	1.1
Employment, nonagricultural (payroll data), in thousands:[1]										
Total	105,584	108,581	104,355	105,184	105,976	106,799	107,680	108,339	108,917	109,398
Private sector	88,212	90,854	87,111	87,851	88,577	89,288	90,104	90,661	91,110	91,550
Goods-producing	25,249	25,634	25,022	25,202	25,313	25,452	25,634	25,664	25,659	25,581
Manufacturing	19,403	19,612	19,271	19,360	19,435	19,550	19,659	19,663	19,617	19,514
Service-producing	80,335	82,947	79,333	79,983	80,663	81,346	82,047	82,676	83,258	83,816
Average hours:										
Private sector	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.6
Manufacturing	41.1	41.0	41.0	41.1	41.1	41.1	41.1	41.1	41.0	40.7
Overtime	3.9	3.8	3.8	3.9	3.9	3.9	3.9	3.8	3.8	3.7
Employment Cost Index										
Percent change in the ECI, compensation:										
All workers (excluding farm, household, and Federal workers)	5.0	5.0	1.4	1.1	1.3	1.0	1.2	1.1	1.6	1.0
Private industry workers	4.9	4.8	1.5	1.2	1.0	1.0	1.3	1.2	1.2	1.0
Goods-producing[2]	4.4	4.3	1.8	1.1	.6	.8	1.0	1.1	1.1	1.0
Service-producing[2]	5.1	5.1	1.3	1.4	1.2	1.2	1.5	1.2	1.3	.9
State and local government workers	5.6	6.2	1.3	.3	2.7	1.1	1.2	.6	3.3	1.0
Workers by bargaining status (private industry):										
Union	3.9	3.7	1.6	1.0	.7	.5	.8	1.0	.9	1.0
Nonunion	5.1	5.1	1.5	1.3	1.1	1.2	1.5	1.2	1.4	.9

[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	1988	1989	1988				1989			
			I	II	III	IV	I	II	III	IV
Compensation data [1, 2]										
Employment Cost Index--compensation (wages, salaries, benefits):										
Civilian nonfarm	5.0	5.0	1.4	1.1	1.3	1.0	1.2	1.1	1.6	1.0
Private nonfarm	4.9	4.8	1.5	1.2	1.0	1.0	1.3	1.2	1.2	1.0
Employment Cost Index--wages and salaries										
Civilian nonfarm	4.3	4.4	1.0	.9	1.3	1.0	1.1	.8	1.6	.8
Private nonfarm	4.1	4.2	1.0	1.1	1.0	1.0	1.1	1.0	1.2	.8
Price data [1]										
Consumer Price Index (All urban consumers): All items	4.4	4.6	1.0	1.3	1.5	.6	1.5	1.5	.7	.9
Producer Price Index:										
Finished goods	4.0	4.8	.5	1.3	.8	1.3	1.9	2.0	-.6	1.5
Finished consumer goods	4.0	5.3	.4	1.4	1.0	1.1	2.2	2.3	-.8	1.5
Capital equipment	3.6	3.7	.7	.6	.4	1.8	.9	1.1	.1	1.5
Intermediate materials, supplies, components	5.6	2.4	1.1	2.6	1.2	.6	1.9	1.1	-.3	-.4
Crude materials	3.1	6.9	-.3	4.0	-1.2	.6	6.1	.9	-1.7	1.7
Productivity data [3]										
Output per hour of all persons:										
Business sector	1.7	1.1	2.5	-2.1	3.1	.2	1.1	1.6	1.5	.2
Nonfarm business sector	2.0	.9	2.8	-1.6	3.3	1.9	-1.3	1.1	2.4	.2
Nonfinancial corporations [4]	2.3	-	3.9	.4	1.3	-.4	-1.7	.1	3.0	-

[1] Annual changes are December-to-December change. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted and the price data are not compounded.
[2] Excludes Federal and private household workers.
[3] Annual rates of change are computed by comparing annual averages. Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.
[4] Output per hour of all employees.
- Data not available.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ended--					
	1988		1989				1988		1989			
	III	IV	I	II	III	IV	III	IV	I	II	III	IV
Average hourly compensation: [1]												
All persons, business sector	5.8	5.2	4.8	6.8	4.7	5.5	5.3	4.8	5.4	5.6	5.4	5.5
All persons, nonfarm business sector	5.4	5.9	4.9	5.6	5.3	6.0	5.1	4.8	5.4	5.5	5.4	5.4
Employment Cost Index--compensation:												
Civilian nonfarm [2]	1.3	1.0	1.2	1.1	1.6	1.0	4.7	5.0	4.8	4.8	5.1	5.0
Private nonfarm	1.0	1.0	1.3	1.2	1.2	1.0	4.5	4.9	4.6	4.5	4.7	4.8
Union	.7	.5	.8	1.0	.9	1.0	4.5	3.9	3.0	3.1	3.2	3.7
Nonunion	1.1	1.2	1.5	1.2	1.4	.9	4.5	5.1	5.1	5.0	5.3	5.1
State and local governments	2.7	1.1	1.2	.6	3.3	1.0	5.4	5.6	5.5	5.8	6.4	6.2
Employment Cost Index--wages and salaries:												
Civilian nonfarm [2]	1.3	1.0	1.1	.8	1.6	.8	3.9	4.3	4.4	4.3	4.6	4.4
Private nonfarm	1.0	1.0	1.1	1.0	1.2	.8	3.7	4.1	4.2	4.1	4.4	4.2
Union	.7	.4	.7	.8	.6	1.0	2.9	2.2	2.5	2.6	2.5	3.1
Nonunion	1.0	1.1	1.3	1.0	1.3	.8	3.9	4.5	4.8	4.6	4.9	4.5
State and local governments	2.6	1.0	.8	.5	3.1	.8	4.7	4.8	4.8	5.0	5.5	5.3
Total effective wage adjustments [3]	.8	.5	.5	1.0	1.0	.7	2.9	2.6	2.7	2.8	3.0	3.2
From current settlements	.2	.1	.1	.3	.4	.4	1.0	.7	.8	.7	.9	1.2
From prior settlements	.4	.2	.3	.5	.4	.2	1.4	1.3	1.3	1.3	1.3	1.3
From cost-of-living provision	.2	.2	.1	.2	.2	.1	.5	.6	.6	.8	.8	.7
Negotiated wage adjustments from settlements: [3]												
First-year adjustments	2.7	2.6	3.2	3.9	3.6	4.9	2.5	2.5	2.7	3.2	3.5	4.0
Annual rate over life of contract	2.8	2.2	3.1	3.3	3.0	4.0	2.2	2.4	2.5	2.9	3.0	3.4
Negotiated wage and benefit adjustments from settlements: [4]												
First-year adjustment	3.4	3.5	3.2	5.1	3.9	5.3	3.1	3.1	3.3	3.8	4.0	4.5
Annual rate over life of contract	3.2	2.1	3.1	3.4	2.7	4.3	2.5	2.5	2.6	3.0	2.8	3.4

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
TOTAL															
Noninstitutional population [1, 2]	186,322	188,081	187,461	187,581	187,708	187,854	187,995	188,149	188,286	188,428	188,580	188,721	188,865	188,990	189,090
Labor force [2]	123,378	125,557	124,801	124,929	125,299	125,224	125,777	125,679	125,758	125,725	125,857	126,192	126,246	126,094	126,308
Participation rate [3]	66.2	66.8	66.6	66.6	66.8	66.7	66.9	66.8	66.8	66.7	66.7	66.9	66.8	66.7	66.8
Total employed [2]	116,677	119,030	118,441	118,731	118,768	118,805	119,208	119,102	119,238	119,121	119,294	119,540	119,588	119,560	119,713
Employment-population ratio [4]	62.6	63.3	63.2	63.3	63.3	63.2	63.4	63.3	63.3	63.2	63.3	63.3	63.3	63.3	63.3
Resident Armed Forces [1]	1,709	1,688	1,684	1,684	1,684	1,673	1,666	1,666	1,688	1,702	1,709	1,704	1,700	1,697	1,678
Civilian employed	114,968	117,342	116,757	117,047	117,084	117,132	117,542	117,436	117,550	117,419	117,585	117,836	117,888	117,863	118,035
Agriculture	3,169	3,199	3,196	3,185	3,144	3,137	3,138	3,217	3,275	3,219	3,197	3,160	3,197	3,134	3,079
Nonagricultural industries	111,800	114,142	113,561	113,862	113,940	113,995	114,404	114,219	114,275	114,200	114,388	114,676	114,691	114,728	114,957
Unemployed	6,701	6,528	6,360	6,198	6,531	6,419	6,569	6,577	6,520	6,604	6,563	6,652	6,658	6,535	6,594
Unemployment rate [5]	5.4	5.2	5.1	5.0	5.2	5.1	5.2	5.2	5.2	5.3	5.2	5.3	5.3	5.2	5.2
Not in labor force	62,944	62,523	62,660	62,652	62,409	62,630	62,218	62,470	62,528	62,703	62,723	62,529	62,619	62,896	62,782
Men, 16 years and over															
Noninstitutional population [1, 2]	89,404	90,283	89,973	90,032	90,094	90,167	90,237	90,315	90,384	90,456	90,535	90,606	90,678	90,772	90,822
Labor force [2]	68,474	69,360	69,033	69,100	69,293	69,142	69,542	69,366	69,404	69,360	69,599	69,635	69,725	69,539	69,639
Participation rate [3]	76.6	76.8	76.7	76.8	76.9	76.7	77.1	76.8	76.8	76.7	76.9	76.9	76.9	76.6	76.7
Total employed [2]	64,820	65,835	65,529	65,814	65,727	65,713	66,078	65,939	65,919	65,681	66,046	66,011	66,143	65,943	66,108
Employment-population ratio [4]	72.5	72.9	72.8	73.1	73.0	72.9	73.2	73.0	72.9	72.6	73.0	72.9	72.9	72.6	72.8
Resident Armed Forces [1]	1,547	1,520	1,521	1,521	1,521	1,511	1,501	1,499	1,519	1,531	1,533	1,529	1,525	1,523	1,506
Civilian employed	63,273	64,315	64,008	64,293	64,206	64,202	64,577	64,440	64,400	64,150	64,513	64,482	64,618	64,420	64,602
Unemployed	3,655	3,525	3,504	3,286	3,566	3,429	3,464	3,427	3,485	3,679	3,553	3,624	3,582	3,597	3,530
Unemployment rate [5]	5.3	5.1	5.1	4.8	5.1	5.0	5.0	4.9	5.0	5.3	5.1	5.2	5.1	5.2	5.1
Women, 16 years and over															
Noninstitutional population [1, 2]	96,918	97,798	97,488	97,550	97,614	97,687	97,758	97,834	97,902	97,972	98,045	98,115	98,187	98,218	98,268
Labor force [2]	54,904	56,198	55,768	55,829	56,006	56,082	56,235	56,313	56,354	56,365	56,258	56,557	56,521	56,555	56,669
Participation rate [3]	56.6	57.5	57.2	57.2	57.4	57.4	57.5	57.6	57.6	57.5	57.4	57.6	57.6	57.6	57.7
Total employed [2]	51,858	53,195	52,912	52,917	53,041	53,092	53,130	53,163	53,319	53,440	53,248	53,529	53,445	53,617	53,605
Employment-population ratio [4]	53.5	54.4	54.3	54.2	54.3	54.3	54.3	54.3	54.5	54.5	54.3	54.6	54.4	54.6	54.5
Resident Armed Forces [1]	162	168	163	163	163	162	165	167	169	171	176	175	175	174	172
Civilian employed	51,696	53,027	52,749	52,754	52,878	52,930	52,965	52,996	53,150	53,269	53,072	53,354	53,270	53,443	53,433
Unemployed	3,046	3,003	2,856	2,912	2,965	2,990	3,105	3,150	3,035	2,925	3,010	3,028	3,076	2,938	3,064
Unemployment rate [5]	5.5	5.3	5.1	5.2	5.3	5.3	5.5	5.6	5.4	5.2	5.4	5.4	5.4	5.2	5.4

[1] The population and Armed Forces figures are not adjusted for seasonal variation.
[2] Includes members of the Armed Forces stationed in the United States.
[3] Labor force as a percent of the noninstitutional population.
[4] Total employed as a percent of the noninstitutional population.
[5] Unemployment as a percent of the labor force (including the resident Armed Forces).

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

(Numbers in thousands)

Employment status	Annual average		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
TOTAL															
Civilian noninstitutional population[1]	184,613	186,393	185,777	185,897	186,024	186,181	186,329	186,483	186,598	186,726	186,871	187,017	187,165	187,293	187,412
Civilian labor force	121,669	123,869	123,117	123,245	123,615	123,551	124,111	124,013	124,070	124,023	124,148	124,488	124,546	124,397	124,630
Participation rate	65.9	66.5	66.3	66.3	66.5	66.4	66.6	66.5	66.5	66.4	66.4	66.6	66.5	66.4	66.5
Employed	114,968	117,342	116,757	117,047	117,084	117,132	117,542	117,436	117,550	117,419	117,585	117,836	117,888	117,863	118,035
Employment-population ratio[2]	62.3	63.0	62.8	63.0	62.9	62.9	63.1	63.0	63.0	62.9	62.9	63.0	63.0	62.9	63.0
Unemployed	6,701	6,528	6,360	6,198	6,531	6,419	6,569	6,577	6,520	6,604	6,563	6,652	6,658	6,535	6,594
Unemployment rate	5.5	5.3	5.2	5.0	5.3	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Not in labor force	62,944	62,523	62,660	62,652	62,409	62,630	62,218	62,470	62,528	62,703	62,723	62,529	62,619	62,896	62,782
Men, 20 years and over															
Civilian noninstitutional population[1]	80,553	81,619	81,256	81,333	81,413	81,524	81,592	81,679	81,754	81,790	81,905	81,968	82,055	82,168	82,248
Civilian labor force	62,768	63,704	63,393	63,468	63,638	63,535	63,874	63,736	63,717	63,771	63,918	63,967	64,071	63,958	64,101
Participation rate	77.9	78.1	78.0	78.0	78.2	77.9	78.3	78.0	77.9	78.0	78.0	78.0	78.1	77.8	77.9
Employed	59,781	60,837	60,566	60,783	60,716	60,774	61,072	60,915	60,861	60,729	61,026	61,033	61,154	60,976	61,172
Employment-population ratio[2]	74.2	74.5	74.5	74.7	74.6	74.5	74.9	74.6	74.4	74.2	74.5	74.5	74.5	74.2	74.4
Agriculture	2,271	2,307	2,312	2,309	2,270	2,295	2,279	2,329	2,340	2,330	2,304	2,292	2,293	2,269	2,254
Nonagricultural industries	57,510	58,530	58,254	58,474	58,446	58,479	58,793	58,586	58,521	58,399	58,722	58,741	58,861	58,706	58,918
Unemployed	2,987	2,867	2,827	2,685	2,922	2,761	2,802	2,821	2,856	3,042	2,892	2,934	2,917	2,983	2,929
Unemployment rate	4.8	4.5	4.5	4.2	4.6	4.3	4.4	4.4	4.5	4.8	4.5	4.6	4.6	4.7	4.6
Women, 20 years ond over															
Civilian noninstitutional population[1]	89,532	90,550	90,153	90,242	90,318	90,432	90,526	90,607	90,684	90,771	90,860	90,952	91,042	91,091	91,157
Civilian labor force	50,870	52,212	51,816	51,876	52,009	52,120	52,219	52,385	52,352	52,358	52,281	52,541	52,586	52,686	52,814
Participation rate	56.8	57.7	57.5	57.5	57.6	57.6	57.7	57.8	57.7	57.7	57.5	57.8	57.8	57.8	57.9
Employed	48,383	49,745	49,455	49,467	49,560	49,649	49,687	49,817	49,875	49,984	49,796	50,043	50,048	50,255	50,287
Employment-population ratio[2]	54.0	54.9	54.9	54.8	54.9	54.9	54.9	55.0	55.0	55.1	54.8	55.0	55.0	55.2	55.2
Agriculture	625	642	646	647	638	633	622	639	642	660	641	624	618	594	582
Nonagricultural industries	47,757	49,103	48,809	48,820	48,922	49,016	49,065	49,178	49,233	49,324	49,155	49,419	49,430	49,661	49,704
Unemployed	2,487	2,467	2,361	2,409	2,449	2,471	2,532	2,568	2,477	2,374	2,485	2,498	2,538	2,431	2,527
Unemployment rate	4.9	4.7	4.6	4.6	4.7	4.7	4.8	4.9	4.7	4.5	4.8	4.8	4.8	4.6	4.8
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	14,527	14,223	14,367	14,323	14,293	14,224	14,211	14,196	14,160	14,166	14,107	14,097	14,067	14,034	14,008
Civilian labor force	8,031	7,954	7,908	7,901	7,968	7,896	8,018	7,892	8,001	7,894	7,949	7,980	7,889	7,752	7,715
Participation rate	55.3	55.9	55.0	55.2	55.7	55.5	56.4	55.6	56.5	55.7	56.3	56.6	56.1	55.2	55.1
Employed	6,805	6,759	6,736	6,797	6,808	6,709	6,783	6,704	6,814	6,706	6,763	6,760	6,686	6,631	6,577
Employment-population ratio[2]	46.8	47.5	46.9	47.5	47.6	47.2	47.7	47.2	48.1	47.3	47.9	48.0	47.5	47.3	47.0
Agriculture	273	250	238	229	236	209	237	249	293	229	252	244	286	270	243
Nonagricultural industries	6,532	6,510	6,498	6,568	6,572	6,500	6,546	6,455	6,521	6,477	6,511	6,516	6,400	6,361	6,334
Unemployed	1,226	1,194	1,172	1,104	1,160	1,187	1,235	1,188	1,187	1,188	1,186	1,220	1,203	1,121	1,138
Unemployment rate	15.3	15.0	14.8	14.0	14.6	15.0	15.4	15.1	14.8	15.0	14.9	15.3	15.2	14.5	14.8
White															
Civilian noninstitutional population[1]	158,194	159,338	158,947	159,020	159,098	159,200	159,297	159,400	159,470	159,549	159,644	159,736	159,832	159,938	160,007
Civilian labor force	104,756	106,355	105,760	105,926	106,208	106,152	106,474	106,384	106,485	106,393	106,618	106,834	106,896	106,884	107,080
Participation rate	66.2	66.7	66.5	66.6	66.8	66.7	66.8	66.7	66.8	66.7	66.8	66.9	66.9	66.8	66.9
Employed	99,812	101,584	101,187	101,413	101,400	101,432	101,683	101,546	101,684	101,579	101,862	101,991	102,032	102,074	102,117
Employment-population ratio[2]	63.1	63.8	63.7	63.8	63.7	63.7	63.8	63.7	63.8	63.7	63.8	63.8	63.8	63.8	63.8
Unemployed	4,944	4,770	4,573	4,513	4,808	4,720	4,791	4,838	4,801	4,814	4,756	4,843	4,864	4,811	4,962
Unemployment rate	4.7	4.5	4.3	4.3	4.5	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.6	4.5	4.6
Black															
Civilian noninstitutional population[1]	20,692	21,021	20,905	20,930	20,956	20,986	21,012	21,038	21,060	21,085	21,108	21,136	21,164	21,163	21,188
Civilian labor force	13,205	13,497	13,443	13,429	13,336	13,454	13,569	13,548	13,476	13,518	13,507	13,576	13,522	13,510	13,437
Participation rate	63.8	64.2	64.3	64.2	63.6	64.1	64.6	64.4	64.0	64.1	64.0	64.2	63.9	63.8	63.4
Employed	11,658	11,953	11,883	11,952	11,872	11,962	11,969	12,063	11,961	11,938	11,923	11,954	11,920	11,978	12,030
Employment-population ratio[2]	56.3	56.9	56.8	57.1	56.7	57.0	57.0	57.3	56.8	56.6	56.5	56.6	56.3	56.6	56.8
Unemployed	1,547	1,544	1,560	1,477	1,464	1,492	1,600	1,485	1,515	1,580	1,584	1,622	1,602	1,532	1,407
Unemployment rate	11.7	11.4	11.6	11.0	11.0	11.1	11.8	11.0	11.2	11.7	11.7	11.9	11.8	11.3	10.5

See footnotes at end of table.

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

(Numbers in thousands)

Employment status	Annual average		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Hispanic origin															
Civilian noninstitutional population[1]	13,325	13,791	13,606	13,649	13,690	13,731	13,772	13,813	13,853	13,894	13,936	13,977	14,019	14,080	14,119
Civilian labor force	8,982	9,323	9,192	9,201	9,288	9,359	9,289	9,403	9,361	9,342	9,339	9,424	9,495	9,440	9,400
Participation rate	67.4	67.6	67.6	67.4	67.8	68.2	67.4	68.1	67.6	67.2	67.0	67.4	67.7	67.0	66.6
Employed	8,250	8,573	8,549	8,581	8,531	8,619	8,543	8,579	8,541	8,564	8,595	8,672	8,691	8,769	8,666
Employment-population ratio[2]	61.9	62.2	62.8	62.9	62.3	62.8	62.0	62.1	61.7	61.6	61.7	62.0	62.0	62.3	61.4
Unemployed	732	750	643	620	757	740	746	824	820	778	744	752	804	671	734
Unemployment rate	8.2	8.0	7.0	6.7	8.2	7.9	8.0	8.8	8.8	8.3	8.0	8.0	8.5	7.1	7.8

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
CHARACTERISTIC															
Civilian employed, 16 years and over	114,968	117,342	116,757	117,047	117,084	117,132	117,542	117,436	117,550	117,419	117,585	117,836	117,888	117,863	118,035
Men	63,273	64,315	64,008	64,293	64,206	64,202	64,577	64,440	64,400	64,150	64,513	64,482	64,618	64,420	64,602
Women	51,696	53,027	52,749	52,754	52,878	52,930	52,965	52,996	53,150	53,269	53,072	53,354	53,270	53,443	53,433
Married men, spouse present	40,472	40,760	40,880	40,976	40,857	40,932	41,025	41,067	40,723	40,649	40,839	40,886	41,041	40,982	41,347
Married women, spouse present	28,756	29,404	29,379	29,485	29,563	29,608	29,499	29,520	29,259	29,506	29,544	29,767	29,695	29,897	29,704
Women who maintain families	6,211	6,338	6,381	6,267	6,263	6,354	6,401	6,446	6,371	6,429	6,354	6,351	6,349	6,215	6,378
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,621	1,665	1,644	1,651	1,630	1,647	1,557	1,685	1,723	1,680	1,678	1,687	1,677	1,634	1,578
Self-employed workers	1,398	1,403	1,411	1,403	1,414	1,377	1,411	1,424	1,410	1,424	1,406	1,373	1,369	1,354	1,375
Unpaid family workers	150	131	146	137	126	127	126	127	133	132	124	122	125	107	118
Nonagricultural industries:															
Wage and salary workers	103,021	105,259	104,815	104,948	104,981	105,232	105,430	105,353	105,317	105,476	105,504	105,960	105,643	105,747	106,117
Government	17,114	17,469	17,318	17,376	17,266	17,305	17,328	17,501	17,559	17,613	17,595	17,681	17,728	17,626	17,607
Private industries	85,907	87,790	87,497	87,572	87,715	87,927	88,102	87,852	87,758	87,863	87,909	88,279	87,915	88,121	88,510
Private households	1,153	1,101	1,131	1,149	1,118	1,123	1,128	1,094	1,147	1,065	987	1,051	1,077	1,035	1,021
Other	84,754	86,689	86,366	86,423	86,597	86,804	86,974	86,758	86,611	86,798	86,922	87,228	86,838	87,086	87,489
Self-employed workers	8,519	8,605	8,541	8,631	8,643	8,573	8,578	8,602	8,621	8,581	8,610	8,528	8,653	8,733	8,628
Unpaid family workers	260	279	290	319	277	299	245	248	272	279	280	264	251	256	313
PERSONS AT WORK PART TIME[1]															
All industries:															
Part time for economic reasons	5,206	4,894	4,987	4,978	5,086	4,883	4,928	4,773	4,802	4,864	4,767	4,803	4,802	4,983	4,887
Slack work	2,350	2,303	2,314	2,283	2,346	2,314	2,315	2,301	2,281	2,321	2,314	2,297	2,277	2,402	2,307
Could only find part-time work	2,487	2,233	2,339	2,368	2,375	2,307	2,269	2,172	2,142	2,161	2,082	2,162	2,106	2,255	2,211
Voluntary part time	14,963	15,393	15,150	15,510	15,405	15,350	15,466	15,577	15,550	15,506	15,368	15,254	15,388	14,931	15,381
Nonagricultural industries:															
Part time for economic reasons	4,965	4,657	4,722	4,720	4,855	4,643	4,738	4,583	4,567	4,605	4,526	4,552	4,554	4,729	4,703
Slack work	2,199	2,143	2,129	2,095	2,198	2,137	2,183	2,164	2,129	2,165	2,166	2,132	2,111	2,240	2,183
Could only find part-time work	2,408	2,166	2,272	2,290	2,310	2,246	2,198	2,104	2,076	2,095	2,021	2,097	2,051	2,172	2,173
Voluntary part time	14,509	14,963	14,707	15,074	14,975	14,977	15,016	15,138	15,071	15,076	14,936	14,805	14,983	14,515	14,924

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
CHARACTERISTIC															
Total, all civilian workers	5.5	5.3	5.2	5.0	5.3	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Both sexes, 16 to 19 years	15.3	15.0	14.8	14.0	14.6	15.0	15.4	15.1	14.8	15.0	14.9	15.3	15.2	14.5	14.8
Men, 20 years and over	4.8	4.5	4.5	4.2	4.6	4.3	4.4	4.4	4.5	4.8	4.5	4.6	4.6	4.7	4.6
Women, 20 years and over	4.9	4.7	4.6	4.6	4.7	4.7	4.8	4.9	4.7	4.5	4.8	4.8	4.8	4.6	4.8
White, total	4.7	4.5	4.3	4.3	4.5	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.6	4.5	4.6
Both sexes, 16 to 19 years	13.1	12.7	12.3	11.9	12.4	12.8	12.9	12.7	12.7	12.2	12.4	12.9	13.0	12.7	13.0
Men, 16 to 19 years	13.9	13.7	13.9	13.0	13.2	14.1	13.5	12.8	13.1	13.3	13.8	14.3	14.0	12.9	12.7
Women, 16 to 19 years	12.3	11.5	10.7	10.7	11.5	11.4	12.3	12.6	12.3	11.1	10.9	11.3	11.9	12.4	13.2
Men, 20 years and over	4.1	3.9	3.8	3.6	3.9	3.7	3.8	3.8	3.9	4.2	3.9	3.9	3.9	4.0	4.1
Women, 20 years and over	4.1	4.0	3.7	3.9	4.1	4.1	4.1	4.2	4.1	3.8	4.0	4.0	4.1	4.0	4.1
Black, total	11.7	11.4	11.6	11.0	11.0	11.1	11.8	11.0	11.2	11.7	11.7	11.9	11.8	11.3	10.5
Both sexes, 16 to 19 years	32.4	32.4	32.2	31.5	31.7	32.4	35.1	27.9	31.9	36.3	33.4	32.5	30.7	26.7	28.0
Men, 16 to 19 years	32.7	31.9	32.6	29.0	34.8	35.4	33.8	23.2	30.3	33.8	32.0	32.3	30.1	29.2	28.5
Women, 16 to 19 years	32.0	33.0	31.7	34.3	28.5	29.6	36.8	33.1	33.6	38.8	34.9	32.7	31.4	24.0	27.5
Men, 20 years and over	10.1	10.0	10.2	9.8	9.9	9.5	9.6	9.5	9.9	10.1	10.3	10.6	10.8	11.2	9.2
Women, 20 years and over	10.4	9.8	10.0	9.3	9.1	9.6	10.5	9.9	9.6	9.7	9.9	10.2	10.0	9.2	9.4
Hispanic origin, total	8.2	8.0	7.0	6.7	8.2	7.9	8.0	8.8	8.8	8.3	8.0	8.0	8.5	7.1	7.8
Married men, spouse present	3.3	3.0	3.0	2.9	3.2	2.9	2.9	3.0	3.1	3.3	3.0	3.1	3.0	3.4	3.0
Married women, spouse present	3.9	3.7	3.4	3.5	4.0	3.8	3.8	3.8	3.9	3.8	3.9	3.8	3.9	3.7	3.8
Women who maintain families	8.1	8.1	8.0	7.9	7.8	8.2	7.9	8.5	8.0	7.7	7.8	8.2	8.1	7.5	7.5
Full-time workers	5.2	4.9	4.8	4.8	5.0	4.9	4.9	5.0	4.9	5.0	4.9	5.0	5.0	5.0	4.9
Part-time workers	7.6	7.3	7.2	6.4	7.2	6.9	7.7	7.2	7.1	7.3	7.1	7.4	7.5	7.0	7.4
Unemployed 15 weeks and over	1.3	1.1	1.1	1.1	1.1	1.1	1.0	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Labor force time lost[1]	6.3	5.9	6.0	5.9	6.0	6.0	6.0	6.0	6.0	6.0	5.9	5.9	6.0	6.0	5.9
INDUSTRY															
Nonagricultural private wage and salary workers	5.5	5.3	5.2	5.1	5.3	5.2	5.3	5.4	5.4	5.4	5.3	5.4	5.4	5.5	5.5
Mining	7.9	5.8	7.6	7.0	5.8	4.6	3.9	5.8	6.4	8.4	4.8	6.2	4.4	6.8	4.8
Construction	10.6	10.0	10.0	9.6	9.8	9.5	10.0	10.3	10.2	10.1	9.3	9.8	9.8	9.3	8.9
Manufacturing	5.3	5.1	4.9	4.8	5.0	4.9	5.1	5.1	5.2	5.2	5.4	5.4	5.6	5.9	5.9
Durable goods	5.0	4.8	4.5	4.6	4.7	4.6	4.6	4.7	4.9	4.9	5.2	5.4	5.4	5.8	5.5
Nondurable goods	5.7	5.5	5.5	5.1	5.3	5.5	5.8	5.6	5.7	5.5	5.6	5.3	5.9	5.9	6.4
Transportation and public utilities	3.9	3.9	3.9	3.9	3.9	4.0	4.1	4.1	3.7	4.5	3.9	3.6	3.4	4.3	4.0
Wholesale and retail trade	6.2	6.0	5.7	5.7	5.9	5.6	6.0	6.1	6.0	5.9	5.9	6.4	6.3	6.2	6.0
Finance and service industries	4.5	4.4	4.3	4.3	4.6	4.6	4.3	4.4	4.4	4.5	4.3	4.3	4.2	4.3	4.4
Government workers	2.8	2.7	2.7	2.7	2.7	2.9	2.9	2.8	2.7	2.8	2.7	2.7	2.6	2.4	2.5
Agricultural wage and salary workers	10.6	9.6	9.1	8.9	9.8	9.9	10.4	8.9	9.0	7.8	9.8	12.1	9.7	9.2	9.3

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Total, 16 years and over	5.5	5.3	5.2	5.0	5.3	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
16 to 24 years	11.0	10.9	10.6	10.0	10.6	10.5	11.1	10.9	11.0	11.1	11.1	11.3	11.2	10.6	10.7
16 to 19 years	15.3	15.0	14.8	14.0	14.6	15.0	15.4	15.1	14.8	15.0	14.9	15.3	15.2	14.5	14.8
16 to 17 years	17.4	17.2	17.6	15.8	15.9	16.6	17.4	17.7	17.5	17.2	16.9	17.4	18.1	14.8	16.8
18 to 19 years	13.8	13.6	12.7	12.9	13.7	14.3	14.6	13.1	12.8	14.2	13.5	13.8	13.4	14.2	13.0
20 to 24 years	8.7	8.6	8.2	7.9	8.4	7.9	8.7	8.6	8.8	8.8	8.9	9.0	8.9	8.5	8.4
25 years and over	4.3	4.0	4.0	3.9	4.1	4.0	4.0	4.0	4.0	4.1	4.1	4.1	4.1	4.2	4.2
25 to 54 years	4.5	4.2	4.2	4.2	4.3	4.2	4.1	4.2	4.1	4.3	4.2	4.2	4.3	4.3	4.3
55 years and over	3.1	3.1	3.0	2.7	3.0	2.9	3.3	3.1	3.1	3.0	3.0	3.2	3.2	3.4	3.4
Men, 16 years and over	5.5	5.2	5.2	4.9	5.3	5.1	5.1	5.0	5.1	5.4	5.2	5.3	5.3	5.3	5.2
16 to 24 years	11.4	11.4	11.2	10.0	10.8	10.9	11.4	10.9	11.5	11.9	11.7	12.0	11.8	11.2	10.9
16 to 19 years	16.0	15.9	16.4	14.6	15.6	16.3	15.9	14.7	15.1	15.7	15.9	16.7	16.1	15.1	14.9
16 to 17 years	18.2	18.6	18.8	16.5	17.5	18.7	19.5	17.8	17.7	19.5	18.5	19.0	19.6	14.2	16.5
18 to 19 years	14.6	14.2	14.7	13.6	14.3	15.1	13.7	12.1	13.1	13.7	14.2	15.1	13.8	15.6	13.7
20 to 24 years	8.9	8.8	8.3	7.5	8.2	8.0	8.9	8.9	9.4	9.8	9.3	9.4	9.5	8.9	8.6
25 years and over	4.2	3.9	4.0	3.8	4.1	3.8	3.7	3.8	3.8	4.1	3.9	4.0	3.9	4.2	4.1
25 to 54 years	4.4	4.1	4.1	4.0	4.3	3.9	3.8	3.9	3.8	4.1	4.0	4.1	4.0	4.3	4.2
55 years and over	3.3	3.2	3.3	2.8	3.2	3.0	3.1	3.1	3.3	3.5	3.2	3.5	3.6	3.6	3.5
Women, 16 years and over	5.6	5.4	5.1	5.2	5.3	5.3	5.5	5.6	5.4	5.2	5.4	5.4	5.5	5.2	5.4
16 to 24 years	10.6	10.4	9.9	10.1	10.4	10.0	10.8	10.9	10.4	10.2	10.4	10.4	10.4	10.1	10.4
16 to 19 years	14.4	14.0	13.1	13.3	13.5	13.7	14.9	15.5	14.6	14.4	13.8	13.8	14.3	13.7	14.6
16 to 17 years	16.6	15.7	16.3	15.1	14.1	14.3	15.2	17.6	17.2	14.7	15.0	15.7	16.5	15.5	17.3
18 to 19 years	12.9	13.0	10.4	12.0	12.9	13.4	15.6	14.2	12.5	14.6	12.8	12.3	13.0	12.6	12.3
20 to 24 years	8.5	8.3	8.1	8.3	8.7	7.9	8.5	8.3	8.1	7.7	8.5	8.5	8.2	8.0	8.1
25 years and over	4.3	4.2	4.0	4.1	4.1	4.3	4.3	4.3	4.2	4.1	4.2	4.2	4.3	4.1	4.3
25 to 54 years	4.6	4.4	4.2	4.3	4.4	4.6	4.5	4.5	4.5	4.4	4.4	4.4	4.6	4.3	4.5
55 years and over	2.8	2.8	2.6	2.6	2.7	2.9	3.6	3.1	2.8	2.4	2.8	2.9	2.7	3.3	3.3

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

(Numbers in thousands)

Reason for unemployment	Annual average		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Job losers	3,092	2,983	2,879	2,852	2,932	2,798	2,820	2,916	2,964	2,932	2,979	3,092	3,097	3,183	3,103
On layoff	851	850	783	806	833	805	813	829	865	852	780	969	957	1,033	964
Other job losers	2,241	2,133	2,096	2,046	2,099	1,993	2,007	2,087	2,099	2,080	2,199	2,123	2,140	2,150	2,139
Job leavers	983	1,024	980	902	985	1,103	1,021	1,016	1,031	1,034	994	1,049	1,055	1,016	1,006
Reentrants	1,809	1,843	1,767	1,774	1,882	1,853	1,993	1,901	1,772	1,920	1,890	1,845	1,853	1,730	1,805
New entrants	816	677	757	713	692	696	726	723	643	648	685	695	686	640	680
PERCENT OF UNEMPLOYED															
Job losers	46.1	45.7	45.1	45.7	45.2	43.4	43.0	44.5	46.2	44.9	45.5	46.3	46.3	48.5	47.1
On layoff	12.7	13.0	12.3	12.9	12.8	12.5	12.4	12.6	13.5	13.0	11.9	14.5	14.3	15.7	14.6
Other job losers	33.4	32.7	32.8	32.8	32.3	30.9	30.6	31.8	32.7	31.8	33.6	31.8	32.0	32.7	32.4
Job leavers	14.7	15.7	15.4	14.5	15.2	17.1	15.6	15.5	16.1	15.8	15.2	15.7	15.8	15.5	15.3
Reentrants	27.0	28.2	27.7	28.4	29.0	28.7	30.4	29.0	27.6	29.4	28.9	27.6	27.7	26.3	27.4
New entrants	12.2	10.4	11.9	11.4	10.7	10.8	11.1	11.0	10.0	9.9	10.5	10.4	10.3	9.7	10.3
PERCENT OF CIVILIAN LABOR FORCE															
Job losers	2.5	2.4	2.3	2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.5
Job leavers	.8	.8	.8	.7	.8	.9	.8	.8	.8	.8	.8	.8	.8	.8	.8
Reentrants	1.5	1.5	1.4	1.4	1.5	1.5	1.6	1.5	1.4	1.5	1.5	1.5	1.5	1.4	1.4
New entrants	.7	.5	.6	.6	.6	.6	.6	.6	.5	.5	.6	.6	.6	.5	.5

10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

Weeks of unemployment	Annual average		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Less than 5 weeks	3,084	3,174	3,212	3,072	3,113	3,070	3,279	3,156	3,125	3,169	3,166	3,258	3,302	3,119	3,159
5 to 14 weeks	2,007	1,978	1,894	1,849	2,006	1,993	2,006	1,965	2,002	2,030	1,995	1,991	2,013	2,012	2,079
15 weeks and over	1,610	1,375	1,300	1,335	1,391	1,331	1,295	1,461	1,338	1,359	1,378	1,422	1,362	1,430	1,369
15 to 26 weeks	801	730	660	672	667	711	684	838	759	769	743	765	730	777	731
27 weeks and over	809	646	640	663	724	620	611	623	579	590	635	657	632	653	638
Mean duration in weeks	13.5	11.9	12.3	12.4	12.6	11.9	11.2	11.9	11.4	11.5	11.7	11.6	11.5	12.1	11.7
Median duration in weeks	5.9	4.8	5.4	5.5	5.4	5.3	5.4	5.4	5.0	5.0	5.0	4.8	4.8	5.1	5.4

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

State	Jan. 1989	Jan. 1990	State	Jan. 1989	Jan. 1990
Alabama	8.5	6.7	Montana	7.3	6.1
Alaska	10.4	8.6	Nebraska	3.5	3.1
Arizona	5.7	4.4	Nevada	5.9	5.0
Arkansas	7.9	6.7	New Hampshire	2.9	4.5
California	5.4	5.5	New Jersey	4.6	5.2
Colorado	7.3	5.4	New Mexico	7.1	5.8
Connecticut	3.7	4.8	New York	5.6	5.5
Delaware	3.4	4.7	North Carolina	4.4	4.6
District of Columbia	5.3	4.9	North Dakota	5.8	4.9
Florida	5.9	5.8	Ohio	6.9	7.6
Georgia	5.6	5.5	Oklahoma	6.6	6.7
Hawaii	3.5	2.9	Oregon	6.3	5.9
Idaho	7.2	5.7	Pennsylvania	5.0	5.9
Illinois	6.4	6.9	Rhode Island	3.2	6.4
Indiana	5.1	5.8	South Carolina	4.6	4.8
Iowa	4.9	5.0	South Dakota	4.8	4.3
Kansas	5.2	4.4	Tennessee	6.5	5.4
Kentucky	8.1	6.7	Texas	7.6	5.8
Louisiana	11.9	7.2	Utah	4.4	4.4
Maine	4.6	5.1	Vermont	3.3	4.4
Maryland	4.0	4.1	Virginia	4.3	4.6
Massachusetts	3.8	5.0	Washington	6.9	6.4
Michigan	7.8	9.4	West Virginia	8.4	9.1
Minnesota	5.1	4.3	Wisconsin	4.7	5.8
Mississippi	9.4	7.9			
Missouri	6.5	6.9	Wyoming	7.9	6.7

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	Jan. 1989	Dec. 1989	Jan. 1990[p]	State	Jan. 1989	Dec. 1989	Jan. 1990[p]
Alabama	1,561.7	1,603.1	1,590.2	Nebraska	687.2	716.9	705.1
Alaska	202.2	221.2	212.9	Nevada	545.7	606.3	598.4
Arizona	1,431.3	1,507.1	1,481.7	New Hampshire	526.7	524.0	510.4
Arkansas	860.5	906.0	889.0	New Jersey	3,638.2	3,754.9	3,654.5
California	12,256.5	12,804.5	12,547.7	New Mexico	543.5	570.2	557.7
Colorado	1,438.6	1,493.1	1,467.1	New York	8,101.4	8,390.2	8,157.5
Connecticut	1,660.1	1,701.6	1,668.3	North Carolina	2,997.7	3,129.1	3,081.4
Delaware	333.8	346.9	339.7	North Dakota	251.6	261.8	258.1
District of Columbia	668.4	693.1	680.9	Ohio	4,680.9	4,909.6	4,752.8
Florida	5,174.0	5,441.6	5,399.2	Oklahoma	1,134.5	1,169.2	–
Georgia	2,882.9	3,014.1	2,978.3	Oregon	1,159.5	1,230.1	1,203.1
Hawaii	488.5	518.0	510.3	Pennsylvania	5,014.3	5,169.5	5,059.3
Idaho	346.5	380.1	373.5	Rhode Island	453.9	463.4	453.0
Illinois	5,089.2	5,219.5	5,150.0	South Carolina	1,456.4	1,534.4	1,512.9
Indiana	2,401.4	2,514.8	2,457.5	South Dakota	262.8	277.4	270.3
Iowa	1,155.9	1,223.4	1,196.8	Tennessee	2,085.3	2,181.2	2,147.9
Kansas	1,034.1	1,088.2	1,072.5	Texas	6,688.5	6,904.7	6,853.0
Kentucky	1,387.1	1,462.2	1,437.4	Utah	664.4	713.7	694.2
Louisiana	1,492.6	1,528.9	1,512.9	Vermont	258.6	266.9	263.0
Maine	523.5	551.6	533.4	Virginia	2,779.0	2,913.4	2,867.3
Maryland	2,093.3	2,178.0	2,123.2	Washington	1,952.6	2,104.9	2,070.4
Massachusetts	3,076.2	3,145.2	3,042.8	West Virginia	600.7	621.0	610.3
Michigan	3,808.2	3,957.4	3,816.7	Wisconsin	2,152.9	2,262.0	2,209.7
Minnesota	2,019.1	2,126.7	2,084.4	Wyoming	182.4	193.8	189.9
Mississippi	898.4	936.9	919.8	Puerto Rico	819.5	–	–
Missouri	2,243.5	2,333.3	2,278.3	Virgin Islands	42.0	39.9	39.8
Montana	277.7	294.3	288.3				

– 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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]
TOTAL	105,584	108,581	107,711	107,888	108,101	108,310	108,607	108,767	108,887	109,096	109,171	109,452	109,570	109,902	110,274
PRIVATE SECTOR	88,212	90,854	90,124	90,291	90,475	90,623	90,884	91,016	91,083	91,230	91,328	91,622	91,699	91,991	92,335
GOODS-PRODUCING	25,249	25,634	25,629	25,646	25,671	25,672	25,648	25,669	25,694	25,614	25,603	25,609	25,532	25,513	25,664
Mining	721	722	711	714	720	722	715	706	729	730	731	737	739	746	747
Oil and gas extraction	406	404	394	397	400	401	402	404	405	408	409	414	416	419	420
Construction	5,125	5,300	5,270	5,252	5,279	5,283	5,283	5,314	5,321	5,325	5,335	5,355	5,304	5,408	5,468
General building contractors	1,368	1,391	1,398	1,380	1,377	1,388	1,384	1,391	1,403	1,396	1,386	1,391	1,388	1,423	1,435
Manufacturing	19,403	19,612	19,648	19,680	19,672	19,667	19,650	19,649	19,644	19,559	19,537	19,517	19,489	19,359	19,449
Production workers	13,254	13,375	13,426	13,442	13,430	13,426	13,400	13,410	13,401	13,319	13,307	13,276	13,262	13,133	13,227
Durable goods	11,437	11,536	11,594	11,604	11,600	11,594	11,567	11,549	11,551	11,480	11,457	11,439	11,409	11,288	11,394
Production workers	7,635	7,687	7,749	7,749	7,744	7,735	7,706	7,697	7,696	7,632	7,615	7,594	7,579	7,458	7,571
Lumber and wood products	765	770	778	777	772	771	769	767	763	759	764	765	765	770	765
Furniture and fixtures	530	531	534	535	537	534	534	536	529	528	525	525	523	522	522
Stone, clay, and glass products	600	603	608	607	606	604	603	602	601	597	600	602	600	601	603
Primary metal industries	774	783	786	788	788	787	787	785	786	777	776	772	771	766	770
Blast furnaces and basic steel products	277	274	276	276	275	276	276	277	276	273	271	269	270	270	269
Fabricated metal products	1,431	1,445	1,458	1,457	1,454	1,452	1,449	1,446	1,443	1,438	1,434	1,430	1,426	1,406	1,416
Machinery, except electrical	2,082	2,146	2,138	2,143	2,144	2,150	2,151	2,154	2,152	2,147	2,139	2,146	2,145	2,141	2,137
Electrical and electronic equipment	2,070	2,038	2,062	2,060	2,058	2,050	2,041	2,040	2,034	2,023	2,018	2,012	1,992	1,989	1,989
Transportation equipment	2,051	2,054	2,067	2,071	2,073	2,076	2,062	2,046	2,068	2,038	2,031	2,020	2,022	1,923	2,023
Motor vehicles and equipment	857	856	871	869	875	876	861	844	873	843	833	824	825	728	825
Instruments and related products	749	777	772	776	777	778	779	781	782	780	779	778	774	776	777
Miscellaneous manufacturing industries	386	391	391	390	391	392	392	392	393	393	391	389	391	394	392
Nondurable goods	7,967	8,076	8,054	8,076	8,072	8,073	8,083	8,100	8,093	8,079	8,080	8,078	8,080	8,071	8,055
Production workers	5,619	5,688	5,677	5,693	5,686	5,691	5,694	5,713	5,705	5,687	5,692	5,682	5,683	5,675	5,656
Food and kindred products	1,636	1,665	1,650	1,655	1,657	1,656	1,663	1,678	1,667	1,674	1,676	1,673	1,676	1,680	1,679
Tobacco manufactures	56	53	56	56	54	53	52	53	52	51	51	51	51	51	51
Textile mill products	729	726	728	729	728	728	729	730	727	723	724	721	719	719	714
Apparel and other textile products	1,092	1,092	1,096	1,101	1,098	1,095	1,093	1,094	1,095	1,088	1,084	1,084	1,081	1,073	1,063
Paper and allied products	693	697	696	697	696	697	697	701	700	697	697	697	697	695	694
Printing and publishing	1,561	1,607	1,595	1,600	1,601	1,603	1,607	1,609	1,611	1,612	1,612	1,617	1,621	1,624	1,627
Chemicals and allied products	1,065	1,093	1,085	1,088	1,090	1,094	1,096	1,091	1,097	1,095	1,096	1,098	1,103	1,104	1,107
Petroleum and coal products	162	163	161	161	162	162	163	163	163	163	164	164	163	163	164
Rubber and misc. plastics products	829	840	843	845	843	843	841	841	841	837	837	835	832	826	821
Leather and leather products	144	141	144	144	143	142	142	140	140	139	139	138	137	136	135
SERVICE-PRODUCING	80,335	82,947	82,082	82,242	82,430	82,638	82,959	83,098	83,193	83,482	83,568	83,843	84,038	84,389	84,610
Transportation and public utilities	5,548	5,705	5,667	5,666	5,682	5,700	5,716	5,736	5,618	5,709	5,729	5,753	5,834	5,855	5,876
Transportation	3,334	3,514	3,453	3,452	3,467	3,484	3,500	3,524	3,539	3,546	3,566	3,592	3,613	3,637	3,654
Communication and public utilities	2,214	2,190	2,214	2,214	2,215	2,216	2,216	2,212	2,079	2,163	2,163	2,161	2,221	2,218	2,222
Wholesale trade	6,029	6,234	6,171	6,197	6,206	6,222	6,230	6,237	6,256	6,264	6,278	6,300	6,311	6,331	6,325
Durable goods	3,561	3,696	3,657	3,676	3,676	3,685	3,693	3,700	3,708	3,717	3,721	3,737	3,746	3,754	3,756
Nondurable goods	2,467	2,539	2,514	2,521	2,530	2,537	2,537	2,537	2,548	2,547	2,557	2,563	2,565	2,577	2,569
Retail trade	19,110	19,575	19,460	19,488	19,489	19,528	19,551	19,586	19,621	19,632	19,679	19,744	19,718	19,831	19,848
General merchandise stores	2,461	2,483	2,481	2,490	2,492	2,491	2,493	2,482	2,484	2,486	2,478	2,492	2,470	2,491	2,498
Food stores	3,098	3,270	3,212	3,223	3,233	3,245	3,262	3,274	3,293	3,294	3,321	3,334	3,341	3,366	3,362
Automotive dealers and service stations	2,090	2,157	2,150	2,155	2,159	2,159	2,155	2,155	2,152	2,157	2,169	2,169	2,163	2,168	2,172
Eating and drinking places	6,282	6,370	6,332	6,322	6,335	6,348	6,362	6,370	6,385	6,397	6,403	6,417	6,432	6,459	6,467
Finance, insurance, and real estate	6,676	6,814	6,763	6,774	6,776	6,790	6,808	6,815	6,836	6,852	6,851	6,871	6,885	6,897	6,912
Finance	3,290	3,329	3,311	3,316	3,312	3,320	3,320	3,324	3,336	3,343	3,345	3,357	3,360	3,355	3,361
Insurance	2,082	2,128	2,116	2,117	2,119	2,123	2,129	2,131	2,137	2,137	2,134	2,138	2,144	2,154	2,159
Real estate	1,304	1,357	1,336	1,341	1,345	1,347	1,359	1,360	1,363	1,372	1,372	1,376	1,381	1,388	1,392
Services	25,600	26,892	26,434	26,520	26,651	26,711	26,931	26,973	27,058	27,159	27,188	27,345	27,419	27,564	27,710
Business services	5,571	5,789	5,729	5,736	5,760	5,776	5,799	5,786	5,800	5,836	5,827	5,852	5,852	5,886	5,902
Health services	7,144	7,635	7,442	7,488	7,528	7,570	7,616	7,648	7,695	7,739	7,778	7,839	7,884	7,935	7,982
Government	17,372	17,727	17,587	17,597	17,626	17,687	17,723	17,751	17,804	17,866	17,843	17,830	17,871	17,911	17,939
Federal	2,971	2,988	2,982	2,982	2,982	2,999	2,995	3,000	2,999	2,996	2,984	2,982	2,974	2,992	2,990
State	4,063	4,134	4,095	4,102	4,111	4,119	4,136	4,145	4,154	4,182	4,153	4,162	4,156	4,161	4,162
Local	10,339	10,606	10,510	10,513	10,533	10,569	10,592	10,606	10,651	10,688	10,706	10,686	10,741	10,758	10,787

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]
PRIVATE SECTOR	34.7	34.7	34.6	34.7	34.9	34.6	34.6	34.8	34.6	34.7	34.7	34.6	34.5	34.5	34.6
MANUFACTURING	41.1	41.0	41.1	41.0	41.3	41.0	41.0	41.0	41.0	41.0	40.8	40.7	40.6	40.7	40.7
Overtime hours	3.9	3.8	3.9	4.0	3.9	3.8	3.8	3.9	3.8	3.8	3.7	3.7	3.6	3.7	3.6
Durable goods	41.8	41.6	41.8	41.7	41.9	41.5	41.5	41.5	41.6	41.6	41.2	41.2	41.2	41.2	41.3
Overtime hours	4.1	3.9	4.1	4.1	4.1	3.9	3.9	4.0	3.9	3.9	3.8	3.7	3.6	3.7	3.6
Lumber and wood products	40.3	40.1	39.6	40.0	40.5	39.7	39.8	39.6	40.2	40.2	40.4	40.3	40.1	40.3	39.9
Furniture and fixtures	39.4	39.5	39.7	39.8	39.9	39.4	39.4	39.5	39.6	39.6	39.2	39.4	39.2	39.7	39.4
Stone, clay, and glass products	42.3	42.3	42.2	42.2	42.5	41.9	42.2	42.3	42.5	42.2	42.3	42.4	41.5	42.1	42.0
Primary metal industries	43.6	43.0	43.4	43.5	43.3	43.2	43.3	43.0	42.9	42.8	42.5	42.6	42.5	42.6	42.5
Blast furnaces and basic steel products	44.0	43.4	43.8	44.1	43.5	43.6	43.7	43.2	43.4	42.9	42.8	43.0	42.8	43.4	43.5
Fabricated metal products	41.9	41.6	41.9	41.8	41.9	41.7	41.5	41.5	41.5	41.6	41.5	41.4	41.2	41.2	41.2
Machinery except electrical	42.6	42.4	42.6	42.5	42.7	42.5	42.5	42.4	42.2	42.3	42.0	42.1	42.0	42.1	42.2
Electrical and electronic equipment	41.0	40.8	40.9	40.6	41.0	40.7	40.7	40.6	40.9	41.1	40.9	40.8	40.5	40.7	41.0
Transportation equipment	42.7	42.4	43.1	43.1	42.8	42.5	42.5	42.6	42.7	42.8	41.2	40.9	41.9	41.4	41.8
Motor vehicles and equipment	43.5	43.1	43.9	43.9	43.3	42.8	42.7	42.6	43.0	43.4	42.9	42.3	42.2	41.0	41.6
Instruments and related products	41.5	41.2	41.5	41.1	41.5	41.1	41.3	41.4	41.1	41.0	41.1	41.0	40.9	41.2	41.0
Miscellaneous manufacturing	39.2	39.4	39.5	39.5	39.8	39.6	39.4	39.3	39.4	39.2	39.3	39.7	39.3	39.3	39.4
Nondurable goods	40.1	40.2	40.2	40.1	40.4	40.2	40.3	40.2	40.2	40.2	40.2	40.1	39.9	39.9	39.9
Overtime hours	3.7	3.7	3.7	3.8	3.8	3.7	3.6	3.8	3.6	3.7	3.7	3.6	3.6	3.6	3.5
Food and kindred products	40.3	40.7	40.3	40.4	40.7	40.5	40.7	41.0	40.8	41.0	40.8	40.8	40.6	40.5	40.4
Textile mill products	41.1	41.0	40.8	41.1	41.7	41.4	41.4	41.2	41.0	40.6	40.7	40.5	40.2	40.5	40.0
Apparel and other textile products	37.0	37.0	37.1	36.9	37.6	37.1	37.1	37.0	37.0	37.0	36.9	36.8	36.3	36.6	36.6
Paper and allied products	43.2	43.3	43.2	43.3	43.4	43.3	43.3	43.2	43.5	43.2	43.4	43.4	43.1	43.1	42.9
Printing and publishing	38.0	37.8	38.0	37.9	37.9	37.7	37.8	37.6	37.7	37.9	37.8	37.9	37.6	37.8	37.9
Chemicals and allied products	42.3	42.4	42.3	42.3	42.6	42.1	42.5	42.5	42.4	42.5	42.4	42.3	42.7	42.5	42.1
Rubber and miscellaneous plastics products	41.7	41.5	41.7	41.6	41.6	41.5	41.5	41.4	41.5	41.5	41.4	41.2	40.8	40.8	41.1
Leather and leather products	37.5	37.9	38.6	38.0	38.3	37.4	37.9	37.7	38.1	38.1	37.7	37.5	37.2	37.4	38.0
TRANSPORTATION AND PUBLIC UTILITIES	39.3	39.4	39.4	39.4	40.1	39.5	39.4	39.4	39.0	39.3	39.3	39.1	39.3	39.1	39.4
WHOLESALE TRADE	37.4	37.4	38.1	38.1	38.3	37.9	38.0	38.1	38.0	38.1	38.1	38.1	38.0	38.0	38.0
RETAIL TRADE	29.1	28.9	28.9	28.9	29.1	28.9	28.9	29.2	28.8	28.8	29.0	28.8	28.7	28.8	28.9
SERVICES	32.6	32.6	32.5	32.6	32.8	32.5	32.5	32.8	32.6	32.7	32.8	32.6	32.6	32.5	32.6

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]
PRIVATE SECTOR (in current dollars)[1]	$9.29	$9.66	$9.52	$9.54	$9.61	$9.60	$9.62	$9.69	$9.69	$9.74	$9.78	$9.78	$9.83	$9.82	$9.87
Construction	13.01	13.37	13.22	13.26	13.33	13.32	13.32	13.42	13.37	13.39	13.44	13.52	13.60	13.33	13.42
Manufacturing	10.18	10.47	10.37	10.40	10.40	10.42	10.45	10.48	10.52	10.55	10.55	10.57	10.61	10.55	10.68
Excluding overtime	9.72	10.01	9.89	9.92	9.92	9.97	9.99	10.01	10.05	10.08	10.08	10.11	10.15	10.10	10.23
Transportation and public utilities	12.32	12.57	12.48	12.50	12.52	12.54	12.54	12.61	12.57	12.67	12.68	12.61	12.71	12.75	12.74
Wholesale trade	9.94	10.38	10.18	10.21	10.36	10.28	10.33	10.44	10.39	10.47	10.54	10.54	10.59	10.55	10.58
Retail trade	6.31	6.54	6.45	6.47	6.51	6.49	6.52	6.54	6.57	6.58	6.61	6.61	6.65	6.69	6.72
Finance, insurance, and real estate	9.09	9.57	9.35	9.36	9.54	9.45	9.53	9.68	9.57	9.66	9.77	9.67	9.79	9.76	9.72
Services	8.91	9.39	9.19	9.24	9.32	9.33	9.34	9.46	9.43	9.49	9.58	9.54	9.62	9.62	9.65
PRIVATE SECTOR (in constant (1977) dollars)[1]	4.84	4.80	4.81	4.80	4.80	4.77	4.77	4.79	4.80	4.81	4.81	4.79	4.80	4.74	–

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]
PRIVATE SECTOR	$9.29	$9.66	$9.55	$9.56	$9.62	$9.59	$9.58	$9.63	$9.61	$9.77	$9.81	$9.81	$9.84	$9.87	$9.90
MINING	12.75	13.14	13.22	13.15	13.19	13.13	13.03	12.95	13.11	13.15	13.10	13.13	13.31	13.27	13.33
CONSTRUCTION	13.01	13.37	13.21	13.26	13.30	13.28	13.24	13.33	13.33	13.48	13.52	13.51	13.64	13.41	13.41
MANUFACTURING	10.18	10.47	10.38	10.41	10.41	10.42	10.44	10.47	10.44	10.55	10.52	10.58	10.67	10.59	10.69
Durable goods	10.71	11.00	10.91	10.93	10.93	10.94	10.98	10.99	10.98	11.10	11.06	11.10	11.18	11.06	11.20
Lumber and wood products	8.61	8.86	8.69	8.68	8.76	8.79	8.85	8.92	8.93	8.98	8.99	8.99	9.00	8.96	9.02
Furniture and fixtures	7.94	8.25	8.08	8.13	8.12	8.16	8.23	8.26	8.29	8.40	8.39	8.40	8.42	8.46	8.39
Stone, clay, and glass products	10.47	10.74	10.62	10.62	10.71	10.69	10.73	10.75	10.77	10.79	10.82	10.87	10.88	10.87	10.84
Primary metal industries	12.15	12.36	12.27	12.27	12.26	12.25	12.32	12.40	12.36	12.47	12.43	12.51	12.52	12.54	12.66
Blast furnaces and basic steel products	13.97	14.23	14.13	14.13	14.06	14.06	14.18	14.33	14.27	14.38	14.40	14.48	14.40	14.50	14.63
Fabricated metal products	10.26	10.53	10.46	10.47	10.48	10.49	10.51	10.53	10.50	10.64	10.57	10.61	10.69	10.55	10.65
Machinery, except electrical	11.01	11.34	11.23	11.25	11.26	11.29	11.32	11.35	11.32	11.41	11.43	11.48	11.57	11.50	11.51
Electrical and electronic equipment	10.13	10.38	10.26	10.30	10.31	10.33	10.37	10.41	10.40	10.47	10.43	10.47	10.52	10.51	10.56
Transportation equipment	13.31	13.70	13.59	13.65	13.60	13.58	13.65	13.61	13.70	13.89	13.84	13.85	13.93	13.59	13.98
Motor vehicles and equipment	14.00	14.28	14.19	14.28	14.20	14.17	14.22	14.07	14.18	14.48	14.45	14.46	14.49	13.79	14.49
Instruments and related products	9.98	10.26	10.14	10.17	10.17	10.17	10.25	10.31	10.29	10.32	10.35	10.36	10.49	10.53	10.54
Miscellaneous manufacturing	8.01	8.31	8.23	8.23	8.21	8.24	8.24	8.29	8.20	8.39	8.38	8.49	8.60	8.59	8.60
Nondurable goods	9.43	9.74	9.62	9.66	9.65	9.68	9.70	9.77	9.71	9.80	9.80	9.86	9.95	9.96	9.98
Food and kindred products	9.10	9.33	9.26	9.33	9.32	9.34	9.37	9.35	9.28	9.32	9.27	9.38	9.50	9.48	9.50
Tobacco manufactures	14.68	15.37	14.75	15.34	15.87	16.13	16.48	16.34	15.72	14.69	14.91	15.01	15.31	15.64	15.57
Textile mill products	7.37	7.68	7.59	7.59	7.60	7.62	7.65	7.66	7.69	7.76	7.77	7.82	7.87	7.92	7.94
Apparel and other textile products	6.12	6.35	6.32	6.34	6.32	6.32	6.33	6.28	6.32	6.41	6.39	6.42	6.45	6.41	6.45
Paper and allied products	11.65	11.93	11.80	11.84	11.83	11.89	11.91	12.04	11.90	11.99	11.97	12.08	12.14	12.16	12.16
Printing and publishing	10.52	10.87	10.74	10.79	10.73	10.76	10.75	10.83	10.89	11.05	11.04	11.05	11.07	11.10	11.13
Chemicals and allied products	12.67	13.06	12.88	12.91	12.92	12.98	12.98	13.12	13.08	13.18	13.25	13.26	13.31	13.32	13.24
Petroleum and coal products	14.98	15.44	15.45	15.46	15.50	15.34	15.23	15.34	15.23	15.43	15.63	15.64	15.76	15.90	16.26
Rubber and miscellaneous plastics products	9.14	9.42	9.31	9.33	9.35	9.40	9.41	9.45	9.44	9.46	9.47	9.50	9.58	9.61	9.63
Leather and leather products	6.27	6.58	6.49	6.54	6.55	6.58	6.59	6.54	6.53	6.63	6.64	6.67	6.73	6.81	6.81
TRANSPORTATION AND PUBLIC UTILITIES	12.32	12.57	12.50	12.46	12.51	12.49	12.48	12.58	12.56	12.70	12.69	12.67	12.76	12.76	12.77
WHOLESALE TRADE	9.94	10.38	10.23	10.21	10.36	10.28	10.31	10.40	10.35	10.47	10.50	10.55	10.62	10.59	10.62
RETAIL TRADE	6.31	6.54	6.47	6.48	6.52	6.49	6.49	6.49	6.50	6.61	6.62	6.64	6.66	6.74	6.74
FINANCE, INSURANCE, AND REAL ESTATE	9.09	9.57	9.47	9.43	9.59	9.48	9.48	9.59	9.50	9.62	9.71	9.69	9.76	9.83	9.84
SERVICES	8.91	9.39	9.28	9.29	9.34	9.30	9.26	9.33	9.29	9.49	9.59	9.61	9.69	9.73	9.75

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]
PRIVATE SECTOR															
Current dollars	$322.36	$335.20	$327.57	$328.86	$334.78	$330.86	$333.38	$338.01	$335.39	$339.02	$341.39	$338.45	$341.45	$337.55	$339.57
Seasonally adjusted	–	–	329.39	331.04	335.39	332.16	332.85	337.21	335.27	337.98	339.37	338.39	339.14	338.79	341.50
Constant (1977) dollars	167.81	166.52	165.94	165.76	167.39	164.53	165.37	167.08	165.79	167.00	167.43	165.66	166.89	163.30	–
MINING	539.33	562.39	551.27	552.30	564.53	551.46	555.08	550.38	566.35	574.66	575.09	572.47	581.65	573.26	573.19
CONSTRUCTION	493.08	506.72	478.20	495.92	504.07	500.66	503.12	518.54	519.87	520.33	529.98	514.73	504.68	504.22	498.85
MANUFACTURING															
Current dollars	418.40	429.27	423.50	426.81	426.81	426.18	429.08	424.04	425.95	434.66	430.27	434.84	440.67	429.95	431.88
Constant (1977) dollars	217.80	213.25	214.54	215.13	213.41	211.92	212.84	209.61	210.55	214.12	211.02	212.84	215.38	208.01	–
Durable goods	447.68	457.60	452.77	455.78	455.78	454.01	457.87	449.49	453.47	462.87	457.88	460.65	468.44	455.67	460.32
Lumber and wood products	346.98	355.29	338.91	345.46	354.78	352.48	357.54	352.34	360.77	362.79	364.99	360.50	361.80	355.71	355.39
Furniture and fixtures	312.84	325.88	315.93	321.95	319.12	318.24	324.26	320.49	329.94	336.84	334.76	334.32	339.33	332.48	325.53
Stone, clay, and glass products	442.88	454.30	436.48	444.98	456.25	453.26	457.10	456.88	460.96	459.65	464.18	461.98	450.43	447.84	443.36
Primary metal industries	529.74	531.48	532.52	533.75	529.63	527.98	533.46	528.24	525.30	534.96	527.03	535.43	539.61	535.46	538.05
Blast furnaces and basic steel products	614.68	617.58	617.48	621.72	613.02	613.02	622.50	619.06	613.61	619.78	612.00	622.64	622.08	629.30	634.94
Fabricated metal products	429.89	438.05	435.14	436.60	437.02	435.34	438.27	428.57	432.60	443.69	439.71	443.50	450.05	435.72	436.65
Machinery, except electrical	469.03	480.82	477.28	479.25	478.55	477.57	482.23	475.57	472.04	482.64	480.06	486.75	497.51	485.30	484.57
Electrical and electronic equipment	415.33	423.50	416.56	417.15	419.62	417.33	423.10	416.40	423.28	430.32	427.63	431.36	436.58	429.86	429.79
Transportation equipment	568.34	580.88	584.37	591.05	584.80	579.87	581.49	566.18	572.66	594.49	571.59	573.39	593.42	563.99	584.36
Motor vehicles and equipment	609.00	615.47	621.52	631.18	620.54	613.56	611.46	582.50	589.89	628.43	621.35	620.33	621.62	565.39	602.78
Instruments and related products	414.17	422.71	420.81	419.00	420.02	414.94	423.33	420.65	419.83	423.12	425.39	428.90	438.48	434.89	432.14
Miscellaneous manufacturing	313.99	327.41	322.62	324.26	325.12	324.66	324.66	319.99	321.44	329.73	332.69	341.30	344.00	335.87	336.26
Nondurable goods	378.14	391.55	382.88	385.43	386.97	387.20	390.91	390.80	391.31	396.90	394.94	398.34	401.98	396.41	394.21
Food and kindred products	366.73	379.73	366.70	372.27	372.80	377.34	381.36	382.42	382.34	386.78	381.00	386.46	391.40	382.04	377.15
Tobacco manufactures	584.26	593.28	557.55	556.84	604.65	637.14	660.85	619.29	586.36	592.01	599.38	585.39	583.31	588.06	580.76
Textile mill products	302.91	314.88	307.40	311.19	313.12	313.94	318.24	311.00	317.60	318.16	317.79	319.84	319.52	318.38	315.22
Apparel and other textile products	226.44	234.95	233.21	233.95	234.47	233.84	236.74	230.48	234.47	237.17	237.07	238.18	236.72	232.68	234.78
Paper and allied products	503.28	516.57	506.22	509.12	509.87	512.46	514.51	516.52	514.08	523.96	520.70	527.90	532.95	524.10	518.02
Printing and publishing	399.76	410.89	404.90	408.94	405.59	402.42	402.05	405.04	411.64	423.22	418.42	421.01	422.87	416.25	419.60
Chemicals and allied products	535.94	553.74	544.82	546.09	549.10	546.46	551.65	553.66	550.67	560.15	560.48	564.88	576.32	566.10	556.08
Petroleum and coal products	665.11	683.99	679.80	667.87	686.65	673.43	679.26	679.56	665.55	685.09	704.91	699.11	715.50	688.47	715.44
Rubber and miscellaneous plastics products	381.14	390.93	387.30	387.20	388.03	390.10	391.46	385.56	388.93	392.59	393.01	394.25	397.57	394.01	394.83
Leather and leather products	235.13	249.38	245.32	244.60	247.59	247.41	255.03	247.21	250.75	252.60	251.66	250.13	253.72	253.33	254.01
TRANSPORTATION AND PUBLIC UTILITIES	484.18	495.26	488.75	488.43	497.90	490.86	494.21	500.68	494.86	500.38	499.99	495.40	501.47	495.09	499.31
WHOLESALE TRADE	378.71	395.48	386.69	386.96	395.75	389.61	392.81	398.32	394.34	398.91	402.15	401.96	405.68	400.30	400.37
RETAIL TRADE	183.62	189.01	183.10	184.68	188.43	186.91	189.51	194.05	192.40	191.03	191.32	189.90	194.47	189.39	190.74
FINANCE, INSURANCE, AND REAL ESTATE	326.33	343.56	339.03	337.59	348.12	337.49	339.38	348.12	340.10	343.43	350.53	345.93	348.43	350.93	353.26
SERVICES	290.47	306.11	300.67	301.00	306.35	301.32	302.80	308.82	305.64	309.37	314.55	313.29	314.93	315.25	316.88

– 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:												
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	47.9	55.3	60.9	51.9
1990	60.3	55.9	–	–	–	–	–	–	–	–	–	–
Over 3-month span:												
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	53.4	54.6	55.7	57.2	61.7
1990	58.2	–	–	–	–	–	–	–	–	–	–	–
Over 6-month span:												
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	57.9	57.7	60.2	53.4	59.0	58.2	–
1990	–	–	–	–	–	–	–	–	–	–	–	–
Over 12-month span:												
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	69.6	67.6	66.6	62.6	63.9	64.0	–	–	–	–
1990	–	–	–	–	–	–	–	–	–	–	–	–
	Manufacturing payrolls, 141 industries											
Over 1-month span:												
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	34.8	52.1	48.2	44.7
1990	46.5	46.1	–	–	–	–	–	–	–	–	–	–
Over 3-month span:												
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	34.0	41.8	41.5	46.5	42.9
1990	43.3	–	–	–	–	–	–	–	–	–	–	–
Over 6-month span:												
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	39.0	40.1	41.8	34.4	38.3	39.7	–
1990	–	–	–	–	–	–	–	–	–	–	–	–
Over 12-month span:												
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	57.1	53.5	49.6	42.9	43.6	42.6	–	–	–	–
1990	–	–	–	–	–	–	–	–	–	–	–	–

– 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	1981	1982	1983	1984	1985	1986	1987	1988	1989
Noninstitutional population	171,775	173,939	175,891	178,080	179,912	182,293	184,490	186,322	188,081
Labor force:									
Total (number)	110,315	111,872	113,226	115,241	117,167	119,540	121,602	123,378	125,557
Percent of population	64.2	64.3	64.4	64.7	65.1	65.6	65.9	66.2	66.8
Employed:									
Total (number)	102,042	101,194	102,510	106,702	108,856	111,303	114,177	116,677	119,030
Percent of population	59.4	58.2	58.3	59.9	60.5	61.1	61.9	62.6	63.3
Resident Armed Forces	1,645	1,668	1,676	1,697	1,706	1,706	1,737	1,709	1,688
Civilian									
Total	100,397	99,526	100,834	105,005	107,150	109,597	112,440	114,968	117,342
Agriculture	3,368	3,401	3,383	3,321	3,179	3,163	3,208	3,169	3,199
Nonagricultural industries	97,030	96,125	97,450	101,685	103,971	106,434	109,232	111,800	114,142
Unemployed:									
Total (number)	8,273	10,678	10,717	8,539	8,312	8,237	7,425	6,701	6,528
Percent of labor force	7.5	9.5	9.5	7.4	7.1	6.9	6.1	5.4	5.2
Not in labor force (number)	61,460	62,067	62,665	62,839	62,744	62,752	62,888	62,944	62,523

20. Annual data: Employment levels by industry

(Numbers in thousands)

Industry	1981	1982	1983	1984	1985	1986	1987	1988	1989
Total employment	91,156	89,566	90,200	94,496	97,519	99,525	102,200	105,584	108,581
Private sector	75,126	73,729	74,330	78,472	81,125	82,832	85,190	88,212	90,854
Goods-producing	25,497	23,813	23,334	24,727	24,859	24,558	24,708	25,249	25,634
Mining	1,139	1,128	952	966	927	777	717	721	722
Construction	4,188	3,905	3,948	4,383	4,673	4,816	4,967	5,125	5,300
Manufacturing	20,170	18,781	18,434	19,378	19,260	18,965	19,024	19,403	19,612
Service-producing	65,659	65,753	66,866	69,769	72,660	74,967	77,492	80,335	82,947
Transportation and public utilities	5,165	5,082	4,954	5,159	5,238	5,255	5,372	5,548	5,705
Wholesale trade	5,358	5,278	5,268	5,555	5,717	5,753	5,844	6,029	6,234
Retail trade	15,189	15,179	15,613	16,545	17,356	17,930	18,483	19,110	19,575
Finance, insurance, and real estate	5,298	5,341	5,468	5,689	5,955	6,283	6,547	6,676	6,814
Services	18,619	19,036	19,694	20,797	22,000	23,053	24,236	25,600	26,892
Government	16,031	15,837	15,869	16,024	16,394	16,693	17,010	17,372	17,727
Federal	2,772	2,739	2,774	2,807	2,875	2,899	2,943	2,971	2,988
State	3,640	3,640	3,662	3,734	3,832	3,893	3,967	4,063	4,134
Local	9,619	9,458	9,434	9,482	9,687	9,901	10,100	10,339	10,606

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	1981	1982	1983	1984	1985	1986	1987	1988	1989
Private sector:									
Average weekly hours	35.2	34.8	35.0	35.2	34.9	34.8	34.8	34.7	34.7
Average hourly earnings (in dollars)	7.25	7.68	8.02	8.32	8.57	8.76	8.98	9.29	9.66
Average weekly earnings (in dollars)	255.20	267.26	280.70	292.86	299.09	304.85	312.50	322.36	335.20
Mining:									
Average weekly hours	43.7	42.7	42.5	43.3	43.4	42.2	42.4	42.3	42.8
Average hourly earnings (in dollars)	10.04	10.77	11.28	11.63	11.98	12.46	12.54	12.75	13.14
Average weekly earnings (in dollars)	438.75	459.88	479.40	503.58	519.93	525.81	531.70	539.33	562.39
Construction:									
Average weekly hours	36.9	36.7	37.1	37.8	37.7	37.4	37.8	37.9	37.9
Average hourly earnings (in dollars)	10.82	11.63	11.94	12.13	12.32	12.48	12.71	13.01	13.37
Average weekly earnings (in dollars)	399.26	426.82	442.97	458.51	464.46	466.75	480.44	493.08	506.72
Manufacturing:									
Average weekly hours	39.8	38.9	40.1	40.7	40.5	40.7	41.0	41.1	41.0
Average hourly earnings (in dollars)	7.99	8.49	8.83	9.19	9.54	9.73	9.91	10.18	10.47
Average weekly earnings (in dollars)	318.00	330.26	354.08	374.03	386.37	396.01	406.31	418.40	429.27
Transportation and public utilities:									
Average weekly hours	39.4	39.0	39.0	39.4	39.5	39.2	39.2	39.3	39.4
Average hourly earnings (in dollars)	9.70	10.32	10.79	11.12	11.40	11.70	12.03	12.32	12.57
Average weekly earnings (in dollars)	382.18	402.48	420.81	438.13	450.30	458.64	471.58	484.18	495.26
Wholesale trade:									
Average weekly hours	38.5	38.3	38.5	38.5	38.4	38.3	38.1	38.1	38.1
Average hourly earnings (in dollars)	7.56	8.09	8.55	8.89	9.16	9.35	9.60	9.94	10.38
Average weekly earnings (in dollars)	291.06	309.85	329.18	342.27	351.74	358.11	365.76	378.71	395.48
Retail trade:									
Average weekly hours	30.1	29.9	29.8	29.8	29.4	29.2	29.2	29.1	28.9
Average hourly earnings (in dollars)	5.25	5.48	5.74	5.85	5.94	6.03	6.12	6.31	6.54
Average weekly earnings (in dollars)	158.03	163.85	171.05	174.33	174.64	176.08	178.70	183.62	189.01
Finance, insurance, and real estate:									
Average weekly hours	36.3	36.2	36.2	36.5	36.4	36.4	36.3	35.9	35.9
Average hourly earnings (in dollars)	6.31	6.78	7.29	7.63	7.94	8.36	8.73	9.09	9.57
Average weekly earnings (in dollars)	229.05	245.44	263.90	278.50	289.02	304.30	316.90	326.33	343.56
Services:									
Average weekly hours	32.6	32.6	32.7	32.6	32.5	32.5	32.5	32.6	32.6
Average hourly earnings (in dollars)	6.41	6.92	7.31	7.59	7.90	8.18	8.49	8.91	9.39
Average weekly earnings (in dollars)	208.97	225.59	239.04	247.43	256.75	265.85	275.93	290.47	306.11

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

(June 1981 = 100)

Series	1987	1988				1989				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1989	
Civilian workers [2]	138.6	140.6	142.1	144.0	145.5	147.3	148.9	151.3	152.8	1.0	5.0
Workers, by occupational group:											
White-collar workers	142.2	144.2	145.7	147.9	149.7	151.9	153.4	156.4	157.9	1.0	5.5
Blue-collar workers	132.5	134.7	136.2	137.2	138.2	139.6	141.3	142.9	144.1	.8	4.3
Service occupations	140.8	142.9	144.3	147.2	148.5	150.0	151.2	153.7	155.5	1.2	4.7
Workers, by industry division:											
Goods-producing	133.5	135.8	137.3	138.2	139.3	140.7	142.3	143.9	145.3	1.0	4.3
Manufacturing	134.1	136.8	138.1	139.0	140.1	141.9	143.5	145.1	146.4	.9	4.5
Service-producing	141.7	143.6	145.1	147.6	149.2	151.4	152.9	155.9	157.3	.9	5.4
Services	150.6	152.8	153.8	157.7	159.7	161.8	163.1	167.5	169.2	1.0	5.9
Health services	–	–	–	–	–	–	–	–	–	1.6	7.0
Hospitals	–	–	–	–	–	–	–	–	–	1.4	7.1
Public administration [3]	148.1	150.3	151.2	154.0	154.4	156.7	157.9	161.8	163.0	.7	5.6
Nonmanufacturing	140.5	142.3	143.9	146.1	147.7	149.7	151.2	154.0	155.5	1.0	5.3
Private industry workers	136.0	138.1	139.8	141.2	142.6	144.4	146.1	147.9	149.4	1.0	4.8
Excluding sales occupations	136.6	138.7	140.2	141.7	142.9	144.7	146.2	147.9	149.3	.9	4.5
Workers, by occupational group:											
White-collar workers	139.3	141.2	143.0	144.6	146.3	148.6	150.3	152.4	153.9	1.0	5.2
Excluding sales occupations	141.1	143.0	144.6	146.4	147.6	149.9	151.4	153.3	154.7	.9	4.8
Professional specialty and technical occupations	–	–	–	–	–	–	–	–	–	1.1	5.5
Executive, administrative, and managerial occupations	–	–	–	–	–	–	–	–	–	.6	3.8
Sales occupations	–	–	–	–	–	–	–	–	–	1.4	7.3
Administrative support occupations, including clerical	–	–	–	–	–	–	–	–	–	1.1	5.1
Blue-collar workers	131.8	134.1	135.6	136.5	137.6	138.9	140.6	142.2	143.3	.8	4.1
Precision production, craft, and repair occupations	–	–	–	–	–	–	–	–	–	.8	4.1
Machine operators, assemblers, and inspectors	–	–	–	–	–	–	–	–	–	.9	4.3
Transportation and material moving occupations	–	–	–	–	–	–	–	–	–	.2	3.2
Handlers, equipment cleaners, helpers, and laborers	–	–	–	–	–	–	–	–	–	.9	4.6
Service occupations	136.7	138.6	140.1	142.2	143.9	145.4	146.5	148.1	150.1	1.4	4.3
Workers, by industry division:											
Goods-producing	133.2	135.6	137.1	137.9	139.0	140.4	142.0	143.6	145.0	1.0	4.3
Excluding sales occupations	132.9	135.2	136.8	137.6	138.7	140.2	141.7	143.3	144.8	1.0	4.4
Construction	–	–	–	–	–	–	–	–	–	1.2	4.4
Manufacturing	134.1	136.8	138.1	139.0	140.1	141.9	143.5	145.1	146.4	.9	4.5
Durables	–	–	–	–	–	–	–	–	–	1.1	4.5
Nondurables	–	–	–	–	–	–	–	–	–	.7	4.5
Service-producing	138.4	140.2	142.1	143.8	145.5	147.7	149.5	151.5	152.9	.9	5.1
Excluding sales occupations	140.0	141.9	143.5	145.4	146.7	148.8	150.4	152.2	153.5	.9	4.6
Transportation and public utilities	–	–	–	–	–	–	–	–	–	.5	3.8
Transportation	–	–	–	–	–	–	–	–	–	.3	3.6
Public utilities	–	–	–	–	–	–	–	–	–	.7	4.0
Communications	–	–	–	–	–	–	–	–	–	.6	–
Electric, gas, and sanitary services	–	–	–	–	–	–	–	–	–	.7	–
Wholesale and retail trade	–	–	–	–	–	–	–	–	–	1.0	5.1
Excluding sales occupations	–	–	–	–	–	–	–	–	–	.7	3.9
Wholesale trade	–	–	–	–	–	–	–	–	–	1.9	8.8
Excluding sales occupations	–	–	–	–	–	–	–	–	–	.8	5.0
Retail trade	–	–	–	–	–	–	–	–	–	.5	3.4
Food stores	–	–	–	–	–	–	–	–	–	.9	–
Finance, insurance, and real estate	–	–	–	–	–	–	–	–	–	1.0	5.4
Excluding sales occupations	–	–	–	–	–	–	–	–	–	.9	4.1
Banking, savings and loan, and other credit agencies	–	–	–	–	–	–	–	–	–	.1	3.0
Insurance	–	–	–	–	–	–	–	–	–	1.1	–
Service	–	–	–	–	–	–	–	–	–	1.1	5.6
Business services	–	–	–	–	–	–	–	–	–	.6	4.3
Health services	–	–	–	–	–	–	–	–	–	1.8	7.0
Hospitals	–	–	–	–	–	–	–	–	–	1.5	7.1
Nonmanufacturing	137.1	138.9	140.8	142.4	143.9	145.9	147.6	149.5	151.0	1.0	4.9
State and local government workers	151.1	153.1	153.6	157.8	159.6	161.5	162.5	167.9	169.5	1.0	6.2
Workers, by occupational group:											
White-collar workers	152.7	154.8	155.2	159.6	161.8	163.7	164.6	170.5	172.1	.9	6.4
Blue-collar workers	144.3	145.9	145.9	148.4	149.1	151.9	153.0	156.2	158.6	1.5	6.4

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	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1989	
Workers, by industry division:											
Services	153.1	155.2	155.6	160.5	163.0	164.6	165.5	171.8	173.3	0.9	6.3
Hospitals and other services[4]	146.3	150.3	150.4	153.2	155.2	157.2	158.7	162.6	163.7	.7	5.5
Health services	–	–	–	–	–	–	–	–	–	1.1	7.1
Schools	155.5	156.8	157.3	163.1	165.7	167.2	167.8	175.1	176.7	.9	6.6
Elementary and secondary	157.8	158.9	159.4	165.4	168.3	169.3	169.9	177.7	179.2	.8	6.5
Public administration[3]	148.1	150.3	151.2	154.0	154.4	156.7	157.9	161.8	163.0	.7	5.6

[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	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1989	
Civilian workers [1]	136.1	137.4	138.7	140.5	141.9	143.4	144.6	146.9	148.1	0.8	4.4
Workers, by occupational group:											
White-collar workers	140.2	141.5	143.0	145.2	146.8	148.6	149.8	152.6	154.0	.9	4.9
Blue-collar workers	129.4	130.4	131.6	132.5	133.4	134.6	136.0	137.4	138.3	.7	3.7
Service occupations	136.6	138.0	139.3	141.8	142.9	143.9	144.8	146.8	148.4	1.1	3.8
Workers, by industry division:											
Goods-producing	131.0	132.2	133.4	134.1	135.1	136.3	137.7	139.0	140.3	.9	3.8
Manufacturing	132.2	133.3	134.4	135.1	136.2	137.4	138.8	140.0	141.5	1.1	3.9
Service-producing	139.2	140.5	141.9	144.2	145.8	147.5	148.7	151.4	152.7	.9	4.7
Services	148.2	149.5	150.4	154.0	155.7	157.4	158.4	162.4	163.6	.7	5.1
Health services	–	–	–	–	–	–	–	–	–	1.5	6.3
Hospitals	–	–	–	–	–	–	–	–	–	1.3	6.4
Public administration [2]	143.8	145.5	146.4	148.9	149.4	150.9	151.8	155.0	156.0	.6	4.4
Nonmanufacturing	137.8	139.0	140.5	142.7	144.1	145.8	147.0	149.6	150.8	.8	4.6
Private industry workers	133.8	135.1	136.6	137.9	139.3	140.8	142.2	143.9	145.1	.8	4.2
Excluding sales occupations	134.7	135.9	137.2	138.6	139.7	141.2	142.5	144.0	145.2	.8	3.9
Workers, by occupational group:											
White-collar workers	137.6	139.0	140.8	142.4	144.0	145.9	147.3	149.3	150.8	1.0	4.7
Excluding sales occupations	140.1	141.5	142.9	144.7	146.0	147.8	149.0	150.8	152.1	.9	4.2
Professional specialty and technical occupations	142.6	144.0	145.8	148.1	148.9	151.0	152.1	154.6	155.9	.8	4.7
Executive, administrative, and managerial occupations	139.2	139.9	141.3	142.5	144.4	146.2	147.3	148.5	149.5	.7	3.5
Sales occupations	126.1	127.5	130.8	131.5	134.4	136.7	138.7	141.6	143.8	1.6	7.0
Administrative support occupations, including clerical	138.1	140.2	141.2	143.2	144.1	146.0	147.4	149.0	150.6	1.1	4.5
Blue-collar workers	128.9	129.9	131.1	131.9	132.9	134.0	135.4	136.7	137.6	.7	3.5
Precision production, craft, and repair occupations	131.1	132.1	133.4	134.0	134.9	136.1	137.8	139.2	140.0	.6	3.8
Machine operators, assemblers, and inspectors	129.2	129.9	131.2	131.9	133.3	134.5	135.9	136.7	138.1	1.0	3.6
Transportation and material moving occupations	122.9	123.7	125.4	126.7	126.9	127.8	128.7	130.2	130.2	.0	2.6
Handlers, equipment cleaners, helpers, and laborers	125.0	126.7	127.5	128.4	129.3	130.4	131.6	133.0	134.2	.9	3.8
Service occupations	133.2	134.5	135.8	137.6	139.1	140.0	140.9	142.1	144.1	1.4	3.6
Workers, by industry division:											
Goods-producing	130.8	132.0	133.2	133.9	134.9	136.1	137.4	138.8	140.1	.9	3.9
Excluding sales occupations	130.8	131.8	133.2	133.8	134.9	136.1	137.4	138.8	140.1	.9	3.9
Construction	124.7	125.9	127.6	128.6	129.4	130.4	131.6	133.0	133.9	.7	3.5

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	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1989	
Manufacturing	132.2	133.3	134.4	135.1	136.2	137.4	138.8	140.0	141.5	1.1	3.9
Durables	131.1	132.1	133.1	133.7	134.6	135.9	137.3	138.3	139.9	1.2	3.9
Nondurables	134.1	135.6	136.7	137.6	139.1	140.2	141.6	143.1	144.2	.8	3.7
Service-producing	136.2	137.5	139.3	141.0	142.6	144.5	145.8	147.8	149.0	.8	4.5
Excluding sales occupations	138.1	139.4	140.8	142.7	143.9	145.7	146.9	148.6	149.6	.7	4.0
Transportation and public utilities	130.2	131.3	132.5	133.5	133.4	134.6	135.3	136.3	136.9	.4	2.6
Transportation	–	–	–	–	–	–	–	–	–	.2	2.1
Public utilities	–	–	–	–	–	–	–	–	–	.7	3.2
Communications	–	–	–	–	–	–	–	–	–	.7	–
Electric, gas, and sanitary services	–	–	–	–	–	–	–	–	–	.7	–
Wholesale and retail trade	130.7	131.9	134.6	136.0	136.9	138.6	139.9	142.1	143.7	1.1	5.0
Excluding sales occupations	132.3	133.4	135.2	136.5	137.8	139.2	140.0	141.6	142.6	.7	3.5
Wholesale trade	138.5	139.0	141.7	143.2	143.6	147.5	149.0	153.2	156.7	2.3	9.1
Excluding sales occupations	136.0	136.8	138.2	139.6	140.4	141.8	142.9	145.3	146.5	.8	4.3
Retail trade	127.7	129.2	131.7	133.2	134.3	135.1	136.3	137.7	138.5	.6	3.1
Food stores	–	–	–	–	–	–	–	–	–	1.3	–
Finance, insurance, and real estate	131.6	132.9	134.9	134.9	139.9	142.7	145.2	146.0	147.1	.8	5.1
Excluding sales occupations	131.6	132.9	134.9	134.9	139.9	142.7	145.2	146.0	147.1	.8	5.1
Banking, savings and loan, and other credit agencies	–	–	–	–	–	–	–	–	–	–.3	3.2
Insurance	–	–	–	–	–	–	–	–	–	1.2	–
Services	147.1	148.6	149.8	152.9	154.4	156.4	157.8	160.4	161.8	.9	4.8
Business services	–	–	–	–	–	–	–	–	–	.3	3.9
Health services	–	–	–	–	–	–	–	–	–	1.6	6.4
Hospitals	–	–	–	–	–	–	–	–	–	1.3	6.6
Nonmanufacturing	134.8	136.0	137.8	139.4	140.8	142.6	143.9	145.9	147.0	.8	4.4
State and local government workers	147.4	148.7	149.1	153.0	154.5	155.8	156.6	161.4	162.7	.8	5.3
Workers, by occupational group:											
White-collar workers	149.3	150.5	150.8	154.9	156.8	158.0	158.7	164.1	165.3	.7	5.4
Blue-collar workers	139.6	141.1	141.1	143.5	144.1	146.1	146.8	149.6	151.6	1.3	5.2
Workers, by industry division:											
Services	149.5	150.7	151.1	155.6	157.6	158.6	159.3	165.0	166.2	.7	5.5
Hospitals and other services [3]	142.2	144.5	144.7	147.4	148.7	150.2	151.5	155.3	156.1	.5	5.0
Health services	–	–	–	–	–	–	–	–	–	.9	6.1
Schools	151.8	152.6	153.0	158.0	160.3	161.2	161.7	168.1	169.3	.7	5.6
Elementary and secondary	153.4	154.0	154.3	159.7	162.1	162.8	163.3	170.2	171.3	.6	5.7
Public administration [2]	143.8	145.5	146.4	148.9	149.4	150.9	151.8	155.0	156.0	.6	4.4

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

24. Employment Cost Index, benefits, private industry workers by occupation and industry group

(June 1981 = 100)

Series	1987	1988				1989				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1989	
Private industry workers	141.7	146.1	148.2	149.7	151.3	154.0	156.5	158.7	160.6	1.2	6.1
Workers, by occupational group:											
White-collar workers	143.7	147.3	149.3	150.9	152.7	156.1	158.8	161.1	163.0	1.2	6.7
Blue-collar workers	138.7	144.1	146.3	147.5	148.9	150.7	152.9	155.1	156.8	1.1	5.3
Workers, by industry group:											
Goods-producing	138.8	144.1	146.1	147.3	148.6	150.7	152.7	155.0	156.7	1.1	5.5
Service-producing	144.4	148.1	150.1	151.9	153.9	157.2	160.1	162.3	164.2	1.2	6.7
Manufacturing	138.4	144.5	146.4	147.8	149.0	152.3	154.2	156.6	157.8	.8	5.9
Nonmanufacturing	143.8	147.2	149.3	150.9	152.9	155.2	158.0	160.2	162.4	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	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1989	
COMPENSATION											
Workers, by bargaining status[1]											
Union	133.4	135.6	136.9	137.9	138.6	139.7	141.1	142.3	143.7	1.0	3.7
Goods-producing	131.3	134.1	135.3	136.2	137.2	137.9	139.4	140.6	142.0	1.0	3.5
Service-producing	136.7	138.0	139.4	140.5	140.9	142.6	143.9	145.1	146.3	.8	3.8
Manufacturing	131.5	135.0	136.2	137.0	138.2	139.9	141.3	142.5	144.1	1.1	4.3
Nonmanufacturing	135.1	136.2	137.5	138.6	138.9	139.5	141.0	142.1	143.3	.8	3.2
Nonunion	136.9	138.9	140.7	142.2	143.9	146.0	147.7	149.8	151.2	.9	5.1
Goods-producing	134.1	136.2	137.8	138.7	139.9	141.6	143.2	145.0	146.5	1.0	4.7
Service-producing	138.6	140.5	142.5	144.4	146.3	148.6	150.5	152.7	154.1	.9	5.3
Manufacturing	135.6	137.8	139.2	140.1	141.3	143.1	144.8	146.5	147.8	.9	4.6
Nonmanufacturing	137.5	139.4	141.5	143.2	145.0	147.3	149.1	151.2	152.7	1.0	5.3
Workers, by region [1]											
Northeast	141.9	143.7	145.9	147.8	150.4	153.5	155.5	158.3	160.0	1.1	6.4
South	135.4	137.1	139.3	140.4	141.3	142.7	144.1	145.8	147.3	1.0	4.2
Midwest (formerly North Central)	131.7	134.4	135.5	136.7	138.0	139.3	140.9	142.3	143.6	.9	4.1
West	136.3	138.3	139.5	140.6	141.5	143.2	144.9	146.4	147.5	.8	4.2
Workers, by area size [1]											
Metropolitan areas	136.7	138.9	140.5	142.0	143.6	145.6	147.4	149.4	150.7	.9	4.9
Other areas	132.0	133.6	135.5	136.2	136.8	137.5	138.3	139.4	141.1	1.2	3.1
WAGES AND SALARIES											
Workers, by bargaining status [1]											
Union	130.5	131.0	132.0	132.9	133.4	134.3	135.4	136.2	137.6	1.0	3.1
Goods-producing	128.5	128.7	129.7	130.4	131.2	132.0	133.4	134.2	135.6	1.0	3.4
Service-producing	133.6	134.4	135.4	136.7	136.8	137.8	138.4	139.3	140.7	1.0	2.9
Manufacturing	129.3	129.6	130.4	131.0	132.1	133.0	134.4	135.1	136.7	1.2	3.5
Nonmanufacturing	131.5	132.1	133.3	134.5	134.6	135.4	136.2	137.1	138.3	.9	2.7
Nonunion	135.0	136.4	138.1	139.5	141.1	142.9	144.4	146.3	147.5	.8	4.5
Goods-producing	132.1	133.6	135.0	135.7	136.8	138.2	139.5	141.1	142.4	.9	4.1
Service-producing	136.7	138.0	140.0	141.8	143.6	145.6	147.2	149.3	150.5	.8	4.8
Manufacturing	133.9	135.5	136.7	137.4	138.6	139.9	141.4	142.8	144.2	1.0	4.0
Nonmanufacturing	135.4	136.8	138.8	140.4	142.2	144.1	145.6	147.7	148.9	.8	4.7
Workers, by region [1]											
Northeast	139.7	140.9	142.9	144.6	147.3	150.1	152.0	154.7	156.4	1.1	6.2
South	133.0	134.0	136.1	137.1	137.8	138.9	140.0	141.7	142.9	.8	3.7
Midwest (formerly North Central)	129.9	131.3	132.1	133.3	134.5	135.6	136.9	138.0	139.1	.8	3.4
West	133.5	134.9	136.0	137.4	138.1	139.4	140.7	141.8	142.7	.6	3.3
Workers, by area size[1]											
Metropolitan areas	134.6	135.8	137.3	138.7	140.2	141.9	143.4	145.2	146.4	.8	4.4
Other areas	129.8	130.9	133.0	133.5	133.7	134.6	135.2	136.1	137.8	1.2	3.1

[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							
			1988				1989			
	1987	1988	I	II	III	IV	I	IIP	IIIP	IVP
Specified adjustments:										
Total compensation [1] adjustments, [2] settlements covering 5,000 workers or more:										
First year of contract	3.0	3.1	1.8	3.1	3.4	3.5	3.2	5.1	3.9	5.3
Annual rate over life of contract	2.6	2.5	1.8	2.4	3.2	2.1	3.1	3.4	2.7	4.3
Wage adjustments, settlements covering 1,000 workers or more:										
First year of contract	2.2	2.5	2.1	2.6	2.7	2.6	3.2	3.9	3.6	4.9
Annual rate over life of contract	2.1	2.4	2.3	2.2	2.8	2.2	3.1	3.3	3.0	4.0
Effective adjustments:										
Total effective wage adjustment [3]	3.1	2.6	.4	.9	.8	.5	.5	1.0	1.0	.7
From settlements reached in period	.7	.7	.1	.3	.2	.1	.1	.3	.4	.4
Deferred from settlements reached in earlier periods	1.8	1.3	.3	.5	.4	.2	.3	.5	.4	.2
From cost-of-living-adjustments clauses	.5	.6	.1	.1	.2	.2	.1	.2	.2	.1

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

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

[3] Because of rounding, total may not equal sum of parts.

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--							
	1988				1989			
	I	II	III	IV	I	IIP	IIIP	IVP
Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:								
First year of contract	3.1	3.0	3.1	3.1	3.3	3.8	4.0	4.5
Annual rate over life of contract	2.5	2.3	2.5	2.5	2.6	3.0	2.8	3.4
Specified wage adjustments, settlements covering 1,000 workers or more:								
All industries:								
First year of contract	2.4	2.4	2.5	2.5	2.7	3.2	3.5	4.0
Contracts with COLA clauses	2.2	2.4	2.4	2.4	2.4	2.2	2.6	3.9
Contracts without COLA clauses	2.5	2.4	2.6	2.7	2.9	3.4	3.6	4.0
Annual rate over life of contract	2.2	2.0	2.2	2.4	2.5	2.9	3.0	3.4
Contracts with COLA clauses	1.4	1.5	1.5	1.8	1.8	1.8	2.0	2.8
Contracts without COLA clauses	2.7	2.5	2.8	2.8	2.9	3.2	3.2	3.5
Manufacturing:								
First year of contract	2.4	2.5	2.6	2.2	2.2	2.6	2.6	3.9
Contracts with COLA clauses	2.4	2.5	2.4	2.1	2.1	2.1	2.1	5.4
Contracts without COLA clauses	2.4	2.5	3.0	2.5	2.5	3.1	2.8	3.1
Annual rate over life of contract	1.5	1.6	1.9	2.1	2.2	2.4	2.5	3.2
Contracts with COLA clauses	1.0	1.3	1.4	1.8	1.8	1.7	1.7	3.5
Contracts without COLA clauses	2.7	2.5	3.1	2.6	2.8	3.1	2.9	3.0
Nonmanufacturing:								
First year of contract	2.3	2.3	2.4	2.8	3.0	3.5	3.8	4.0
Contracts with COLA clauses	1.6	2.2	2.4	2.9	2.9	3.0	3.0	3.2
Contracts without COLA clauses	2.5	2.4	2.5	2.7	3.0	3.5	3.9	4.2
Annual rate over life of contract	2.7	2.4	2.4	2.5	2.7	3.2	3.1	3.4
Contracts with COLA clauses	2.4	1.9	1.8	1.7	1.7	2.5	2.1	2.4
Contracts without COLA clauses	2.7	2.6	2.7	2.8	3.0	3.3	3.3	3.7
Construction:								
First year of contract	2.9	2.6	2.1	2.2	2.4	2.4	2.6	2.8
Contracts with COLA clauses	(1)	(2)	(2)	(2)	(2)	(1)	(1)	(1)
Contracts without COLA clauses	(1)	2.6	2.1	2.2	2.4	(1)	(1)	(1)
Annual rate over life of contract	3.1	2.7	2.4	2.6	2.7	2.9	2.9	3.0
Contracts with COLA clauses	(1)	(2)	(2)	(2)	(2)	(1)	(1)	(1)
Contracts without COLA clauses	(1)	2.7	2.4	2.6	2.7	(1)	(1)	(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			
	II	III	IV	I	II[p]	III[p]	IV[p]
For all workers:[1]							
Total	3.0	2.9	2.6	2.7	2.8	3.0	3.2
From settlements reached in period	1.0	1.0	.7	.8	.7	.9	1.2
Deferred from settlements reached in earlier period	1.6	1.4	1.3	1.3	1.3	1.3	1.3
From cost-of-living-adjustments clauses	.5	.5	.6	.6	.8	.8	.7
For workers receiving changes:							
Total	3.7	3.5	3.3	3.5	3.8	4.0	4.0
From settlements reached in period	2.9	2.9	3.1	3.2	3.5	3.7	4.2
Deferred from settlements reached in earlier period	3.3	3.0	3.0	3.2	3.2	3.4	3.4
From cost-of-living-adjustments clauses	2.3	2.5	2.7	2.9	3.2	3.8	3.3

[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	1989
Specified adjustments:			
Total compensation [1] adjustments, [2] settlements covering 5,000 workers or more:			
First year of contract	4.9	5.4	5.1
Annual rate over life of contract	4.8	5.3	4.9
Wage adjustments, settlements covering 1,000 workers or more:			
First year of contract	4.9	5.1	5.1
Annual rate over life of contract	5.1	5.3	5.1
Effective adjustments:			
Total effective wage adjustment [3]	4.9	4.7	5.1
From settlements reached in period	2.7	2.3	2.5
Deferred from settlements reached in earlier periods	2.2	2.4	2.6
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.

30. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.[p]	Oct.[p]	Nov.[p]	Dec.[p]	Jan.[p]	Feb.[p]
Number of stoppages:															
Beginning in period	40	51	0	3	6	8	2	6	6	6	5	5	1	3	3
In effect during period	43	52	3	5	10	14	7	12	13	12	13	14	9	9	7
Workers involved:															
Beginning in period (in thousands)	118.3	452.1	.0	31.5	8.7	56.1	3.3	45.7	203.0	14.5	68.9	8.0	5.0	4.5	18.0
In effect during period (in thousands)	121.9	454.1	7.2	37.7	45.2	95.2	46.3	88.8	239.8	108.7	171.1	169.1	104.1	20.3	31.4
Days idle:															
Number (in thousands)	4,364.3	16,996.3	125.8	805.3	770.2	1,337.1	924.8	1,273.8	3,761.4	1,922.3	3,220.9	2,343.7	376.0	311.9	280.7
Percent of estimated working time[1]	.02	.07	.01	.03	.04	.06	.04	.06	.15	.09	.14	.11	.02	.1	.1

[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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS:															
All items	118.3	124.0	121.6	122.3	123.1	123.8	124.1	124.4	124.6	125.0	125.6	125.9	126.1	127.4	128.0
All items (1967=100)	354.3	371.3	364.1	366.2	368.8	370.8	371.7	372.7	373.1	374.6	376.2	377.0	377.6	381.5	383.3
Food and beverages	118.2	124.9	122.7	123.3	124.0	124.7	124.9	125.4	125.6	125.9	126.3	126.7	127.2	130.0	130.9
Food	118.2	125.1	122.9	123.5	124.2	124.9	125.0	125.5	125.8	126.1	126.5	126.9	127.4	130.4	131.3
Food at home	116.6	124.2	122.0	122.7	123.5	124.4	124.3	124.8	124.9	125.0	125.4	125.8	126.5	131.0	132.1
Cereals and bakery products	122.1	132.4	128.9	129.7	130.4	131.5	132.1	133.3	134.1	134.6	135.0	135.3	136.1	136.9	137.4
Meats, poultry, fish, and eggs	114.3	121.3	118.2	120.5	120.6	120.7	121.4	121.6	122.3	122.9	122.4	122.8	123.8	126.8	126.7
Dairy products	108.4	115.6	113.4	113.8	114.1	113.8	113.6	114.1	114.5	116.1	118.2	120.2	122.9	125.8	126.9
Fruits and vegetables	128.1	138.0	137.1	135.7	138.0	142.7	140.2	140.1	138.8	136.6	137.1	137.8	136.7	153.7	157.9
Other foods at home	113.1	119.1	117.8	118.1	119.0	118.9	119.2	119.7	119.7	119.7	120.3	119.9	120.1	121.3	121.9
Sugar and sweets	114.0	119.4	117.8	118.0	117.9	118.1	119.2	120.1	120.6	120.8	121.3	120.7	121.1	122.5	122.9
Fats and oils	113.1	121.2	120.5	120.4	121.6	121.6	121.6	121.6	121.7	121.3	121.6	121.0	121.6	123.5	123.4
Nonalcoholic beverages	107.5	111.3	111.3	111.3	111.8	111.5	111.6	112.3	111.2	111.0	111.8	111.2	111.0	112.4	113.3
Other prepared foods	118.0	125.5	123.0	123.7	125.2	125.2	125.5	125.9	126.7	126.7	127.2	127.3	127.6	128.3	128.9
Food away from home	121.8	127.4	125.2	125.7	126.2	126.7	127.1	127.8	128.1	128.8	129.1	129.5	129.8	130.3	131.0
Alcoholic beverages	118.6	123.5	121.1	121.8	122.3	123.1	123.5	124.0	124.5	124.8	125.2	125.5	125.6	126.2	126.9
Housing	118.5	123.0	121.1	121.5	121.6	122.1	122.9	123.9	124.2	124.3	124.4	124.5	124.9	125.9	126.1
Shelter	127.1	132.8	130.3	131.2	131.2	131.8	132.3	133.6	134.1	134.1	134.8	135.2	135.6	136.3	136.6
Renters' costs (12/82=100)	133.6	138.9	136.3	138.6	137.9	137.8	138.7	141.5	141.5	139.4	140.0	140.1	140.1	142.0	143.5
Rent, residential	127.8	132.8	130.9	131.1	131.4	131.7	132.3	133.0	133.5	133.9	134.7	135.2	135.5	135.8	136.0
Other renters' costs	134.8	140.7	136.2	144.7	140.7	139.7	141.5	150.5	148.8	139.1	139.2	138.0	137.2	143.6	149.3
Homeowners' costs (12/82=100)	131.1	137.3	134.7	135.0	135.4	136.2	136.5	137.3	138.1	138.9	139.7	140.3	140.9	141.1	141.0
Owners' equivalent rent (12/82=100)	131.1	137.4	134.8	135.1	135.5	136.3	136.6	137.4	138.2	139.0	139.9	140.5	141.0	141.2	141.1
Household insurance (12/82=100)	129.0	132.6	131.2	131.3	131.4	132.1	132.8	133.1	133.3	133.6	133.7	133.8	134.0	134.1	134.5
Maintenance and repairs	114.7	118.0	117.1	117.1	117.3	117.4	118.3	118.4	118.5	118.6	118.6	119.3	119.5	120.4	120.8
Maintenance and repair services	117.9	120.6	119.9	119.6	119.8	120.2	121.0	121.1	121.3	120.9	121.0	121.7	122.2	123.7	124.6
Maintenance and repair commodities	110.4	114.6	113.4	113.8	114.1	113.8	114.7	115.0	114.8	115.6	115.5	116.2	115.8	116.0	115.9
Fuel and other utilities	104.4	107.8	105.9	105.9	106.2	107.0	109.2	109.7	109.7	109.7	108.0	107.5	108.4	110.8	110.2
Fuels	98.0	100.9	98.6	98.5	98.8	99.6	103.2	103.7	103.7	103.5	101.0	99.9	101.2	104.5	103.1
Fuel oil, coal, and bottled gas	78.1	81.7	81.4	81.5	82.5	81.5	80.2	79.7	78.9	79.3	82.0	83.9	88.7	113.1	95.4
Gas (piped) and electricity	104.6	107.5	104.9	104.8	105.0	106.1	110.5	111.1	111.3	111.0	107.6	106.1	107.0	107.5	108.3
Other utilities and public services	122.9	127.1	126.0	125.9	126.2	127.0	127.1	127.7	127.8	128.1	127.6	127.9	128.2	129.3	130.0
Household furnishings and operations	109.4	111.2	110.9	110.5	110.7	110.8	111.1	111.4	111.4	111.7	111.9	111.9	111.7	112.1	112.8
Housefurnishings	105.1	105.5	105.9	105.1	105.0	104.7	105.1	105.5	105.2	105.7	106.1	106.0	105.5	106.1	106.9
Housekeeping supplies	114.7	120.9	117.7	118.5	119.6	120.9	121.2	121.7	122.3	122.3	122.5	122.5	123.6	123.2	123.5
Housekeeping services	114.3	117.3	116.8	116.9	117.1	117.3	117.4	117.3	117.5	117.5	117.4	117.6	117.6	117.9	118.4
Apparel and upkeep	115.4	118.6	115.3	119.3	120.9	120.4	117.8	115.0	115.0	120.0	122.7	122.1	119.2	116.7	120.4
Apparel commodities	113.7	116.7	113.3	117.5	119.3	118.6	115.8	112.9	112.8	118.2	121.1	120.4	117.1	114.3	118.3
Men's and boys' apparel	113.4	117.0	114.2	115.9	117.2	117.8	115.9	114.7	114.7	117.7	120.3	121.1	118.8	116.3	117.0
Women's and girls' apparel	114.9	116.4	111.4	119.4	121.5	119.5	114.8	109.6	109.5	119.0	123.1	121.3	116.4	112.0	117.7
Infants' and toddlers' apparel	116.4	119.1	118.8	118.5	123.6	125.4	123.9	117.9	116.7	118.0	118.3	117.2	115.3	112.7	124.3
Footwear	109.9	114.4	112.7	114.1	115.3	114.9	114.0	113.4	112.6	114.1	117.6	116.6	114.7	113.1	114.5
Other apparel commodities	116.0	122.1	120.4	120.4	121.5	121.7	121.6	122.5	124.1	124.5	123.0	123.5	122.8	125.1	130.6
Apparel services	123.7	129.4	127.8	128.5	128.9	129.9	130.0	129.4	129.5	129.7	129.8	130.8	131.3	132.4	132.9
Transportation	108.7	114.1	111.6	111.9	114.6	116.0	115.9	115.4	114.3	113.7	114.5	115.0	115.2	117.2	117.1
Private transportation	107.6	112.9	110.3	110.7	113.6	115.0	114.9	114.3	113.1	112.4	113.3	113.7	113.9	115.9	115.6
New vehicles	116.5	119.2	119.5	119.4	119.2	119.2	118.9	118.5	117.7	117.1	118.5	120.6	121.9	122.4	122.2
New cars	116.9	119.2	119.6	119.6	119.4	119.5	119.1	118.6	117.7	117.0	118.6	120.5	121.8	122.3	121.9
Used cars	118.0	120.4	120.5	120.5	120.7	121.0	121.3	121.1	120.3	119.8	119.7	120.1	119.7	118.9	117.4
Motor fuel	80.9	88.5	80.3	81.5	92.1	96.6	96.0	94.4	91.0	88.8	88.9	87.2	85.8	91.4	90.6
Gasoline	80.8	88.5	80.1	81.3	92.1	96.7	96.2	94.6	91.1	88.8	88.8	87.0	85.5	90.6	90.2
Maintenance and repair	119.7	124.9	123.3	123.5	123.8	124.3	124.5	124.8	125.4	126.2	126.7	126.7	126.9	127.3	127.6
Other private transportation	127.9	135.8	134.3	134.5	134.7	135.6	135.9	135.6	135.7	135.7	137.1	138.2	139.0	140.3	140.8
Other private transportation commodities	98.9	101.5	101.2	100.1	100.8	101.5	101.9	101.3	102.0	102.0	101.9	102.1	102.3	101.9	102.1
Other private transportation services	133.9	143.2	141.4	141.9	142.0	142.9	143.2	143.0	142.9	142.9	144.8	146.0	146.9	148.7	149.3
Public transportation	123.3	129.5	128.1	128.2	128.4	128.9	129.6	129.7	130.1	130.1	130.6	131.3	131.7	134.2	136.7
Medical care	138.6	149.3	145.2	146.1	146.8	147.5	148.5	149.7	150.7	151.7	152.7	153.9	154.4	155.9	157.5
Medical care commodities	139.9	150.8	145.8	147.2	148.4	150.0	151.0	151.4	152.1	153.3	154.1	155.3	156.0	156.9	158.6
Medical care services	138.3	148.9	145.1	145.9	146.4	146.9	147.9	149.3	150.4	151.3	152.3	153.6	154.1	155.7	157.2
Professional services	137.5	146.4	143.5	144.4	144.9	145.2	146.1	147.0	147.5	148.0	148.6	149.3	149.9	151.1	152.3
Hospital and related services	143.9	160.5	155.1	155.8	156.6	157.3	158.5	160.8	162.7	164.3	166.0	167.9	167.9	169.9	171.6
Entertainment	120.3	126.5	124.3	124.7	125.4	125.5	126.2	126.9	127.3	127.8	128.4	128.6	129.1	129.9	130.4
Entertainment commodities	115.0	119.8	118.4	118.5	119.0	119.3	119.5	119.9	120.0	120.5	121.2	121.3	121.6	122.3	122.5
Entertainment services	127.7	135.4	132.3	132.9	134.0	133.9	135.0	136.1	136.7	137.2	137.8	138.2	138.8	139.8	140.5
Other goods and services	137.0	147.7	144.1	144.4	144.7	145.4	146.3	147.3	148.7	151.2	151.8	151.9	152.9	154.0	154.7
Tobacco products	145.8	164.4	158.5	159.2	159.5	161.1	164.2	167.5	168.8	168.2	168.8	168.6	171.9	174.1	175.0
Personal care	119.4	125.0	123.2	123.6	124.1	124.8	124.5	124.8	125.6	125.9	126.4	127.0	127.1	127.6	128.4
Toilet goods and personal care appliances	118.1	123.2	121.9	122.4	122.6	122.7	122.2	122.8	123.8	124.0	124.4	125.1	124.7	125.1	126.0
Personal care services	120.7	126.8	124.4	124.8	125.4	126.8	127.0	126.9	127.3	127.7	128.5	129.0	129.7	130.3	130.9
Personal and educational expenses	147.9	158.1	154.4	154.6	154.9	155.2	155.8	156.3	158.1	162.9	163.5	163.5	164.0	165.1	165.6
School books and supplies	148.1	158.0	155.0	155.1	155.2	155.2	155.6	155.8	156.6	163.0	163.6	163.9	164.0	167.9	169.7
Personal and educational services	148.0	158.3	154.6	154.7	155.1	155.4	156.0	156.5	158.4	163.1	163.7	163.7	164.2	165.1	165.6

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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
All items	118.3	124.0	121.6	122.3	123.1	123.8	124.1	124.4	124.6	125.0	125.6	125.9	126.1	127.4	128.0
Commodities	111.5	116.7	114.3	115.2	116.7	117.5	117.2	117.0	116.7	117.3	118.1	118.3	118.2	119.9	120.6
Food and beverages	118.2	124.9	122.7	123.3	124.0	124.7	124.9	125.4	125.6	125.9	126.3	126.7	127.2	130.0	130.9
Commodities less food and beverages	107.3	111.6	109.1	110.1	112.2	112.9	112.4	111.7	111.1	111.9	113.0	113.0	112.6	113.7	114.2
Nondurables less food and beverages	105.2	111.2	106.9	108.9	112.5	113.6	112.7	111.6	110.9	112.4	113.6	113.1	112.0	113.7	114.5
Apparel commodities	113.7	116.7	113.3	117.5	119.3	118.6	115.8	112.9	112.8	118.2	121.1	120.4	117.1	114.3	118.3
Nondurables less food, beverages, and apparel	103.2	111.0	106.1	106.9	111.5	113.6	113.7	113.6	112.5	112.0	112.4	111.9	112.0	116.0	115.3
Durables	110.4	112.2	112.4	111.9	111.8	111.9	112.1	111.9	111.4	111.3	112.1	113.0	113.5	113.8	113.7
Services	125.7	131.9	129.4	130.0	130.2	130.8	131.6	132.5	133.1	133.4	133.7	134.1	134.6	135.4	136.0
Rent of shelter (12/82=100)	132.0	138.0	135.4	136.3	136.3	136.9	137.4	138.8	139.3	139.3	140.1	140.5	140.9	141.6	142.0
Household services less rent of' shelter (12/82=100)	115.3	118.7	116.9	116.9	117.2	118.0	120.1	120.6	120.7	120.7	119.0	118.5	119.0	119.6	120.3
Transportation services	128.0	135.6	133.9	134.3	134.5	135.2	135.6	135.5	135.7	135.9	137.1	138.0	138.6	140.2	141.1
Medical care services	138.3	148.9	145.1	145.9	146.4	146.9	147.9	149.3	150.4	151.3	152.3	153.6	154.1	155.7	157.2
Other services	132.6	140.9	137.8	138.2	138.8	139.2	139.8	140.4	141.5	143.8	144.3	144.6	145.1	146.1	146.6
Special indexes:															
All items less food	118.3	123.7	121.3	122.0	122.9	123.5	123.9	124.2	124.3	124.8	125.4	125.6	125.8	126.7	127.3
All items less shelter	115.9	121.6	119.2	119.9	121.0	121.7	122.0	122.0	122.0	122.6	123.1	123.3	123.5	125.0	125.7
All items less homeowners' costs (12/82=100)	119.5	125.3	122.9	123.7	124.7	125.3	125.6	125.9	125.9	126.3	126.8	127.0	127.1	128.7	129.5
All items less medical care	117.0	122.4	120.1	120.8	121.7	122.3	122.6	122.9	123.0	123.4	124.0	124.2	124.4	125.7	126.2
Commodities less food	107.7	112.0	109.5	110.5	112.5	113.2	112.8	112.1	111.6	112.4	113.4	113.4	113.0	114.1	114.6
Nondurables less food	105.8	111.7	107.6	109.4	112.8	113.9	113.1	112.2	111.5	112.9	114.1	113.6	112.6	114.2	115.0
Nondurables less food and apparel	104.0	111.3	106.8	107.6	111.7	113.6	113.8	113.7	112.8	112.4	112.8	112.4	112.5	116.1	115.5
Nondurables	111.8	118.2	114.9	116.2	118.4	119.3	119.0	118.7	118.4	119.3	120.1	120.0	119.8	122.0	122.9
Services less rent of' shelter (12/82=100)	128.3	135.1	132.7	133.0	133.4	134.0	135.2	135.8	136.3	137.0	137.0	137.2	137.8	138.9	139.8
Services less medical care	124.3	130.1	127.8	128.3	128.5	129.1	129.9	130.8	131.3	131.6	131.8	132.1	132.6	133.4	133.9
Energy	89.3	94.3	89.3	89.8	94.9	97.4	99.0	98.5	97.0	95.9	94.6	93.2	93.2	97.6	96.4
All items less energy	122.3	128.1	126.0	126.7	127.1	127.6	127.7	128.2	128.5	129.1	129.9	130.4	130.6	131.5	132.3
All items less food and energy	123.4	129.0	126.9	127.6	128.0	128.3	128.5	129.0	129.3	130.0	130.9	131.3	131.5	132.0	132.8
Commodities less food and energy	115.8	119.6	118.1	119.0	119.6	119.7	119.3	118.8	118.8	120.1	121.2	121.6	121.2	121.0	122.2
Energy commodities	80.8	87.9	80.6	81.7	91.2	95.0	94.4	92.9	89.8	88.0	88.3	87.0	86.4	94.2	91.3
Services less energy	127.9	134.4	132.0	132.7	132.9	133.4	133.9	134.8	135.4	135.8	136.5	137.0	137.5	138.4	138.9
Purchasing power of the consumer dollar:															
1982-84=$1.00	84.6	80.7	82.3	81.8	81.2	80.8	80.6	80.4	80.3	80.0	79.6	79.5	79.3	78.5	78.2
1967=$1.00	28.2	26.9	27.5	27.3	27.1	27.0	26.9	26.8	26.8	26.7	26.6	26.5	26.5	26.2	26.1
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS:															
All items	117.0	122.6	120.2	120.8	121.8	122.5	122.8	123.2	123.2	123.6	124.2	124.4	124.6	125.9	126.4
All items (1967=100)	348.4	365.2	358.0	360.0	362.9	364.9	365.9	366.8	367.0	368.3	369.8	370.6	371.1	375.0	376.6
Food and beverages	117.9	124.6	122.4	123.1	123.7	124.4	124.6	125.1	125.3	125.6	126.0	126.4	126.9	129.7	130.6
Food	117.9	124.8	122.6	123.3	123.9	124.6	124.8	125.3	125.5	125.8	126.2	126.6	127.1	130.1	131.1
Food at home	116.2	123.9	121.7	122.4	123.2	124.0	123.9	124.4	124.6	124.6	125.0	125.5	126.2	130.5	131.6
Cereals and bakery products	122.2	132.4	129.0	129.7	130.5	131.5	132.0	133.3	134.1	134.6	135.1	135.3	136.0	136.8	137.4
Meats, poultry, fish, and eggs	114.1	121.2	118.0	120.3	120.4	120.5	121.2	121.5	122.1	122.7	122.2	122.9	123.8	126.7	126.6
Dairy products	108.1	115.4	113.3	113.6	114.0	113.6	113.3	113.8	114.2	115.9	118.0	120.0	122.8	125.7	126.9
Fruits and vegetables	127.6	137.6	136.8	135.4	137.7	142.5	140.0	139.9	138.6	136.1	136.5	137.0	135.8	152.9	157.7
Other foods at home	113.0	119.0	117.7	118.0	118.9	118.8	119.0	119.6	119.6	119.6	120.2	119.8	120.1	121.3	121.8
Sugar and sweets	113.9	119.5	117.8	118.0	118.1	118.4	119.2	120.1	120.6	120.9	121.4	120.7	121.1	122.5	123.0
Fats and oils	113.0	121.1	120.4	120.3	121.5	121.5	121.5	121.5	121.6	121.2	121.5	120.9	121.5	123.4	123.2
Nonalcoholic beverages	107.7	111.4	111.4	111.4	111.9	111.5	111.6	112.2	111.1	111.0	112.0	111.3	111.2	112.7	113.6
Other prepared foods	117.8	125.3	122.8	123.6	125.0	125.0	125.3	125.7	126.5	126.6	127.0	127.1	127.4	128.2	128.7
Food away from home	121.6	127.3	125.1	125.5	126.1	126.5	127.0	127.6	128.0	128.6	129.0	129.4	129.7	130.2	130.9
Alcoholic beverages	118.3	123.1	120.8	121.4	122.0	122.8	123.2	123.6	124.0	124.4	124.7	125.1	125.2	125.9	126.7
Housing	116.8	121.2	119.3	119.6	119.8	120.3	121.1	122.1	122.4	122.5	122.5	122.7	123.1	123.9	124.1
Shelter	124.3	129.8	127.4	128.1	128.3	128.8	129.3	130.5	131.0	131.1	131.8	132.3	132.6	133.2	133.4
Renters' costs (12/84=100)	119.2	123.9	121.5	123.0	122.7	122.8	123.6	125.7	125.9	124.6	125.1	125.3	125.4	126.6	127.5
Rent, residential	127.5	132.3	130.4	130.7	131.0	131.2	131.8	132.5	133.0	133.4	134.2	134.6	135.0	135.3	135.4
Other renters' costs	135.2	141.5	135.2	144.2	140.9	139.9	142.3	153.7	152.0	140.9	140.4	139.1	137.6	144.1	149.8
Homeowners' costs (12/84=100)	119.5	125.1	122.8	123.0	123.4	124.1	124.4	125.2	125.8	126.6	127.3	127.8	128.3	128.5	128.5
Owners' equivalent rent (12/84=100)	119.5	125.2	122.8	123.1	123.5	124.2	124.5	125.2	125.9	126.7	127.4	128.0	128.5	128.6	128.6
Household insurance (12/84=100)	118.2	121.4	120.0	120.1	120.2	120.9	121.5	121.8	122.0	122.4	122.5	122.5	122.7	122.8	123.1
Maintenance and repairs	114.0	117.6	116.7	116.7	116.7	116.9	117.9	118.2	117.9	118.0	118.1	118.9	119.0	120.0	120.7
Maintenance and repair services	117.7	120.4	119.5	119.2	119.3	119.8	121.0	121.2	121.3	120.7	120.9	121.7	122.4	124.1	125.0
Maintenance and repair commodities	108.3	112.6	111.8	112.1	112.1	112.0	112.7	113.2	112.5	113.3	113.4	114.0	113.6	113.8	114.3
Fuel and other utilities	104.1	107.5	105.7	105.7	105.9	106.7	109.0	109.4	109.5	109.5	107.6	107.2	108.0	110.2	109.8
Fuels	97.7	100.6	98.3	98.2	98.5	99.2	103.0	103.4	103.5	103.3	100.6	99.5	100.7	103.8	102.5
Fuel oil, coal, and bottled gas	77.9	81.4	81.0	81.2	82.1	81.2	80.1	79.6	78.8	79.2	81.8	83.6	88.1	112.7	95.2
Gas (piped) and electricity	104.4	107.3	104.6	104.6	104.8	105.8	110.3	110.8	111.0	110.7	107.2	105.8	106.7	107.2	107.9
Other utilities and public services	122.9	127.4	126.3	126.2	126.5	127.2	127.4	127.9	128.0	128.3	127.8	128.2	128.4	129.6	130.4
Household furnishings and operations	108.9	110.6	110.4	110.0	110.1	110.1	110.4	110.8	110.8	111.0	111.2	111.2	111.1	111.5	112.1
Housefurnishings	104.5	104.8	105.4	104.5	104.3	104.0	104.4	104.8	104.6	105.0	105.3	105.2	104.7	105.3	106.1
Housekeeping supplies	115.1	121.2	118.1	118.9	120.0	121.2	121.6	122.0	122.6	122.6	122.7	122.7	123.8	123.5	123.8
Housekeeping services	115.0	117.4	117.0	117.1	117.2	117.4	117.6	117.4	117.6	117.6	117.5	117.7	117.8	118.1	118.7

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		1989											1990	
	1988	1989	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Apparel and upkeep	114.9	117.9	114.7	118.4	120.0	119.4	116.9	114.4	114.5	119.3	122.0	121.4	118.5	116.1	119.3
Apparel commodities	113.4	116.1	112.8	116.7	118.4	117.7	115.0	112.3	112.4	117.6	120.5	119.8	116.6	114.0	117.3
Men's and boys' apparel	112.8	116.1	113.4	115.1	116.4	116.9	115.0	113.7	113.9	116.9	119.6	120.2	118.0	115.8	116.2
Women's and girls' apparel	114.5	115.5	110.7	118.3	120.2	118.1	113.5	108.7	108.9	118.1	122.0	120.5	115.5	111.3	116.4
Infants' and toddlers' apparel	118.6	122.5	121.8	121.7	126.7	128.3	126.7	121.9	120.4	122.0	122.2	121.0	119.3	116.8	127.1
Footwear	110.4	114.7	113.1	114.1	115.2	115.0	114.1	113.9	113.1	114.5	118.0	117.0	115.4	113.8	115.0
Other apparel commodities	114.9	120.5	119.0	118.5	119.6	119.8	119.8	120.7	122.4	122.5	121.9	122.4	121.5	123.2	127.0
Apparel services	123.0	128.6	126.8	127.7	128.1	128.9	129.0	128.6	128.7	128.8	129.0	130.0	130.6	131.7	132.2
Transportation	108.3	113.9	111.2	111.6	114.5	116.0	116.0	115.4	114.2	113.5	114.3	114.6	114.8	116.8	116.6
Private transportation	107.5	113.0	110.3	110.6	113.7	115.3	115.2	114.6	113.3	112.6	113.3	113.7	113.8	115.8	115.5
New vehicles	116.2	119.0	119.3	119.2	118.9	119.0	118.7	118.3	117.6	117.1	118.4	120.5	122.0	122.4	122.3
New cars	116.6	119.1	119.5	119.4	119.2	119.3	118.9	118.4	117.6	116.9	118.4	120.2	121.7	122.2	121.8
Used cars	117.9	120.3	120.4	120.3	120.5	120.9	121.1	120.9	120.1	119.6	119.5	119.9	119.5	118.7	117.2
Motor fuel	80.9	88.6	80.3	81.5	92.3	96.7	96.1	94.5	91.0	89.0	89.1	87.3	85.9	91.7	90.7
Gasoline	80.8	88.6	80.2	81.4	92.3	96.9	96.3	94.7	91.2	89.0	89.0	87.2	85.6	91.0	90.4
Maintenance and repair	119.8	124.9	123.3	123.5	123.9	124.4	124.6	124.8	125.4	126.2	126.7	126.8	126.9	127.3	127.9
Other private transportation	125.8	133.7	132.2	132.5	132.7	133.5	133.9	133.7	133.7	133.6	134.9	136.0	136.8	138.1	138.5
Other private transportation commodities	98.6	101.1	100.7	99.8	100.4	101.1	101.5	101.0	101.6	101.6	101.5	101.7	101.9	101.4	101.7
Other private transportation services	131.7	141.0	139.2	139.8	139.8	140.7	141.2	141.0	140.8	140.6	142.5	143.8	144.7	146.5	146.9
Public transportation	122.5	128.2	126.8	126.9	127.1	127.5	128.2	128.3	129.1	129.1	129.4	129.7	130.1	132.9	135.4
Medical care	139.0	149.6	145.6	146.5	147.2	147.9	148.8	150.1	151.1	152.1	153.0	154.2	154.7	156.1	157.6
Medical care commodities	139.0	149.7	144.7	146.0	147.4	148.9	149.9	150.3	150.9	152.2	153.1	154.2	154.8	155.7	157.4
Medical care services	139.0	149.6	145.8	146.7	147.2	147.6	148.6	150.0	151.1	152.1	153.0	154.2	154.7	156.2	157.7
Professional services	137.7	146.7	143.7	144.7	145.1	145.5	146.4	147.3	147.8	148.4	149.0	149.6	150.2	151.5	152.6
Hospital and related services	143.3	159.4	154.2	154.8	155.6	156.2	157.3	159.7	161.6	163.3	164.7	166.5	166.8	168.4	170.1
Entertainment	119.7	125.8	123.6	124.1	124.8	124.9	125.5	126.1	126.5	127.0	127.7	127.9	128.4	129.1	129.5
Entertainment commodities	115.1	119.9	118.4	118.7	119.1	119.5	119.7	120.1	120.1	120.6	121.3	121.4	121.7	122.3	122.4
Entertainment services	127.2	135.1	131.9	132.7	133.8	133.6	134.6	135.7	136.4	137.1	137.6	138.0	138.7	139.6	140.4
Other goods and services	136.5	147.4	143.7	144.0	144.4	145.2	146.3	147.5	148.8	150.8	151.4	151.5	152.7	153.9	154.6
Tobacco products	146.0	164.2	158.2	158.9	159.2	160.7	163.8	167.3	168.5	168.0	168.6	168.5	171.8	173.8	174.8
Personal care	119.3	124.8	123.0	123.5	123.9	124.7	124.4	124.6	125.4	125.7	126.3	126.8	126.9	127.3	128.1
Toilet goods and personal care appliances	118.0	123.3	121.9	122.3	122.7	122.9	122.4	122.8	123.8	124.1	124.6	125.1	124.7	124.9	126.0
Personal care services	120.5	126.6	124.2	124.6	125.2	126.7	126.9	126.8	127.1	127.5	128.2	128.7	129.4	130.1	130.5
Personal and educational expenses	147.4	157.3	153.7	153.9	154.3	154.6	155.3	155.7	157.3	161.8	162.5	162.5	163.1	164.2	164.8
School books and supplies	147.1	156.9	153.9	154.0	154.1	154.1	154.5	154.7	155.6	161.7	162.8	162.8	162.9	166.9	168.5
Personal and educational services	147.7	157.7	154.0	154.1	154.6	154.9	155.7	156.1	157.8	162.1	162.7	162.8	163.4	164.3	164.8
All items	117.0	122.6	120.2	120.8	121.8	122.5	122.8	123.2	123.2	123.6	124.2	124.4	124.6	125.9	126.4
Commodities	111.0	116.3	113.9	114.7	116.4	117.1	116.9	116.8	116.4	116.9	117.7	117.8	117.8	119.5	120.1
Food and beverages	117.9	124.6	122.4	123.1	123.7	124.4	124.6	125.1	125.3	125.6	126.0	126.4	126.9	129.7	130.6
Commodities less food and beverages	106.8	111.2	108.7	109.5	111.8	112.6	112.2	111.6	110.9	111.6	112.5	112.5	112.1	113.3	113.6
Nondurables less food and beverages	104.6	110.9	106.3	108.1	112.1	113.4	112.6	111.7	110.8	112.0	113.2	112.6	111.6	113.4	114.0
Apparel commodities	113.4	116.1	112.8	116.7	118.4	117.7	115.0	112.3	112.4	117.6	120.5	119.8	116.6	114.0	117.3
Nondurables less food, beverages, and apparel	102.9	110.9	105.6	106.5	111.6	113.9	114.0	113.9	112.6	112.0	112.3	111.7	111.7	115.7	115.0
Durables	108.9	110.8	111.0	110.6	110.5	110.6	110.7	110.6	110.1	110.0	110.6	111.6	112.0	112.2	112.0
Services	124.7	130.8	128.4	128.9	129.1	129.7	130.6	131.5	132.0	132.3	132.6	132.9	133.4	134.2	134.8
Rent of shelter (12/84=100)	119.4	124.8	122.4	123.1	123.2	123.7	124.2	125.4	125.9	126.0	126.7	127.1	127.5	128.0	128.2
Household services less rent of shelter (12/84=100)	105.9	109.1	107.4	107.4	107.6	108.3	110.5	110.9	111.0	111.0	109.3	108.8	109.3	110.0	110.6
Transportation services	127.1	134.8	133.1	133.5	133.7	134.4	134.8	134.8	134.9	135.0	136.3	137.1	137.8	139.4	140.2
Medical care services	139.0	149.6	145.8	146.7	147.2	147.6	148.6	150.0	151.1	152.1	153.0	154.2	154.7	156.2	157.7
Other services	131.4	139.6	136.5	137.0	137.6	137.9	138.6	139.1	140.1	142.3	142.9	143.2	143.8	144.7	145.3
Special indexes:															
All items less food	116.7	122.0	119.6	120.2	121.3	122.0	122.3	122.6	122.6	123.1	123.6	123.8	124.0	124.9	125.3
All items less shelter	115.2	120.9	118.5	119.1	120.4	121.1	121.3	121.4	121.3	121.8	122.3	122.5	122.6	124.2	124.8
All items less homeowners' costs (12/84=100)	110.4	115.7	113.4	114.1	115.2	115.8	116.1	116.3	116.3	116.6	117.1	117.3	117.4	118.8	119.4
All items less medical care	115.8	121.2	118.9	119.5	120.5	121.2	121.5	121.8	121.8	122.2	122.7	122.9	123.1	124.4	124.9
Commodities less food	107.2	111.6	109.0	109.9	112.1	112.9	112.5	112.0	111.4	112.0	112.9	112.9	112.6	113.7	114.0
Nondurables less food	105.3	111.3	107.0	108.7	112.4	113.6	113.0	112.1	111.4	112.5	113.6	113.1	112.2	113.9	114.5
Nondurables less food and apparel	103.7	111.2	106.4	107.2	111.7	113.8	114.0	113.9	112.8	112.3	112.7	112.1	112.2	115.8	115.3
Nondurables	111.5	118.0	114.6	115.8	118.1	119.1	118.8	118.6	118.3	119.1	119.8	119.7	119.5	121.8	122.6
Services less rent of shelter (12/84=100)	115.6	121.7	119.5	119.8	120.1	120.7	121.9	122.3	122.7	123.3	123.2	123.4	123.9	124.9	125.7
Services less medical care	123.3	129.0	126.7	127.2	127.4	128.0	128.9	129.7	130.1	130.4	130.6	130.9	131.4	132.2	132.7
Energy	88.6	93.9	88.6	89.2	94.8	97.4	98.9	98.3	96.6	95.5	94.2	92.8	92.7	97.1	96.0
All items less energy	121.0	126.7	124.7	125.3	125.8	126.2	126.4	126.8	127.1	127.7	128.5	128.9	129.1	130.1	130.8
All items less food and energy	121.9	127.3	125.3	125.9	126.3	126.6	126.8	127.3	127.6	128.3	129.1	129.6	129.7	130.1	130.8
Commodities less food and energy	114.7	118.6	117.1	117.9	118.4	118.5	118.2	117.9	117.9	119.0	120.1	120.5	120.2	119.9	120.8
Energy commodities	80.9	88.2	80.6	81.7	91.6	95.6	94.9	93.5	90.2	88.4	88.7	87.2	86.4	93.9	91.4
Services less energy	127.0	133.4	131.1	131.6	131.9	132.4	132.9	133.8	134.4	134.8	135.5	136.0	136.4	137.3	137.8
Purchasing power of the consumer dollar:															
1982-84=$1.00	85.5	81.6	83.2	82.8	82.1	81.6	81.4	81.2	81.2	80.9	80.5	80.4	80.3	79.4	79.1
1967=$1.00	28.7	27.4	27.9	27.8	27.6	27.4	27.3	27.3	27.2	27.2	27.0	27.0	26.9	26.7	26.6

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						
		1989					1990		1989					1990	
		Feb.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.	Feb.	Mar.	Oct.	Nov.	Dec.	Jan.	Feb.
U.S. city average	M	121.6	122.3	125.6	125.9	126.1	127.4	128.0	120.2	120.8	124.2	124.4	124.6	125.9	126.4
Region and area size[3]															
Northeast urban	M	125.8	126.7	130.6	131.1	131.3	132.9	133.1	124.5	125.4	129.4	129.9	130.1	131.6	131.8
Size A - More than 1,200,000	M	126.5	127.4	131.1	131.6	131.6	133.3	133.6	124.3	125.2	129.1	129.5	129.5	131.0	131.3
Size B - 500,000 to 1,200,000	M	123.9	125.1	130.0	130.7	130.9	132.5	132.8	122.7	123.9	128.6	129.3	129.5	131.1	131.4
Size C - 50,000 to 500,000	M	124.3	125.5	128.9	129.7	130.7	132.0	131.7	126.7	127.8	131.5	132.3	133.1	134.4	134.3
North Central urban	M	119.3	119.8	123.0	123.2	123.2	124.5	124.9	117.3	117.9	120.9	121.2	121.1	122.5	122.8
Size A - More than 1,200,000	M	120.4	121.1	124.3	124.4	124.3	125.7	126.4	117.7	118.4	121.4	121.5	121.5	122.9	123.5
Size B - 360,000 to 1,200,000	M	118.6	119.2	122.5	123.0	123.0	124.2	124.4	116.2	116.8	120.0	120.5	120.4	121.8	121.9
Size C - 50,000 to 360,000	M	119.5	119.9	122.9	123.3	123.2	124.6	124.5	118.4	118.7	121.6	122.0	122.0	123.5	123.3
Size D - Nonmetropolitan (less than 50,0000	M	115.1	115.5	118.2	118.6	118.8	120.0	119.8	114.8	115.1	118.1	118.4	118.6	119.9	119.7
South urban	M	119.2	119.8	123.0	123.2	123.4	124.6	125.4	118.7	119.1	122.4	122.5	122.7	123.9	124.7
Size A - More than 1,200,000	M	120.1	120.5	123.9	124.0	124.0	125.1	126.1	119.3	119.6	122.9	123.0	123.0	124.1	125.0
Size B - 450,000 to 1,200,000	M	120.3	121.0	124.5	124.7	125.1	126.0	126.9	118.2	118.8	122.1	122.4	122.7	123.6	124.4
Size C - 50,000 to 450,000	M	118.0	118.5	121.7	121.6	122.0	123.3	123.9	118.6	119.0	122.2	122.1	122.5	123.8	124.3
Size D - Nonmetropolitan (less than 50,000)	M	117.4	118.0	120.7	121.3	121.4	123.5	124.3	118.1	118.7	121.6	122.0	122.1	124.4	125.0
West urban	M	122.3	123.1	126.1	126.3	126.8	127.8	128.8	120.9	121.7	124.6	124.8	125.3	126.3	127.2
Size A - More than 1,250,000	M	123.7	124.7	127.8	127.8	128.3	129.5	130.6	121.0	121.9	124.9	124.9	125.4	126.6	127.6
Size C - 50,000 to 330,000	M	120.5	120.7	123.7	124.5	125.3	125.4	125.8	119.9	120.1	123.0	123.7	124.4	124.6	125.0
Size classes:															
A (12/86=100)	M	110.5	111.2	114.2	114.3	114.4	115.7	116.3	110.3	111.0	114.0	114.1	114.2	115.5	116.1
B	M	120.8	121.5	125.2	125.6	125.9	126.9	127.6	119.3	120.0	123.6	124.0	124.3	125.4	126.0
C	M	120.0	120.5	123.7	124.1	124.5	125.6	125.8	120.4	120.8	124.0	124.3	124.7	125.9	126.1
D	M	118.0	118.4	121.3	121.8	122.0	123.6	123.8	118.3	118.7	121.7	122.1	122.4	124.0	124.1
Selected local areas															
Chicago, IL-Northwestern IN	M	122.2	123.0	126.8	126.7	126.5	128.1	129.2	118.4	119.1	122.9	122.9	122.8	124.4	125.4
Los Angeles-Long Beach, Anaheim, CA	M	125.5	126.2	130.0	130.0	130.6	132.1	133.6	122.3	122.9	126.5	126.4	127.0	128.5	129.8
New York, NY-Northeastern NJ	M	127.6	128.9	132.8	133.2	133.3	135.1	135.3	125.5	126.8	130.8	131.3	131.3	133.0	133.1
Philadelphia, PA-NJ	M	125.4	126.0	130.5	130.1	129.9	131.2	132.2	125.4	125.8	130.6	130.1	130.0	131.0	132.2
San Francisco-Oakland, CA	M	124.0	125.9	127.5	127.2	127.4	128.5	129.2	122.9	124.6	126.7	126.4	126.6	127.6	128.2
Baltimore, MD	M	–	122.8	–	126.6	–	127.9	–	–	122.3	–	126.0	–	127.2	–
Boston, MA	1	–	129.7	–	134.3	–	136.0	–	–	129.7	–	134.7	–	136.0	–
Cleveland, OH	1	–	121.5	–	123.4	–	125.0	–	–	116.2	–	118.0	–	119.5	–
Miami, FL	1	–	119.8	–	123.0	–	124.6	–	–	118.7	–	121.5	–	123.2	–
St. Louis, MO-IL	1	–	119.4	–	123.1	–	125.1	–	–	119.1	–	122.6	–	124.6	–
Washington, DC-MD-VA	1	–	126.1	–	130.5	–	132.0	–	–	125.6	–	129.6	–	131.1	–
Dallas-Ft. Worth, TX	1	117.5	–	121.4	–	120.5	–	122.2	117.2	–	121.1	–	120.1	–	121.3
Detroit, MI	2	120.1	–	124.6	–	124.4	–	126.1	117.3	–	121.5	–	121.4	–	123.2
Houston, TX	2	112.7	–	115.7	–	115.5	–	118.7	112.9	–	115.8	–	115.8	–	118.9
Pittsburgh, PA	2	117.9	–	121.7	–	121.8	–	123.4	113.4	–	116.8	–	117.1	–	118.6

[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	1981	1982	1983	1984	1985	1986	1987	1988	1989
Consumer Price Index for All Urban Consumers:									
All items:									
Index	90.9	96.5	99.6	103.9	107.6	109.6	113.6	118.3	124.0
Percent change	10.3	6.2	3.2	4.3	3.6	1.9	3.6	4.1	4.8
Food and beverages:									
Index	93.5	97.3	99.5	103.2	105.6	109.1	113.5	118.2	124.9
Percent change	7.8	4.1	2.3	3.7	2.3	3.3	4.0	4.1	5.7
Housing:									
Index	90.4	96.9	99.5	103.6	107.7	110.9	114.2	118.5	123.0
Percent change	11.5	7.2	2.7	4.1	4.0	3.0	3.0	3.8	3.8
Apparel and upkeep:									
Index	95.3	97.8	100.2	102.1	105.0	105.9	110.6	115.4	118.6
Percent change	4.8	2.6	2.5	1.9	2.8	.9	4.4	4.3	2.8
Transportation:									
Index	93.2	97.0	99.3	103.7	106.4	102.3	105.4	108.7	114.1
Percent change	12.2	4.1	2.4	4.4	2.6	-3.9	3.0	3.1	5.0
Medical care:									
Index	82.9	92.5	100.6	106.8	113.5	122.0	130.1	138.6	149.3
Percent change	10.7	11.6	8.8	6.2	6.3	7.5	6.6	6.5	7.7
Entertainment:									
Index	90.1	96.0	100.1	103.8	107.9	111.6	115.3	120.3	126.5
Percent change	7.8	6.5	4.3	3.7	3.9	3.4	3.3	4.3	5.2
Other goods and services:									
Index	82.6	91.1	101.1	107.9	114.5	121.4	128.5	137.0	147.7
Percent change	9.8	10.3	11.0	6.7	6.1	6.0	5.8	6.6	7.8
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	91.4	96.9	99.8	103.3	106.9	108.6	112.5	117.0	122.6
Percent change	10.3	6.0	3.0	3.5	3.5	1.6	3.6	4.0	4.8

34. Producer Price Indexes, by stage of processing

(1982=100)

Grouping	Annual average		1989										1990	
	1988	1989	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Finished goods	108.0	113.5	112.1	113.0	114.2	114.3	114.1	113.4	113.6	114.9	114.8	115.3	117.5	117.4
Finished consumer goods	106.2	112.1	110.6	111.8	113.2	113.1	112.8	111.9	112.2	113.3	113.2	113.9	116.6	116.3
Finished consumer foods	112.6	118.7	118.3	117.7	119.1	118.6	119.0	118.7	118.5	119.5	120.2	120.9	123.6	124.4
Finished consumer goods excluding foods	103.1	108.9	106.8	108.8	110.3	110.4	109.8	108.5	109.1	110.3	109.8	110.4	113.2	112.4
Nondurable goods less food	97.3	103.8	101.3	104.2	106.0	106.0	105.3	103.5	104.5	104.8	104.2	105.1	109.1	107.9
Durable goods	113.8	117.6	116.6	116.4	117.1	117.5	116.9	117.0	116.7	120.0	119.7	119.8	119.4	119.3
Capital equipment	114.3	118.7	117.5	117.6	118.3	118.8	118.7	119.0	118.9	120.5	120.6	120.7	121.1	121.4
Intermediate materials, supplies, and components	107.1	112.0	111.5	112.4	112.7	112.7	112.5	112.0	112.4	112.3	112.2	112.0	113.4	112.5
Materials and components for manufacturing	113.2	118.2	118.7	118.9	118.9	118.4	118.1	117.7	117.7	117.9	117.9	117.3	117.6	117.6
Materials for food manufacturing	106.0	112.7	111.4	111.1	112.5	112.4	113.3	113.3	113.7	113.1	115.4	115.4	115.5	114.9
Materials for nondurable manufacturing	112.9	118.6	119.8	120.3	120.3	119.5	118.6	117.4	116.9	117.0	117.0	116.6	116.5	117.4
Materials for durable manufacturing	118.7	123.6	125.7	125.9	125.0	123.6	122.7	122.1	122.6	123.1	122.1	120.1	120.2	119.2
Components for manufacturing	112.3	116.4	115.7	115.8	116.1	116.4	116.6	116.9	117.0	117.2	117.3	117.4	118.0	118.1
Materials and components for construction	116.1	121.2	120.5	121.1	121.5	121.5	121.6	121.6	121.9	122.3	121.9	121.5	121.8	122.0
Processed fuels and lubricants	71.2	76.5	73.2	76.7	78.1	79.3	78.7	77.3	78.7	77.8	77.0	78.1	84.6	79.1
Containers	120.1	125.5	124.4	125.1	125.3	125.6	126.0	126.0	126.1	126.3	126.7	126.9	126.9	127.4
Supplies	113.7	118.1	118.0	118.0	118.2	118.1	118.5	118.3	118.5	118.3	118.3	118.3	118.7	118.5
Crude materials for further processing	96.0	103.0	103.2	104.4	106.1	104.1	103.9	101.1	102.3	102.1	102.3	104.0	106.7	106.9
Foodstuffs and feedstuffs	106.1	111.1	113.7	111.6	114.9	111.7	110.1	110.0	108.9	107.9	109.4	112.3	113.6	114.4
Crude nonfood materials	85.5	93.4	92.2	95.3	96.0	94.7	95.4	91.1	93.6	94.0	93.4	94.2	97.6	97.6
Special groupings:														
Finished goods, excluding foods	106.5	111.8	110.0	111.4	112.6	112.8	112.4	111.7	112.0	113.3	113.0	113.5	115.5	115.0
Finished energy goods	59.8	65.7	62.3	68.4	71.8	70.2	68.4	63.6	65.9	65.8	64.5	64.9	72.8	69.0
Finished goods less energy	115.8	121.2	120.1	120.0	120.8	121.2	121.3	121.4	121.3	122.7	122.9	123.5	124.5	125.1
Finished consumer goods less energy	116.3	122.1	121.1	120.9	121.8	122.1	122.2	122.3	122.1	123.6	123.8	124.5	125.8	126.4
Finished goods less food and energy	117.0	122.1	120.7	120.8	121.4	122.1	122.1	122.4	122.3	123.9	123.9	124.4	124.7	125.2
Finished consumer goods less food and energy	118.5	124.0	122.6	122.7	123.3	124.1	124.1	124.5	124.2	126.0	125.9	126.6	126.9	127.5
Consumer nondurable goods less food and energy	122.0	128.8	127.1	127.4	127.9	129.0	129.3	129.9	129.7	130.4	130.4	131.6	132.3	133.4
Intermediate materials less foods and feeds	106.9	111.9	111.4	112.3	112.6	112.7	112.4	112.0	112.3	112.4	112.1	112.0	113.4	112.6
Intermediate foods and feeds	109.5	113.8	115.2	113.7	114.2	112.9	114.5	113.1	113.7	112.3	113.3	113.0	113.3	111.0
Intermediate energy goods	70.9	76.2	72.9	76.4	77.7	78.9	78.3	76.9	78.3	77.5	76.7	77.7	84.2	78.8
Intermediate goods less energy	114.6	119.5	119.6	119.9	120.0	119.7	119.6	119.3	119.5	119.6	119.5	119.2	119.5	119.5
Intermediate materials less foods and energy	115.2	120.2	120.3	120.7	120.8	120.5	120.2	120.0	120.1	120.3	120.1	119.7	119.9	120.1
Crude energy materials	67.7	75.9	73.5	77.3	78.3	77.5	78.9	73.5	76.1	76.6	76.8	78.5	82.4	82.5
Crude materials less energy	112.6	117.5	120.4	118.8	121.0	118.0	116.2	116.4	115.9	115.1	115.4	116.9	117.9	118.3
Crude nonfood materials less energy	133.0	137.8	141.3	141.2	140.3	137.9	135.5	136.6	137.7	137.6	134.3	131.7	132.1	131.3

35. Producer Price indexes, by durability of product

(1982=100)

Grouping	Annual average		1989										1990	
	1988	1989	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Total durable goods	114.7	119.0	118.5	118.7	118.9	119.0	118.8	119.0	119.2	120.2	119.9	119.6	120.0	119.9
Total nondurable goods	101.1	107.1	106.1	107.4	108.6	108.2	108.1	106.7	107.2	107.2	107.3	108.0	110.7	110.0
Total manufactures	109.1	114.3	113.4	114.4	115.0	114.9	114.7	114.2	114.5	115.2	115.1	115.1	116.5	116.0
Durable	114.1	118.3	117.6	117.8	118.1	118.3	118.2	118.4	118.6	119.6	119.4	119.2	119.6	119.6
Nondurable	104.1	110.2	109.2	110.8	111.6	111.3	110.9	110.0	110.4	110.7	110.8	110.9	113.1	112.2
Total raw or slightly processed goods	95.9	101.3	101.1	101.5	103.3	102.6	102.7	100.4	101.2	100.4	100.4	102.1	105.8	105.6
Durable	148.0	151.5	161.0	159.0	157.5	151.5	146.0	146.5	148.0	146.5	141.3	137.4	138.6	135.9
Nondurable	93.4	98.9	98.2	98.8	100.8	100.3	100.6	98.3	99.0	98.3	98.4	100.4	104.2	104.1

36. Producer price indexes for the net output of major industry groups

(December 1984=100, unless otherwise indicated)

Industry	SIC	Annual average		1989									
		1988	1989	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total mining industries		70.6	76.3	74.9	77.2	78.2	77.4	78.0	74.0	76.4	76.0	76.2	77.7
Metal mining	10	100.7	100.1	104.8	103.9	100.6	96.0	91.8	96.2	98.2	99.8	97.7	93.9
Anthracite mining (12/85=100)	11	100.2	102.7	103.0	102.5	102.4	102.4	102.6	102.6	102.6	103.0	103.0	103.3
Bituminous coal and lignite mining (12/85=100)	12	94.6	94.3	92.9	93.4	93.9	94.0	94.7	94.9	94.7	94.9	95.8	95.3
Oil and gas extraction (12/85=100)	13	68.5	75.7	73.8	76.7	78.1	77.2	78.1	72.8	75.7	75.1	75.3	77.5
Mining and quarrying of nonmetallic minerals, except fuels	14	108.0	111.2	110.9	111.3	111.6	112.1	111.3	111.4	111.0	111.2	111.2	111.3
Total manufacturing industries		104.4	109.6	108.5	109.4	110.1	110.1	109.9	109.6	109.8	110.7	110.7	111.0
Food and kindred products	20	107.1	112.2	111.9	111.6	112.2	112.1	112.5	112.3	112.4	112.4	113.2	113.6
Tobacco manufactures	21	141.8	161.5	155.0	155.1	155.1	163.5	164.4	164.6	164.9	165.8	165.7	174.0
Textile mill products	22	106.8	109.3	108.6	108.8	108.8	109.4	109.5	109.8	109.9	109.8	110.2	110.3
Apparel and other finished products made from fabrics and similar materials	23	107.2	110.2	109.3	109.5	109.6	109.8	110.4	110.7	110.9	111.1	111.2	111.4
Lumber and wood products, except furniture	24	109.2	115.3	113.1	114.4	115.4	115.9	117.1	116.7	116.6	117.9	117.1	115.9
Furniture and fixtures	25	111.4	115.6	114.4	114.7	115.2	115.5	115.7	116.3	116.3	116.8	116.9	117.2
Paper and allied products	26	113.7	120.8	120.4	120.6	121.1	121.2	120.9	121.1	121.2	121.7	121.8	121.7
Printing, publishing, and allied industries	27	118.2	124.7	123.6	124.0	124.2	124.6	124.9	125.4	125.6	125.9	126.2	126.3
Chemicals and allied products	28	113.0	119.7	120.6	121.0	120.9	120.6	119.4	119.0	119.1	118.8	118.8	118.6
Petroleum refining and related products	29	67.7	75.7	71.5	79.9	82.9	80.4	77.7	73.0	75.6	77.3	75.9	76.1
Rubber and miscellaneous plastic products	30	106.7	110.2	110.2	110.5	110.5	110.4	110.4	110.3	110.2	110.2	110.3	110.2
Leather and leather products	31	113.4	118.0	117.0	117.2	117.4	117.3	117.8	118.6	119.5	119.4	119.3	120.1
Stone, clay, glass, and concrete products	32	105.8	107.9	107.2	107.9	107.9	108.1	108.2	108.2	108.3	108.3	108.4	108.4
Primary metal industries	33	113.0	118.8	120.1	120.1	119.8	118.9	118.2	118.0	118.5	118.7	118.0	116.4
Fabricated metal products, except machinery and transportation equipment	34	107.4	112.5	111.5	112.0	112.5	112.5	112.8	113.0	113.2	113.8	113.7	113.8
Machinery, except electrical	35	106.4	110.6	109.7	109.8	110.2	110.3	110.9	111.3	111.5	111.6	112.0	112.1
Electrical and electronic machinery, equipment, and supplies	36	104.6	107.2	106.4	106.6	106.8	107.1	107.6	107.6	107.6	107.8	107.9	108.1
Transportation equipment	37	107.8	112.1	111.2	110.9	111.6	111.8	111.1	111.3	110.7	114.6	114.4	114.5
Measuring and controlling instruments; photographic, medical, optical goods; watches, clocks	38	107.0	110.7	109.7	110.1	110.6	110.9	111.0	111.2	111.2	111.8	112.0	112.2
Miscellaneous manufacturing industries (12/85=100)	39	107.5	111.8	110.9	111.2	111.5	111.7	112.0	112.4	112.6	112.7	112.8	113.1
Service industries:													
Pipelines, except natural gas (12/86=100)	46	94.8	94.4	94.5	94.4	94.4	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	1981	1982	1983	1984	1985	1986	1987	1988	1989
Finished goods:									
Total	96.1	100.0	101.6	103.7	104.7	103.2	105.4	108.0	113.5
Consumer goods	96.6	100.0	101.3	103.3	103.8	101.4	103.6	106.2	112.1
Capital equipment	94.6	100.0	102.8	105.2	107.5	109.7	111.7	114.3	118.7
Intermediate materials, supplies, and components:									
Total	98.6	100.0	100.6	103.1	102.7	99.1	101.5	107.1	112.0
Materials and components for manufacturing	98.7	100.0	101.2	104.1	103.3	102.2	105.3	113.2	118.2
Materials and components for construction	97.9	100.0	102.8	105.6	107.3	108.1	109.8	116.1	121.2
Processed fuels and lubricants	100.6	100.0	95.4	95.7	92.8	72.7	73.3	71.2	76.5
Containers	96.7	100.0	100.4	105.9	109.0	110.3	114.5	120.1	125.5
Supplies	96.9	100.0	101.8	104.1	104.4	105.6	107.7	113.7	118.1
Crude materials for further processing:									
Total	103.0	100.0	101.3	103.5	95.8	87.7	93.7	96.0	103.0
Foodstuffs and feedstuffs	103.9	100.0	101.8	104.7	94.8	93.2	96.2	106.1	111.1
Nonfood materials except fuel	101.8	100.0	100.7	102.2	96.9	81.6	87.9	85.5	93.4
Fuel	84.8	100.0	105.1	105.1	102.7	92.2	84.1	82.1	85.3

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

(1985=100, unless otherwise indicated)

Category	1974 SITC	1987			1988				1989			
		June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
ALL COMMODITIES		102.2	102.8	104.9	106.5	109.5	111.9	111.6	113.3	113.2	112.4	112.3
Food	0	89.9	86.7	94.6	95.2	103.4	118.7	114.2	117.6	115.5	110.4	108.3
Meat and meat preparations	01	121.2	118.8	116.8	122.8	131.0	137.0	130.3	132.9	128.2	119.4	116.8
Fish and crustaceans	03	125.8	131.1	138.5	140.9	145.0	175.9	174.0	169.1	158.9	137.1	132.2
Grain and grain preparations	04	71.0	67.8	77.4	79.8	87.2	108.5	102.0	108.4	106.4	101.5	101.0
Vegetables and fruit	05	112.4	101.1	100.5	97.5	104.3	109.9	110.3	108.8	113.6	113.9	111.1
Animal feeds, excluding unmilled cereals	08	123.8	123.1	145.2	134.6	158.1	161.0	157.0	154.1	144.0	139.5	128.9
Miscellaneous food products	09	100.6	100.3	100.3	102.3	102.8	105.2	104.9	107.0	108.0	107.7	108.3
Beverages and tobacco	1	105.0	105.5	107.0	109.6	110.6	112.0	111.7	117.2	117.6	120.4	119.9
Tobacco and tobacco products	12	105.0	105.5	107.0	109.8	110.7	112.1	111.8	117.6	117.9	120.8	120.2
Crude materials	2	114.5	118.7	125.2	130.0	139.9	140.8	135.8	142.6	143.0	139.1	136.7
Raw hides and skins	21	149.6	147.7	157.1	171.4	166.8	156.7	136.8	146.7	149.9	156.3	157.8
Oilseeds	22	101.6	95.1	109.6	115.6	143.0	154.7	135.7	139.3	129.8	111.5	109.5
Crude rubber	23	101.0	102.8	105.3	104.5	106.1	109.1	109.9	111.1	114.6	117.7	117.3
Wood	24	116.2	141.7	146.0	150.2	149.6	150.0	148.6	157.3	170.7	177.6	177.5
Pulp and waste paper	25	149.9	153.0	160.4	171.2	179.5	181.7	182.1	192.9	193.5	193.3	194.3
Textile fibers	26	112.4	116.5	111.6	107.5	109.9	100.8	103.6	106.7	115.5	117.4	116.4
Crude minerals	27	94.0	91.6	91.6	92.8	94.2	94.8	94.8	98.8	99.2	99.3	97.7
Metal ores and metal scrap	28	107.0	117.4	125.9	131.8	146.0	145.0	150.4	163.5	157.2	150.5	138.4
Fuels and related products	3	82.8	84.6	82.5	79.3	82.1	79.5	79.4	81.7	86.0	87.9	91.1
Coal and coke	32	88.2	91.0	89.8	90.6	92.0	92.9	93.4	93.7	94.3	95.6	96.4
Crude petroleum and petroleum products	33	–	–	100.0	90.8	97.2	89.2	88.4	94.5	105.4	108.7	116.5
Fats and oils	4	78.8	78.5	81.6	92.7	97.3	101.5	91.5	90.3	87.3	83.8	86.7
Animal oils and fats	41	86.7	86.7	88.7	101.3	101.6	104.3	95.7	91.8	89.6	84.6	88.0
Fixed vegetable oils and fats	42	71.9	71.2	75.4	85.7	93.7	99.1	87.1	88.2	84.4	81.6	84.4
Chemicals and related products	5	106.7	107.7	112.9	117.9	121.6	124.9	125.5	125.5	121.9	117.7	115.0
Organic chemicals	51	118.4	116.1	123.5	135.1	144.6	153.3	150.8	149.6	145.0	134.0	127.3
Dyeing, tanning, and coloring materials	53	104.2	105.5	108.5	109.1	110.1	111.5	113.0	115.5	116.5	118.3	117.3
Medicinal and pharmaceutical products (12/85=100)	54	101.4	102.2	105.4	109.3	106.3	105.9	107.5	109.0	108.9	109.3	108.5
Essential oils, polish, and cleaning preparations	55	105.7	107.3	108.4	111.2	113.6	120.2	122.4	125.3	124.7	122.4	122.9
Fertilizers, manufactured	56	91.6	100.9	106.5	110.6	109.8	116.4	119.9	119.4	108.0	108.9	94.8
Artificial resins, plastics and cellulose	57	111.9	116.4	124.8	129.4	137.5	138.2	132.5	125.8	118.6	111.6	111.1
Chemical materials and products, n.e.s.	58	97.7	97.1	98.2	100.3	101.7	104.1	105.4	108.4	109.4	109.5	110.2
Intermediate manufactured products	6	107.9	110.3	111.2	114.4	117.7	119.6	120.6	122.6	123.1	122.8	122.6
Leather and furskins	61	126.9	128.7	118.0	125.7	125.1	128.6	125.0	118.3	120.7	121.7	125.0
Rubber manufactures	62	102.5	103.9	104.1	105.2	108.8	109.4	110.4	113.0	112.9	113.4	114.0
Paper and paperboard products	64	117.0	120.1	122.4	126.2	129.0	130.2	131.1	132.5	133.7	132.9	131.0
Textiles	65	103.7	104.1	105.2	106.5	107.9	108.6	111.6	113.9	115.4	115.8	116.9
Non-metallic mineral manufactures (9/85=100)	66	108.7	110.4	111.3	113.4	114.1	115.6	116.8	120.4	122.4	123.9	124.1
Iron and steel	67	102.9	100.7	102.9	106.1	110.8	111.4	112.1	116.0	117.2	116.7	116.2
Nonferrous metals	68	113.0	123.0	124.4	134.0	143.5	149.1	150.0	151.7	145.8	140.4	136.9
Metal manufactures, n.e.s.	69	101.3	102.3	103.4	104.5	107.6	109.9	110.9	112.6	113.9	114.4	115.5
Machinery and transport equipment, excluding military and commercial aircraft	7	101.8	102.1	102.4	103.2	104.0	104.8	105.8	106.7	107.2	107.9	108.6
Power generating machinery and equipment	71	103.7	104.8	105.2	107.0	108.4	108.5	109.3	111.8	112.8	114.0	114.3
Machinery specialized for particular industries	72	100.1	100.5	100.9	102.1	103.6	104.7	106.0	107.3	108.8	109.9	111.3
Metalworking machinery	73	106.7	107.8	108.2	109.3	110.8	111.0	114.4	115.7	117.3	117.7	118.6
General industrial machines and parts, n.e.s.	74	104.5	104.6	105.4	106.7	108.1	109.3	110.3	112.7	113.3	114.2	115.3
Office machines and automatic data processing equipment	75	96.1	95.7	95.5	95.8	95.7	96.8	96.4	95.8	94.8	94.8	94.5
Telecommunications, sound recording and reproducing equipment	76	101.4	101.4	101.9	102.8	104.6	104.1	105.1	106.7	107.5	108.7	110.3
Electrical machinery and equipment	77	102.1	102.5	101.8	103.1	103.4	105.3	105.7	106.1	106.5	106.9	107.0
Road vehicles and parts	78	103.5	103.8	104.6	104.5	104.9	105.4	106.8	107.2	107.8	108.8	110.0
Other transport equipment, excluding military and commercial aviation	79	105.5	105.8	106.6	107.4	109.6	109.7	111.9	113.5	114.7	114.8	116.0
Miscellaneous manufactured articles	8	105.2	105.4	105.6	106.9	108.1	108.9	110.5	111.4	112.8	113.6	114.8
Furniture and parts	82	107.6	107.6	110.0	111.2	111.4	111.7	114.2	114.3	117.3	117.3	118.6
Professional, scientific, and controlling instruments and apparatus	87	105.5	106.3	107.1	110.0	111.1	112.5	113.9	115.5	118.2	119.5	121.1
Photographic apparatus and supplies, optical goods, watches, and clocks	88	102.5	99.0	97.9	97.6	100.1	99.4	99.9	98.5	99.2	99.4	101.0
Miscellaneous manufactured articles, n.e.s.	89	104.8	105.9	105.8	105.4	106.5	106.5	108.7	110.2	110.1	110.4	111.6

– 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			
		Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
ALL COMMODITIES		112.5	113.8	116.8	115.3	117.6	119.7	119.8	118.4	119.8
ALL COMMODITIES, EXCLUDING FUELS		120.8	123.7	126.7	126.1	129.1	129.6	128.5	127.6	128.5
Food and live animals	0	112.5	114.1	114.0	112.7	114.3	114.1	111.3	106.1	108.0
Meat and meat preparations	01	113.4	111.5	107.0	111.2	108.7	111.2	109.7	124.1	134.1
Dairy products and eggs	02	125.1	125.6	125.0	122.2	125.8	124.0	120.2	120.3	123.2
Fish and crustaceans	03	131.0	132.5	129.3	125.9	126.7	127.0	122.7	121.6	122.0
Bakery goods, pasta products, grain, and grain preparations	04	130.7	135.8	139.8	136.9	142.2	140.4	140.2	141.6	143.1
Fruits and vegetables	05	116.2	115.4	120.3	123.7	127.7	123.4	123.2	119.1	127.3
Sugar, sugar preparations, and honey	06	107.0	109.6	110.0	112.1	110.8	109.8	111.8	114.4	117.0
Coffee, tea, cocoa	07	90.6	94.3	93.3	87.4	90.6	91.2	85.3	62.5	57.3
Beverages and tobacco	1	113.5	116.0	116.2	115.3	116.2	117.0	117.2	120.7	122.4
Beverages	11	116.2	118.7	120.0	118.9	119.9	120.7	120.7	122.9	124.1
Crude materials	2	122.1	129.2	137.8	135.4	143.2	146.2	144.3	137.2	136.1
Crude rubber (including synthetic and reclaimed)	23	120.1	121.7	151.1	133.3	121.5	123.0	103.4	98.3	98.5
Cork and wood	24	108.8	112.4	111.4	109.7	107.8	112.1	112.4	113.5	111.6
Pulp and waste paper	25	141.0	151.0	160.5	169.6	174.7	184.7	190.0	190.1	189.6
Textile fibers	26	135.2	137.8	145.5	141.9	145.6	151.5	145.4	141.7	140.2
Crude fertilizers and crude minerals	27	99.9	100.4	101.0	97.2	100.2	103.3	104.7	101.2	98.0
Metalliferous ores and metal scrap	28	137.9	151.2	167.6	172.2	205.4	204.3	212.3	183.4	176.6
Crude animal and vegetable materials, n.e.s.	29	118.3	135.8	148.2	122.0	139.5	138.5	110.3	108.6	129.4
Fuels and related products	3	67.2	60.6	63.4	57.7	56.4	66.8	73.3	68.8	73.3
Crude petroleum and petroleum products	33	67.8	60.4	63.6	57.7	56.1	67.3	74.4	69.5	74.1
Fats and oils	4	102.1	106.4	111.2	114.0	112.3	112.5	117.4	106.7	100.7
Fixed vegetable oils and fats (9/87=100)	42	105.7	111.1	116.1	119.2	117.4	117.3	122.6	110.7	104.2
Chemicals and related products	5	110.1	114.2	116.4	119.2	122.2	123.6	120.4	117.7	118.9
Organic chemicals	51	103.0	105.8	107.3	111.3	115.1	117.6	114.0	110.3	112.8
Inorganic chemicals	52	90.1	92.0	92.3	93.0	96.1	93.1	86.6	85.7	86.0
Medicinal and pharmaceutical products	54	126.3	135.3	140.3	145.4	146.4	154.9	153.5	149.2	149.7
Essential oils and perfumes	55	123.0	125.7	126.2	127.5	130.5	130.3	130.2	127.2	135.3
Manufactured fertilizers	56	133.6	133.7	136.3	136.5	139.9	143.5	142.1	132.4	130.5
Artificial resins and plastics and cellulose	58	117.6	121.6	124.3	127.6	129.5	129.5	129.8	130.8	130.6
Chemical materials and products, n.e.s.	59	124.8	138.7	148.5	153.4	156.5	154.8	151.6	150.2	150.6
Intermediate manufactured products	6	119.8	124.4	132.2	132.3	135.0	137.3	136.1	135.3	134.1
Leather and furskins	61	124.4	131.8	137.0	136.6	134.9	134.6	133.8	133.9	133.4
Rubber manufactures, n.e.s.	62	104.6	106.0	107.7	109.1	111.1	111.7	112.2	113.7	114.0
Cork and wood manufactures	63	128.2	133.8	138.2	136.1	134.1	136.9	139.8	140.8	140.6
Paper and paperboard products	64	112.3	117.2	118.3	119.5	119.9	120.6	120.8	119.7	118.9
Textiles	65	118.6	120.0	120.6	119.1	120.5	120.5	122.1	121.7	122.6
Nonmetallic mineral manufactures, n.e.s.	66	133.4	137.4	142.5	139.7	141.9	147.5	149.5	151.7	153.4
Iron and steel	67	114.0	120.0	127.2	129.9	130.7	132.6	133.6	133.7	130.7
Nonferrous metals	68	125.8	132.7	159.7	158.9	169.1	172.8	158.6	150.7	144.8
Metal manufactures	69	117.8	121.1	126.9	127.5	130.7	132.4	132.6	133.2	133.9
Machinery and transport equipment	7	123.1	125.4	127.3	126.7	129.9	130.1	129.2	129.0	130.1
Machinery (including SITC 71-77)	7hyb	122.6	124.6	126.4	125.9	128.7	129.2	128.4	127.8	128.0
Machinery specialized for particular industries	72	142.1	146.8	149.8	143.7	150.8	149.1	145.7	145.7	148.1
Metalworking machinery	73	135.5	139.9	142.4	139.7	144.1	142.9	139.5	143.9	144.3
General industrial machinery and parts, n.e.s.	74	137.0	140.4	143.7	139.6	144.2	144.7	143.0	143.7	145.3
Office machines and automatic data processing equipment	75	118.3	118.1	119.5	118.7	118.7	119.6	119.3	117.2	117.5
Telecommunications, sound recording and reproducing apparatus	76	112.1	112.8	113.8	113.9	115.5	115.7	115.7	115.0	113.7
Electrical machinery and equipment	77	118.2	122.2	124.2	125.9	129.3	130.5	129.6	128.7	128.9
Road vehicles and parts	78	122.6	125.5	127.6	127.1	130.8	130.5	129.6	129.5	131.9
Miscellaneous manufactured articles	8	121.8	124.2	125.7	124.2	126.6	126.6	126.6	127.2	128.9
Plumbing, heating, and lighting fixtures	81	121.0	123.4	126.9	124.5	127.2	130.0	131.5	133.0	136.6
Furniture and parts	82	124.3	125.4	129.6	128.0	129.1	127.2	127.9	128.8	131.0
Travel goods, handbags, and similar goods (6/85=100)	83	103.0	105.8	107.3	111.3	115.1	117.6	114.0	110.3	112.8
Clothing	84	112.3	115.6	114.9	116.7	117.2	118.5	119.9	120.8	122.3
Footwear	85	124.3	125.4	129.6	128.0	129.1	127.2	127.9	128.8	131.0
Professional, scientific, and controlling instruments and apparatus	87	138.7	140.0	142.5	135.8	141.9	141.1	136.5	136.3	137.3
Photographic apparatus and supplies, optical goods, watches, and clocks	88	127.3	129.2	129.3	125.4	130.6	130.2	127.9	126.3	128.7
Miscellaneous manufactured articles, n.e.s.	89	127.3	129.2	132.1	128.2	131.4	131.7	131.4	131.9	133.8

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

(1985 = 100 unless otherwise indicated)

Category	1987	1988				1989			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Foods, feeds, and beverages	96.6	98.5	110.1	124.5	117.4	120.8	117.2	110.3	108.2
Industrial supplies and materials	111.8	114.2	118.3	118.7	118.6	120.7	120.9	119.5	118.7
Capital goods	102.1	103.4	104.3	104.9	105.7	106.7	107.4	108.2	108.8
Automotive	104.5	104.3	104.8	106.5	107.7	108.1	108.6	109.4	110.8
Consumer goods	108.0	110.1	110.6	111.3	112.9	115.3	115.6	116.5	117.1
Consumer nondurables, manufactured, except rugs	106.3	107.4	108.7	109.3	110.0	111.4	111.5	111.7	112.9
Consumer durables, manufactured	107.9	110.4	110.4	110.7	112.6	115.4	115.4	116.5	116.8
Agricultural (9/88=100)	99.3	101.1	110.9	120.6	114.0	117.7	116.1	111.2	109.8
All exports, excluding agricultural (9/88=100)	106.2	107.7	109.7	110.8	111.6	112.9	113.1	113.0	113.1

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

(1985=100)

Category	1987	1988				1989			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
All imports, excluding petroleum (6/88=100)	120.3	123.2	126.2	125.4	128.3	129.0	128.0	127.1	128.0
Foods, feeds, and beverages	112.1	113.7	113.7	112.7	114.2	113.8	111.7	107.1	108.8
Industrial supplies and materials	93.7	92.7	97.8	95.2	96.4	102.1	104.2	100.6	102.4
Petroleum and petroleum products, excluding natural gas	67.6	60.3	63.5	57.5	56.2	67.2	74.1	69.1	73.9
Industrial supplies and materials, excluding petroleum	115.6	119.6	126.4	126.4	129.6	131.2	129.4	126.9	126.3
Capital goods, except automotive	126.6	128.6	131.0	129.0	132.3	132.4	131.0	130.6	131.3
Automotive vehicles, parts and engines	120.6	123.7	125.8	126.0	129.2	129.1	128.2	128.2	130.0
Consumer goods except automotive	121.4	124.2	126.3	125.0	127.4	128.7	129.1	129.5	131.0
Nondurables, manufactured	120.2	123.3	124.2	123.8	125.4	126.5	127.5	128.5	130.1
Durables, manufactured	121.0	123.5	125.5	124.5	127.4	127.9	127.9	127.8	128.6

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

(1985=100)

Industry group	1987	1988				1989			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Manufacturing:									
Food and kindred products	116.3	120.8	125.1	128.9	123.5	124.5	122.7	119.5	117.2
Lumber and wood products, except furniture	142.5	146.1	145.4	146.1	144.0	151.7	164.4	171.2	171.2
Furniture and fixtures	111.2	112.5	112.9	112.9	115.3	115.2	116.0	116.5	117.7
Paper and allied products	119.3	124.6	129.8	133.1	135.6	139.9	141.4	141.6	140.6
Chemicals and allied products	113.8	118.4	122.3	125.4	125.5	125.9	122.5	118.5	115.7
Petroleum and coal products	78.8	73.0	77.8	73.7	75.4	79.8	86.9	88.7	94.5
Primary metal products	126.6	126.9	133.8	133.5	133.6	130.8	125.7	122.5	123.1
Machinery, except electrical	99.7	100.6	101.3	102.2	102.8	103.4	103.7	104.4	105.1
Electrical machinery	102.2	102.9	103.7	104.9	105.4	106.3	106.8	107.5	107.9
Transportation equipment	107.8	108.1	109.1	109.4	110.9	111.8	112.7	113.4	114.5
Scientific instruments; optical goods; clocks	107.1	109.2	110.8	112.0	113.4	114.5	116.7	117.7	119.5

[1] SIC-based classification.

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

(1985=100)

Industry group	1987	1988				1989			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Manufacturing:									
Food and kindred products	110.6	114.0	114.4	115.0	115.4	114.9	114.0	114.8	115.8
Textile mill products	124.3	127.4	128.9	127.0	127.8	139.0	139.8	137.5	140.7
Apparel and related products	113.4	116.6	115.8	117.0	117.5	118.9	120.3	121.2	122.6
Lumber and wood products, except furniture	115.4	119.5	120.3	118.6	117.0	120.5	122.2	123.3	122.3
Furniture and fixtures	118.9	122.2	124.0	124.8	128.0	126.3	126.1	128.7	128.9
Paper and allied products	113.6	119.1	121.3	123.8	125.2	127.4	128.2	127.3	126.6
Chemicals and allied products	112.2	116.8	121.3	123.5	130.6	130.7	130.0	123.9	123.8
Petroleum refining and allied products	127.4	114.5	119.2	110.8	111.6	121.3	139.1	128.0	133.8
Rubber and miscellaneous plastics products	115.7	117.2	119.0	117.7	122.6	122.3	123.1	124.2	125.2
Leather and leather products	118.4	120.8	124.6	123.7	124.0	122.8	123.5	124.6	126.0
Stone, clay, glass, and concrete products	133.9	138.2	141.5	140.5	144.3	145.1	144.8	147.4	147.8
Primary metal products	120.0	122.6	137.0	136.2	140.2	140.6	135.2	132.0	129.5
Fabricated metal products	123.2	127.3	133.3	133.0	136.3	138.9	140.3	141.3	142.2
Machinery, except electrical	133.9	135.9	138.2	135.0	138.4	138.6	136.7	135.8	137.7
Electrical machinery and supplies	112.5	114.7	116.1	116.7	119.0	119.7	119.4	118.9	118.4
Transportation equipment	124.6	127.3	129.5	129.3	132.8	132.6	131.9	132.0	134.1
Scientific instruments; optical goods; clocks	134.0	135.8	137.0	132.2	137.7	136.7	133.8	132.8	134.2
Miscellaneous manufactured commodities	123.8	127.7	133.1	130.6	132.2	136.6	137.7	138.4	140.1

[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			
	II	III	IV	I	II	III	IV	I	II	III	IV
Business:											
Output per hour of all persons	110.7	111.7	112.5	113.2	112.6	113.4	113.5	113.8	114.2	114.7	114.7
Compensation per hour	189.5	191.8	195.1	196.4	199.1	201.9	204.5	206.9	210.4	212.8	215.7
Real compensation per hour	101.4	101.6	102.5	102.3	102.6	102.8	103.0	102.8	103.0	103.5	103.9
Unit labor costs	171.3	171.6	173.5	173.5	176.9	178.0	180.2	181.9	184.1	185.6	188.0
Unit nonlabor payments	166.5	168.9	167.2	168.9	168.8	171.8	173.7	174.7	176.3	176.5	175.6
Implicit price deflator	169.6	170.7	171.3	171.9	174.1	175.8	177.9	179.4	181.4	182.4	183.7
Nonfarm business:											
Output per hour of all persons	108.6	109.5	110.2	111.0	110.5	111.5	112.0	111.6	111.9	112.6	112.7
Compensation per hour	188.3	190.5	193.8	195.0	197.5	200.2	203.0	205.5	208.3	211.0	214.1
Real compensation per hour	100.8	101.0	101.8	101.5	101.8	101.9	102.3	102.1	102.0	102.6	103.1
Unit labor costs	173.4	173.9	175.8	175.7	178.7	179.6	181.3	184.1	186.1	187.4	190.1
Unit nonlabor payments	167.6	170.3	168.7	170.3	169.8	172.1	176.3	174.6	176.5	177.6	177.0
Implicit price deflator	171.4	172.6	173.4	173.8	175.6	177.0	179.6	180.8	182.8	184.0	185.6
Nonfinancial corporations:											
Output per hour of all employees	111.6	113.0	113.5	114.6	114.7	115.1	114.9	114.5	114.5	115.3	–
Compensation per hour	184.8	186.9	189.5	190.9	193.1	195.5	197.8	200.2	202.8	205.5	–
Real compensation per hour	98.9	99.1	99.5	99.4	99.5	99.5	99.6	99.5	99.3	99.9	–
Total unit costs	170.8	170.8	172.1	171.9	173.6	175.2	177.5	180.4	182.9	184.6	–
Unit labor costs	165.5	165.3	167.0	166.6	168.4	169.9	172.1	174.9	177.1	178.1	–
Unit nonlabor costs	186.3	186.9	187.2	187.8	188.9	191.0	193.3	196.9	200.1	203.9	–
Unit profits	122.5	129.3	122.0	127.0	129.1	127.5	131.6	119.6	116.6	113.5	–
Unit nonlabor payments	163.9	166.7	164.4	166.5	168.0	168.8	171.7	169.8	170.9	172.2	–
Implicit price deflator	165.0	165.8	166.1	166.5	168.2	169.5	172.0	173.1	175.0	176.1	–
Manufacturing:											
Output per hour of all persons	133.3	134.3	134.7	135.5	136.3	137.8	138.6	139.4	140.7	141.1	142.1
Compensation per hour	189.0	190.4	191.7	194.3	195.3	197.4	200.2	201.9	203.2	206.1	209.6
Real compensation per hour	101.1	100.9	100.6	101.2	100.6	100.5	100.8	100.3	99.5	100.3	100.9
Unit labor costs	141.8	141.8	142.3	143.4	143.3	143.2	144.4	144.8	144.4	146.1	147.5

– 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	1978	1980	1982	1983	1984	1985	1986	1987	1988	1989
Business:													
Output per hour of all persons	66.1	87.6	95.2	100.9	99.4	100.2	102.6	105.2	107.3	109.8	111.1	113.0	114.2
Compensation per hour	32.9	57.2	70.3	108.6	131.8	154.9	160.8	167.4	174.8	183.8	191.0	200.2	211.2
Real compensation per hour	67.3	89.4	96.0	100.9	97.0	97.3	97.8	97.6	98.4	101.7	101.9	102.5	103.2
Unit labor costs	49.7	65.3	73.8	107.7	132.6	154.5	156.7	159.1	162.8	167.5	171.9	177.1	184.9
Unit nonlabor payments	46.4	59.4	72.6	106.7	118.4	136.3	146.2	156.4	160.9	162.1	166.3	170.9	175.8
Implicit price deflator	48.5	63.2	73.4	107.3	127.6	148.1	153.0	158.2	162.2	165.6	170.0	174.9	181.7
Nonfarm business:													
Output per hour of all persons	69.5	88.4	95.8	100.9	99.0	99.1	102.0	104.2	105.6	107.7	108.9	111.1	112.1
Compensation per hour	34.5	57.6	70.7	108.6	131.6	154.7	160.8	167.2	174.0	182.9	189.8	198.7	209.5
Real compensation per hour	70.7	90.0	96.4	101.0	96.7	97.1	97.8	97.5	98.0	101.1	101.2	101.8	102.4
Unit labor costs	49.7	65.2	73.8	107.7	132.9	156.1	157.6	160.4	164.9	169.8	174.2	178.8	186.9
Unit nonlabor payments	46.3	60.0	69.4	105.6	118.1	136.1	148.1	156.3	161.9	163.3	167.7	172.2	176.5
Implicit price deflator	48.5	63.4	72.3	107.0	127.8	149.2	154.3	159.0	163.8	167.6	172.0	176.5	183.3
Nonfinancial corporations:													
Output per hour of all employees	71.9	90.2	96.8	100.7	99.3	100.2	103.0	105.5	107.2	109.6	112.1	114.7	114.6
Compensation per hour	36.1	58.6	71.0	108.5	131.4	154.1	159.1	165.0	171.6	179.9	186.1	194.1	204.0
Real compensation per hour	74.0	91.6	96.9	100.8	96.6	96.8	96.8	96.3	96.7	99.5	99.3	99.4	99.7
Total unit costs	49.4	64.8	72.7	107.3	133.4	159.5	159.5	160.8	164.1	168.5	171.2	174.6	184.0
Unit labor costs	50.2	65.0	73.4	107.8	132.3	153.8	154.5	156.5	160.2	164.1	166.1	169.3	178.0
Unit nonlabor costs	47.0	64.2	70.7	105.7	136.7	176.4	174.3	173.6	175.8	181.7	186.4	190.3	201.9
Unit profits	59.8	52.3	65.6	102.0	85.2	78.5	110.9	136.5	133.0	123.1	123.0	128.8	112.5
Unit nonlabor payments	51.5	60.1	68.9	104.4	118.6	142.1	152.1	160.6	160.8	161.2	164.2	168.8	170.6
Implicit price deflator	50.7	63.3	71.9	106.6	127.6	149.8	153.7	157.9	160.4	163.1	165.4	169.1	175.5
Manufacturing:													
Output per hour of all persons	60.7	80.2	92.6	101.6	101.7	106.6	112.2	118.2	123.5	128.2	132.9	136.5	140.3
Compensation per hour	35.6	57.0	68.2	108.3	132.8	158.7	162.7	168.1	176.3	184.3	189.2	196.0	204.3
Real compensation per hour	73.0	89.0	93.1	100.6	97.7	99.6	99.0	98.1	99.3	101.9	100.9	100.4	99.9
Unit labor costs	58.7	71.0	73.7	106.6	130.6	148.8	145.1	142.3	142.7	143.8	142.3	143.6	145.7
Unit nonlabor payments	60.0	64.1	70.8	101.8	97.6	113.7	128.3	138.5	130.3	135.2	137.6	–	–
Implicit price deflator	59.1	69.0	72.8	105.2	121.0	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	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988
Iron mining, crude ore	1011	99.9	112.7	124.7	132.8	100.9	139.0	173.3	187.9	200.3	254.5	258.8
Iron mining, usable ore	1011	111.1	117.8	123.2	130.6	98.2	138.6	171.7	187.9	197.8	250.4	248.2
Copper mining, crude ore	1021	84.8	87.2	99.5	102.0	106.4	129.9	140.3	164.2	195.4	197.0	206.9
Copper mining, recoverable metal	1021	85.5	77.2	91.6	97.7	116.2	130.9	155.4	193.1	228.9	211.2	229.9
Coal mining	111,121	141.5	105.3	112.5	122.3	119.4	136.5	151.7	154.3	167.7	181.3	200.7
Bituminous coal and lignite mining	121	142.3	105.2	112.6	122.7	120.0	136.9	152.3	154.6	168.2	182.4	201.9
Nonmetallic minerals, except fuels	14	89.7	90.6	96.5	94.7	89.3	98.2	105.5	107.5	108.4	115.3	114.0
Crushed and broken stone	142	83.1	91.4	101.3	96.7	94.1	103.9	105.8	104.5	104.9	121.3	120.1
Red meat products	2011,13	77.3	84.4	107.0	107.9	112.3	115.9	117.0	119.5	117.3	115.3	–
Meatpacking plants	2011	78.7	88.6	108.9	113.9	119.5	123.4	125.6	130.1	126.2	126.2	125.7
Sausages and other prepared meats	2013	72.8	74.8	102.3	95.0	96.5	100.0	99.5	98.8	98.7	94.5	–
Poultry dressing and processing	2016,17	78.3	87.9	105.7	116.4	125.6	131.7	130.3	133.2	127.3	135.4	–
Fluid milk	2026	73.7	95.5	123.9	128.0	135.3	143.1	149.5	155.0	162.4	168.0	176.1
Preserved fruits and vegetables	203	79.7	93.7	100.8	99.2	107.9	110.8	112.4	113.4	118.3	116.4	–
Grain mill products	204	79.7	87.1	105.3	110.9	121.0	125.5	132.8	140.9	142.1	149.6	–
Flour and other grain mill products	2041	76.6	85.8	94.8	96.7	104.1	110.4	114.9	122.9	126.6	129.9	132.3
Rice milling	2044	82.0	90.4	111.8	117.9	104.5	103.3	93.2	103.2	112.6	120.6	113.7
Bakery products	205	87.5	93.4	93.7	96.2	103.3	106.9	106.8	108.5	114.4	113.3	–
Sugar	2061,62,63	85.9	94.0	100.1	98.8	90.4	98.6	99.7	105.5	110.1	125.5	126.3
Raw and refined cane sugar	2061,62	86.1	90.8	99.3	98.8	87.6	100.0	94.7	108.7	109.6	117.1	118.9
Beet sugar	2063	92.9	98.1	102.1	98.7	94.8	94.5	108.8	100.7	111.8	139.2	138.2
Malt beverages	2082	56.7	86.1	116.0	118.3	122.6	131.3	137.9	130.3	152.3	165.7	163.6
Bottled and canned soft drinks	2086	70.0	89.5	106.9	110.6	114.1	121.5	131.0	136.7	146.6	158.1	166.7
Total tobacco products	2111,21,31	86.8	93.9	102.1	100.5	100.7	105.1	110.3	113.4	117.2	124.2	120.3
Cigarettes, chewing and smoking tobacco	2111,31	85.3	93.3	101.8	99.6	99.5	104.1	107.2	111.7	115.5	123.1	119.9
Cigars	2121	88.4	93.7	106.4	107.3	111.4	112.3	141.4	129.3	133.1	139.1	129.3
Cotton and synthetic broad woven fabrics	2211,21	–	86.7	105.0	107.4	112.5	121.6	119.8	123.7	132.8	132.1	131.4
Hosiery	2251,52	65.5	94.3	107.4	122.0	114.2	118.0	119.9	118.5	121.0	118.3	126.9
Nonwool yarn mills	2281	84.3	101.2	99.7	103.1	118.2	128.5	129.6	134.5	141.1	162.6	161.1
Men's and boys' suits and coats	2311	75.1	95.2	97.3	98.8	95.2	90.2	96.9	106.3	107.5	105.8	109.9
Sawmills and planing mills, general	2421	90.0	98.8	104.2	107.9	117.1	126.8	132.3	139.2	155.1	151.1	148.7
Millwork	2431	95.9	100.2	93.6	96.4	86.1	87.9	88.7	85.7	90.0	94.1	–
Veneer and plywood	2435,36	83.2	97.8	102.8	106.9	114.4	121.1	120.0	125.1	128.8	132.1	–
Household furniture	251	82.2	97.5	99.9	103.0	104.7	110.1	112.2	112.5	118.5	118.3	124.5
Wood household furniture	2511,7	83.5	98.0	97.2	97.3	98.2	103.8	105.5	104.4	111.9	110.5	–
Upholstered household furniture	2512	84.4	97.2	102.3	110.5	115.9	121.6	122.7	124.6	127.1	125.2	–
Mattresses and bedsprings	2515	67.7	96.9	112.1	114.0	104.3	108.6	109.5	108.8	117.9	130.9	123.7
Office furniture	252	78.2	85.5	112.1	108.8	107.4	112.0	117.8	116.7	117.8	118.7	113.9
Paper, paperboard, and pulp mills	2611,21,31,61	77.5	86.7	105.2	104.4	111.3	119.5	121.0	123.1	133.5	138.0	142.8
Paper and plastic bags	2643	75.8	99.8	94.6	92.3	95.3	102.9	105.6	107.1	112.3	110.5	–
Folding paperboard boxes	2651	77.4	98.5	101.6	104.5	104.2	104.5	102.4	99.6	101.4	98.1	98.7
Corrugated and solid fiber boxes	2653	73.1	96.2	111.0	109.8	111.9	114.0	118.9	122.5	126.7	123.3	124.3
Industrial inorganic chemicals	281	–	86.5	94.3	91.4	86.3	94.0	104.5	101.4	105.4	107.5	–
Industrial inorganic chemicals, not elsewhere classified	2819 pt.	–	84.0	90.3	89.3	80.8	85.8	95.0	91.5	90.6	92.0	–
Synthetic fibers	2823,24	53.8	84.5	115.7	120.9	103.6	126.2	125.3	135.8	146.2	156.4	156.6
Pharmaceutical preparations	2834	74.8	92.5	106.0	104.2	107.0	114.3	116.4	118.1	121.8	120.9	116.8
Cosmetics and other toiletries	2844	65.9	94.0	83.6	76.1	84.0	86.2	85.2	87.3	94.3	96.2	–
Paints and allied products	2851	74.9	94.2	100.8	99.8	106.5	113.8	121.5	125.6	127.7	135.3	138.2
Industrial organic chemicals, not elsewhere classified	2869	65.5	85.3	98.9	103.9	87.2	105.3	113.9	112.5	119.6	132.1	–
Agricultural chemicals	287	–	86.7	97.2	97.7	94.5	106.2	119.8	115.6	110.0	129.4	–
Petroleum refining	2911	73.8	88.7	94.2	83.7	79.4	81.8	92.5	102.6	113.8	120.1	125.7
Tires and inner tubes	3011	87.6	91.8	102.4	118.1	128.2	136.1	146.8	146.7	151.4	162.2	169.7
Miscellaneous plastic products	3079	–	86.2	95.7	98.5	110.1	107.2	110.5	113.0	114.1	125.4	–
Footwear	314	100.3	101.3	99.1	95.6	106.4	103.9	105.7	107.3	109.3	104.7	100.6
Glass containers	3221	87.2	98.5	105.2	110.1	105.8	108.5	128.0	127.0	138.9	153.6	153.3
Hydraulic cement	3241	84.8	84.7	87.0	91.1	94.0	108.4	125.3	128.3	135.5	143.8	147.6
Structural clay products	325	78.2	91.0	97.6	100.7	102.6	105.4	111.3	112.8	115.6	119.9	–
Clay construction products	3251,53,59	77.4	89.1	94.0	97.3	103.3	101.1	110.4	112.6	114.5	120.0	120.6
Brick and structural clay tile	3251	81.1	93.1	84.9	84.3	88.6	85.5	93.3	100.4	98.7	104.9	104.9
Clay refractories	3255	82.1	95.5	109.6	111.1	100.0	121.6	115.1	114.1	122.9	121.9	–
Concrete products	3271,72	82.3	91.9	90.4	88.5	91.0	97.6	99.2	100.5	105.9	102.1	–
Ready-mixed concrete	3273	91.1	97.5	93.1	95.4	90.6	93.7	96.3	97.4	100.1	104.5	–
Steel	331	87.6	93.3	102.9	112.0	90.9	116.8	131.3	139.5	141.8	152.3	168.3
Gray iron foundries	3321	79.8	97.0	90.8	92.7	93.7	98.3	106.8	104.2	107.4	108.8	–
Steel foundries	3324,25	90.6	107.5	99.8	91.6	89.0	89.9	98.8	95.6	100.3	95.0	–
Steel foundries, not elsewhere classified	3325	–	107.7	99.8	90.0	88.4	90.2	103.5	101.0	104.3	104.3	111.0
Primary copper, lead, and zinc	3331,32,33	78.1	85.3	103.7	118.6	128.0	141.2	148.0	181.5	210.8	259.8	–
Primary copper	3331	79.8	83.0	105.3	124.4	128.5	138.3	151.9	189.8	229.2	296.9	338.0
Primary aluminum	3334	92.5	96.2	100.0	103.8	103.0	111.5	125.4	125.4	134.0	133.3	134.9
Copper rolling and drawing	3351	76.8	76.8	94.1	97.9	106.0	121.1	128.1	122.0	130.4	135.5	135.7
Aluminum rolling and drawing	3353,54,55	66.0	87.5	100.0	96.8	99.2	110.4	116.2	115.6	125.0	128.4	128.4
Metal cans	3411	78.8	87.0	102.6	108.1	118.5	120.5	123.0	125.6	126.0	132.6	143.2
Hand and edge tools	3423	91.0	93.9	98.4	95.2	92.8	88.8	89.5	90.1	89.2	93.9	–
Heating equipment, except electric	3433	–	80.4	99.7	94.6	102.3	93.2	102.0	101.6	105.0	109.3	–
Fabricated structural metal	3441	102.2	97.4	102.1	98.5	99.5	103.0	107.9	117.7	117.7	117.7	–
Metal doors, sash, and trim	3442	82.1	89.3	90.6	90.4	96.0	99.7	102.8	106.3	104.1	104.9	–
Metal stampings	3465,66,69	86.4	93.2	99.9	101.4	98.1	104.7	110.4	104.7	108.7	115.6	–
Valves and pipe fittings	3494	93.6	92.4	102.8	105.4	101.3	103.6	105.1	104.5	104.4	110.8	–
Farm and garden machinery	352	75.7	97.7	93.3	95.1	94.9	95.1	105.2	101.5	103.0	109.6	–

See footnotes at end of table.

47. Continued—Annual productivity indexes for selected industries

(1977=100)

Industry	SIC	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988
Construction machinery and equipment	3531	83.4	93.9	97.4	96.1	88.9	88.2	102.6	104.1	107.1	100.8	101.6
Oilfield machinery and equipment	3533	86.4	107.9	104.0	104.7	98.4	91.8	87.5	79.9	73.2	75.6	72.0
Machine tools	3541,42	91.7	103.0	98.8	96.5	88.0	83.0	93.6	96.7	97.7	110.8	100.2
Metal-cutting machine tools	3541	89.5	102.9	100.6	98.9	89.2	81.1	93.3	96.4	97.6	112.4	93.3
Metal-forming machine tools	3542	98.5	104.0	93.5	89.4	85.0	87.6	93.7	96.6	97.1	105.9	112.9
Pumps and compressors	3561,63	85.8	91.4	100.2	102.4	95.9	100.2	106.1	106.8	108.3	115.4	–
Ball and roller bearings	3562	85.5	97.5	95.4	94.3	83.3	86.3	94.4	92.1	95.6	103.6	106.3
Refrigeration and heating equipment	3585	88.4	89.9	93.8	99.4	100.1	100.9	105.5	103.7	101.5	107.9	–
Carburetors, pistons, rings, and valves	3592	–	100.1	90.3	91.7	92.0	99.6	110.3	114.0	111.1	118.8	–
Transformers	3612	89.1	89.3	110.6	106.9	99.6	99.1	97.6	99.3	100.4	101.5	103.1
Switchgear and switchboard apparatus	3613	83.3	93.4	103.2	99.5	101.3	106.1	107.4	110.6	110.7	109.3	–
Motors and generators	3621	87.8	93.0	96.7	100.4	102.4	104.3	107.9	110.5	112.3	119.2	117.4
Major household appliances	3631,32,33,39	70.2	93.6	105.8	107.6	108.6	117.6	123.6	127.2	134.1	137.2	138.9
Household cooking equipment	3631	68.7	97.8	103.9	105.7	112.6	120.8	131.9	135.6	158.4	168.5	170.9
Household refrigerators and freezers	3632	71.7	94.5	114.4	117.4	116.1	127.1	127.5	136.8	133.5	129.0	131.2
Household laundry equipment	3633	70.7	93.6	102.1	103.9	105.4	112.2	117.5	118.2	123.1	125.3	129.8
Household appliances, not elsewhere classified	3639	70.4	88.8	99.1	100.4	94.7	103.7	109.8	110.0	113.1	120.1	117.7
Electric lamps	3641	88.3	96.4	103.2	106.9	108.4	124.8	131.9	126.9	131.1	144.5	150.4
Lighting fixtures	3645,46,47,48	78.1	89.2	93.3	88.7	91.0	96.3	102.2	107.1	113.9	109.9	109.8
Radio and television receiving sets	3651	70.6	90.1	116.9	133.6	163.9	196.1	236.9	249.8	278.1	257.7	258.5
Semiconductors and related devices	3674	–	56.0	149.4	171.6	197.9	211.5	229.2	206.1	210.5	260.1	–
Motor vehicles and equipment	371	70.5	87.7	90.8	93.1	96.9	109.6	115.7	121.2	121.7	129.1	133.8
Instruments to measure electricity	3825	–	95.9	108.4	111.9	119.2	121.8	133.7	130.4	122.2	132.2	–
Railroad transportation, revenue traffic	401 Class I	77.7	89.5	107.3	111.5	115.8	141.9	152.9	161.7	178.1	206.4	226.5
Railroad transportation, car-miles	401 Class I	89.1	98.3	107.9	107.6	110.1	128.9	137.7	138.9	148.2	167.5	179.4
Class 1 bus carriers	411,13,14 pts.	107.3	97.0	100.9	90.7	98.8	95.4	90.9	87.4	86.8	90.6	–
Intercity trucking	4213 pt.	83.5	89.2	107.7	116.3	108.0	130.7	135.1	130.2	134.5	138.9	–
Intercity trucking, general freight	4213 pt.	76.8	88.4	107.5	117.2	107.8	136.0	137.6	131.7	140.9	144.9	–
Air transportation	4511,4521 pt.	71.4	87.6	106.2	104.9	114.9	126.7	131.7	136.3	137.9	146.1	140.8
Petroleum pipelines	4612,13	79.5	95.7	93.0	86.0	89.2	94.3	104.5	104.9	107.0	104.9	109.9
Telephone communications	4811	62.1	85.9	118.1	124.4	129.1	145.1	143.0	149.8	161.3	165.9	176.7
Gas and electric utilities	491,92,93	83.1	94.7	96.2	94.4	89.3	88.4	91.6	90.9	90.6	93.5	97.9
Electric utilities	491,493 pt.	77.1	92.9	94.0	93.0	89.5	90.9	94.4	93.5	95.8	100.7	105.6
Gas utilities	492,493 pt.	102.1	101.4	102.1	98.1	89.0	81.1	83.6	82.1	74.1	71.6	74.7
Hardware stores	5251	–	97.8	111.6	107.5	109.2	111.4	121.1	124.6	137.4	140.3	150.6
Department stores	5311	77.5	89.7	103.8	109.9	112.4	119.5	126.6	129.2	135.3	138.5	141.7
Variety stores	5331	124.9	122.5	107.8	118.8	113.0	121.5	126.8	118.5	101.1	97.2	93.8
Retail food stores	54	107.0	98.8	100.3	97.1	95.5	95.2	95.6	95.8	93.7	92.7	91.8
Grocery stores	5411	–	98.6	100.1	97.9	97.9	98.6	100.1	98.4	96.3	93.8	92.1
Retail bakeries	546	–	93.1	102.5	97.9	90.6	88.4	78.9	69.8	73.6	78.9	76.9
Franchised new car dealers	5511	86.1	95.0	99.6	98.1	100.4	109.4	110.4	109.7	110.7	107.4	111.8
Auto and home supply stores	5531	–	89.9	106.7	109.2	107.2	118.9	118.4	124.7	125.6	134.1	136.6
Gasoline service stations	5541	74.6	85.3	105.1	106.7	111.8	122.5	129.1	134.3	143.9	139.8	141.5
Apparel and accessory stores	56	81.3	105.0	117.9	123.9	126.4	132.9	140.9	146.3	153.5	142.3	141.2
Men's and boys' clothing stores	5611	82.7	102.3	107.1	116.4	116.6	119.5	125.1	131.4	135.0	134.0	133.7
Women's ready-to-wear stores	5621	76.5	106.5	117.9	127.8	142.0	151.3	158.3	162.8	176.4	166.1	162.8
Family clothing stores	5651	75.2	109.5	123.7	132.4	140.7	149.2	145.8	138.5	136.0	128.8	128.0
Shoe stores	5661	95.3	95.1	110.3	114.2	110.2	107.9	110.9	118.7	127.5	119.9	118.2
Furniture, furnishings, and equipment stores	57	80.1	91.9	107.4	112.6	109.2	118.4	129.4	133.5	144.4	146.8	154.4
Furniture and home furnishings stores	571	79.3	90.1	98.0	101.2	97.6	104.1	113.1	108.7	115.5	113.0	111.0
Appliance, radio, television, and music stores	572,73	81.2	94.8	124.0	132.4	128.7	143.4	158.5	180.0	198.9	211.9	243.2
Household appliance stores	572	–	89.5	109.9	114.9	102.0	111.8	139.2	154.6	177.2	172.1	177.2
Radio, television, and music stores	573	–	98.0	131.5	140.5	142.4	159.5	165.9	190.2	206.5	226.7	269.5
Eating and drinking places	58	100.6	100.8	99.8	97.3	96.9	95.3	91.1	87.9	89.7	90.7	91.3
Drug and proprietary stores	5912	83.4	94.2	107.0	107.6	107.9	110.9	105.7	105.5	104.6	103.8	105.3
Liquor stores	5921	–	96.3	102.2	104.0	108.1	101.6	98.7	107.1	98.0	91.6	88.5
Commercial banking	602	85.5	90.0	92.7	90.5	93.2	101.3	104.3	109.7	111.8	116.5	–
Hotels, motels, and tourist courts	7011	85.1	89.7	95.0	91.6	88.8	95.4	102.1	97.5	92.8	88.0	–
Laundry and cleaning services	721	94.7	96.6	91.0	88.4	90.6	90.4	92.3	87.3	85.0	84.1	83.8
Beauty and barber shops	7231,41	–	98.7	102.9	109.2	108.3	114.0	103.9	98.6	97.3	99.1	96.0
Beauty shops	7231	–	100.1	106.2	114.7	113.1	120.1	112.3	104.1	98.8	100.1	96.2
Automotive repair shops	753	–	102.0	95.9	93.3	87.4	86.1	88.3	96.1	93.2	96.1	101.1

– Data not available.

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

Country	Annual average		1988			1989			
	1988	1989	II	III	IV	I	II	III	IV
Total labor force basis									
United States	5.4	5.2	5.4	5.4	5.2	5.1	5.2	5.2	5.3
Canada	7.7	–	7.6	7.8	7.7	7.5	7.6	7.3	7.5
Australia	7.2	–	7.4	6.9	6.8	6.6	6.1	6.0	5.9
Japan	2.5	–	2.5	2.6	2.4	2.4	2.3	2.3	2.2
France	10.0	–	10.0	10.1	9.8	9.8	9.8	9.8	9.8
Germany	6.2	–	6.3	6.2	6.1	5.7	5.6	5.6	5.5
Italy [1, 2]	7.8	–	7.7	7.8	7.7	7.6	7.8	7.7	7.5
Sweden	1.6	–	1.6	1.6	1.4	1.4	1.3	1.3	1.4
United Kingdom	8.2	–	8.6	8.0	7.5	7.0	6.5	6.2	5.8
Civilian labor force basis									
United States	5.5	5.3	5.5	5.5	5.3	5.2	5.3	5.3	5.3
Canada	7.8	–	7.7	7.8	7.7	7.6	7.6	7.4	7.6
Australia	7.2	–	7.5	7.0	6.8	6.6	6.1	6.0	5.9
Japan	2.5	–	2.5	2.6	2.4	2.4	2.3	2.3	2.2
France	10.4	–	10.2	10.3	10.1	10.0	10.0	10.0	10.0
Germany	6.3	–	6.4	6.3	6.2	5.8	5.7	5.7	5.6
Italy [1, 2]	7.9	–	7.9	7.9	7.8	7.8	8.0	7.8	7.7
Sweden	1.6	–	1.6	1.6	1.4	1.4	1.3	1.3	1.4
United Kingdom	8.3	–	8.6	8.0	7.6	7.0	6.6	6.2	5.9

[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	1980	1981	1982	1983	1984	1985	1986	1987	1988
Labor force									
United States	106,940	108,670	110,204	111,550	113,544	115,461	117,834	119,865	121,669
Canada	11,573	11,899	11,926	12,109	12,316	12,532	12,746	13,011	13,275
Australia	6,693	6,810	6,910	6,997	7,135	7,300	7,588	7,758	7,974
Japan	55,740	56,320	56,980	58,110	58,480	58,820	59,410	60,050	60,860
France	22,800	22,950	23,160	23,140	23,300	23,360	23,440	23,540	23,580
Germany	26,520	26,650	26,700	26,650	26,760	26,970	27,090	28,360	28,540
Italy	21,120	21,320	21,410	21,590	21,670	21,800	22,290	22,350	22,660
Netherlands	5,860	6,080	6,140	6,170	6,260	6,280	6,370	6,490	6,540
Sweden	4,312	4,327	4,350	4,369	4,385	4,418	4,443	4,480	4,530
United Kingdom	26,520	26,590	26,720	26,750	27,170	27,370	27,540	27,860	28,110
Participation rate[1]									
United States	63.8	63.9	64.0	64.0	64.4	64.8	65.3	65.6	65.9
Canada	64.1	64.8	64.1	64.4	64.8	65.3	65.7	66.2	66.7
Australia	62.1	61.9	61.7	61.4	61.5	61.6	62.8	63.0	63.3
Japan	62.6	62.6	62.7	63.1	62.7	62.3	62.1	61.9	61.9
France	57.2	57.1	57.1	56.6	56.6	56.3	56.1	55.8	55.6
Germany	53.2	52.9	52.6	52.3	52.4	52.6	52.6	55.0	55.2
Italy	48.2	48.3	47.7	47.5	47.3	47.2	47.8	47.9	48.4
Netherlands	55.3	56.6	56.5	56.1	56.2	55.7	55.9	56.3	56.2
Sweden	66.9	66.8	66.8	66.7	66.6	66.9	67.0	67.3	67.8
United Kingdom	62.5	62.2	62.2	61.9	62.5	62.6	62.6	63.0	63.3
Employed									
United States	99,303	100,397	99,526	100,834	105,005	107,150	109,597	112,440	114,968
Canada	10,708	11,001	10,618	10,675	10,932	11,221	11,531	11,861	12,244
Australia	6,284	6,416	6,415	6,300	6,494	6,697	6,974	7,129	7,398
Japan	54,600	55,060	55,620	56,550	56,870	57,260	57,740	58,320	59,310
France	21,330	21,200	21,240	21,170	20,980	20,920	20,950	21,010	21,140
Germany	25,750	25,560	25,140	24,750	24,790	24,960	25,230	26,550	26,730
Italy	20,200	20,280	20,250	20,320	20,390	20,490	20,610	20,590	20,870
Netherlands	5,510	5,540	5,510	5,410	5,490	5,640	5,730	5,840	5,920
Sweden	4,226	4,219	4,213	4,218	4,249	4,293	4,326	4,396	4,458
United Kingdom	24,670	23,800	23,720	23,610	23,990	24,310	24,460	25,010	25,780
Employment-population ratio[2]									
United States	59.2	59.0	57.8	57.9	59.5	60.1	60.7	61.5	62.3
Canada	59.3	59.9	57.1	56.8	57.5	58.5	59.4	60.4	61.6
Australia	58.3	58.4	57.3	55.3	56.0	56.5	57.7	57.9	58.7
Japan	61.3	61.2	61.2	61.4	61.0	60.6	60.4	60.1	60.4
France	53.5	52.8	52.3	51.8	51.0	50.4	50.2	49.8	49.9
Germany	51.7	50.8	49.6	48.6	48.5	48.7	49.0	51.5	51.7
Italy	46.1	45.9	45.2	44.7	44.5	44.4	44.2	44.1	44.6
Netherlands	52.0	51.6	50.7	49.2	49.3	50.0	50.2	50.6	50.9
Sweden	65.6	65.1	64.7	64.4	64.5	65.0	65.2	66.0	66.7
United Kingdom	58.1	55.7	55.2	54.7	55.2	55.6	55.6	56.6	58.0
Unemployed									
United States	7,637	8,273	10,678	10,717	8,539	8,312	8,237	7,425	6,701
Canada	865	898	1,308	1,434	1,384	1,311	1,215	1,150	1,031
Australia	409	394	495	697	641	603	613	629	576
Japan	1,140	1,260	1,360	1,560	1,610	1,560	1,670	1,730	1,550
France	1,470	1,750	1,920	1,970	2,320	2,440	2,490	2,530	2,440
Germany	770	1,090	1,560	1,900	1,970	2,010	1,860	1,800	1,810
Italy	920	1,040	1,160	1,270	1,280	1,310	1,680	1,760	1,790
Netherlands	350	540	630	760	770	640	640	650	620
Sweden	86	108	137	151	136	125	117	84	72
United Kingdom	1,850	2,790	3,000	3,140	3,180	3,060	3,080	2,850	2,330
Unemployment rate									
United States	7.1	7.6	9.7	9.6	7.5	7.2	7.0	6.2	5.5
Canada	7.5	7.5	11.0	11.8	11.2	10.5	9.5	8.8	7.8
Australia	6.1	5.8	7.2	10.0	9.0	8.3	8.1	8.1	7.2
Japan	2.0	2.2	2.4	2.7	2.8	2.6	2.8	2.9	2.5
France	6.4	7.6	8.3	8.5	10.0	10.4	10.6	10.8	10.4
Germany	2.9	4.1	5.8	7.1	7.4	7.5	6.9	6.4	6.3
Italy	4.4	4.9	5.4	5.9	5.9	6.0	7.5	7.9	7.9
Netherlands	6.0	8.9	10.3	12.3	12.3	10.2	10.0	10.0	9.5
Sweden	2.0	2.5	3.1	–	3.1	2.8	2.6	1.9	1.6
United Kingdom	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.

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	1977	1978	1979	1981	1982	1983	1984	1985	1986	1987	1988
Output per hour														
United States	60.7	80.2	92.6	100.0	101.6	101.6	104.0	106.6	112.2	118.2	123.5	128.2	132.9	136.5
Canada	50.7	75.6	90.3	100.0	101.1	102.0	102.9	98.3	105.4	114.4	117.3	117.7	120.5	124.3
Japan	23.2	64.8	83.1	100.0	108.0	114.8	127.2	135.0	142.3	152.5	161.1	163.7	176.5	190.0
Belgium	33.0	60.4	78.8	100.0	106.1	112.0	127.6	135.2	148.1	155.0	158.6	164.5	170.5	–
Denmark	37.2	65.6	83.3	100.0	101.5	106.5	114.2	114.6	120.2	119.6	120.3	116.2	117.2	117.2
France	37.4	71.4	83.8	100.0	104.6	109.7	113.9	122.0	125.1	127.5	132.7	135.2	136.8	144.1
Germany	40.3	71.2	84.0	100.0	103.1	108.2	111.0	112.6	119.2	123.7	128.4	128.3	129.9	135.9
Italy	37.2	69.8	83.4	100.0	106.5	116.6	125.4	128.5	135.3	148.8	156.8	158.3	162.3	167.1
Netherlands	32.4	64.3	81.5	100.0	106.4	112.3	116.9	119.4	127.9	139.2	145.1	144.8	145.9	153.2
Norway	54.3	81.3	94.4	100.0	101.2	107.4	108.0	109.2	117.2	124.1	126.8	125.9	132.2	–
Sweden	42.3	80.7	94.8	100.0	102.8	110.9	113.2	116.5	125.5	131.0	136.1	136.0	141.8	145.0
United Kingdom	55.9	80.3	95.4	100.0	101.4	102.5	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	100.0	106.0	108.1	104.8	98.4	104.7	117.5	122.0	124.7	130.1	138.1
Canada	41.3	73.5	93.5	100.0	104.6	108.5	107.4	93.6	99.6	112.5	118.8	121.9	128.5	136.0
Japan	19.2	69.9	91.9	100.0	106.7	113.9	129.8	137.3	148.2	165.4	177.0	177.8	190.8	212.3
Belgium	41.9	78.6	96.4	100.0	101.4	104.2	105.6	110.1	114.7	118.0	119.6	121.4	123.3	–
Denmark	49.2	82.0	95.9	100.0	99.7	105.4	106.6	108.3	115.6	121.0	124.9	125.9	121.1	118.4
France	36.5	75.5	90.5	100.0	102.3	105.3	102.9	104.0	103.8	102.6	103.0	102.8	101.8	105.7
Germany	50.0	86.6	96.1	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	100.0	104.9	115.7	119.9	118.7	119.7	125.3	129.0	131.9	137.3	145.3
Netherlands	44.8	84.4	95.8	100.0	102.8	106.1	106.7	105.0	107.0	113.3	116.7	118.1	118.7	123.8
Norway	54.8	86.5	99.2	100.0	97.7	100.5	98.6	96.8	97.2	102.7	106.5	106.9	108.3	–
Sweden	52.6	92.5	100.3	100.0	97.3	103.6	100.6	100.1	105.2	111.5	115.3	114.7	119.2	124.0
United Kingdom	71.2	94.9	104.7	100.0	100.6	100.5	86.3	86.4	88.8	92.5	94.8	95.6	101.0	108.2
Total hours														
United States	86.5	97.9	104.0	100.0	104.3	106.3	100.8	92.3	93.4	99.4	98.7	97.3	97.9	101.2
Canada	81.4	97.2	103.6	100.0	103.4	106.3	104.3	95.2	94.5	98.3	101.2	103.6	106.6	109.4
Japan	82.7	107.9	110.7	100.0	98.8	99.3	102.0	101.7	104.2	108.5	109.8	108.6	108.1	111.7
Belgium	127.1	130.2	122.3	100.0	95.5	93.0	82.8	81.4	77.5	76.1	75.4	73.8	72.3	–
Denmark	132.4	125.1	115.2	100.0	98.3	99.0	93.4	94.5	96.2	101.2	103.8	108.4	103.3	101.0
France	97.6	105.7	107.9	100.0	97.8	95.9	90.3	85.2	83.0	80.4	77.6	76.1	74.4	73.4
Germany	123.8	121.7	114.4	100.0	98.7	98.5	94.6	91.0	86.9	86.1	85.7	86.4	85.9	85.5
Italy	88.9	98.9	100.1	100.0	98.5	99.3	95.6	92.4	88.5	84.2	82.3	83.3	84.6	87.0
Netherlands	138.4	131.2	117.6	100.0	96.6	94.4	91.2	88.0	83.6	81.4	80.5	81.5	81.3	80.8
Norway	101.1	106.4	105.1	100.0	96.5	93.6	91.3	88.6	82.9	82.8	84.0	84.9	81.9	–
Sweden	124.4	114.6	105.7	100.0	94.6	93.4	88.9	85.9	83.9	85.1	84.7	84.3	84.0	85.5
United Kingdom	127.3	118.1	109.8	100.0	99.1	98.0	80.6	76.2	72.2	71.2	70.7	69.0	68.5	69.8
Compensation per hour														
United States	35.6	57.0	68.2	100.0	108.3	118.9	145.7	158.7	162.7	168.1	176.3	184.3	189.2	196.0
Canada	27.5	47.9	60.0	100.0	107.6	118.6	151.1	167.0	177.2	185.6	194.4	203.5	214.0	227.1
Japan	8.9	33.9	55.1	100.0	106.6	113.4	129.8	136.6	140.7	144.9	151.4	158.9	162.5	171.3
Belgium	13.8	34.9	53.5	100.0	107.8	117.4	144.5	150.7	159.8	173.1	183.6	190.8	194.7	–
Denmark	12.6	36.3	56.1	100.0	110.2	123.1	149.7	162.9	174.2	184.1	196.5	203.5	225.9	230.1
France	15.0	36.3	51.9	100.0	113.0	128.4	172.0	204.0	225.2	244.9	265.4	278.7	291.4	301.9
Germany	18.8	48.0	67.5	100.0	107.8	116.1	134.5	141.0	148.3	155.5	164.6	171.5	178.1	185.5
Italy	9.2	27.1	41.2	100.0	115.2	139.5	197.9	233.3	273.1	313.3	352.0	367.4	391.2	416.3
Netherlands	12.5	39.0	60.5	100.0	108.4	117.0	129.1	137.5	144.5	148.6	156.9	162.2	167.0	172.8
Norway	15.8	37.9	54.6	100.0	110.0	116.0	142.8	156.1	173.5	188.3	204.3	224.2	257.4	–
Sweden	14.7	38.5	54.2	100.0	111.4	120.1	148.1	158.9	173.3	189.7	212.4	228.7	244.8	261.1
United Kingdom	15.2	31.4	47.9	100.0	116.7	139.0	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	100.0	106.6	117.0	140.1	148.8	145.1	142.3	142.7	143.8	142.3	143.6
Canada	54.2	63.4	66.5	100.0	106.5	116.2	146.7	170.0	168.1	162.3	165.7	172.8	177.5	182.7
Japan	38.4	52.3	66.4	100.0	98.7	98.8	102.0	101.2	98.9	95.0	94.0	97.1	92.1	90.2
Belgium	41.7	57.8	67.9	100.0	101.6	104.8	113.2	111.5	107.9	111.7	115.8	116.0	114.2	–
Denmark	33.8	55.4	67.4	100.0	108.6	115.7	131.1	142.2	144.9	153.9	163.3	175.1	192.8	196.3
France	40.2	50.8	62.0	100.0	108.0	117.0	151.0	167.2	179.9	192.0	200.0	206.2	213.0	209.6
Germany	46.6	67.4	80.3	100.0	104.5	107.3	121.2	125.2	124.4	125.8	128.3	133.7	137.1	136.4
Italy	24.7	38.8	49.4	100.0	108.1	119.7	157.8	181.6	201.9	210.6	224.5	232.0	241.0	249.1
Netherlands	38.5	60.7	74.3	100.0	101.8	104.1	110.4	115.2	113.0	106.8	108.1	112.0	114.4	112.8
Norway	29.2	46.6	57.8	100.0	108.7	108.1	132.2	142.9	148.0	151.8	161.1	178.1	194.7	–
Sweden	34.8	47.7	57.2	100.0	108.4	108.3	130.9	136.3	138.1	144.8	156.1	168.2	172.6	180.0
United Kingdom	27.2	39.1	50.2	100.0	115.0	135.6	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	100.0	106.6	117.0	140.1	148.8	145.1	142.3	142.7	143.8	142.3	143.6
Canada	59.4	64.5	70.6	100.0	99.3	105.4	130.0	146.3	144.9	133.2	128.9	132.1	142.3	157.8
Japan	28.5	39.1	65.6	100.0	126.8	121.3	123.8	108.8	111.5	107.2	105.6	154.4	170.5	188.4
Belgium	30.0	41.7	62.7	100.0	115.8	128.1	109.6	87.2	75.6	69.3	69.9	93.1	109.5	–
Denmark	29.5	44.4	67.2	100.0	118.4	132.0	110.3	102.3	95.1	89.3	92.5	129.9	169.0	174.8
France	40.3	45.2	68.6	100.0	117.9	135.2	136.4	124.9	116.1	108.1	109.5	146.3	174.2	172.9
Germany	25.9	42.9	70.4	100.0	121.0	135.9	124.9	119.7	113.1	102.6	101.2	143.0	177.0	180.3
Italy	35.1	54.7	75.0	100.0	112.4	127.2	122.4	118.4	117.3	105.9	103.8	137.4	164.0	168.8
Netherlands	25.1	41.2	65.6	100.0	115.7	127.4	108.9	105.8	97.1	81.6	80.0	112.2	138.6	139.9
Norway	21.8	34.7	53.5	100.0	110.4	113.6	122.5	117.8	107.9	99.0	99.8	124.7	153.7	–
Sweden	30.1	41.1	58.7	100.0	107.2	112.9	115.4	96.9	80.4	78.2	81.1	105.4	121.5	131.1
United Kingdom	43.7	53.7	70.5	100.0	126.5	164.9	209.6	186.8	160.0	142.9	143.5	168.6	188.3	210.5

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
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

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
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.

The Society for Technical Communication
Washington, D.C. Chapter

Award of Excellence

is hereby presented to

William M. Davis

for

Major Collective Bargaining Settlements in Private Industry, 1988

The Society for Technical Communication
Washington, D.C. Chapter

Award of Merit

is hereby presented to

Monthly Labor Review Staff

for

Monthly Labor Review, September, October, November 1988

The Society for Technical Communication
Washington, D.C. Chapter

Distinguished Technical Communication

is hereby presented to

Monthly Labor Review Staff

for

Monthly Labor Review, August, September, October 1989

Submitted to the

1989-1990 Technical Communications Competition

Sally Cummings

Chapter President

U.S. Department of Labor
Bureau of Labor Statistics
Washington, DC 20212

Official Business
Penalty for Private Use, $300
RETURN POSTAGE GUARANTEED

Second Class Mail
Postage and Fees Paid
U.S. Department of Labor
ISSN 0098-1818

MLR
1915-1990

Schedule of release dates for BLS statistical series

Series	Release date	Period covered	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	May 4	April	June 1	May	July 6	June	1; 4–21
Productivity and costs:							
Nonfarm business and manufacturing			June 4	1st quarter			2; 44–47
Nonfinancial corporations	May 7	1st quarter					2; 44–47
Producer Price Indexes	May 11	April	June 14	May	July 13	June	2; 34–37
Consumer Price Indexes	May 16	April	June 15	May	July 18	June	2; 31–33
Real earnings	May 16	April	June 15	May	July 18	June	14–17
U.S. Import and Export Price Indexes	May 24	April	June 28	May	July 26	2nd quarter	38–43
Employment Cost Index					July 24	1st quarter	22–25
Major collective bargaining settlements					July 24	1st quarter	26–29