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Monthly Labor Review

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

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EC1992 and U.S. workers





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

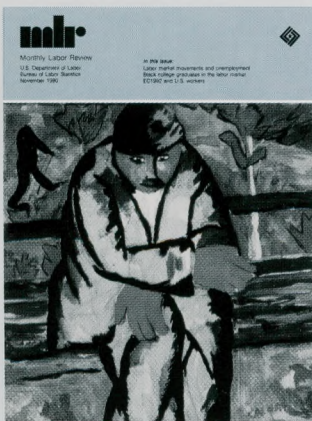
Bureau of Labor Statistics
Janet L. Norwood, *Commissioner*

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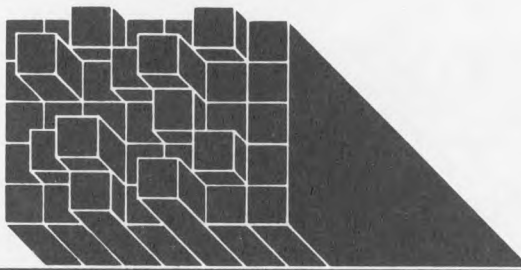
Monthly Labor Review

November 1990
Volume 113, Number 11

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

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Labor month in review



SAFETY SURVEY. The Bureau of Labor Statistics reported results of its latest survey of employer records of job-related injuries and illnesses. The survey shows nearly 6.6 million occupational injuries and illnesses in 1989, about 136,000 more than employers reported in 1988, but the injury and illness rate of 8.6 per 100 full-time workers was unchanged because employment and hours worked rose proportionately.

Commissioner of Labor Statistics Janet L. Norwood announced that major changes in the BLS survey are under way, following recent congressional approval for a multiyear redesign. When completed, the new BLS survey will make possible injury and illness profiles of women, teenagers, health care providers, and other specific worker groups, and will help identify industry work hazards and exposures more effectively. The program also will include a systematic, verifiable count of all fatal injuries on the job and the circumstances surrounding these events, making use of death certificates and other administrative records.

Occupational injuries. In 1989, nearly 6.3 million job-related injuries were reported in the private sector. Injuries from accidents at work are reportable if they result in death, loss of consciousness, restricted work activity, transfer to another job, or medical treatment beyond first aid.

Manufacturing had about 20 percent of the private sector employment in 1989, but 33 percent of total reported injuries. In contrast, the services industry had nearly 30 percent of the employment total, but only 16 percent of the injury cases.

Nine individual industries reported at least 100,000 injury cases each. The industries were motor vehicle manufacturing, eating and drinking places, wholesale groceries, retail grocery stores, hospitals, trucking and over the road couriers, nursing and personal care facilities, department stores, and hotels and motels. Together, these industries accounted for slightly more than one-fourth of injury cases reported nationwide.

Almost half of the 6.3 million injury cases were serious enough for the injured worker to have work activity restricted or to lose worktime. These cases resulted in about 57 million lost workdays in 1989.

To account for differences in industry employment and hours worked, the Bureau calculates incidence rates relating the number of injury cases to employee hours in the workplace. Occupational injuries for the private economy occurred at a rate of 8.2 per 100 full-time workers in 1989 and ranged from 14.2 in construction to 1.9 in finance, insurance, and real estate.

As in previous years, the injury rates for the private sector varied widely by establishment size. Rates for establishments with fewer than 50 employees or with 1,000 or more employees were lower than rates for mid-size establishments. This pattern, however, did not hold for each industry division.

One tool for monitoring injury severity is the incidence rate of lost workdays. This measure represents the number of workdays lost per 100 full-time workers, that is, the number of days that injured employees were away from work or restricted in their work activity. The rate of lost workdays was 74.2 for the private sector in 1989. Across all industry divisions, the rate ranged from 141.6 in construction to 16.5 in finance, insurance, and real estate.

Occupational fatalities. Work-related fatalities cannot be measured accurately through a sample survey of this size. Although 3,600 work-related fatalities were reported in private sector establishments with 11 employees or more in the 1989 survey, the Bureau believes that this count significantly understates work-related fatalities for the year.

To provide more complete data on this basic element of workplace safety, BLS has developed a plan to conduct a census of fatal occupational injuries in 1991. This new program, which will be implemented in stages, beginning in 1991, will collect and verify information on all fatal work-related injuries in administrative records such as death certificates,

workers' compensation claims, and other reports to Federal and State agencies.

Occupational illnesses. The survey seeks to measure the number of work-related illness cases which are recognized, diagnosed, and reported during the year. The overwhelming majority of these reported illnesses are those which relate to workplace activity (for example, contact dermatitis or carpal tunnel syndrome) and therefore, are easy to identify. In contrast, some conditions, such as long-term latent illnesses caused by exposure to carcinogens, often are difficult to relate to the workplace and are not adequately recognized and reported. These long-term latent illnesses are believed to be understated in the survey's illness measures.

The survey did find nearly 284,000 new cases of occupational illness among workers in private industry during 1989. Nearly three-fourths of these cases were in manufacturing; the services industry had about one-eighth of the cases.

Work-place illnesses associated with repeated trauma (including conditions due to repeated motion, pressure, or vibration such as carpal tunnel syndrome), made up slightly more than half of the illness cases in 1989. Over the past several years, disorders associated with repeated trauma have significantly increased both in number and as a percent of total illnesses reported.

Background of the survey. The Annual Survey of Occupational Injuries and Illnesses is a Federal/State cooperative program in which employer reports are collected and processed by State agencies cooperating with the Bureau of Labor Statistics. A sample of 250,000 establishments representing the total private economy (except for mines and railroads) was surveyed for 1989.

Estimates based on a sample may differ from those that would have been obtained from a census of establishments using the same procedures. A relative standard error was calculated for each estimate from the annual survey and will be published in a BLS bulletin that will be available in the spring of 1991. □

Labor market dynamics and trends in male and female unemployment

"Gross flow" data from the Current Population Survey help to identify the labor market movements that underlie changes in the monthly rates of male and female unemployment over the past two decades

Wayne J. Howe

In the late 1960's and throughout the 1970's, unemployment rates for adult women were much higher than those for adult men. During the 1980's, a decade of generally higher jobless rates, the female-male unemployment rate gap essentially disappeared. (See chart 1.) What were the labor market dynamics that caused this development?

Obviously, changes in a group's jobless rate often would reflect a change in the frequency of job loss. But jobless rates can change without this happening at all. For example, a rise might occur because the unemployed face increased difficulties in finding jobs—and thus remain unemployed longer—or because persons move into and out of the labor force more frequently. Of course, while some forces are at work to raise a group's unemployment rate, others may tend to offset these effects. And the dynamics of these forces may change considerably over time.

The patterns of movements into and out of employment, unemployment, and the labor force have changed substantially over the last two decades. This article looks separately at the trends in these patterns for adult men and women (20 years and over), and the effect that they had on the changes in the rates of male and female unemployment over the 1968–88 period. (See table 1.)

Labor market transitions

Data on the changing labor market status of the population are collected monthly through the

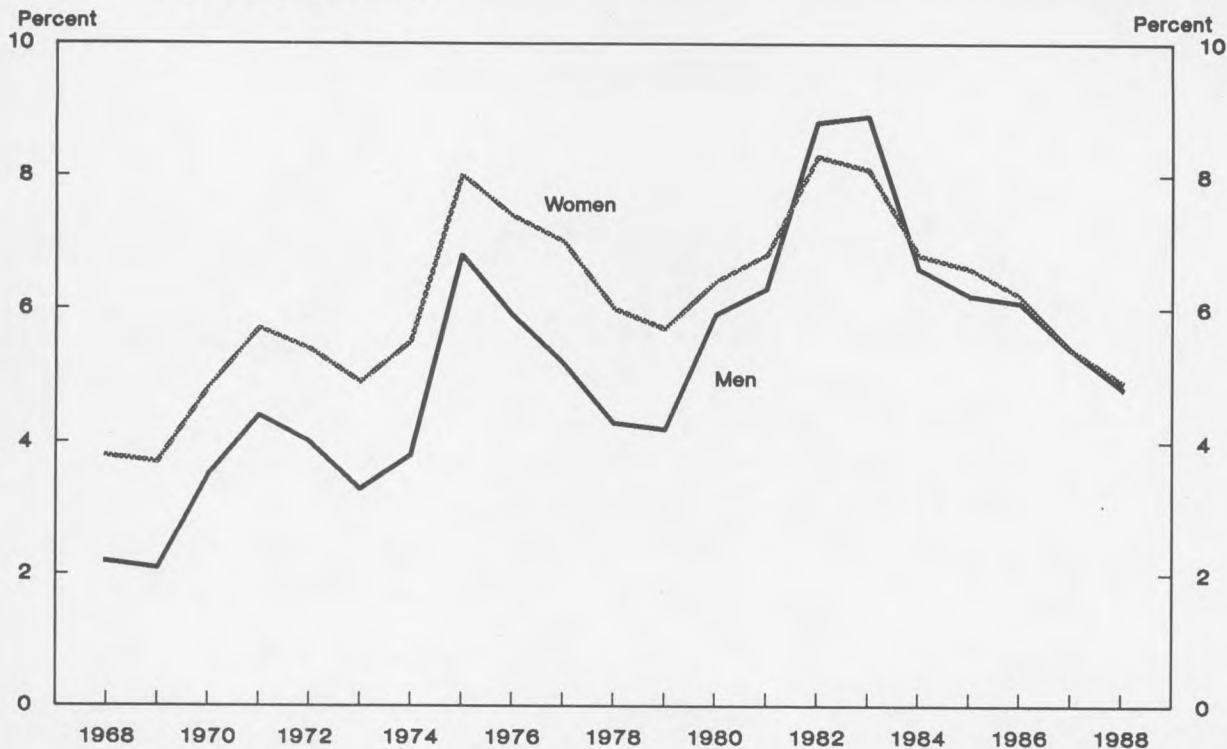
Current Population Survey (CPS). Interviews are conducted in approximately 60,000 households to determine the labor market status of all household members 16 years of age and over. However, the published data based on the survey are monthly levels from which can be derived only the *net changes*, from one month to the next, in the numbers of persons employed, unemployed, or not in the labor force. They do not quantify the much larger *gross movements* among these three labor market states.

For example, the monthly data do not show that roughly half of all persons reported as unemployed in any given month become employed or leave the labor force by the following month, being replaced by other unemployed persons who had jobs or were not in the labor force during the previous month. In fact, the total unemployment count could rise (fall) because more (fewer) people become unemployed, or because fewer (more) leave unemployment, or both. By the same token, periods of stability in the jobless rate may be the result of large but offsetting movements between one labor market state and another.

Gross flow data. The size of, and changes in, these labor market transitions can be determined from the "gross flow data" that are generated as part of the CPS. A household selected for the CPS sample is interviewed for 4 consecutive months, leaves the sample for the next 8 months, and

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Chart 1. **Seasonally adjusted unemployment rates for men and women age 20 and over, 1968-88**



then reenters for a final 4 months. Thus, in any particular month, the CPS sample consists of eight "rotation groups," each of which has been in the survey for between 1 and 8 months.

Given that framework, the households in six of the eight rotation groups (all except those in their first and fifth months of survey participation) have also been interviewed in the prior month, a fact that permits tracking of the labor market behavior of individual household members for at least 2 consecutive months. For these households, it is possible to generate "gross change" or "gross flow" data on the labor market dynamics underlying changes in the numbers of persons employed, unemployed, or out of the labor force. There are small but systematic differences between the labor force behavior reported by persons covered by the gross flow data and that reported by the entire CPS sample. Therefore, there are also some systematic differences between the net changes implicit in the gross flow data and those derived from the published stock data.¹ However, the gross flow estimates are more suitable for this analysis than those based on published data because the latter show only the changes between beginning and ending "stocks" of persons in the various labor market categories,

and not the movements of individuals that resulted in those changes.

For any 2 consecutive months, the labor market experience of an individual, as derived from the gross flow data, falls into one of nine combinations represented in the following matrix, where: E = employed, U = unemployed, N = not in the labor force, (t) represents the current month, and $(t-1)$ represents the previous month. Various combinations in the matrix, therefore, denote the transitions from one specific labor market state to another or the continuation in a given state from one month to the next.

		<i>Labor force status in current month</i>		
		<i>Employed</i>	<i>Unem- ployed</i>	<i>Not in labor force</i>
<i>Labor force status in previous month:</i>	<i>Employed</i>	$E_{t-1}E_t$	$E_{t-1}U_t$	$E_{t-1}N_t$
	<i>Unemployed</i> . .	$U_{t-1}E_t$	$U_{t-1}U_t$	$U_{t-1}N_t$
	<i>Not in labor force</i>	$N_{t-1}E_t$	$N_{t-1}U_t$	$N_{t-1}N_t$

For example, $U_{t-1}N_t$ represents the movement of persons from unemployed status in the previ-

Table 1. Civilian unemployment rates and percentage-point changes by sex and detailed age groups, selected periods, 1968-88

Sex and age	Unemployment rate (annual average)			Percentage-point change		
	1968	1979	1988	1968-79	1979-88	1968-88
Men						
20 years and over	2.2	4.2	4.8	2.0	0.6	2.6
20 to 24 years	5.1	8.7	8.9	3.6	.2	3.8
25 to 34 years	1.9	4.3	5.3	2.4	1.0	3.4
35 to 44 years	1.6	2.9	3.8	1.3	.9	2.2
45 to 54 years	1.6	2.7	3.5	1.1	.8	1.9
55 to 64 years	1.9	2.7	3.5	.8	.8	1.6
65 years and over	2.8	3.4	2.5	.6	-.9	-.3
Women						
20 years and over	3.8	5.7	4.9	1.9	-.8	1.1
20 to 24 years	6.7	9.6	8.5	2.9	-1.1	1.8
25 to 34 years	4.7	6.5	5.6	1.8	-.9	.9
35 to 44 years	3.4	4.6	4.1	1.2	-.5	.7
45 to 54 years	2.4	3.9	3.4	1.5	-.5	1.0
55 to 64 years	2.2	3.2	2.7	1.0	-.5	.5
65 years and over	2.7	3.3	2.9	.6	-.4	.2

NOTE: These are the officially published unemployment rates and may differ slightly from those derived from the gross flow data.

ous month to out of the labor force in the current month. Similarly, $E_{t-1}U_t$ represents the transition of employed persons to unemployment.

The probability of making such transitions in successive months is calculated by dividing the number of persons making a particular labor market transition from one month to the next by the number of persons in the initial month. Each resulting labor market transition probability (P) will be designated by subscript letters throughout this article. For example, the likelihood that an employed worker will become unemployed from one month to the next is written as P_{eu} .

Modeling transition probabilities

This analysis focuses on the relationship between movements in unemployment rates and changes in the flows of men and women into and out of employment, unemployment, and the labor force. The first step involves the computation of the labor market transition probabilities for adult men in 1968, 1979, and 1988, along with a further breakdown of the same data into 10-year age groupings.² Those data are presented in table 2. Similar data for adult women are shown in table 3. The probabilities of remaining in one of the three labor market states from one month to the next (P_{ee} , P_{uu} , and P_{nn}) are not used in the analysis, because the emphasis is on the dynamic nature of the labor market. In any case, the fraction of people remaining in any one state between observations is equal to 1 minus the fraction who leave to enter the two other states.

The second step in the analysis requires the calculation of the male and female unemployment rates in 1968, 1979, and 1988 using the six dynamic labor market transition flow probabilities (P_{eu} , P_{en} , P_{ue} , P_{un} , P_{ne} , and P_{nu}).³ The general form of the unemployment rate derived from those transition probabilities is defined as $Urate = U/(U+E)$, where the numerator (U) is the sum of the total probabilities of the transition flows into unemployment. It therefore represents the likelihood of employed persons as well as of those not in the labor force becoming unemployed. The denominator in the above equation represents the total flows into unemployment (U), found in the numerator, in addition to the sum of the total flow rates from unemployment and from outside the labor force into employment (E), which is likewise composed of direct and indirect transitions. In other words:

$$Urate = \frac{P_{eu} + P_{en}(1 - (P_{ne}/P_{ne} + P_{nu}))}{P_{eu} + P_{en}(1 - (P_{ne}/P_{ne} + P_{nu})) + P_{ue} + P_{un}(P_{ne}/P_{ne} + P_{nu})}$$

The third analytical step is the calculation, for both men and women, of the changes in the six dynamic flow rates and the rates of unemployment between 1968 and 1979 and between 1979 and 1988. In addition, the partial derivatives of the group unemployment rates with respect to the specific labor market transition probabilities between 1968 and 1988 are computed and presented in tables 2 and 3.⁴ These show how sensitive a group's jobless rate was to changes in a particular labor market flow. As presented in

the tables, they represent the overall estimate of the percentage-point change in each group's rate of unemployment, given a 1-percentage-point increase in each transition probability.

Next, simulated changes in the rates of male and female unemployment are computed. Each of those simulated changes corresponds to a particular transition flow rate, representing the amount by which the male and female unemployment rates would have shifted if only that specific transition flow rate had varied while the others remained constant. The results of this step are used to determine the proportion of the change in a group's unemployment rate attributable to a change in a specific labor market transition flow.

The final step in the analysis can be illustrated by looking at table 4: The change in the adult male unemployment rate between 1968 and 1979 was 2.0746 percentage points. (Obviously, the unemployment data are not accurate to four decimal places, but this presentation provides a more precise picture of the relationship between the actual and simulated rates of unemployment.) If the probability of unemployed men finding a job (P_{ue}) had held constant during the 1968-79 period, the resulting rise in the male rate of unemployment would have been 1.3084 rather than 2.0746 percentage points. The simulated change in the rate was 0.7662 percentage point lower than the actual change, and represents 37 percent

Table 2. Average monthly labor market transition probabilities and their relationship to the unemployment rates of adult men by detailed age groups, 1968, 1979, and 1988

Type of transition and year	Transition probability						
	Total, men age 20 and over (in percent)	Men age—					
		20 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 and over
Employment to unemployment (P_{eu}):							
1968	0.0081	0.0194	0.0084	0.0063	0.0061	0.0065	0.0063
1979 .....	.0123	.0287	.0133	.0094	.0078	.0064	.0061
1988 .....	.0140	.0299	.0162	.0117	.0096	.0086	.0045
Derivative ¹	2.01	1.67	2.00	2.17	2.31	2.30	1.70
Employment to not in the labor force (P_{en}):							
1968 .....	.0152	.0392	.0053	.0043	.0067	.0161	.1012
1979 .....	.0156	.0301	.0081	.0059	.0071	.0194	.1045
1988 .....	.0159	.0315	.0096	.0062	.0085	.0241	.1076
Derivative .....	.54	.47	.72	.80	.71	.58	.18
Unemployment to employment (P_{ue}):							
1968 .....	.4386	.4901	.5077	.4717	.4059	.3521	.2273
1979 .....	.3195	.3526	.3312	.3365	.2895	.2378	.1690
1988 .....	.3117	.3534	.3279	.3140	.2761	.2017	.2093
Derivative	-.07	-.11	-.08	-.06	-.06	-.08	-.05
Unemployment to not in the labor force (P_{un}):							
1968 .....	.1460	.1621	.0974	.0818	.1294	.1690	.3788
1979 .....	.1304	.1373	.1066	.0897	.1278	.1784	.3380
1988 .....	.1270	.1553	.1028	.0973	.1070	.2059	.3721
Derivative	-.05	-.08	-.05	-.04	-.04	-.06	-.05
Not in the labor force to employment (P_{ne}):							
1968 .....	.0587	.1635	.1644	.1298	.1025	.0620	.0270
1979 .....	.0487	.1600	.1515	.1192	.0640	.0386	.0200
1988 .....	.0445	.1611	.1317	.0917	.0778	.0338	.0167
Derivative	-.16	-.09	-.04	-.04	-.06	-.31	-.90
Not in the labor force to unemployment (P_{nu}):							
1968 .....	.0157	.0491	.0570	.0561	.0387	.0165	.0036
1979 .....	.0213	.0878	.0926	.0628	.0384	.0142	.0027
1988 .....	.0206	.0771	.0988	.0668	.0384	.0132	.0018
Derivative .....	.43	.28	.06	.06	.06	.86	7.75

¹ Partial derivative of the group unemployment rate with respect to the specific labor market transition probability, 1968-88. These statistics represent the over-the-period estimates of the percentage-point change in each group's rate of unemployment, given a 1-percentage-point increase in each labor market transition probability.

of the total over-the-period rise in the male rate. In other words, the drop in the probability of transition from unemployment to employment among adult men was responsible for more than a third of the 2.0746-percentage-point upswing in their unemployment rate between 1968 and 1979.

A detailed review of the relationship between changes in each of the six independent labor market transition flows and the changes in the male and female rates of unemployment between 1968 and 1979 and from 1979 to 1988 follows. Examination of the year-by-year transition probabilities for men and women indicates that the results of the analysis would have been fairly insensitive to the selection of years studied.⁵

Unemployment rates for men

The increase in the probability that employed workers would experience a spell of unemployment (P_{eu}) was responsible for 41 percent of the rise in joblessness among adult men between 1968 and 1979. (See table 4.) Increases in this labor market transition probability are highly and positively associated with a rise in the male rate of unemployment. As shown in table 2, a 1.00-percentage-point rise in the employment-to-unemployment transition probability corresponded, on average, to a 2.01-percentage-point increase in the unemployment rate for men over the two decades under study.

The propensity for employed men to lose or leave their jobs (most often, lose)⁶ continued to rise over the 1979–88 period. In part, this was due to the fact that a high proportion of men were employed in industries—particularly within manufacturing—in which payrolls were being reduced as part of the restructuring made necessary by declining demand and foreign competition. As shown in table 4, the rise in the probability of employed men experiencing a spell of unemployment was responsible for almost 70 percent of the increase in the male rate of unemployment between 1979 and 1988.

As expected, an increase in the likelihood of successful job search (P_{ue}) corresponds to a lower jobless rate. A sizable decline in the propensity for men to go from unemployment to employment accounted for more than a third of the rise in their unemployment rate from 1968 to 1979. The probability that jobless men would find a job continued to decline between 1979 and 1988, but more slowly, accounting for only 13 percent of the rise in the male unemployment rate over that period.

Returning to the period 1968–79, we see that the increase in the probability of moving from out of the labor force into unemployment (P_{nu}) accounted for 11 percent of the rise in the male rate

of unemployment. It should be noted, however, that the over-the-period effect of the probability of entering the labor force into joblessness on the male unemployment rate may be somewhat overstated because of distortions in the young adult male labor market in 1968. The Vietnam conflict simultaneously boosted demand for labor and drew down the pool of young men (ages 20 to 34) available for civilian work, with the result that the probability of entering the labor force directly into unemployment was particularly low among these young men in 1968. In addition, even though the magnitude of the rise in that transition probability was similar among men and women, the effect that it had on the male rates of unemployment was much smaller than its influence on female unemployment between 1968 and 1979. In large part, this was because male rates are much less sensitive than female rates to changes in the probability of making the not in the labor force-to-unemployment transition.

Table 2 shows that, overall, the probability of entry into unemployment from “not in labor force” status edged down among men between 1979 and 1988, with declines in this probability among men in the youngest and oldest age groupings more than offsetting increases among workers in the middle age ranges. The slip in that labor market transition probability between 1979 and 1988 meant that the male unemployment rate would have been 6 percent higher had the transition probability remained unchanged during that period. (See table 4.)

Table 2 also shows that, in the aggregate, employed men were only slightly more likely to drop out of the labor force (P_{en}) in 1988 than they were in 1968. The large increase in the same likelihood among men 55 to 64 years of age over the past two decades, however, represents the more frequent use of early retirement options, including special incentives offered by employers to reduce staff. Men between 20 and 24 years of age were the only males with a lower propensity for leaving employment by withdrawing from the labor force in 1988 than 1968. The overall decline in this propensity for 20- to 24-year-old men occurred, in large part, because of a slide in the proportion of those workers who exited the labor force to attend school—from 68 to 60 percent between 1968 and 1988. At first glance, this would seem inconsistent with school enrollment data, which show that full-time college enrollment among 16- to 24-year-old men was fairly stable between 1970 and 1988, while the number enrolled on a part-time basis rose substantially. During that same period, however, the employment-population ratio for 16- to 24-year-old men enrolled in college on a full-time basis rose from

The likelihood of an employed woman becoming unemployed declined over the 1968–88 period.

34 to 44 percent. It would appear, therefore, that increasing numbers of young men have worked their way through college over the past two decades, perhaps because of the tremendous rise in the cost of a college education during that period.

Unemployment among women

The increase in the probability of moving from outside the labor force into unemployment (P_{nu}) accounted for more than three-fourths of the total rise in the rate of adult female unemployment between 1968 and 1979. (See table 4.) The strong correlation between this probability for women and their rate of unemployment is

illustrated by the fact that, over the two decades, a 1.00-percentage-point rise in the transition probability corresponded to a 1.70-percentage-point increase in their jobless rate. (See table 3.) Between 1979 and 1988, however, the probability that women would make the transition from out of the labor force into unemployment was little changed, and that transition probability had very little influence on the change in women's unemployment rates.

Rising educational attainment and the higher wages associated with educational gains helped to increase the female labor force participation rate over the period studied. The expansion in labor force participation also increased the likeli-

Table 3. Average monthly labor market transition probabilities and their relationship to the unemployment rates of adult women by detailed age groups, 1968, 1979, and 1988

Type of transition and year	Transition probability						
	Total, women age 20 and over (in percent)	Women age—					
		20 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 and over
Employment to unemployment (P_{eu}):							
1968	0.0086	0.0149	0.0092	0.0085	0.0069	0.0031	0.0059
1979	.0121	.0221	.0132	.0109	.0081	.0046	.0069
1988	.0104	.0200	.0112	.0090	.0081	.0039	.0060
Derivative ¹	1.84	1.73	1.90	1.87	1.81	1.88	1.67
Employment to not in the labor force (P_{en}):							
1968	.0642	.0702	.0739	.0591	.0501	.0311	.1419
1979	.0446	.0536	.0420	.0405	.0349	.0275	.1067
1988	.0341	.0456	.0305	.0259	.0270	.0317	.1114
Derivative	.48	.61	.60	.48	.38	.32	.16
Unemployment to employment (P_{ue}):							
1968	.3130	.3512	.2888	.3125	.3195	.1831	.2333
1979	.2616	.2882	.2607	.2637	.2406	.1568	.1316
1988	.2542	.2814	.2412	.2523	.2630	.1429	.1143
Derivative	-.08	-.13	-.10	-.07	-.05	-.04	-.05
Unemployment to not in the labor force (P_{un}):							
1968	.3426	.3077	.3755	.3333	.3550	.2113	.4412
1979	.2727	.2551	.2764	.2794	.2669	.2054	.4474
1988	.2630	.2720	.2600	.2560	.2457	.1513	.4286
Derivative	-.06	-.08	-.07	-.05	-.04	-.03	-.02
Not in the labor force to employment (P_{ne}):							
1968	.0348	.0629	.0405	.0449	.0439	.1358	.0108
1979	.0378	.0892	.0595	.0641	.0467	.0649	.0081
1988	.0387	.1020	.0691	.0749	.0663	.0550	.0080
Derivative	-.56	-.40	-.51	-.31	-.27	-.32	-2.15
Not in the labor force to unemployment (P_{nu}):							
1968	.0096	.0293	.0138	.0114	.0092	.0228	.0011
1979	.0166	.0620	.0324	.0248	.0154	.0154	.0012
1988	.0164	.0634	.0389	.0308	.0177	.0132	.0008
Derivative	1.70	.77	1.30	1.07	1.08	1.38	20.72

¹ Partial derivative of the group unemployment rate with respect to the specific labor market transition probability, 1968-88. These statistics represent the over-the-period estimates of the percentage-point change in each group's

rate of unemployment, given a 1-percentage-point increase in each labor market transition probability.

hood that women (particularly new entrants or reentrants to the labor force) would experience a spell of unemployment. However, it should be noted that, as was the case in 1968, men who were out of the labor force were still more likely than women to enter or reenter the labor force (into unemployment or employment) in 1988. (See tables 2 and 3.)

As shown in table 3, the probability of making a transition from employment to unemployment (P_{eu}) was highly correlated with joblessness among women between 1968 and 1988. The rise in the probability of moving from employment to unemployment was responsible for 37 percent of the rise in women's rate of unemployment between 1968 and 1979. (See table 4.)

In contrast to the situation for employed men, the likelihood of an employed woman becoming unemployed declined over the 1979-88 period. The experience of women between 20 and 44 years of age was largely responsible for the over-the-period improvement in this transition probability. As seen in table 4, the decline in the likelihood that an employed woman would become unemployed caused the overall female jobless rate to fall by 37 percent more than it would have had that transition probability been unchanged between 1979 and 1988.

The past two decades witnessed substantial growth in women's attachment to year-round, full-time jobs. This was reflected in a sizable drop (from 6.4 to 3.4 percent) in the rate at which employed women left the labor force (P_{en}) between 1968 and 1988. As shown in table 4, the increase in the female rate of unemployment would have been 55 percent higher had the probability of women exiting the labor force from employment not declined between 1968 and 1979. In addition, the drop in this transition probability among women accounted for 70 percent of the decrease in the female jobless rate over the 1979-88 period.

The strong relationship between the unemployment rate and this flow out of employment may not be easy to discern, because unemployment is not directly involved. The relationship between the decrease in P_{en} and the decline in the rate of unemployment is indirect, reflecting a reduction in labor market friction (movements into and out of the labor force), traditionally a major component of unemployment among women.

The drop in the probability of employed women exiting the labor force is probably a reflection of both the postponement of marriage and a sizable reduction in the number of women leaving the labor force due to child-rearing or homemaking responsibilities. In 1968, for example, only one-fourth of all 25- to 44-year-old

Table 4. Average monthly transition probabilities and their relationship to the changes in the adult unemployment rate, by sex, 1968-79 and 1979-88

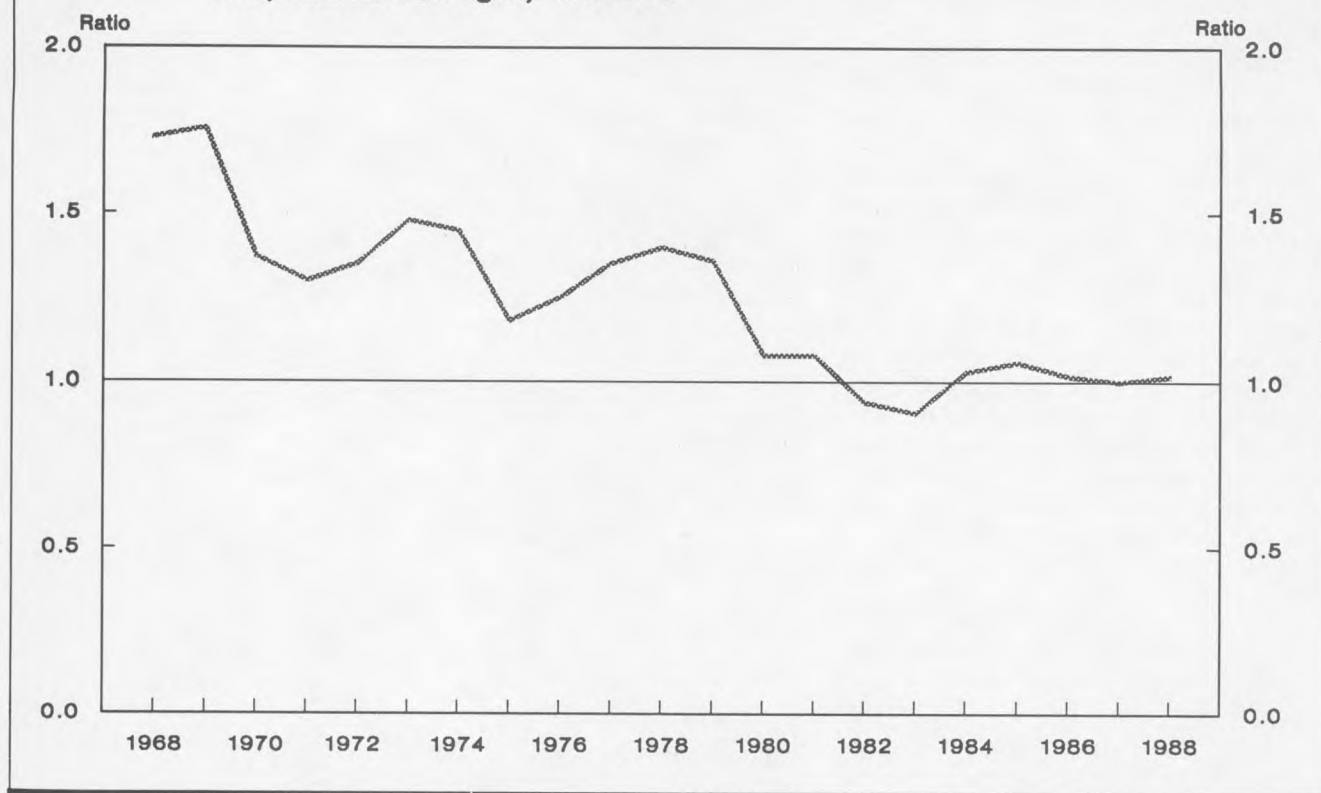
Period and transition probability held constant	Actual percentage-point change in rate of unemployment ¹	Simulated change in rate	Actual minus simulated change in rate	Percent of change in rate due to holding transition probability constant
Men				
1968-79				
P_{eu}	2.0746	1.2319	0.8426	40.6
P_{en}	2.0746	2.0528	.0218	1.1
P_{ue}	2.0746	1.3084	.7662	36.9
P_{un}	2.0746	2.0013	.0732	3.5
P_{ne}	2.0746	1.9271	.1474	7.1
P_{nu}	2.0746	1.8514	.2231	10.8
Total	—	—	2.0746	100.0
1979-88				
P_{eu} .....	.5849	.1806	.4043	69.1
P_{en} .....	.5849	.5662	.0188	3.2
P_{ue} .....	.5849	.5063	.0786	13.4
P_{un} .....	.5849	.5589	.0260	4.4
P_{ne} .....	.5849	.4917	.0932	15.9
P_{nu} .....	.5849	.6210	-.0360	-6.2
Total	—	—	.5849	100.0
Women				
1968-79				
P_{eu}	1.6978	1.0692	.6286	37.0
P_{en}	1.6978	2.6232	-.9254	-54.5
P_{ue}	1.6978	1.2516	.4462	26.3
P_{un}	1.6978	1.2557	.4420	26.0
P_{ne}	1.6978	1.8852	-.1870	-11.0
P_{nu}	1.6978	.4041	1.2936	76.2
Total	—	—	1.6978	100.0
1979-88				
P_{eu}	-.9170	-.5742	-.3428	37.4
P_{en}	-.9170	-.2750	-.6420	70.0
P_{ue}	-.9170	-.9927	.0758	-8.3
P_{un}	-.9170	-.9868	.0697	-7.6
P_{ne}	-.9170	-.8616	-.0550	6.0
P_{nu}	-.9170	-.8949	-.0220	2.4
Total	—	—	-.9170	100.0

¹ The rates of unemployment derived from the transition flow probabilities do not precisely match those reported in the monthly CPS. However, the over-the-period changes resulting from the two methods of calculating the rates are similar.

mothers whose youngest child was under age 3 were in the labor force. By 1988, more than half of similarly aged mothers with toddlers were labor market participants. Also over these two decades, a gradually increasing proportion of women chose not to have children (or to postpone having them). In spite of these trends, however, employed women were still far more likely than their male counterparts to drop out of the labor force as of 1988 (3.4 percent for women versus 1.6 percent for men). (See tables 2 and 3.)

The rising difficulties that unemployed

Chart 2. Ratio of female-to-male unemployment rates for persons age 20 and over, annual averages, 1968-88



women faced in finding a job between 1968 and 1979, a deterioration shown by the fall in P_{ue} , was responsible for more than one-fourth of the increase in the female unemployment rate over the period. A further decline in the propensity to find a job between 1979 and 1988 put upward pressure on women's jobless rate. That is, the rate of female unemployment would have fallen slightly more than it did had the probability of a jobless woman finding a job remained unchanged.

In general, an unemployed woman is less likely to find a job as of the next month than is a man. On average, roughly 25 percent of the women and 31 percent of the men who were unemployed in any given month during 1988 were likely to be employed in the following month. In 1968, these probabilities had been 31 and 44 percent, respectively. (See tables 2 and 3.) Overall, the sizable decline in both male and female probabilities of moving from unemployment to employment between 1968 and 1988 indicates that, once they experienced a spell of unemployment, both women and men had a much more difficult time finding a job in 1988 than they did in 1968.

Women have become increasingly more likely to go directly from being out of the labor force

into employment over the past 20 years. That development placed downward pressure on female joblessness during that period. The over-the-period increase in the likelihood of entering the labor force directly into employment was partly spurred by the substantial employment gains in the service-producing sector of the economy, where a large share of women are employed.

Finally, as was the case among men, there was also a small negative association between the probability of women ending a spell of unemployment by exiting the labor force (P_{un}) and the female jobless rate over the past 20 years. The sizable drop in this transition probability among women between 1968 and 1979 (from 34.3 to 26.3 percent) accounted for more than one-fourth of the increase in the female rate of unemployment. During the 1979-88 period, the decline in women's joblessness would have been 8 percent greater had that labor market transition probability not continued to decline. (See table 4.)

Gender differences in joblessness

The increased probability of job loss played a prominent role in the rise in the adult male unemployment rate during the past 20 years.

Also, once unemployed, men have faced increasing difficulties in finding a job, and this has further contributed to the rise in their unemployment rate and to the narrowing of the female-male unemployment rate gap. (See chart 2.)

For women, the rise in the rate of unemployment between 1968 and 1979 was caused by increases in the probabilities of entering unemployment from outside the labor force and of employed women becoming unemployed. Those changes tended to increase the female-male unemployment rate differential during that period, while a drop in the proportion of employed women leaving the labor force helped to hold down their joblessness and shrink the unemployment rate gap. The fall in the female unemployment rate between 1979 and 1988 was mostly due to the continued decline in the flow of employed women out of the labor force. Over the 1979–88 period, a decrease in the likelihood of employed women becoming unemployed also contributed to the decline in the fe-

male rate of unemployment and the narrowing of the female-male unemployment rate differential.

IN A BROADER CONTEXT, the use of data on labor market transitions in this analysis highlights the variety of pressures that effect change in a demographic group's jobless rate, as well as the unemployment rate differential between groups. As the results of this analysis suggest, strong offsetting factors can be at work at the same time. For example, increased job market stability (less movement into and out of the labor force) can serve to lower unemployment rates at the same time that a rise in the incidence of job loss is tending to force them upward. Policies for dealing with structural changes in unemployment should necessarily be different depending on the cause of those changes. The gross flow data, rarely used in the analysis of labor market trends, provide some interesting and useful insights into those complex forces that contribute to changing rates of unemployment. □

Footnotes

¹ It should be noted that gross flow statistics generated from the monthly CPS generally show movements into and out of the various labor force categories which do not yield the same net changes as are shown by the published data. Three major factors have been identified as possible reasons for this inconsistency and are reviewed briefly below:

Rotation group bias. For reasons not completely understood, the responses of persons interviewed in the first and fifth months in which the sample is taken tend to show higher levels of unemployment, compared with subsequent months. This leads to an overestimation of the outflows from unemployment after the first and fifth months. Therefore, the movements reflected in gross flow data are rotation-group biased to some degree.

Exclusion of noninterviews and movers. The basis for selection of the CPS sample is household units rather than individuals; therefore, common rotation groups reflect identical households but not necessarily identical persons. The exclusion of nonidentical persons in the gross flows from month to month further limits the size of the sample available for gross flow analysis. In addition, nonidenticals were found to have employment-population ratios considerably higher than those for the total CPS sample and out of labor force ratios that are considerably lower than the published ones. The exclusion of nonidenticals from the gross flow calculations is thus a contributing cause for the discrepancies with the changes in the published labor force totals.

Problems in matching data. In a survey as large as the CPS, coding errors can never be eliminated entirely. It is thus inevitable that some records will fail to match the month-to-month flow estimates, even when the labor force status is correctly recorded. There are also errors arising from incorrect interpretation of the questions by respondents or interviewers, the miscoding of answers, the conditioning of respondents to answer in certain ways, and so forth. While such errors tend to offset each other in the monthly stock measurement, their effect is cumulative in the gross change

data and, on average, results in an overestimate of the monthly flows.

For a more complete discussion of these problems and other issues related to gross flow data, see Paul O. Flaim and Carma R. Hogue, "Measuring labor force flows: a conference examines the problems," *Monthly Labor Review*, July 1985, pp. 7–17.

² Because the analysis is conducted over a discrete period, the choice of the starting and ending years may bias the results. The years 1968, 1979, and 1988 are roughly similar reference points because they all occur well into the expansionary phases of business cycles. Nevertheless, the Vietnam conflict was at its maximum level of intensity in 1968, and this contributed to a very tight demand for labor, particularly for men. As a result, the female-male unemployment rate differential may be somewhat inflated in that year. Historical data show, however, that the gap still would have been large at a business cycle peak, even in the absence of the (perhaps) distorting affects of the Vietnam conflict on the civilian job market. Data from 1989 are not used in the analysis because the 1989 annual average monthly gross flow data used to derive the labor market transition probabilities were not yet available at the time of publication.

³ See Stephen T. Marston, "Employment Instability and High Unemployment Rates," *Brookings Papers on Economic Activity*, No. 1, 1976, pp. 171–73.

⁴ Marston, "Employment Instability," pp. 202–03. As shown by Marston, and outlined in the text, the calculated unemployment rate is $U_{rate} = U/(U+E)$, where: U is equal to the sum of the total probabilities of the flow into unemployment— $U = P_{eu} + P_{en}(1-(P_{nel}P_{ne}+P_{nu}))$, where the first term on the right-hand side of the equation is the probability that workers will take the direct route into unemployment, and the second term is the sum of the probabilities that persons will become unemployed after first dropping out of the labor force and then reentering unsuccessfully. E is equal to the sum of the transition probabilities from unemployment to employment— $E = P_{ue} + (P_{nel}P_{ne}+P_{nu})P_{ur}$ —where the first term is the probability of direct transition from unemployment to employ-

ment, and the second term is the probability of indirect transitions. In other words:

$$U_{rate} = \frac{P_{eu} + P_{en} (1 - (P_{ne} / P_{ne} + P_{nu}))}{P_{eu} + P_{en} (1 - (P_{ne} / P_{ne} + P_{nu})) + P_{ue} + P_{un} (P_{ne} / P_{ne} + P_{nu})}$$

The detailed calculations of the partial derivatives of the unemployment rate presented in tables 2 and 3 are available from the author. Those partial derivatives relate to each specific transition flow probability and correspond to the over-the-period percentage-point change in the rate of unemployment resulting from holding all the other transition flow probabilities constant.

As explained by Marston, the calculated rates of unemployment are accurate, given the "steady state" assumption, wherein the flows into employment and unemployment just

compensate for the flows out of those states. While the rates of unemployment derived from the transition flow probabilities do not precisely match those reported in the monthly CPS (the author tried various adjustments to the gross flow data which made no qualitative difference to the results), mostly because of the rotation bias problem discussed in footnote 2, the over-the-period changes produced by the two methods of calculating the rates are similar.

⁵ A tabular presentation of the year-to-year changes in the six independent labor market transition probabilities for adult men and women is available from the author.

⁶ Technically, people showing up as $E_{t-1}U_t$ could have left their jobs voluntarily. Aggregate CPS data on reasons for unemployment suggest, however, that increases in P_{eu} for men over this period did not stem from job leaving.

'Old-old population' growing fast

Over the past 40 years, the number of older people in the population has grown steadily. In 1950, only 12 million Americans were age 65 or older; today, the number is close to 30 million—roughly 12 percent of the population. Demographic projections show that the size of the older population will increase slowly for the next 20 years, only to rise dramatically after 2010 as the large baby boom generation (born between 1946 and 1964) begins to reach age 65. About 65 million people (or 20 percent of the population) are expected to be age 65 or older by 2030.

The fastest-growing segment of this population group is among the old-old, those age 85 and older. Their numbers are expected to triple by 2030, accounting for more than 8.6 million people. Because the need for supportive services increases dramatically with age, the growing number of elderly who are over the age of 85 is likely to place a significant claim on public sector resources. California, Florida, New York, Texas, and Pennsylvania are expected to have the largest number of people age 85 and older by the year 2010.

—William P. O'Hare and Carol J. De Vita

America in the 21st Century: Governance and Politics
(Washington, Population Reference Bureau, Inc.,
1990), p. 3.

Black college graduates in the labor market, 1979 and 1989

*Although college-educated black and white women
have very similar earnings,
substantial economic differences still exist
between college-educated black and white men*

Joseph R.
Meisenheimer II

“There is no defense or security for any of us
except in the highest intelligence and develop-
ment of all.”

—Booker T. Washington,
from a speech made
in Atlanta on
September 18, 1895

Black educator Booker T. Washington espoused the philosophy that education is the path to economic and social equality for blacks. Indeed, education, particularly college education, has long been regarded as the path to expanded job opportunities, higher earnings, and enhanced social standing for all people.

A substantial educational gap between whites and blacks has narrowed over time, but it still persists. In 1979, 9 percent of blacks ages 25 to 64 had completed 4 or more years of college; by comparison, 19 percent of whites had done so. The 1980's saw considerable progress for both groups, but no narrowing of the gap; in 1989, 13 percent of blacks and 24 percent of whites had completed 4 or more years of college.¹

Many of the economic disparities between blacks and whites have been attributed, in large part, to the relatively lower educational levels (human capital) of blacks.² And much of the improvement in the economic status of blacks over time has been attributed to their increasing educational levels.³ Differences in education, however, do not completely explain the labor market dis-

parities between blacks and whites. For example, among college-educated men, black graduates have substantially higher unemployment rates and lower median earnings than their white counterparts.

This article compares the labor market experience of civilian college graduates by sex and race in 1989 and looks at the changes that took place for these groups over the preceding decade. It then examines the economic rewards of higher education for blacks by comparing the employment and earnings characteristics of black college graduates with those of black high school graduates. The data used are from the Current Population Survey (CPS), a sample survey of about 60,000 households, conducted monthly for the Bureau of Labor Statistics by the Bureau of the Census.⁴

College-graduate differences

Some differences between black and white college graduates in their labor market characteristics stem from differences in the age and sex composition of the two groups. For example, black college graduates are somewhat younger than their white counterparts. In 1989, 39 percent of black graduates (ages 25 to 64) were in the youngest age group—25 to 34—compared with 34 percent of white graduates, reflecting the fact that relatively fewer older blacks attended college. Another demographic difference

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between black and white college graduates is that a larger share of black graduates are women—54 percent in 1989 and 53 percent in 1979.⁵ By comparison, 44 percent of white graduates in 1989 and 40 percent in 1979 were women. These age and gender differences can distort racial comparisons. For this reason, an examination of labor force characteristics should focus on *specific* age and sex groups.

Labor force participation. The labor force participation rate is the proportion of a population group that is either employed or actively seeking employment. The incidence of labor force participation differs substantially between the sexes, in that men participate at higher rates than women at every age. As shown in table 1, among men ages 25 to 64, black college graduates' rates were just below those of their white counterparts in both 1979 (92.9 to 95.7) and 1989 (93.3 to 95.1). The gap grows larger at successively lower educational levels. For example, among men with 4 years of high school, the participation rate for blacks in 1989 was nearly 4 percentage points lower than that for whites, and among those who did not complete high school, the spread was about 12 points.

Table 1 also shows that college-educated black women participate in the labor force at much *higher* rates than their white peers, although that gap narrowed considerably during the 1980's.

Other than the participation rates for high school dropouts, which are essentially the same for both races, black women have higher rates than white women at each level of education. The gap is largest among college graduates, however. Table 2 provides a more complete look at the participation rates of college graduates by race, sex, and age.

To shed some light on the gap in labor force participation, it is helpful to look at the marital status of women of each race. In all four educational levels, a smaller proportion of black women than white women is married (and living with their husbands). In 1989, less than half of black college-educated women lived with their husbands, compared with more than two-thirds of college-educated white women. Additionally, married black women participated in the labor force at much higher rates than whites in both years studied, despite a sharp increase in participation among married white women during the 1980's. In 1979, the labor force participation rates were 83.7 percent for married black women and 63.2 percent for married white women. By 1989, these rates were 85.7 percent for black women and 75.1 percent for white women. These differences cannot be explained by age. In fact, both groups of married women had virtually identical age distributions in the years studied. The following tabulation shows the percent distribution of married female college graduates by age:

	1979		1989	
	Black	White	Black	White
25 to 64	100	100	100	100
25 to 34	44	44	35	34
35 to 44	27	26	37	37
45 to 54	19	17	19	18
55 to 64	10	12	9	11

The difference in labor force participation rates between black and white married women may be partly explained by the labor force experience and educational level of their husbands. If a husband is not employed or, if employed, has relatively low earnings, the wife is more likely to work. Also, if the wife has a higher level of educational attainment and has a higher earnings potential than her husband, she would have greater incentive to work.

In fact, the husbands of college-educated black women have less schooling and make less money than the husbands of white women. Half of the husbands of college-educated black women have completed 4 years of college, compared with 72 percent of the husbands of college-educated white women. Furthermore, 12 percent of these married black women, compared with 7 percent of their white counterparts, had husbands who were either unemployed or not in the labor

Differences in education do not completely explain labor market disparities between blacks and whites.

Table 1. Labor force participation rates for 25- to 64-year-olds by educational attainment, sex, and race, annual averages, 1979 and 1989

[In percent]

Educational attainment and sex	1979		1989	
	Black	White	Black	White
4 or more years of college				
Men	92.9	95.7	93.3	95.1
Women	86.5	70.3	88.4	80.4
1 to 3 years of college				
Men	91.3	93.2	90.1	92.6
Women	78.7	62.5	80.2	75.0
4 years of high school				
Men	90.5	92.5	86.8	90.4
Women	69.7	58.8	72.9	67.7
Less than 4 years of high school				
Men	76.6	81.6	67.0	78.5
Women	48.1	43.5	46.6	47.2

Table 2. Population, labor force, and labor force participation rates of 25- to 64-year-olds with 4 or more years of college by sex, race, and age, annual averages, 1979 and 1989

[Numbers in thousands]

Sex, race, and age	1979			1989		
	Population	Labor force	Labor force participation rate	Population	Labor force	Labor force participation rate
Men						
Black, total	466	433	92.9	852	795	93.3
25 to 34	218	203	93.1	321	315	98.1
35 to 44	131	127	96.9	290	275	94.8
45 to 54	76	72	94.7	154	145	94.2
55 to 64	40	31	(¹)	86	60	69.8
White, total	10,490	10,040	95.7	14,406	13,694	95.1
25 to 34	4,320	4,170	96.5	4,531	4,392	96.9
35 to 44	2,732	2,687	98.4	5,012	4,930	98.4
45 to 54	2,106	2,050	97.3	2,890	2,798	96.8
55 to 64	1,331	1,133	85.1	1,972	1,575	79.9
Women						
Black, total	524	453	86.5	1,003	887	88.4
25 to 34	258	228	88.4	395	360	91.1
35 to 44	122	111	91.0	337	310	92.0
45 to 54	94	80	85.1	178	160	89.9
55 to 64	50	34	(¹)	92	57	62.0
White, total	7,059	4,959	70.3	11,411	9,174	80.4
25 to 34	3,281	2,456	74.9	4,342	3,638	83.8
35 to 44	1,711	1,203	70.3	3,913	3,224	82.4
45 to 54	1,185	833	70.3	1,945	1,607	82.6
55 to 64	882	467	52.9	1,210	705	58.3

¹ Data not shown where base is less than 75,000.

force in 1989. Among those women whose husbands were employed as wage and salary workers, 52 percent of whites, compared with 28 percent of blacks had husbands who earned \$700 or more per week. In contrast, 43 percent of blacks and 24 percent of whites had husbands who earned less than \$500 per week.

Among unmarried women ages 25 to 64 (and the relatively few who are married, but not living with their husbands), the participation rates for blacks (91.1 percent) and whites (91.5 percent) were virtually identical in 1989. But because a much larger proportion of black than white women was unmarried, this group, which has high participation regardless of race, had a greater effect on the overall participation rate for black women than it did for white women.

Unemployment. Black labor force participants have historically been more than twice as likely as their white counterparts to be unemployed. Although this differential has been attributed in large part to the lower educational attainment of blacks,⁶ the rates for blacks are also higher than those for whites at *each* level of education. In 1989, the unemployment rate for college-educated black men ages 25 to 64 was about three

times the rate for white men (5.6 versus 1.8 percent). This is higher than 10 years earlier, when the unemployment rate for similarly educated black men (3.7 percent) was two-and-a-half times the rate for white men (1.5 percent).⁷ The unemployment rate for college-educated black women was 3.9 percent in 1989, up slightly from 3.4 percent in 1979, while that for white women decreased to 2.3 from 3.1 percent.⁸

Earnings. A comparison of the earnings of black and white college graduates can be affected not only by race, but other factors, including gender and age. Men generally earn more than women, and older workers generally earn more than younger workers.⁹ As stated earlier, a greater share of black than white college graduates are women, and black graduates typically are younger than their white counterparts.

Earnings comparisons can also be affected by differences in the amount of time spent working. For example, if the median annual earnings were compared for two worker groups who have otherwise similar characteristics, the group with the larger proportion of year-round, full-time workers

Black and white college-educated men have sharply different occupations.

Black College Graduates in the Labor Market

would likely have higher annual earnings. The following tabulation shows that, among college graduates who work, a slightly smaller percentage of black men than white men do so year round and full time (defined here as working at least 50 weeks in a year and at least 35 hours in a majority of those weeks), while black women are considerably more likely than white women to do so.

	1979		1989	
	Black	White	Black	White
Men	81	86	82	85
Women	65	54	72	62

Because of the different proportions of black and white men and women who work year round and full time, median annual earnings are compared not only for all college graduates with earnings, but also for the more homogeneous group of year-round, full-time earners. As the following tabulation shows, when all 25- to 64-year-old earners are compared, black men earn considerably less than white men, while black women earn considerably more than white women. Among year-round, full-time workers, the gap in annual earnings between black and white men is

still substantial, while the median earnings for black and white women grow closer.

	1979		1989	
	Black	White	Black	White
All earners:				
Men	\$17,083	\$21,278	\$27,966	\$37,234
Women	12,152	7,930	23,928	19,966
Year-round, full-time earners:				
Men	\$19,587	\$23,085	\$31,349	\$41,653
Women	15,283	14,066	26,765	27,473

While these data provide some insight into the effects of race and sex on the earnings of college graduates, they mask the effects of age. The sample size of the March CPS, from which the data on annual earnings are obtained, is not large enough to provide reliable estimates of *annual* earnings for race-sex-age groups. In order to deal with this data limitation, annual averages of median *weekly* earnings are compared for wage and salary workers who usually work full time (35 hours or more per week). These averages, which are based on data collected over an entire year, are more reliable than the annual earnings estimates, which are

Table 3. Median weekly earnings of employed full-time wage and salary workers ages 25 to 64 with 4 or more years of college by sex, age, and race, annual averages, 1979 and 1989

[Numbers in thousands]

Sex and age	Black			White		
	Number of workers	Median earnings	90-percent confidence interval	Number of workers	Median earnings	90-percent confidence interval
1979						
Men 25 to 64	371	\$338	\$320 to \$356	7,756	\$399	\$396 to \$402
25 to 34 years	187	303	284 to 322	3,460	339	334 to 344
35 to 44 years	102	369	325 to 413	2,050	440	430 to 450
45 to 64 years	82	398	369 to 427	2,246	480	474 to 486
45 to 54 years	60	418	384 to 452	1,483	488	481 to 495
55 to 64 years	23	353	313 to 393	763	457	440 to 474
Women 25 to 64	403	261	253 to 269	3,482	265	262 to 268
25 to 34 years	204	243	232 to 254	1,792	250	247 to 253
35 to 44 years	94	273	255 to 291	780	281	274 to 288
45 to 64 years	105	286	271 to 301	910	292	285 to 299
45 to 54 years	74	279	261 to 297	585	292	283 to 301
55 to 64 years	31	301	276 to 326	325	294	283 to 305
1989						
Men 25 to 64	631	544	523 to 565	10,410	719	713 to 725
25 to 34 years	259	479	462 to 496	3,677	603	596 to 610
35 to 44 years	214	583	560 to 606	3,714	761	751 to 771
45 to 64 years	159	667	621 to 713	3,019	845	829 to 861
45 to 54 years	115	636	556 to 716	2,024	855	834 to 876
55 to 64 years	44	707	636 to 778	994	829	805 to 853
Women 25 to 64	768	486	475 to 497	6,536	510	507 to 513
25 to 34 years	301	426	410 to 442	2,800	480	475 to 485
35 to 44 years	274	516	498 to 534	2,186	533	522 to 544
45 to 64 years	193	522	497 to 547	1,550	559	544 to 574
45 to 54 years	142	521	498 to 544	1,102	557	540 to 574
55 to 64 years	50	535	359 to 711	448	569	540 to 598

based on data obtained in only a single month.¹⁰ But even in the case of weekly earnings, some estimates still may have a wide margin of error because they represent relatively small population groups. To aid in the analysis, the margins of error—confidence intervals—have been estimated for the median weekly earnings of each race-sex-age group.¹¹

As table 3 shows, college-educated black men ages 25 to 64 had median weekly earnings in 1989 of \$544 (plus or minus \$21), compared with \$719 (plus or minus \$6) for their white counterparts. This means that the median earnings of these black men ranged from 72 to 79 percent of the median for white men.¹² This gap was greater than that 10 years earlier, when college-educated black men earned 80 to 90 percent as much as their white counterparts. The increase in the earnings gap from 1979 to 1989 was concentrated primarily among men ages 25 to 34. This is shown in the following tabulation of confidence intervals of the black-to-white earnings ratios for each age group.

	1979	1989
Men ages 25 to 64	80-90	72-79
25 to 34	83-96	76-83
35 to 44	72-96	73-81
45 to 54	78-94	63-86
55 to 64	66-89	75-97

For the years studied, these confidence intervals overlap in all but the 25- to 34-year age group. This means that the only statistically significant decline in the black-to-white earnings ratio occurred among young men. It is possible, however, that the earnings gap also increased for the other age groups because, for all but 55- to 64-year-olds, the upper boundaries of the confidence intervals were lower in 1989 than in 1979.

In contrast to the substantial earnings gap between black and white men, college-educated women of each race had nearly equal median weekly earnings in both years studied. This was the case in all age groups, except for 25- to 34-year-olds. There was little difference in the earnings of women in this age group in 1979, but 10 years later, the median for young black women

Table 4. **Employed 25- to 64-year-olds with 4 or more years of college by occupation, sex, and race, annual averages, 1989**

[Numbers in thousands]

Occupation	Men				Women			
	Black		White		Black		White	
	Employed	Percent	Employed	Percent	Employed	Percent	Employed	Percent
Total	751	100.0	13,444	100.0	853	100.0	8,967	100.0
Managerial and professional specialty	404	53.8	8,964	66.7	555	65.1	6,225	69.4
Executive, administrative, and managerial	168	22.4	3,962	29.5	148	17.4	1,705	19.0
Professional specialty	236	31.4	5,002	37.2	407	47.7	4,521	50.4
Engineers	30	4.0	1,000	7.4	6	.7	68	.8
Mathematical and computer scientists	15	2.0	295	2.2	9	1.1	133	1.5
Natural scientists	7	.9	219	1.6	5	.6	69	.8
Health diagnosing	24	3.2	559	4.2	2	.2	102	1.1
Health assessment and treating	6	.8	198	1.5	69	8.1	849	9.5
Teachers, college and university	12	1.6	328	2.4	9	1.1	206	2.3
Teachers, other	63	8.4	794	5.9	218	25.6	2,007	22.4
Lawyers and judges	16	2.1	526	3.9	10	1.2	137	1.5
Other professional specialty	63	8.4	1,084	8.1	78	9.1	949	10.6
Technical, sales, and administrative support	187	24.9	2,962	22.0	250	29.3	2,244	25.0
Technicians and related support	38	5.1	533	4.0	45	5.3	370	4.1
Sales	75	10.0	1,912	14.2	42	4.9	753	8.4
Supervisors and proprietors	22	2.9	596	4.4	14	1.6	189	2.1
Finance and business	21	2.8	609	4.5	16	1.9	266	3.0
Commodities except retail	16	2.1	475	3.5	3	.4	100	1.1
Retail and personal	15	2.0	231	1.7	9	1.1	192	2.1
Administrative support, including clerical	74	9.9	517	3.8	163	19.1	1,122	12.5
Service occupations	66	8.8	352	2.6	30	3.5	302	3.4
Precision production, craft, and repair	46	6.1	650	4.8	5	.6	67	.7
Operators, fabricators, and laborers	44	5.9	360	2.7	13	1.5	81	.9
Farming, forestry, and fishing	3	.4	156	1.2	(¹)	(²)	47	.5

¹ Less than 500.

² Less than 0.05 percent.

Table 5. Employment-population ratios of blacks ages 25 to 64 by sex, age, marital status, and educational attainment, annual averages, 1979 and 1989

[In percent]

Sex, age, and marital status	1979		1989	
	4 or more years of college	4 years of high school	4 or more years of college	4 years of high school
Men	89.5	84.3	88.1	78.7
25 to 34	88.1	85.2	92.8	79.3
35 to 44	94.7	87.4	89.0	84.6
45 to 54	92.1	84.9	89.0	80.3
55 to 64	(¹)	72.3	67.4	58.1
Women	83.4	63.5	85.0	66.2
25 to 34	84.5	62.9	85.1	63.1
35 to 44	87.7	68.6	89.9	74.7
45 to 54	84.0	63.9	87.6	70.9
55 to 64	(¹)	51.4	62.0	47.1
Married women, spouse present .	81.0	63.0	82.7	68.8
Unmarried women ²	86.1	64.1	87.2	64.2

¹ Data not shown where base is less than 75,000.

² Includes married women not living with their husbands.

was 84 to 93 percent that of their white counterparts. This divergence might be explained partly by differences in the proportion of college-educated women of each race who had some graduate schooling. Workers with graduate schooling tend to earn more than those with exactly 4 years of college. In 1979, among full-time wage and salary workers, nearly equal proportions of black and white women ages 25 to 34 had completed more than 4 years of college, whereas in 1989, a substantially larger proportion of whites than blacks had done so. This development does not explain the divergence in earnings entirely, however, because an earnings gap also developed during the 1980's among young black and white women with exactly 4 years of college.

Why do black and white female college graduates have very similar median earnings, while black men earn less than their white peers? A look at occupational employment characteristics provides some answers. As can be seen in table 4, black and white women work in very similar occupations. Nearly equal proportions of employed blacks (17 percent) and whites (19 percent) are managers. Roughly half of both groups work in professional specialty occupations, and, among these professionals, over two-thirds of blacks and nearly two-thirds of whites work either as teachers (below the college or university level) or in health assessment and treating jobs (such as nurses and therapists). The only significant dissimilarity in occupational distributions is that 19

percent of blacks, and 13 percent of whites, work in administrative support, including clerical jobs.

In contrast to the situation among women, black and white college-educated men have sharply different occupations and these differences are consistent with the lower median earnings of blacks. For instance, in 1989, 22 percent of employed black men, compared with 29 percent of white men, were managers. Black men were also less likely than white men to work in professional specialty occupations (31 versus 37 percent). Among professional men, more than one-quarter of blacks, but less than one-sixth of whites, worked in teaching, a relatively lower paying professional occupation. Nearly half of white professionals worked as engineers, mathematicians and computer scientists, lawyers and judges, or doctors, while slightly more than one-third of black professionals worked in these higher paying jobs.

College-educated black men are considerably more likely than their white counterparts to work outside of managerial and professional fields. In fact, 31 percent of black men, compared with 14 percent of white men worked in one of the following lower paying occupations that typically do not require a college degree: administrative support (including clerical work); service; precision production, craft, and repair; and operators, fabricators, and laborers.¹³

In addition to the occupational differences, a number of other factors may contribute to this earnings gap. These include the degree attained (workers with master's degrees tend to earn more than those with bachelor's degrees), the amount of training received on the job, local labor market factors, job performance, the size and financial strength of employers, and racial discrimination.¹⁴

College versus high school

Two key economic rewards of higher education are enhanced employment opportunities and higher earnings. In the following analysis, these economic rewards are examined for blacks by comparing the labor market experience of black college and high school graduates in terms of employment and of median weekly earnings of those employed as full-time wage and salary workers.

The employment-population ratio—the proportion of a population group that is employed—reflects both the extent of a group's labor force participation and the success of the participants in finding work. College graduates participate in the labor force—that is, work or actively seek work—at a higher rate than do high school graduates. In large part, this is because college graduates have invested more in their education and

have greater expectations of employment than high school graduates. Thus, college graduates have more to lose by not going actively into the labor market. Also, college graduates are more likely to succeed in finding work. These two factors result in higher employment-population ratios for college graduates.

Table 5 shows that, in 1989, the employment-population ratio of college-educated black men was 9 percentage points higher than that of black male high school graduates. In 1979, the difference was 5 percentage points. This widening resulted largely from a decline of nearly 4 percentage points in the labor force participation rate of high school graduates. High school graduates may have become less likely to look for work due to a perception that their job prospects had worsened.¹⁵

Among black women, the employment ratio for college graduates in both years studied was about 20 percentage points higher than that for high school graduates. The difference was even larger among unmarried women (23 percentage points in 1989) than it was for married women (14 percentage points).

The 2 years selected for comparing black college and high school graduates' employment ratios were periods of economic expansion. If these ratios had been compared for recession years, the difference between college and high school graduates would have been even greater. This is because the types of jobs held by college graduates are less vulnerable to recessionary job losses.¹⁶

In the future, regardless of the stage of the business cycle, this employment gap between black college and high school graduates may grow. According to Bureau of Labor Statistics' projections, the occupations expected to have the fastest rates of employment growth between 1988 and 2000 are in managerial, professional, and technical fields, which generally require higher levels of education. In contrast, employment is projected to grow more slowly or even decline in many of the occupations requiring less education.¹⁷ How much the employment ratios of black college and high school graduates will be affected by these projected changes in the occupational structure of the labor market depends, for the

The earnings gap between black college and high school graduates has increased in the 1980's.

Table 6. Median weekly earnings of blacks ages 25 to 64 employed as full-time wage and salary workers by sex, age, and educational attainment, annual averages, 1979 and 1989

[Numbers in thousands]

Sex and age	4 or more years of college			4 years of high school		
	Number of workers	Median earnings	90-percent confidence interval	Number of workers	Median earnings	90-percent confidence interval
1979						
Men 25 to 64	371	\$338	\$320 to \$356	1,168	\$251	\$244 to \$258
25 to 34 years	187	303	284 to 322	557	236	226 to 246
35 to 44 years	102	369	325 to 413	318	260	249 to 271
45 to 64 years	82	398	369 to 427	293	265	251 to 279
45 to 54 years	60	418	384 to 452	193	270	253 to 287
55 to 64 years	23	353	313 to 393	100	257	234 to 280
Women 25 to 64	403	261	253 to 269	1,095	174	170 to 178
25 to 34 years	204	243	232 to 254	508	174	169 to 179
35 to 44 years	94	273	255 to 291	341	174	167 to 181
45 to 64 years	105	286	271 to 301	246	175	167 to 183
45 to 54 years	74	279	261 to 297	170	176	167 to 185
55 to 64 years	31	301	276 to 326	76	171	158 to 184
1989						
Men 25 to 64	631	544	523 to 565	1,795	353	344 to 362
25 to 34 years	259	479	462 to 496	815	315	307 to 323
35 to 44 years	214	583	560 to 606	553	379	365 to 393
45 to 64 years	159	667	621 to 713	427	408	393 to 423
45 to 54 years	115	636	556 to 716	294	409	391 to 427
55 to 64 years	44	707	636 to 778	133	408	378 to 438
Women 25 to 64	768	486	475 to 497	1,694	284	279 to 289
25 to 34 years	301	426	410 to 442	664	258	250 to 266
35 to 44 years	274	516	498 to 534	574	294	286 to 302
45 to 64 years	193	522	497 to 547	456	310	300 to 320
45 to 54 years	142	521	498 to 544	336	313	302 to 324
55 to 64 years	50	535	359 to 711	120	304	284 to 324

most part, on the future educational attainment of the black population.

College-educated blacks not only are more likely to have a job than blacks with a high school education, but also, among those employed full time, college graduates earn considerably more. In 1989, black male high school graduates ages 25 to 64 had median weekly earnings of \$353 (plus or minus \$9); college graduates earned about one-and-a-half (1.44 to 1.65) times that amount. The magnitude of this earnings gap was greater in 1989 than in 1979 (1.24 to 1.45 times), with men ages 25 to 34 accounting for most of the overall increase. Earnings differences also increased among black women, and, as with men, most of the widening occurred among younger women. These young workers are the age groups most affected by the labor market crowding that resulted from the increased supply of workers associated with the baby boom. In such a competitive environment, employers can raise their educational requirements for workers, giving college graduates even more of an advantage over those with only a high school education.¹⁸ Table 6 shows data on the median weekly earnings of black college and high school graduates by their sex and age.

These earnings comparisons show that the gap between black college and high school graduates has increased in the 1980's. The data also suggest that, for both men and women, black college graduates' earnings increase more with age than do those of high school graduates. This can be

seen in the data for black men who were ages 25 to 34 in 1979 and, thus, 35 to 44 in 1989. In 1979, the median weekly earnings of college graduates in this cohort were 1.16 to 1.42 times those of high school graduates, whereas in 1989, the median for college graduates was 1.43 to 1.66 times that of high school graduates.

Just as the higher starting pay of college graduates may reflect the value of additional years of schooling, larger pay increases once they are employed could reflect the differences in the amount of training college and high school graduates receive on the job. Job-related training, like formal education, is a human capital investment, and, according to a 1986 Rand Corporation study, college graduates are more likely than high school graduates to receive such training.¹⁹ College graduates, then, have more opportunities to increase their productivity throughout their careers, and this may result in greater pay increases.

THE NOTION THAT a college education can contribute to closing the economic gap between blacks and whites appears to hold true for women. But the theory may be questioned in terms of men because substantial economic differences still exist between college-educated black and white men, and little progress toward narrowing the gap was made during the 1980's. Nevertheless, for all blacks, college education does provide considerable economic rewards above those generally received with only a high school education. □

Footnotes

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¹ Unless stated otherwise, all data in this article refer to persons 25 to 64 years old. This age group has been selected because it has the strongest attachment to the labor force. Many people under age 25 have not yet completed their formal education, and relatively few people over age 64 participate in the labor force.

² For a discussion of how human capital differences between blacks and whites relate to economic differences, see James P. Smith, "Race and Human Capital," *American Economic Review*, September 1984, pp. 685-98. For a general overview of human capital theory, see Gary S. Becker, *Human Capital* (New York, Columbia University Press, 1964 and 1975), or Jacob Mincer, *Schooling, Experience, and Earnings* (New York, Columbia University Press, 1974).

³ See, for example, James P. Smith and Finis R. Welch, "Black Economic Progress After Myrdal," *Journal of Economic Literature*, June 1989, pp. 519-64.

⁴ Current Population Survey data on educational attainment actually refer to years of school completed, rather than degrees obtained. In this article, those who attended college for 4 or more years are referred to as college graduates, and

those who attended high school for 4 years are referred to as high school graduates. Available data suggest that blacks who report that they have completed 4 years of college are less likely than whites to have obtained a degree. Current plans are to change the information in the CPS from a "years of school completed" concept to a "degrees obtained" concept like that used in the 1990 census.

⁵ Part of the difference in the CPS estimates of the number of black men and women ages 25 to 64 may result from differences in the coverage of these two groups in the 1980 decennial census. While evidence suggests that the 1980 census undercounted the number of black women in this age group, the undercount of black men is believed to have been much greater. CPS population estimates are based on decennial census figures, which are then adjusted over time for estimated births, deaths, and net immigration. A census undercount of the number of black men could result in the number of black male college graduates being underestimated in the CPS. For a more detailed discussion of the census undercount, see *Coverage of the National Population in the 1980 Census, by Age, Sex, and Race: Preliminary Estimates by Demographic Analysis, Current Population Report, Series P-23, No. 115* (Bureau of the Census, 1982). Despite the fact that the CPS may understate the number of black male college graduates, administrative data from the U. S. Department of Education show that, in any given year, the number of black women receiving college degrees sub-

stantially exceeds the number of black men. See, for example, U. S. Department of Education, National Center for Education Statistics, *The Condition of Education, 1989*, vol. 2, *Postsecondary Education*, p. 68.

⁶ Curtis L. Gilroy, "Investment in human capital and black-white unemployment," *Monthly Labor Review*, July 1975, pp. 13-21.

⁷ It is important to note that in 1988 the unemployment rate for college-educated black men (2.9 percent) was only about one-and-a-half times the rate for white men (1.7 percent). Because the rate for college-educated black men is so volatile from year to year, it is difficult to draw firm conclusions about changes in this group's unemployment situation.

⁸ Because of the relatively small number of unemployed black college graduates in the CPS sample, it is not possible to analyze unemployment rates in different age groups. More reliable data would have allowed for the comparison of unemployment of younger graduates with that of graduates in older age groups.

⁹ See Gary S. Becker, *Human Capital*, pp. 16-37. According to human capital theory, older workers generally earn more than younger workers because they are more experienced and thus more productive than younger workers. This human capital explanation has been disputed, however. Katharine G. Abraham and James L. Medoff, in *Length of Service and the Operation of Internal Labor Markets* (Cambridge, MA, National Bureau of Economic Research, Inc., 1983), working paper no. 1085, argue that the relatively higher pay of workers with more seniority "is to a significant extent a reward to seniority per se, rather than simply a reward for higher productivity."

¹⁰ Annual earnings estimates are obtained from supplemental questions asked in the CPS in March of each year. All persons in the March CPS sample are asked if they worked at any time during the previous year. Those who worked are asked what they earned in that year. For example, all sample members in March 1980 who worked at any time during 1979 were asked their 1979 earnings. Estimates of usual weekly earnings are obtained by asking one-quarter of the wage and salary workers in each month's CPS sample their usual weekly hours and earnings. Annual average estimates of median weekly earnings are based on a sample size triple that used for the annual earnings estimates from the March supplement. The difference in sample sizes is shown by the following:

Sample size in March for annual earnings estimates = S
Sample size for annual averages of median usual weekly earnings = $12(1/4)(S) = 3S$

A minor drawback to comparing weekly, rather than annual, earnings is that the universe for weekly earnings, unlike that for annual earnings, only includes wage and salary workers. Information on weekly earnings is not obtained for self-employed workers, such as business owners and some (though not all) doctors and lawyers. Although many self-employed workers are college graduates, they comprise only a small proportion of employed college graduates.

¹¹ The results of any survey, whether based on a sample or a complete census of the population, are subject to non-sampling, or response, variability. Nonsampling error can result from a number of causes, such as incorrect recording

of the data, differences in the interpretation of questions, or respondents' inability or unwillingness to provide correct information. Because the estimates used in this article are based on one of many possible samples of the population, they are also subject to sampling error—variation which occurs by chance because a sample, rather than the entire population, is surveyed. The measure of this sampling variability is the standard error. The standard error and the sample estimate enable confidence intervals to be constructed. In this article, the 90-percent confidence interval—the sample estimate plus or minus 1.6 times the standard error—is the interval used to estimate median weekly earnings. For example, suppose that an estimate of median weekly earnings was \$338 and the standard error for this median was \$11; it can then be said with 90 percent confidence that the actual median is between \$320 and \$356 (\$338 plus or minus 1.6 times \$11). In other words, if 1,000 independent samples had been selected, the median would fall between \$320 and \$356 in 900 of those samples.

¹² The \$544 median for black men is 76 percent of the \$719 median for white men. The lower and upper boundaries of this ratio, 72 and 79 percent, respectively, are derived from the following tabulations:

lower boundary of median for black men	= \$523	= 72 percent
upper boundary of median for white men	\$725	
upper boundary of median for black men	= \$565	= 79 percent
lower boundary of median for white men	\$713	

¹³ It is possible that the occupational differences between black and white college-educated men vary by age. For example, the occupational employment characteristics of young blacks may be similar to those of young whites, while the differences between older blacks and whites may be sizable. This hypothesis cannot be tested accurately, however, because the CPS sample is not sufficiently large to provide reliable occupational employment estimates for black male college graduates in specific age groups.

¹⁴ The number of workers with more than 4 years of college can be used as a rough approximation of workers with graduate schooling. Among college-educated men employed as full-time wage and salary workers in 1989, a larger proportion of whites (44 percent) than blacks (34 percent) had completed more than 4 years of college. To account for this difference, median earnings were also tabulated for workers with exactly 4 years of college. The black-white earnings gap for this group was no different from that for men with 4 years of college.

¹⁵ Wayne J. Howe, "Education and demographics: how do they affect unemployment rates?" *Monthly Labor Review*, January 1988, pp. 3-9.

¹⁶ *Ibid.*

¹⁷ George Silvestri and John Lukasiewicz, "Projections of occupational employment, 1988-2000," *Monthly Labor Review*, November 1989, pp. 42-65.

¹⁸ Howe, "Education and demographics."

¹⁹ L. A. Lillard and H. W. Tan, *Private Sector Training: Who Gets It and What are Its Effects?* (Santa Monica, CA, Rand Corporation, 1986), p. 27.

The European Community 1992 program and U.S. workers

A conference on the implications for U.S. workers of the European Community's impending integration brought together experts of all stripes who agreed that the move will have not only an economic, but also a political and social impact

Robert C. Shelburne
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The European Community's plan to create, by 1992, a single market permitting the free flow of goods, capital, and people among member countries has caught the imagination and interest of many in the United States. Numerous studies and conferences have investigated the potential impact of this plan, called EC 1992, on U.S. companies. Little attention, however, has been given to how U.S. workers are likely to be affected. To help fill this gap, and to raise explicitly some issues of concern to U.S. workers, the Bureau of International Labor Affairs of the U.S. Department of Labor, in conjunction with the Center for Strategic and International Studies, cosponsored a roundtable conference in March 1990 on "EC 1992: Implications for U.S. Workers." This conference brought together leading experts from government, academia, business, and labor to discuss the topic of European economic, political, and social integration and its implications for U.S. workers. This report discusses the major themes that evolved during the conference.¹

Overview

The conference opened with a review of the major areas of concern for U.S. workers resulting from the EC 1992 program. The importance and interdependence of the economic relationship between the European Community and the United States was emphasized. Each is the other's main trading partner and largest source

of direct investments. U.S. exports to the European Community account for nearly a quarter of total U.S. exports and support nearly two million jobs in the United States. Besides internal economic effects, EC 1992 will have international strategic implications: a united Europe will be able to assume more financial and political responsibility in the operation of the global economic system.

The creation of a single market by the European Community is likely to alter the competitive position of firms in member countries relative to U.S. firms in markets throughout the world, but especially in Europe. Both the structure and the volume of U.S. exports and imports will be altered, with some U.S. workers facing job dislocations as a result, while others enjoy increased job opportunities. Estimations of the direction and magnitude of these changes are obviously important to U.S. workers.

Another area of concern is that EC 1992 will make Europe a more attractive place in which to invest, and this could displace some investment that would have been made in the United States. Since investment is a significant factor in determining longrun growth in productivity and living standards, a reduction in investment in U.S. plants and equipment could prove detrimental to U.S. workers.

Still another area of interest in EC 1992 is the proposed "Social Dimension," which, if enacted, could lead to a broader application of worker rights and labor standards across the continent. These changes could directly affect the competi-

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tiveness of European firms, but even more important is their potential for altering U.S. labor standards and benefits by the example they set. The discussion that took place at the conference attempted to ascertain the importance of each of the foregoing three themes.

Aggregate economic effects

In a paper prepared for the conference, Professors Richard Freeman and Lawrence Katz, of both Harvard University and the National Bureau of Economic Research, assessed the overall impact of EC 1992 on U.S. trade and employment. They found that, compared to the rapid "internationalization" of the U.S. economy in the 1970's and 1980's and the massive trade deficits of the 1980's, the impact of EC 1992 on U.S. trade flows and the U.S. labor market is likely to be only minor to moderate. Using estimates presented in the Cecchini Report (prepared for the Commission of the European Communities in 1988) that European Community imports initially would drop 8 to 10 percent as the result of increased intra-European trade, Freeman and Katz projected a similar reduction in U.S. exports to the European Community, which would result in an overall reduction in U.S. exports of 2.4 percent. Based on this projection, they concluded that such a relatively small change would not create any major dislocations of workers in the United States. However, U.S. Department of Commerce estimates show that even a 3-percent decline in U.S. exports could displace up to 200,000 workers. In the long run, EC 1992 is projected to increase the rate of economic growth in Europe as firms benefit from increased efficiencies and economies of scale. There is a wide range of estimates of these longrun growth effects, from negligible increases to increases of up to 35 percent in the present value of the gross domestic product. In the longer run, increased growth in the European Community is likely to result in increased trade with the United States.

Professor Katz discussed his research regarding the effects of international trade on U.S. labor markets. This research supports the conventional wisdom that increased trade is more likely to benefit more educated and highly skilled workers than lower skilled production workers in the manufacturing sector (for example, through increased wages and employment). In addition, workers displaced by increased imports have a more difficult time gaining reemployment than other displaced workers and experience larger earnings losses when they are reemployed. These conclusions tend to support the need for additional help for such workers, perhaps through trade adjust-

ment assistance programs. Recently, several U.S. legislators have proposed a small supplemental tariff to help finance trade adjustment assistance. It was pointed out that the European Community was spending about \$6,000 a year per worker for training and retraining and that the United States needs a similar program to maintain a competitive and mobile work force. It was also suggested, by a U.S. trade unionist, that some protection might be justified in the short run, given the large shortrun costs of retraining the work force.

Professor Katz indicated that the U.S. labor market effects that would result from the projected long-term increase in U.S. trade with the European Community would be similar to those that occurred in the 1980's. This conclusion was questioned by some who observed that increased trade with Europe is more likely to affect those U.S. industrial sectors with more highly skilled, high-technology workers than previous increases in trade that have come from newly industrializing economies. However, Professor Katz countered that the recent U.S. import adjustment problems were primarily due to imports from Japan and that the percentage of U.S. imports coming from the newly industrializing economies had actually decreased during the 1980's. An additional reason highly skilled labor may be more affected is that the European Community is promoting the development of high-technology areas, supplemented with massive labor retraining efforts.

With regard to investment, the recent increases in U.S. direct investments through both acquisitions and plant construction in Europe were noted. However, a similar large flow of European direct investments in the United States was cited as evidence of a balanced relationship. A member of the European Community delegation stated that U.S. investment in Europe was motivated by sound economic reasons and was not "forced investment" resulting from attempts to avoid European Community trade barriers.

It was also suggested that EC 1992 would further hasten the process of corporate globalization. With the European Community and the European Free Trade Association (and, perhaps, Eastern Europe) adopting similar product standards, common European standards could become the global standards. By replacing the United States as the setter of international product standards, European companies would acquire a significant competitive advantage in third-country markets.

The general consensus was that, as a result of EC 1992, the United States will likely face increasingly more competition, but significant changes in aggregate U.S. employment and wages are unlikely. However, some unskilled

The European Community and the United States are each other's main trading partner and largest source of direct investments.

U.S. workers may experience a small decline in employment and wages. While projections of economywide effects in the U.S. were small, various directives being proposed by the European Community could have significant impacts on specific U.S. industries and, thus, U.S. workers in those industries. Three U.S. industrial sectors—automobiles, electronics, and mass media and entertainment—that might be affected by European economic integration were discussed in more detail. These sectors were chosen because they typified various potential trade problems, not because they were deemed the sectors most likely to be affected.

Sector studies

Automobiles. The automobile industry is of particular interest, not only because of its significant size (in terms of employment in both the United States and the European Community), but because it is subject to a number of European Community regulations that are potentially discriminatory in nature. These include country-specific policies, laws, and regulations relating to import quotas, technical product standards, domestic content requirements, rules of origin, national government subsidies, and taxes. Also at issue are concerns about price discrimination and dumping.

Currently, many European countries have import quotas on Japanese cars. For example, Italy limits imports from Japan to only 2,500 cars a year. The European Community is planning to replace these national quotas with a community-wide restriction on imports from Japan that will stabilize imports until 1992 and then slowly liberalize them over a subsequent transitional period.

The main issue of concern to U.S. labor is whether cars assembled in the United States that use some Japanese components are to be included in the European Community's quota on imports from Japan. (That is, would they be treated as U.S. cars and not as Japanese cars?) The panel felt that, as long as imports from the United States were not disruptive to the European Community market, they would be exempt. However, the threat of restraints could limit planned U.S. production, and thus, any proposed Communitywide quota system could effectively discriminate against U.S. exports, even if they were currently exempt from quotas. It was noted that the United States has its own rules of origin covering automobiles in the U.S.–Canada free trade agreement. However, a significant difference was noted between the European practice, which restricts, with quotas and high tariffs, those cars not satisfying the Community's rules of origin, and the U.S. practice, which has no import quotas and subjects such cars only to a small tariff.

Electronics. Workers in the U.S. electronics industry are concerned about developments in the European Community because it is the largest market for U.S. electronics exports and numerous discriminatory trade practices have been proposed and implemented by the Community. The electronics industry includes the manufacture of computers, semiconductors, and related products and has important linkages to many other industrial sectors (especially consumer goods and informational and financial services). Because of its high-tech nature and extensive linkages, a competitive U.S. electronics industry is deemed by many to be necessary for a healthy domestic U.S. economy. In this regard, it is perceived much as the steel industry was in earlier decades. The electronics industry now accounts for about 1 out of every 9 U.S. manufacturing jobs, more than the chemical, automotive, and steel industries combined.

Discussion focused on the semiconductor market and several proposed European Community policies that might adversely affect U.S. employment. Foremost among these are several policies that would have the net effect of requiring U.S. firms to establish plants within the European Community despite current excess capacity in the United States. Three examples were cited in which U.S. manufacturers had decided to build production facilities in Europe—an Intel plant in Ireland, an LSI logic facility in England, and a Texas Instruments DRAM factory in Italy. Japanese firms (for example, Fujitsu, Hitachi, and Mitsubishi) are also building semiconductor wafer fabrication plants in Europe. The specific European policies cited as causing this investment by non-European Community countries include high tariffs—especially a 14-percent tariff on semiconductors—and the conditioning of eligibility for European Community government contracts on high levels of European content. As proposed, wafer fabrication and the diffusion process of semiconductor fabrication must be done in Europe for a semiconductor to be considered European. Increased investment in production facilities in Europe, in turn, could result in excess capacity within the European Community and increase the pressure for additional protection.

The desirability of harmonizing the international rules concerning government procurement, local content, and rules of origin within the General Agreement on Tariffs and Trade (GATT) was also stressed. Some felt that too much attention had been given to the agricultural sector, instead of the more important electronics sector, in the current GATT negotiations. Some fears were expressed that trade relations between the European Community and the United States in semiconduc-

A main issue was whether cars assembled in the United States that use some Japanese components will be included in quotas on imports from Japan.

tors might become as contentious as they have become in agriculture.

Some participants expressed a more optimistic view that the European Community would make changes that might lead to liberalization. An example of this kind of change would be the replacement of national research and development efforts (now restricted to member states) with community-sponsored efforts that would also be open to foreign firms according to the principle of national reciprocity. On the other hand, representatives of the European Community expressed the concern that they did not want Japan to do to the European Community what Japan had done to the United States.

Entertainment and mass media. The entertainment and mass media industry includes radio and television programming, motion pictures, and sound recordings. The market for these items borders on the line between goods and services; therefore, it is unclear how existing international trade agreements apply. The service industries are not covered at present by GATT rules, and a major objective of the United States in the current Uruguay round of multilateral trade negotiations is to bring them under the GATT. The panel discussed several possible ways that EC 1992 could adversely affect U.S. employment in the entertainment and mass media industry.

The European broadcast industry has grown strongly in the past and is projected to grow rapidly over the next decade. Currently, the United States provides a significant portion of programming to European Community broadcasters. The European Community, however, has passed a directive which states that broadcasters should reserve at least 50 percent of their programming for European works "where practicable." If adopted strictly, this ruling would be equivalent to setting a quota on non-European Community programming. The objective of such a quota would be to protect the European film and television industry so as to ensure programming that would maintain member countries' cultural heritage. One European participant suggested that this might be a legitimate objective that would justify trade restraints. In response, a U.S. industry spokesperson stated that the primary objective of the directive was economic, and not cultural, protectionism.

The overall conclusion of the panel discussion was that the broadcast directive will not have significant effects on U.S. employment because (1) European production capacity will be strained to keep up with the increased demand from all the new European channels, and sizable imports (and even additional imports from the United States)

will be needed to meet this demand; (2) European films and TV programs have not, and are not likely to, become as popular in the United States as U.S. programs are in Europe because there is consumer resistance in the United States to dubbed or subtitled programs; and (3) the large English language market will continue to allow U.S. firms to produce more expensive and higher quality programming than the Europeans will be able to produce.

Some concern was expressed about investments currently being made in Europe by such U.S. firms as Capital Cities/ABC Video, Paramount Pictures, and Fox Television. However, these investments were viewed more as firms participating in a new market and not as a substitution for U.S. investment or U.S.-made programming. Concerns were also expressed that the 50-percent European-content requirement would only be a minimum and that, in the future, it could be set higher at the national level, as was done recently by France. Some stated that a restriction on advertising time, also included in the broadcast directive, could limit the income derived from the sales of U.S. programming.

An additional aspect of EC 1992 that may create problems for U.S. competitiveness is the likely adoption by the European Community of high-definition television standards that differ from those in the United States. The European Community has already established a technical format that is not consistent with the formats currently under consideration by the United States. Indeed, a serious degradation in quality results when converting from one format to the other. Thus, U.S.-produced programs could lose some of their appeal in the European market because, after conversion, they would be of inferior technical quality. High-definition television will not become widely used until the mid-1990's, so no immediate impact from this disparity is predicted; however, the impact could be quite significant in the long run. Because adoption of the European standards is not the result of a deliberate attempt to distort trade in a discriminatory fashion, the appropriate U.S. policy response is unclear. The issue, however, does highlight concerns about international standards and the need for the United States to at least consider, and even perhaps adapt to, the standards established by the European Community.

The studies of the automobile, electronics, and entertainment and mass media industries revealed important industry-specific effects stemming from EC 1992 that were not obvious from the aggregate analysis presented earlier. This was of course the reason for choosing those particular industries for special analysis.

Concerns were expressed regarding broadcasting that the 50-percent European-content requirement would only be a minimum.

The Social Dimension

When EC 1992 was first outlined in a 1985 White Paper, there were no references to labor markets or labor relations. Since that time, concern over these issues has increased, and supplemental legislation dealing with the social dimension of the program has been proposed. Professor Duncan Campbell, of the University of Pennsylvania, reviewed the social dimension of the European Community single market and its potential impact on U.S. workers.

The Social Dimension of EC 1992, as defined in official documents, is broad in scope. Its central core is the Action Program of the Social Charter, which includes proposals for as many as 70 European Community-wide laws in the social field. Among these laws are provisions on the free movement of labor, freedom of association and collective bargaining, health and safety standards and other working conditions, information, consultation and participation, vocational training, and protections for women, minorities, children, the disabled, and the elderly. The Social Dimension also includes additional issues such as funds for disadvantaged regions and the proposed European Company Statute. The latter would allow companies the option of a single act of incorporation that would be valid throughout the European Community, subject to European law and independent of national company law, on the condition that they accept some system of worker participation, information, and consultation.

Although national governments and labor unions continue to be accepted as dominant players in European labor relations, there is considerable controversy about the role of Brussels (the seat of the European Community government) in this process. The debate is part of a larger debate over the role of the European Community Commission in formulating social policy. Is the role of the European Community's Federal bureaucracy simply to monitor member nation-states in the capacity of an intergovernmental organization, or is the bureaucracy to play the role of a centralized government in a federation of states? At the heart of the debate is exactly which issues should be decided at the European Community supranational level and which should be resolved at the individual national government level.

In regard to labor market intervention, the European Community Parliament and the Council of Ministers have been assuming greater responsibility, while the individual national governments have been attempting to deregulate their labor markets and make them more flexible. These developments reflect an attempt to deal with two factors that lie beyond the control of national governments and require supranational regulation:

the potential for social dumping (for example, the lowering of national labor standards to the lowest common denominator or the flight of industry from countries with higher labor standards to those with lower labor standards) and the increased power of multinational corporations.

Recent institutional changes in the European Community's decisionmaking procedures are also promoting European Community-wide involvement in the Social Dimension. The first change is the decision to permit a "qualified majority" of member states to pass laws and directives in certain areas, instead of requiring unanimous approval in the Council of Ministers. The second is the increased power of the European Parliament in addressing the Social Dimension. These changes should mitigate any political obstacles that may exist to resolving these issues.

A question was raised as to whether labor unions should be organized by geographic region or by industrial sector and whether the United States was an appropriate model to copy in this regard. Historically, unions in Europe have been regional; but with the impending implementation of EC 1992, the question arises, Should they be European Community wide and thus more patterned after the AFL-CIO in the United States? Obviously, European Community-wide unions would be a more effective restraint on social dumping than would regional unions. In the view of a European trade unionist, national labor federations may be appropriate, as long as exchange rates are flexible. However, national organization is likely to create problems of competitiveness when exchange rates are fixed, as is probable after 1992. This will be especially true if the European Community decides to adopt a common currency. European sentiment was strong for a European Community-wide model formulated along the lines of the German social model or perhaps a model that is a hybrid of the German, Italian, and British models. The U.S. model was not viewed as desirable or relevant to the current European situation. However, some U.S. trade unionists expressed skepticism about the likelihood of a European solution, and a European trade unionist expressed the need for legal guarantees and regulation through the Social Charter.

The consensus that emerged was that, because the United States and the European Community were so different in their overall approaches to labor relations, the United States could not serve as a model for the European Community to follow and that future developments in Europe might not be transferable to the United States. By contrast, the fact that U.S. health and safety regulations were being used as a model for the

The question arises, Should labor unions be European Community wide and thus more patterned after the AFL-CIO in the United States?

European Community was offered as an example—the only one so far, besides statistical economic data collection—of U.S. standards being applied in Europe.

In a move that would please U.S. workers concerned about possible European protectionism, the European labor leaders who were present at the conference stressed their commitment to free trade. These functionaries emphasized their desire for retraining as a way to speed up workers' adjustment to new jobs, instead of protectionism, which would slow down their adjustment. The different reactions of European and U.S. employers to increased competition were also noted: European firms tend to increase their investments in capital machinery so as to improve productivity, while U.S. firms lean toward moving production offshore to lower cost locations.

The conference also attempted to assess how the current liberalization and reform in Eastern Europe and the unification of Germany might affect the 1992 program. It was felt that Eastern Europe, with its openness to foreign capital, educated labor force, and geographical proximity, would become a major competitor with Southern Europe. The potential integration of Eastern Europe with the European Community (either formally or informally) would provide additional markets for European Community output, but would also create additional adjustment costs. It is even possible that the ongoing economic and political restructuring of Eastern Europe would increase resistance to implementing social legislation from the less developed member states of the European Community, because these regions would be under more competitive pressure. However, the general assessment was that "widening" the European Community to include Eastern Europe would not decelerate the "deepening" of the economic and social dimensions within the European Community.

Emerging themes

Several themes emerged from the conference on the implications for U.S. workers of EC 1992. Two related concepts that arose frequently were the globalization of the world economy and the role of national governments in any subsequent restructuring and adjustment. The emergence of the European Community must be viewed as more than just the economic integration of the member nations: it implies not only regional economic integration, but also political and social integration, at least to some extent.

Globalization and integration of the world economy raise issues related to international

product standards, the mobility of capital, the role of multinational corporations, and how each of these will affect the competitiveness of nations and their work forces. Increasingly, multinational corporations have located production facilities (a network of suppliers, manufacturers, assemblers, and distributors) worldwide to take into account changes in world economic conditions. In a very real sense, multinational corporations are supranational: what constitutes a U.S. or a German company has become increasingly difficult to say. And along with this development, national governments are finding that it is becoming harder to monitor and regulate multinational enterprises. The interests of multinational corporations are not always in the national (for example, the U.S.) interest; and, in turn, the interests of U.S. businesses are not always the same as the interests of U.S. workers. While industrial enterprises are becoming transnational, labor markets remain national and regionalized, with labor mobility quite limited.

National governments are adopting different strategies to cope with the restructuring and adjustment being brought on by the process of global integration. In Europe, the unification of nation-states—first into an economic and now into a political and social federation—is raising new questions such as the following: How should substantial differences in standards of living among member countries be addressed? How should work be reorganized within the social context so as to achieve higher productivity and wages? Should there be statutory guarantees of workers' rights and labor standards, rather than a reliance on collective bargaining? Should there be federal (central) or local (nation-state) norms? What is the proper role of national governments in the domestic and world economy—interventionist or preserving of states' rights? Whose responsibility is it to help retrain workers, the private sector or the public sector? How are economic and social forces from outside the union to be dealt with? Answers to these and other questions are still being hotly debated within Europe and may be of considerable consequence to workers in both Europe and the United States. □

Footnote

¹ The five papers commissioned for the roundtable conference, including a summary of the discussion after each session, are available in Jorge F. Perez-Lopez, Gregory K. Schoepfle, and John Yochelson, eds., *EC 1992: Implications for U.S. Workers*, CSIS Significant Issues Series (Washington, Center for Strategic and International Studies, 1990). Contributing authors to this volume are Thomas L. Brewer, Duncan C. Campbell, Richard B. Freeman, Lawrence F. Katz, Michael C. Maibach, and Stephen E. Siwek.

Contributions to savings and thrift plans

New data show that average annual contributions made by employers and employees can vary quite widely, depending upon individual plan specifications and employees' level of earnings

Michael Bucci

Participants in employer-sponsored savings and thrift plans who earned \$25,000 during 1989 could make annual contributions ranging from less than \$100 to more than \$6,500 depending upon their plan's administrative restrictions and the employee's chosen rate of contribution. These disparities in allowable contributions exist among all occupational groups, but are even more evident at higher compensation levels.

These findings are from analysis of individual savings and thrift plan provisions studied in the Bureau of Labor Statistics' 1989 Employee Benefits Survey. The survey furnishes data on employee benefit provisions in medium and large establishments in private industries located within the continental United States. The 1989 survey sample represents 109,000 establishments and contains benefit data that pertain to 32 million full-time employees.

Two types of retirement plans were evident in the survey—defined benefit pension plans, which include specific formulas that are used to determine an employee's benefit upon retirement, and defined contribution plans which do not attempt to provide a fixed benefit. Instead, defined contribution plans specify the level of the employer's annual contribution to the employee's individual account. Savings and thrift plans were the most common type of defined contribution plans in the 1989 Employee Benefits Survey, with 30 percent of full-time workers participating in a savings plan that was at least partially financed by their employer.¹ As with most other defined contribu-

tion plans, savings and thrift plans are designed to permit the accumulation of funds that may be used for retirement or other future purposes. Final accrual is dependent upon a number of variables, including total plan contributions, investment earnings, and length of participation in the plan.

Savings and thrift plans require a contribution from both the employer and the employee.² However, because the employer is not obligated to provide a certain level of benefits, the risk from investments is borne solely by the employee. The result of investment gains or losses is reflected in the final benefit available to the employee.

Presently, the Employee Benefits Survey provides a variety of data regarding the provisions of savings and thrift plans. Included are information on maximum allowable employee contributions, permissibility of pretax employee contributions, employer matching percentages, available investment opportunities, and vesting schedules.³ The new data on savings and thrift plans presented in this article attempt to determine the average allowable annual contributions to these plans and the actual lump-sum benefit that would be available to an employee upon retirement.

Overview of plans

Perhaps the most important reason establishments form savings and thrift plans is to provide an additional or alternative source of retirement income for workers. Many Americans are leaving the labor force before attaining age 65. At the same time, average life expectancies con-

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Table 1. Average contributions to savings and thrift plans by annual earnings and allowable contribution levels, all full-time participants, medium and large establishments in private industry, 1989

Annual earnings	Employees' contribution			Employers' contribution			Combined contribution		
	Minimum	Midpoint of range	Maximum	Minimum	Midpoint of range	Maximum	Minimum	Midpoint of range	Maximum
All participants									
\$15,000	\$188	\$1,126	\$2,064	\$124	\$468	\$494	\$312	\$1,594	\$2,559
20,000	249	1,498	2,746	165	622	657	414	2,120	3,403
25,000	310	1,869	3,429	205	774	816	516	2,644	4,246
35,000	433	2,610	4,787	286	1,075	1,134	719	3,686	5,921
45,000	555	3,336	6,116	365	1,375	1,450	921	4,711	7,567
55,000	678	4,004	7,330	445	1,674	1,765	1,124	5,678	9,096
Professional-administrative									
\$15,000	192	1,131	2,071	131	493	522	323	1,625	2,593
20,000	256	1,508	2,761	174	656	694	430	2,165	3,456
25,000	319	1,885	3,451	217	818	866	537	2,704	4,318
35,000	446	2,636	4,826	303	1,143	1,210	750	3,779	6,037
45,000	573	3,376	6,178	389	1,466	1,553	963	4,843	7,731
55,000	701	4,070	7,440	474	1,789	1,896	1,175	5,860	9,336
Technical-clerical									
\$15,000	191	1,131	2,071	130	478	504	322	1,609	2,575
20,000	253	1,506	2,760	173	635	669	427	2,142	3,429
25,000	316	1,882	3,449	216	790	830	533	2,673	4,279
35,000	442	2,630	4,818	302	1,097	1,152	744	3,727	5,970
45,000	567	3,364	6,161	387	1,403	1,474	955	4,768	7,636
55,000	692	4,041	7,389	472	1,709	1,796	1,165	5,750	9,185
Production-service									
\$15,000	181	1,115	2,049	110	432	455	291	1,547	2,505
20,000	238	1,478	2,717	147	572	603	385	2,051	3,321
25,000	295	1,840	3,385	182	710	748	478	2,551	4,134
35,000	410	2,563	4,716	251	980	1,031	662	3,543	5,748
45,000	525	3,266	6,007	320	1,245	1,311	845	4,512	7,318
55,000	639	3,896	7,154	389	1,511	1,589	1,029	5,408	8,744

continue to increase.⁴ These two factors have increased the need for sources of income that will sustain individuals after retirement. Savings and thrift plans permit the deferral of employee income and the receipt of matching employer contributions, allowing employees to supplement the more traditional sources of retirement income—defined benefit pensions and Social Security payments.⁵ Data from the Employee Benefits Survey show the increasing importance of this type of capital accumulation plan: in 1988, 25 percent of full-time employees in medium and large private establishments participated in a savings and thrift plan, compared with 30 percent a year later.

The provisions of individual savings and thrift plans can be quite disparate. However, all savings and thrift plans follow the same procedural guidelines: they require a basic employee contribution, with minimum and maximum amounts that each employee may contribute annually, frequently subject to employer restrictions. These restrictions

are often stated as percentages of annual earnings. For instance, an employee may be permitted to contribute an amount equal to between 2 percent and 15 percent of his or her annual earnings.

Savings and thrift plans also have ceilings on the employer's contribution to each employee's account. Typically, the employers limit the amount of the employees' contribution they will match and then determine the level at which the match will be made. Even if the employee contributes at the maximum allowable level of, say, 15 percent of earnings, plan guidelines may restrict the employer from matching any amount over the first 6 percent of earnings. The percentage at which the employee contribution is matched also varies among plans. In some cases, this percentage is a flat amount, such as 50 cents on the dollar, in other cases, it may depend on company profits, employee years of service, or levels of employee contributions.

Employee and employer contributions are then invested. Restrictions on investments vary

Savings and Thrift Plans Contributions

among plans. In most cases, the employee is offered a variety of choices, including company stock, equity funds, fixed interest bearing securities, money market funds, real estate, and certificates of deposit. However, employers may require that all or some contributions be invested in a specific area, such as company stock. In other instances, the employees may be allowed to choose among a number of investment options with regard to their own contributions, but are given no option on employer contributions.

While savings and thrift plans share the same basic structure, each separate plan is subject to its own constraints. For example, a plan's administrators can place their own restrictions on allowable contributions. Also, it is difficult to predict the actual dollar value of an employee's contribu-

tion without knowing that employee's level of earnings. For reasons such as these, it is impossible to estimate the current accruals and total benefits available at retirement from an employee's savings and thrift plan without making certain assumptions. (Such assumptions and a full description of the model used to derive these data, are described in the appendix.)

Average annual contributions

Table 1 shows calculations of the average contributions made by employees and employers to savings and thrift plans in 1989. The vast majority of plans within the survey required employees to contribute at least 1 percent of annual earnings to be eligible to participate in the plan. A small number of plans set minimum requirements at some other fixed percentage of earnings or at a stated dollar level. The average minimum allowable employee contribution levels ranged from \$188 for workers earning \$15,000 to \$678 for those earning \$55,000. These figures represent approximately 1.2 percent of annual earnings at both income levels.

Table 1 also depicts average midpoint and maximum levels of employee contributions allowed during the 1989 plan year. Employee midpoint contribution levels were determined for each plan by selecting the contribution rate that represented the average of the minimum and maximum contribution rate permitted by the plan. For example, a plan that permits annual employee contributions of from 1 percent to 15 percent of earnings would have a midpoint of 8 percent of earnings.

Maximum allowable employee contributions also are usually expressed as a percentage of pay. On average, these contribution levels vary quite widely depending upon the employee's annual earnings. Table 1 shows that employees who earned \$15,000 in 1989 could make an average maximum contribution of \$2,064 or 13.76 percent of earnings. Employees earning \$55,000 in 1989 were allowed average maximum contributions of \$7,330, or 13.33 percent.⁶

Employer contributions to savings and thrift plans are usually less than those of employees. However, as table 1 shows, the discrepancies between employer and employee levels increase as the employee's level of contributions increases. This stems from the provisions built into individual plans. For instance, if a plan allows employees to contribute from 1 percent to 15 percent of earnings while providing for a dollar-for-dollar employer match on the first 6 percent of earnings, employer and employee contributions would be equal if the employee chose to contribute from 1 to 6 percent of earnings. However, when employ-

Table 2. Percent of full-time participants in savings and thrift plans by employee contributions, earnings, and selected allowable contribution levels, medium and large establishments in private industry, 1989

Range of contribution	Minimum allowable contributions					
	\$15,000	\$20,000	\$25,000	\$35,000	\$45,000	\$55,000
Less than \$500	100	97	77	76	76	6
\$500-\$999	(¹)	3	23	21	21	71
1,000-1,499	—	(¹)	(¹)	3	2	21
1,500-1,999	—	—	—	(¹)	(¹)	2
2,000-2,499	—	—	—	—	—	(¹)
2,500-2,999	—	—	—	—	—	(¹)
3,000-3,499	—	—	—	—	—	(¹)
	Maximum allowable contributions					
	\$15,000	\$20,000	\$25,000	\$35,000	\$45,000	\$55,000
Less than \$500	1	1	—	—	—	—
\$500-\$999	5	1	1	1	1	1
1,000-1,499	5	5	1	1	(¹)	1
1,500-1,999	31	5	4	1	(¹)	(¹)
2,000-2,499	41	28	5	4	1	1
2,500-2,999	10	6	14	4	4	1
3,000-3,499	6	43	17	1	—	4
3,500-3,999	1	5	19	14	4	—
4,000-4,499	—	6	26	14	1	4
4,500-4,999	—	1	5	5	14	1
5,000-5,499	—	—	5	17	4	—
5,500-5,999	—	—	1	26	4	13
6,000-6,499	—	—	1	4	2	1
6,500-6,999	—	—	—	2	18	14
7,000-7,499	—	—	—	5	23	14
7,500-7,999	—	—	—	1	5	1
8,000-8,499	—	—	—	(¹)	3	13
8,500-8,999	—	—	—	(¹)	1	17
9,000-9,499	—	—	—	—	4	15
9,500-9,999	—	—	—	—	1	3
10,000 or more	—	—	—	—	1	7

¹ Less than 0.5 percent.

² There were no minimum allowable contributions after the \$3,000-\$3,499 range.

NOTE: Dash indicates no contributions exist at that range due to plan specifications and income levels.

Table 3. Percent of full-time participants in savings and thrift plans by employer contributions, final year earnings, and selected allowable contribution levels, medium and large establishments in private industry, 1989

Range of contributions	Minimum allowable contributions						Maximum allowable contributions					
	\$15,000	\$20,000	\$25,000	\$35,000	\$45,000	\$55,000	\$15,000	\$20,000	\$25,000	\$35,000	\$45,000	\$55,000
Less than \$500 ..	99	97	93	91	88	62	64	26	18	9	8	4
\$500-\$999 . . .	1	3	6	6	9	31	33	58	54	27	18	15
1,000-1,499 . . .	(¹)	(¹)	1	2	2	4	3	15	17	44	39	14
1,500-1,999 . . .	(¹)	(¹)	(¹)	(¹)	(¹)	2	(¹)	1	10	9	15	35
2,000-2,499 . . .	—	(¹)	(1)	—	(1)	(¹)	(¹)	(¹)	1	9	8	14
2,500-2,999 . . .	—	—	—	(¹)	—	(¹)	—	—	(¹)	1	9	5
3,000-3,499 . . .	—	—	—	(¹)	(¹)	—	—	—	(¹)	(¹)	1	8
3,500-3,999 . . .	—	—	—	—	—	—	—	—	—	—	1	2
4,000-4,499 . . .	—	—	—	—	—	(¹)	—	—	—	(¹)	—	1
4,500-4,999 . . .	—	—	—	—	(¹)	—	—	—	—	(¹)	(¹)	—
5,000 or more . .	—	—	—	—	—	(¹)	—	—	—	—	(¹)	(¹)

¹ Less than 0.5 percent.

NOTE: Dash indicates no contribution at that range due to plan specification and income levels.

ees choose to contribute the maximum amount, their contributions would be 2½ times greater than those of the employer, providing total contributions did not exceed Internal Revenue Code limitations. If the employer's matching rate was only 50 cents on the dollar, the ratio of employee-to-employer contributions would be even greater at all three levels of contributions.

There is little variation of allowable contributions across the three different occupational groups studied—professional and administrative, technical and clerical, and production and service.⁷ This is caused in part by the model's use of equivalent earnings levels for all types of workers.⁸ Because all employees in a single establishment are typically covered by identical plan provisions, it follows that minimum, midpoint, and maximum contribution levels would be the same for employees at equal compensation levels. The slight variations that do exist result from differences in individual plan provisions. In 1989, 3 percent of production-service participants took part in plans that had restrictions on minimum and maximum contributions stated as dollar values rather than as percentages of annual earnings. This compared with only 1 percent of professional-administrative and technical-clerical employees who participated in such plans.⁹ These dollar-value restrictions tend to correspond to percentages of salary that are lower than the average rates expressed in other plans.

Variations among plans

As mentioned previously, the individual constraints placed upon savings and thrift plans by

administrators can vary quite widely. For example, table 2 depicts the final-year distribution of allowable employee contributions given the restraints of individual plans. Also, table 3 shows the distribution of employers' matching contributions.

In general, minimum contribution levels tend to be similar among plans. However, the minimum contributions of employers cover a wider range than do the minimum contributions made by employees. This stems from the matching rates that are built into individual plans. Under some savings and thrift plans, employers may match employee contributions at rates that exceed basic dollar-for-dollar ratios. For instance, a plan may specify that the first 1 percent of employee earnings will be matched at the rate of \$2 for every \$1, with additional employee contributions up to 6 percent of earnings being matched at a flat dollar-for-dollar rate. When this is the case, employees who contribute only the minimum allowable amount will actually have their annual contributions exceeded by those of their employer.

Because the provisions of savings and thrift plans do not change across earnings levels, the deviations in distributions that are seen from one level of earnings to the next are actually just factors of the increases in earnings. This can be seen in table 1. The average minimum and maximum allowable contributions for employees at the \$45,000 earnings level are three times greater than those of employees at the \$15,000 earnings level. It follows, then, that variations in plan provisions are best revealed through analysis of the distribution of allowable contributions at a single earnings level.

Of the three variables that affect final distribution, interest rate differentials play the greatest role.

Savings and Thrift Plans Contributions

It is clear from the wide range of values in table 2 that permissible employee contributions at the \$55,000 earnings level vary quite markedly among plans. Depending on administrative restrictions, allowable employee minimum contributions can range from less than \$500 (6 percent of participants) to between \$3,000 and \$3,500 (0.33 percent of participants). As allowable contributions increase, the range of values also increases. When employees utilized their maximum allowable contribution, 7 percent of participants were permitted to contribute in excess of \$10,000 annually, provided that restrictions in the Internal Revenue Code were not surpassed.

As noted, the range of minimum-matching employer contributions exceeds that of employee minimum contributions. However, this is not the case for maximum allowable contributions. There are a number of reasons for this. First, while employees may be allowed to contribute up to 25 percent of annual salary to their savings and thrift plan (54 percent of participants could allocate 15 percent or more of salary in 1989), 83 percent of all employees received employer-matching contributions on just 6 percent or less of their annual

compensation.¹⁰ In addition, nearly half of all participants were in plans where employer-matching percentages were 75 percent or less. These two factors combine to create a concentration of employer contributions at the lower end of the distribution table.

Lump sums at retirement

Defined contribution plans require that employers specify annual contribution levels to an employee's plan account, but such plans do not specify ultimate payouts. The final lump-sum benefit available to employees upon separation from the plan is dependent upon three variables: years of employee participation; annual contributions, often related to employee earnings; and investment earnings. Each variable plays a separate and distinct role in the final determination of the benefit amount. Table 4 depicts the projected average lump-sum benefits available upon retirement to full-time participants who contribute the midpoint of allowable amounts to their savings and thrift plans each year and receive the corresponding employer contribu-

Table 4. **Average lump-sum benefit available at retirement to full-time participants in savings and thrift plans by years of plan participation, selected final annual earnings levels, and selected rates of interest, medium and large establishments in private industry, 1989**

Interest rates and annual earnings ¹	Years of participation						
	10	15	20	25	30	35	40
6 percent							
\$15,000	\$10,663	\$15,594	\$20,338	\$25,108	\$30,385	\$36,301	\$42,620
20,000	14,223	20,812	27,150	33,513	40,564	48,454	56,917
25,000	17,783	26,018	33,948	41,919	50,727	60,605	71,220
35,000	24,633	36,045	47,045	58,083	70,314	84,012	98,711
45,000	30,641	44,833	58,508	72,244	87,464	104,516	122,836
55,000	36,668	53,658	70,027	86,475	104,700	125,125	147,055
10 percent							
\$15,000	13,159	21,146	30,395	41,598	56,531	76,672	102,519
20,000	17,552	28,224	40,581	55,526	75,480	102,342	136,955
25,000	21,946	35,283	50,744	69,465	94,396	128,022	171,443
35,000	30,399	48,883	70,330	96,254	130,872	177,503	237,627
45,000	37,814	60,800	87,463	119,725	162,803	220,853	295,790
55,000	45,252	72,770	104,684	143,317	194,898	264,428	354,127
12 percent							
\$15,000	14,635	24,744	37,554	54,543	79,337	115,922	167,260
20,000	19,520	33,027	50,142	72,807	105,937	154,731	223,479
25,000	24,407	41,287	62,703	91,092	132,488	193,566	279,811
35,000	33,808	57,203	86,909	126,220	183,702	268,405	387,821
45,000	42,055	71,147	108,078	157,022	228,530	333,975	482,815
55,000	50,327	85,155	129,360	187,944	273,590	399,886	578,042

¹ Earnings levels are for 1989. Earnings levels for previous years of service were produced by using yearly percentage changes in salary levels based upon Social Security Administration national wage data for each preceding year.

NOTE: Data assume that employee contributes to plan at the midpoint level and receives the corresponding employer-matching contribution.

Table 5. Average sources of funds in a savings and thrift plan account for an individual with final year earnings of \$35,000, by selected interest rates, medium and large establishments in private industry, 1989

Interest rate	Years of participation						
	10	15	20	25	30	35	40
6 percent							
Lump sum	\$24,663	\$36,045	\$47,045	\$58,083	\$70,314	\$84,012	\$98,711
Employee percentage	63	56	50	45	40	35	31
Employer percentage	11	9	8	8	7	6	5
Accrued interest	26	35	42	47	53	59	64
8 percent							
Lump sum	27,353	41,904	57,306	74,283	94,953	120,361	150,274
Employee percentage	57	48	41	35	29	25	21
Employer percentage	10	8	7	6	5	4	3
Accrued interest	33	44	52	59	66	71	76
15 percent							
Lump sum	39,699	72,791	120,754	193,247	314,335	517,891	845,053
Employee percentage	39	28	19	13	9	6	4
Employer percentage	7	5	3	2	1	1	1
Accrued interest	54	67	78	85	90	93	95

NOTE: Data assume that employee contributes to the plan at the midpoint level and receives the corresponding employer-matching contribution.

tion. The data show, for example that participants who made identical final-year contributions to the same employer-sponsored savings and thrift plan and who retired in 1989 with terminal earnings of \$25,000 could receive final lump-sum payments ranging from \$17,783 to \$279,811 depending upon each employees' length-of-plan participation and interest rate assumptions shown in table 4.¹¹

The length of plan participation and level of compensation both affect an employee's retirement benefit. Employees who contribute equal percentages of salary each year will find different amounts in their individual accounts upon retiring if their salary levels are different. The same is true if differences exist in years of plan participation. However, the smaller the degree of difference between these two factors, the smaller the difference in actual accrual. Consider two employees who work for the same company. Employee A has 25 years of plan participation and retires with final earnings of \$20,000. Employee B retires with final earnings of \$25,000 and 20 years of plan participation. Both employees make the midpoint allowable contribution and receive the same employer-matching contribution. If both employees receive a 6-percent return on their investments during the entire course of plan participation, Employee A will receive a lump-sum distribution of \$33,513, while Employee B will receive a total of \$33,948. In effect, Employee B's additional earnings have been offset by Employee A's additional length of plan participation.

Now consider the case of two other employees who participate in the same savings and thrift plan. Employee C retires with terminal earnings of \$15,000 and just 10 years of plan participation. Employee D has participated in the company's plan for 40 years and retires with a final salary of \$55,000. Once again, both employees contributed at the midpoint allowable level, received equal employer-matching contributions, and received a 6-percent rate of return on investments. The lump sum available to Employee C is \$10,663, while Employee D receives a distribution of \$147,055. In this instance, it is plain to see the magnitude of difference that can result from such wide ranges in salary levels and plan participation length.

Of the three variables that affect the amount of the employee's final distribution, interest rate differentials play the greatest role. The data in tables 4 and 5 give an indication of the actual effect of different interest rates on equivalent contributions. Table 5 shows that a 2-percentage point increase in the rate of interest can result in large additions to an employee's individual account. Larger differentials lead to even greater accrual. For example, an employee with 30 years of plan participation who retires with an annual salary of \$35,000 would receive a final benefit of \$70,314 if the return on all investments were 6 percent. The same employee would receive \$94,953 if the rate of return had been 8 percent. This final accrual continues to increase at an even greater rate with corresponding increases in the interest rate.

The length of plan participation and level of compensation affect an employee's retirement benefit.

Savings and Thrift Plans Contributions

If this same employee had benefited from a 15-percent rate of return on investments, his or her total distribution upon retirement would have grown to \$314,335.

Another way to measure the tremendous effect of the interest rate variable upon the final distribution is to look at the origin of the funds that make up the employee's final lump-sum benefit. In doing this, it is necessary to determine the percentage of funds that are the direct result of employee contributions, employer-matching contributions, and accrued interest. Table 5 and Chart 1 do just this. Both

depict the origin of funds in the account of an employee who retires with terminal earnings of \$35,000. Results similar to those displayed here are found at each level of earnings.

At the lower interest rate and participation levels, employee and employer contributions make up the greatest percentage of the total benefit. Even at the lowest level of participation in the model, however, accrued interest already accounts for 26 percent of the total distribution received by the employee. As length of plan participation and interest rates increase, the role of accrued interest in the final distribution becomes even more noticeable. In fact, at the extreme levels of plan participation and interest rates, accrued interest comprises virtually the entire account balance (95 percent of the funds available after 40 years of participation at an interest rate of 15 percent). This occurs despite the fact that employee and employer contributions remain as a constant percentage of compensation throughout all years of plan participation. □

Chart 1. Sources of retirement funds under savings and thrift plans

10 years' participation



20 years' participation



30 years' participation



■ Accrued interest
 ■ Employer contributions
 □ Employee contributions

NOTE: Assuming 8 percent annual interest rate and \$35,000 final year annual earnings

Footnotes

¹ According to data from the Employee Benefits Survey, 48 percent of full-time employees in medium and large establishments in private industry participated in an employer-sponsored defined contribution plan in 1989. After savings and thrift plans, the next most common type of defined contribution plan found in the 1989 survey was profit-sharing (16 percent of employees), followed by money purchase pension (5 percent) and stock ownership (3 percent). Complete data on defined contribution plan incidence and provisions can be found in *Employee Benefits in Medium and Large Firms, 1989*, Bulletin 2363 (Bureau of Labor Statistics, 1990).

² Defined contribution plans that do not provide for employer contributions are excluded from the scope of the Employee Benefits Survey.

³ Vesting refers to the years of plan participation required before an employee's benefits become nonforfeitable.

⁴ U.S. Department of Health and Human Services data show that the average life expectancy at birth for Americans of both sexes has increased from 70.9 years in 1970 to 75.0 years in 1987. See *Health, United States, 1989* (Hyattsville, MD, National Center for Health Statistics, Public Health Service, 1990), p. 106.

⁵ Savings and thrift plans may also contain withdrawal and loan provisions that allow participants to use these accumulated funds for other purposes prior to retirement. Seventy-one percent of participants in 1989 were permitted to withdraw all or a portion of employer contributions provided that plan provisions for such a withdrawal were met. Thirty-six percent of employees in medium and large establishments were allowed to borrow from their accounts.

⁶ The reason for the variance in allowable maximum percentages contributed is the Internal Revenue Code's restrictions on tax-deferred contributions. If a plan allows only tax-deferred dollars to be designated to the employee's account and that employee is highly paid, he or she may be restricted by the Internal Revenue Code from contributing the full maximum allowable percentage provided for by the

plan. For this reason, actual maximum contributions that are made to the plan may be less than the plan's allowable maximum contributory rate. (See appendix.)

⁷ The Employee Benefits Survey collects data for three broad occupational groups. *Professional-administrative* employees include those workers who require a knowledge of the theories, concepts, principles, and practices of a broad field of science, learning, administration, or management acquired through a college-level education or equivalent experience. *Technical-clerical* employees include office and sales clerical, technical support, protective services, and other such workers who do not require an indepth knowledge of a professional or administrative field of work. *Production-service* occupations include skilled, semiskilled, and un-

skilled trades; craft and production occupations; manual labor; custodial occupations; and operatives.

⁸ Some of the earnings levels presented may not be typical for the three different occupational groups. When using these data, one should concentrate on the earnings levels that are most appropriate for each occupational group.

⁹ *Employee Benefits in Medium and Large Firms, 1989.*

¹⁰ *Ibid.*

¹¹ The earnings levels used throughout this model for previous years of service were derived from yearly percentage changes in Social Security data on national average wage levels.

APPENDIX: The savings and thrift model

To create the savings and thrift model from which this study draws its data, a formula was developed to take into account a number of different variables. First, final salary levels and years of plan participation were chosen.¹ Earnings levels for previous years of service were produced by using yearly percentage changes in salary levels based upon the Social Security Administration's national wage data for each preceding year.

The next step was to determine allowable levels of employee contributions. By applying the six different terminal earnings levels to the specific provisions of each individual plan, it was possible to determine the employee's minimum and maximum allowable contribution for each year of plan participation. The employee's midpoint contribution was then reached by simply averaging these minimum and maximum dollar values.

Allowable levels of employer contributions were derived in much the same fashion. For this variable, specific plan restrictions on maximum employer-matching levels were coordinated with the allowable levels of employee contributions. In plans with a fixed matching rate, this fixed rate was applied to the minimum, midpoint, and maximum employee contribution. When matching rates varied according to profits, years of service, or levels of employee contributions, different variations were used:

- If matching rates varied from a minimum percentage to a maximum percentage according to profit levels (for example, from 25 cents on the dollar to an even dollar-for-dollar match depending on dividends paid to shareholders), the model applied the average of these two rates in each plan year.
- When the matching percentage varied depending upon years of service (for instance, employees with less than 5 years of service received 50 cents on the dollar while those with greater than 5 years of service received even dollar-for-dollar matches), the maximum matching rate was used for each year of plan participation. This was done because most plans employ the maximum matching percentage at a relatively low service level.
- Finally, if the variation was dependent upon levels of employee contributions (for example, employee contributions up to 2 percent of earnings receive a dollar-for-dollar match while contributions over 2 percent of earnings are matched at only 50 cents on

the dollar), the maximum matching rate was applied to the minimum employee contribution. All additional employee contributions were considered to be matched at the minimum employer rate.

Internal Revenue Code restrictions also apply to savings and thrift plans. Under the law, the maximum total annual allotment that may be made to an employee's account is the lesser of \$30,000 or 25 percent of compensation. In addition, there is a limit on the amount of tax-deferred income that may be placed in a savings and thrift plan each year. In 1989, that limit was \$7,626. Each of these limits was built into the model.² In the occurrences in which plans provided for a combination of before- and after-tax contributions, it was assumed that the employee maximized his or her level of tax-deferred savings. If permissible, any additional employee contributions were assumed to be made in after-tax dollars. When total contributions would have exceeded the \$30,000, or 25 percent restriction, it was assumed that employees would use the maximum employer contribution and would then make up the difference up to the Internal Revenue Code limit.

The interest rate variables have been determined by taking into account the range of investments that are covered in the scope of the survey. These types of investments include equity funds, money market funds, fixed-interest bearing securities, government securities, guaranteed investment contracts, and a small assortment of other options.

The range of interest rates used in this study is based on historical data relating to these different investment schemes. For example, since 1950, the composite value of stocks traded on the New York Stock Exchange has increased at an annual rate of 7.28 percent. The average annual increase in the 1950's was 14 percent; during the period 1980-88, the exchange increased at the yearly rate of 11.53 percent. In turn, Moody's Aaa corporate bond rates in the period 1929-88 ranged from a low of 2.53 percent in 1946 to a high of 14.17 percent in 1981. U.S. Treasury securities, both short- and long-term, have experienced similar swings in interest rate levels. Because the vast majority of the savings and thrift plans in question invest their funds in one or more of these securities, the interest rate variables being used appear to be reasonable.³

Footnotes to the Appendix

¹ In these two areas, this study uses the standard levels used in the Bureau of Labor Statistics' defined benefit pension and life insurance models. For a more detailed description of these two models, see Donald G. Schmitt, "Today's pension plans: how much do they pay?" *Monthly Labor Review*, December 1985, pp. 19-25, and Adam Z. Bellet, "Employer-sponsored life insurance: a new look," *Monthly Labor Review*, October 1989, pp. 25-28.

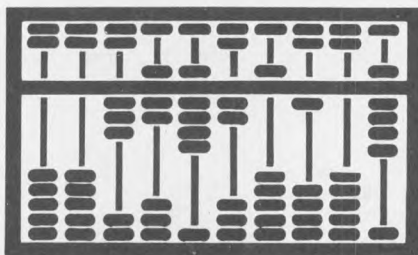
² The Internal Revenue Code limit on tax-deferred contributions has been adjusted several times. However, for the purposes of this study, a limit of \$7,000 was used for all years prior to 1988. In 1988, the limit was raised to \$7,313.

In 1989, the limit was adjusted again to \$7,626.

³ While the Employee Benefits Survey does not collect data on the actual investment choices of plan participants, it is interesting to note the results of a 1988 survey conducted by Charles D. Spencer and Associates. The survey, which included more than 400 employers who sponsor profit-sharing plans, savings and thrift plans, 401 (k) plans, and Employee Stock Ownership Plans, indicated that most employees shy away from investments that are perceived as carrying a high risk. When given a choice of investments, an overwhelming majority of employees chose guaranteed investment contracts. This was true for employees of all incomes, including highest paid employees.

A note on communications

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



New benchmarks and SIC codes for Establishment Survey

Patricia M. Getz

With the release of data for August 1990, the Bureau of Labor Statistics introduced its annual revision of national estimates of employment, hours, and earnings from the monthly sample survey of nonfarm establishments. Each year, the sample estimates are adjusted to new benchmarks, which are comprehensive universe counts of employment based primarily on unemployment insurance reports filed by all employers with State employment security agencies.

Also effective with the August 1990 release, all industry series have been converted to 1987 Standard Industrial Classification (SIC) codes.¹ This new structure replaces the 1972 SIC coding structure previously in effect for the industry estimates.

All data from April 1988 forward have been revised to incorporate both the March 1989 benchmarks and the effects of the SIC revision. Historical (pre-1988) data for industry series affected by SIC redefinitions have been reconstructed where possible. Historical data for industry series unaffected by the SIC revision remain as previously published.

As is the usual practice with the introduction of new benchmarks, the Bureau has also revised all seasonally adjusted series for the previous 5-year period and has introduced new seasonal adjustment factors to be used to adjust data in the months ahead.

In addition, all published constant-dollar and indexed series have been re-

computed on a 1982 base, replacing the previously published 1977-based data.

Conversion to 1987 SIC coding

The SIC coding system is periodically updated to reflect structural and technological changes in the economy. The 1987 SIC revision marks the first full SIC restructuring since 1972; minor updates were made to the SIC system in 1977.

There were almost no changes in scope at the major industry division levels, with only very minor shifts between wholesale and retail trade and between the finance, insurance, and real estate division and the services division. However, there were several significant redefinitions at the two-digit level. In manufacturing, a substantial realignment took place between electronic and other electrical equipment (SIC 36) and instruments and related products (SIC 38). In services, a new two-digit code (SIC 87) was established for "engineering and management services." Most of the activities under this new heading had previously been classified as business services (SIC 73) or miscellaneous services (SIC 89). At the three- and four-digit SIC levels, changes in scope were both more prevalent and more substantial.

All restructured industries were reestimated using the 1987 SIC-coded sample data from January 1988 forward. Some aggregate-level industries, without scope changes, have also been affected by the retabulations because they are formed from the summation of restratified, reestimated component industries.

For industries with relatively minor scope changes, historical data were reconstructed back to the inception of the series wherever possible. The reconstruction of historical series was done by adjusting the existing 1972-based employment series for the percentage of employment lost or the percentage of employment gained from other indus-

tries, using ratios derived from first-quarter 1988 universe employment data.² Hours and earnings data for restructured series were derived by computing a weighted average of the component series they were derived from. The weights are the percentages of employment each old series contributed to the new series.

Effect of revisions

The net impact of the SIC restructuring and the adjustment to March 1989 benchmark levels on total nonfarm employment was an upward revision of only 9,000 from the previously published level. Table 1 presents, for March 1989, previously published estimates based on the 1972 SIC codes, retabulated estimates based on the 1987 SIC codes, and the newly published benchmark levels. It displays separately the revision effects due to SIC restructuring and those due to benchmarking and shows the net effect, which is the sum of the two.

For total nonfarm employment, the SIC revision effect, due entirely to restratification and not to any scope change, was 56,000, or less than 0.05 percent. At the detailed industry level, the largest effects of the SIC revision were in business services, instruments and related products, and electronic and other electrical equipment.

The benchmark effect shown in the table represents a comparison of March 1989 estimates retabulated under the 1987 SIC structure with the March 1989 benchmark levels. For total nonfarm employment, the benchmark level stands at 107,026,000. This represents a benchmark adjustment of -47,000, or less than 0.05 percent. There were, however, larger but essentially offsetting errors between the goods-producing and service-producing sectors. Benchmark revisions totaling -286,000 were spread across all the major industry divisions in

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Table 1. Differences between nonfarm employment benchmarks and estimates, by industry, March 1989

[In thousands]

Industry	1972 SIC-based published estimate (1)	1987 SIC-based estimate (2)	Benchmark (3)	SIC revision effect (2 - 1) (4)	Benchmark effect (3 - 2) (5)	Difference between benchmark and estimate (3 - 1) (6)
Total	107,017	107,073	107,026	56	-47	9
Total private	89,052	89,108	89,015	56	-93	-37
Goods-producing	25,095	25,101	24,815	6	-286	-280
Mining ¹	702	703	678	1	-25	-24
Oil and gas extraction	391	391	374	0	-17	-17
Construction ¹	4,837	4,813	4,741	-24	-72	-96
General building contractors	1,287	1,287	1,239	0	-48	-48
Manufacturing	19,556	19,585	19,396	29	-189	-160
Durable goods ²	11,550	11,538	11,448	-12	-90	-102
Lumber and wood products ²	755	767	746	12	-21	-9
Furniture and fixtures	535	535	530	0	-5	-5
Stone, clay, and glass products ²	592	560	559	-32	-1	-33
Primary metal industries	790	789	781	-1	-8	-9
Blast furnaces and basic steel products	276	276	281	0	5	5
Fabricated metal products ²	1,451	1,454	1,454	3	0	3
Industrial machinery and equipment ²	2,147	2,166	2,136	19	-30	-11
Electronic and other electrical equipment ²	2,052	1,760	1,762	-292	2	-290
Transportation equipment ²	2,067	2,045	2,071	-22	26	4
Motor vehicles and equipment	869	869	871	0	2	2
Instruments and related products ²	774	1,075	1,027	301	-48	253
Miscellaneous manufacturing	388	389	383	1	-6	-5
Nondurable goods ²	8,006	8,047	7,948	41	-99	-58
Food and kindred products	1,599	1,598	1,583	-1	15	-16
Tobacco products	55	55	51	0	-4	-4
Textile mill products	727	727	725	0	-2	-2
Apparel and other textile products	1,102	1,106	1,086	4	-20	-16
Paper and allied products ²	693	689	693	-4	4	0
Printing and publishing	1,600	1,601	1,560	1	-41	-40
Chemicals and allied products	1,084	1,085	1,068	1	-17	-16
Petroleum and coal products	158	158	153	0	-5	-5
Rubber and miscellaneous plastics products ²	846	886	893	40	7	47
Leather and leather products	142	142	138	0	-4	-4
Service-producing	81,922	81,972	82,211	50	239	289
Transportation and public utilities ²	5,607	5,646	5,549	39	-97	-58
Transportation ²	3,404	3,443	3,341	39	-102	-63
Communication and public utilities ²	2,203	2,203	2,208	0	5	5
Wholesale trade ²	6,154	6,145	6,195	-9	50	41
Durable goods ²	3,658	3,654	3,676	-4	22	18
Nondurable goods	2,496	2,491	2,519	-5	28	23
Retail trade ^{1,2}	19,059	19,023	19,115	-36	92	56
General merchandise stores	2,398	2,386	2,452	-12	66	54
Food stores	3,184	3,184	3,121	0	-63	-63
Auto dealers and service stations	2,129	2,126	2,084	-3	-42	-45
Eating and drinking places	6,164	6,164	6,264	0	100	100
Finance, insurance, and real estate ²	6,723	6,714	6,639	-9	-75	-84
Finance ²	3,306	3,304	3,288	-2	-16	-18
Insurance ²	2,115	2,115	2,089	0	-26	-26
Real estate ²	1,302	1,295	1,262	-7	-33	-40
Services ^{1,2}	26,414	26,479	26,702	65	223	288
Business services ²	5,678	4,750	4,828	-928	78	-850
Health services	7,480	7,476	7,401	-4	-75	-79
Government	17,965	17,965	18,011	0	46	46
Federal	2,976	2,976	2,976	0	0	0
State	4,213	4,213	4,257	0	44	44
Local	10,776	10,776	10,778	0	2	2

¹ Includes other industries not shown separately.

² Industry scope changed due to SIC revision. Other industries were not

directly affected by the sic revision, but some estimates changed as a result of reclassification within the industry.

Table 2. Differences in seasonally adjusted levels and over-the-month changes, total nonfarm employment, January 1989–May 1990

[In thousands]

Month	Levels			Over-the-month changes		
	Previously published	Revised	Difference	Previously published	Revised	Difference
1989:						
January	107,442	107,430	-12	345	359	14
February	107,711	107,648	-63	269	218	-51
March	107,888	107,811	-77	177	163	-14
April	108,101	107,988	-113	213	177	-36
May	108,310	108,135	-175	209	147	-62
June	108,607	108,364	-243	297	229	-68
July	108,767	108,490	-277	160	126	-34
August	108,887	108,628	-259	120	138	18
September	109,096	108,868	-228	209	240	31
October	109,171	108,980	-191	75	112	37
November	109,452	109,245	-207	281	265	-16
December	109,570	109,383	-187	118	138	20
1990:						
January	109,931	109,654	-277	361	271	-90
February	110,304	109,958	-346	373	304	-69
March	110,427	110,122	-305	123	164	41
April	110,401	110,177	-224	-26	55	81
May	110,770	110,617	-153	369	440	71

the goods-producing sector, continuing the pattern of overestimation of these industries over the last several years. Offsets to this overestimation occurred in the service-producing industries, which were revised upward by a total of 239,000.

Revised estimates were computed each month from March 1989 forward (the postbenchmark period), based on the new benchmark levels. On a seasonally adjusted basis, the monthly revision increased from -77,000 in March 1989 to -153,000 by May 1990, with larger differences in some of the intervening months. These revisions reflect restratification effects from the SIC revision and a recomputation of both the bias adjustment and the seasonal adjustment factors. Table 2 shows the extent of the revisions for 1989 and 1990, in both level and change, through a comparison of seasonally adjusted monthly data as previously published and as revised.

Sources of differences

Differences between population benchmarks and sample-based estimates result from both sampling and nonsampling error. Sampling error occurs anytime a sample is used to make inferences about a population.

Both the benchmark levels and the sample-based estimates are subject to several sources of nonsampling error, chief among which are (1) the inability to measure employment in new firms from the time of their inception, due to the time lag between the creation of new firms and their inclusion in the sample; (2) the procedures for handling changes in industrial classification; (3) the quality of the various source data used to derive the benchmark; (4) the inability to cover completely all firms in the target population; and (5) other sources of errors in coverage, response, processing, and collection.

Effect of revisions on other series

As with the all-employee data, estimates were recomputed from sample data for women workers and production workers and for hours and earnings in industries affected by the SIC revision, from January 1988 forward. At the total private level, hours and earnings were unchanged, and there were only minor changes in major division-level data.

Benchmarks are not available for the series on women, production and non-supervisory workers, hours, and earnings. Women and production worker series are revised by applying the sample-derived ratio to the revised employ-

ment estimate at the basic cell level. These revisions are then summarized and incorporated into the broader industry groupings. Production and nonsupervisory worker employment estimates are used as weights in the estimation of hours and earnings at aggregate industry levels. Benchmark revisions to employment may cause shifts in these weights, with a minor effect on summary-level estimates of hours and earnings.

Seasonal adjustment procedure

Each year, employment, hours, and earnings data from the new benchmark levels are incorporated into the calculation of new seasonal adjustment factors. The Bureau uses the X-11 ARIMA seasonal adjustment method, developed by Statistics Canada,³ to seasonally adjust establishment-based employment, hours, and earnings data. The ARIMA option is used to project the unadjusted data forward for 1 year prior to seasonally adjusting the series. The use of ARIMA projections lessens the need for revisions of historical data in future seasonal adjustments.

All published seasonally adjusted series have been revised for the most recent 5 years (1985–90) for the incorporation of new seasonal factors, as usual. In addition, series affected by the SIC revision which were reconstructed for years prior to 1985 have again been seasonally adjusted, based on the 1987 SIC-based estimates.

Publication of revised data

Revised estimates for all series appear in the August 1990 issue of the Bureau's periodical, *Employment and Earnings*, along with a more complete explanation of benchmarking, SIC revision, bias factors, and the new seasonal adjustment factors.

Data for detailed industry categories of employment, hours, and earnings will be presented in the Bureau's historical bulletin, *Employment, Hours, and Earnings, United States, 1909–90*. This publication will contain all of the historical data that were revised as a result of the 1987 SIC revision, the March 1989 benchmarks, updated seasonal adjustment factors, and the rebasing of constant-dollar and indexed series, as well

as prior data unaffected by these revisions. Estimates reflecting the new benchmarks appear in the "Current Labor Statistics" section of the *Monthly Labor Review*, beginning with September data in the November issue. □

Footnotes

¹ As defined in the 1987 *Standard Industrial Classification Manual*, issued by the Executive Office of the President, Office of Management and Budget.

² All ratios are based on first-quarter 1988 universe employment data. For additional information, see *Employment Data under the New Standard Industrial Classification, First Quarter 1988*, Report 772, October 1989.

³ A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method*, by Estella Bee Dagum, Statistics Canada Catalogue No. 12-564E, January 1983.

Quality adjustments for structural changes in the CPI housing sample

Steven W. Henderson and Stephen A. Berenson

The Consumer Price Index (CPI) estimates the average change in prices paid by the American public for a fixed set of consumer goods and services. When a characteristic of a good or service used in the index changes, the change may include a measurable difference in the quality of the item or service being priced from one time period to the next. If so, an adjustment reflecting this difference will be made.

Quality adjustments can be direct or implicit. If the value of the change in quality can be measured, the measured amount is removed from the observed price difference. If the value cannot be measured, an implicit adjustment is made for the item or service based on the change of all other items in the same estimating cell. As an example, for the Rent Index, when a price comparison is canceled because the dollar amount of

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Table 1. 1990 structural change factors, by census region

[Percentage of rent]				
Structural element	Northeast	North Central	South	West
Central air conditioning	6.29	8.56	18.00	5.86
Number of bedrooms	16.51	16.34	20.55	14.97
Number of bathrooms	15.55	9.54	9.25	8.52
Number of other rooms	8.69	1.90	2.05	3.05

the change in quality is not known, there is no direct imputed price used for the given housing unit. Instead, the proportional weight for the unit is spread out among the other housing units in the same cell—or groups of similar cells if the impact on one cell would be too large—in a process known as *non-interview adjustment*.

This noninterview technique of indirect quality adjustment performs well as long as the price movements for the items that change in quality are similar to the price movement of all other items in the cell. If they are different—for example, if the items that change in quality always are experiencing significant price changes while the rest of the sample is not—then we would be better off trying to estimate the value of the change in quality directly.¹

Prior to February 1989, the CPI used the noninterview indirect adjustment technique for observations in the rent sample that had a change in any of four structural characteristics: central air conditioning, the number of bedrooms, the number of bathrooms, and the number of other rooms.² The rent sample from the CPI housing survey is the source of information on price changes for the Residential Rent Index and the Owners' Equivalent Rent Index. Quite frequently, changes in rent accompany structural changes, and the indirect adjustment process underestimates the former, thus overestimating changes in quality. Accordingly, starting with the data used in the February 1989 indexes, the Bureau of Labor Statistics has made direct quality adjustments in the CPI for rental units with verified changes in structural quality.

This note describes the process of adjusting for quality changes in structural characteristics. CPI analysts now make direct dollar adjustments for changes in the four structural character-

istics mentioned above, in addition to adjusting for changes in parking accommodations, amount of furniture, number and types of appliances, and utility billing, a practice that already existed in previous housing surveys.

Source of adjustments

The adjustment values for the changes in structural characteristics are based on hedonic regressions, which show the relationship between the logarithm of rent and various structural and locational variables that affect rent. These regressions provide a set of factors (regression coefficients) for the different housing characteristics. As a result of the semi-logarithmic form of the regressions, the factors give estimates of the value of the structural characteristics that are percentages of the rent. The BLS housing team then estimates the dollar adjustment for each change by multiplying the appropriate factor by the rent. Table 1 shows the 1990 structural change factors, broken down by census region, for the four characteristics of central air conditioning, number of bedrooms, number of bathrooms, and number of other rooms mentioned above.

Hedonic regressions are run annually for the four U.S. census regions, shown in table 1. The primary purpose of the regressions is to estimate the effects of age bias on the housing indexes.³ Using them for quality adjustments is a spinoff benefit.

Using the adjustments

Rental units in the CPI housing sample are contacted twice a year, at which times BLS agents obtain the rents for the current and previous month. The CPI estimates the average change in rent over a 1-month period and over a 6-month period. The movement of the CPI Rent Index is a composite of these two

independently calculated estimates. The new adjustments are made to correct for structural changes both when comparing the current rent to the previous month's rent and when comparing the current rent to the rent from 6 months ago.

BLS makes the adjustments when (1) there has been a change in the unit's description and (2) the followup verification question "Has this changed in the past year?" is answered "Yes." The verification question is used to screen out random differences in the reported description due to miscounts and misinterpretations of the questions. A direct price comparison is made without any quality adjustment if the description is different and the difference is not a verified change.

The movement of the Residential Rent Index is based on changes in *contract rent*—that is, the amount that tenants pay or owners receive for rental housing units. Contract rent includes all services, facilities, and utilities paid for by the rent payment. Contract rent is adjusted to create what is called *normalized rent*, which is what the CPI housing estimation program actually uses to calculate the Rent Index. Normalized rent is the rent paid by the tenant, plus any other payments or payments-in-kind paid to the landlord in the form of subsidies or services, all put on a monthly basis if paid otherwise. By contrast, the Owners' Equivalent Rent Index, which measures the change in the cost of shelter for people who live in their own homes, uses the concept of *pure rent*, which is derived by deducting estimates of the charges for utilities and furnishings (paid separately by homeowners) from the normalized rent.⁴

Calculating the adjustments

The quality adjustment used in the Residential Rent Index is a percentage of the current rent, subtracted or added to the normalized rent for the current time period, depending on whether the unit's quality has improved or declined. The adjusted rent is then compared with the previous rent.

The adjustment process for the rental units used in matching for the Owners' Equivalent Rent Index is different because that index uses pure rents,

whose utility costs have been removed, as opposed to contract rents, in which utility costs are included if included in the lease. The quality adjustment factors for structural change are subtracted or added to each previous pure rental amount used in the rental equivalence calculation.⁵ Although applied to the pure rent, the adjustment is calculated on the basis of the normalized rent.

For residential rent, the dollar adjustment for the 6-month comparison period is given by

$$(1) \text{ ADJ} = [(\text{Normalized rent}_T) / (1 + \text{Calculated factor})] - \text{Normalized rent}_T.$$

For Owners' Equivalent Rent, the dollar adjustment for the 6-month comparison is

$$(2) \text{ ADJ} = [(\text{Normalized rent}_{T-6}) \times (1 + \text{Calculated factor})] - \text{Normalized rent}_{T-6}.$$

The adjustment for the 1-month comparison is based on whether or not a new tenant has moved into the unit. If there is a new tenant in the unit at the time the adjustment is contemplated, the structural change likely occurred with the occupancy by the new tenant. If the tenant moved in during the current month, then the 1-month quality change is for the full amount. If the tenant moved in between 2 and 6 months earlier, it is assumed that the change in quality occurred when the tenant moved in and that there has been no further change in quality since then. In that case, there is no 1-month quality adjustment.

If the same tenant is living in the unit as was present during the previous collection period 6 months earlier, the change in quality has an equal probability of occurring at any time in the last 6 months, so an adjustment of one-sixth of the quality change factor is made. On the individual unit level, the 1-month adjustment will be too high or too low under these circumstances, but the overall aggregate adjustment will be accurate.⁶

For residential rent, the dollar adjustment for the 1-month comparison is

$$(3a) \text{ ADJ} = [(\text{Normalized rent}_T) / (1 + \text{Calculated factor})] - \text{Normalized rent}_T$$

when the length of occupancy is 1 month; when the length of occupancy is 2 to fewer than 6 full months,

$$(3b) \text{ ADJ} = 0.00,$$

and when the length of occupancy is 6 full months or more,

$$(3c) \text{ ADJ} = [(\text{Normalized rent}_T) / (1 + (1/6 \times \text{Calculated factor}))] - \text{Normalized Rent}_T.$$

For owners' equivalent rent, the dollar adjustment for the 1-month comparison is given by

$$(4a) \text{ ADJ} = [(\text{Normalized rent}_{T-1}) \times (1 + \text{Calculated factor})] - \text{Normalized rent}_{T-1}$$

when the length of occupancy is 1 month; when the length of occupancy is 2 to fewer than 6 full months,

$$(4b) \text{ ADJ} = 0.00.$$

and when the length of occupancy is 6 full months or more,

$$(4c) \text{ ADJ} = [(\text{Normalized rent}_{T-1}) \times (1 + (1/6 \times \text{Calculated factor}))] - \text{Normalized rent}_{T-1}.$$

Examples

The factors derived from the semilogarithmic regression function are additive; that is, when there are multiple structural changes to a housing unit, the regression factors are summed. Thus, the final factor for the change is the total of the separate factors for the different changes.

To demonstrate the adjustment process, suppose that a rental housing unit in the Western census region has added an extra bedroom and bathroom, but has dropped central air conditioning for the same tenant. Suppose also that the normalized rent 6 months ago was \$400, last month's rent was \$500, this month's rent is \$600, and there are no utilities or furnishings included in the rent. Then, using equations (1), (2), (3c), and (4c), we arrive at the following quality adjustments:

$$(a) \text{ The 6-month adjustment for the Residential Rent Index equals } [\$600 / (1 + .1497 + .0852 - .0586)] - \$600$$

Technical Notes

$$= (\$600 / 1.1763) - \$600$$

$$= -\$89.926,$$

where .1497 is the increased value of the bedroom, .0852 is the increased value of the bathroom, and .0586 is the decreased value of the removed central air conditioning.

- (b) The 6-month adjustment for the Owners' Equivalent Rent Index equals

$$[\$400 \times (1 + .1497 + .0852 - .0586)] - \$400$$

$$= (\$400 \times 1.1763) - \$400$$

$$= +\$70.52,$$

where .1497, .0852, and .0586 are as before.

- (c) The 1-month adjustment for the Residential Rent Index equals

$$[\$600 / (1 + (1/6) \times (.1497 + .0852 - .0586))] - \$600$$

$$= (\$600 / 1.029) - \$600$$

$$= -\$16.910,$$

where, again, the same three numbers as before constitute the calculated factor.

- (d) The 1-month adjustment for the Owners' Equivalent Rent Index equals

$$[\$500 \times (1 + (1/6) \times (.1497 + .0852 - .0586))] - \$500$$

$$= (\$500 \times 1.029) - \$500$$

$$= +\$14.50,$$

with the calculated factor the same again.

Note that the relatives of change for contract rent used in the Residential Rent Index and for pure rent used in the Owners' Equivalent Rent Index after quality adjustments are the same:

- (a) The 6-month contract rent comparison becomes
 $(\$600 - \$89.926) / \$400$

$$= \$510.074 / \$400$$

$$= 1.2752.$$

- (b) The 6-month pure rent comparison becomes

$$\$600 / (\$400 + \$70.52)$$

$$= \$600 / \$470.52$$

$$= 1.2752.$$

- (c) The 1-month contract rent comparison becomes

$$(\$600 - \$16.910) / \$500$$

$$= \$583.090 / \$500$$

$$= 1.1662.$$

- (d) The 1-month pure rent comparison becomes

$$\$600 / (\$500 + \$14.50)$$

$$= \$600 / \$514.50$$

$$= 1.1662.$$

Summary

The use of hedonic regression factors represents a new improvement and a major change in calculating quality adjustments in the housing indexes, even though the impact of these factors is limited. Verified structural changes for rental housing were reported seven times per month, on average, in 1988, and verified changes to or from central air conditioning were reported an average of six times per month. Together, the two kinds of change made up approximately 0.3 percent of the number of usable 6-month comparisons.

The percentage factors for structural changes are updated with each recalculation of age bias adjustments. □

Footnotes

¹ For a more detailed discussion of quality adjustments, see Paul A. Armknecht and Donald Weyback, "Adjustments for Quality Change in the U.S. Consumer Price Index," *Journal of Offi-*

cial Statistics (Statistics Sweden), vol. 5, no. 2, 1989, pp. 107-23.

² Chapter 19, "The Consumer Price Index," *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, April 1988), p. 175, describes the earlier, original process of canceling comparisons when structural changes occurred.

³ See Walter F. Lane, William C. Randolph, and Stephen A. Berenson, "Adjusting the CPI shelter index to compensate for effect of depreciation," *Monthly Labor Review*, October 1988, pp. 34-37. The regression results for structural changes used variables for location, services, neighborhood, structural characteristics, and depreciation.

⁴ The basic concepts of contract rent used in the Residential Rent Index and pure rent used in the Owners' Equivalent Rent Index are described in the *BLS Handbook of Methods*, pp. 174-76.

⁵ For reasons of complexity, the system was designed to adjust each time period separately, rather than adjusting the current normalized rent for comparisons with previous time periods, as the Residential Rent Index does. The calculations for pure rent are as follows:

$$\text{Pure rent}_T = \text{Contract rent}_T -$$

$$(\text{Cost of utilities}_T$$

$$+ \text{Cost of furniture})$$

$$+ \text{Quality adjustment}_T;$$

$$\text{Pure rent}_{T-1} = \text{Contract rent}_{T-1} -$$

$$(\text{Cost of utilities}_{T-1}$$

$$+ \text{Cost of furniture})$$

$$+ \text{Quality adjustment}_{T-1};$$

$$\text{Pure rent}_{T-6} = \text{Contract rent}_{T-6} -$$

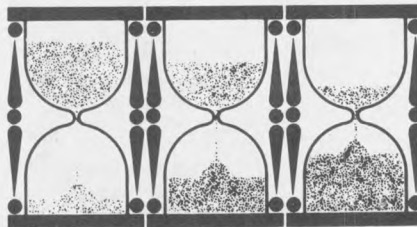
$$(\text{Cost of utilities}_{T-6}$$

$$+ \text{Cost of furniture})$$

$$+ \text{Quality adjustment}_{T-6}.$$

⁶ The following equations for 1-month quality adjustments are based on the assumption that new tenants have occupied the unit and, hence, changes in quality have occurred. For major utilities, the housing form verifies 6-month changes and 1-month changes separately. The system makes 1-month quality adjustments for changes in regard to the inclusion of electricity, natural gas, and heating oil in the rent only when there is a "Yes" response to "Has [the item in question] changed since the first of last month?" Changes in these utilities occur frequently enough, and the difference in quality is significant enough, to determine precisely when the 1-month and 6-month adjustments should be made.

Major agreements expiring next month



This list of selected collective bargaining agreements expiring in December 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

Constructors' Labor Council of West Virginia, Inc., West Virginia; various unions, 6,000 workers

National Electrical Contractors Association, Pittsburgh, PA; Electrical Workers (IBEW), 2,000 workers

National Electrical Contractors Association, Portland, OR; Electrical Workers (IBEW), 1,500 workers

West Virginia Contractors Bargaining Association, Inc., West Virginia; Steelworkers, 2,000 workers

Textile mill products

Dan River, Inc., Danville, VA; Textile Workers, 5,000 workers

J P Stevens & Co., Roanoke Rapids, NC; Textile Workers, 3,500 workers

Electronic, other electrical equipment

New York Lamp and Shade Manufacturers Association, Inc., New York, NY; Electrical Workers (IBEW), 1,500 workers

Transportation equipment

General Dynamics Corp., Fort Worth, TX; Office and Professional Employees, 1,500 workers

Miscellaneous manufacturing industries

Bic Pen Corp., Milford, CT; Rubber Workers, 1,000 workers

Transportation

Pan American World Airways, Interstate; Air Line Pilots Association, 1,500 workers

Utilities

Northern States Power Co., Interstate; Electrical Workers (IBEW), 2,450 workers

Pacific Gas and Electric Co., California; Electrical Workers (IBEW), Marine Engineers and others, 12,956 workers

Southern California Edison Co., California; Electrical Workers (IBEW), 6,200 workers

Wholesale trades—nondurable goods

New York Oil Heating Association, New York, NY; Teamsters, 1,700 workers

Finance, insurance, and real estate

Cemeteries agreement, New York and New Jersey; Service Employees, 1,800 workers

Services

Illinois Association of Health Care Facilities, Chicago, IL; Service Employees, 4,500 workers

Kaiser-Permanente, northern California; American Nurses' Association (Ind.), 6,200 workers

Mt. Sinai Hospital, New York, NY; American Nurses' Association (Ind.), 1,500 workers

St. Lukes-Roosevelt Hospital Center, New York, NY; American Nurses' Association (Ind.), 1,300 workers

Public activity

Education

Aurora County (teachers), Colorado; Education (NEA-Ind.), 1,500 workers

Boulder County, Colorado; Education (NEA-Ind.), 1,250 workers

Cherry Creek (teachers), Aurora, CO; Education (NEA-Ind.), 1,650 workers

Cincinnati Board of Education, Cincinnati, OH; State, County and Municipal Employees, 2,500 blue-collar workers and 3,100 teachers

Colorado Springs Board of Education, Colorado Springs, CO; Education (NEA-Ind.), 1,650 workers

Denver School District 1, Denver, CO; Education (NEA-Ind.), 3,900 workers

Gary Board of School Trustees (teachers), Gary, IN; Teachers (AFT), 1,300 workers

Jefferson County Board of Education, Colorado; Colorado Classroom Employees Association (Ind.), 2,000 workers

Milwaukee City School District (teachers aide), Milwaukee, WI; Education (NEA-Ind.) 1,650 workers

General administration

Albuquerque (multidepartment-blue collar), Albuquerque, NM; State, County and Municipal Employees, 1,120 workers

Erie County, New York; State, County and Municipal Employees, 2,200 blue-collar and 4,000 white-collar workers

Essex County (clerical), New Jersey; Electrical Workers (IBEW), 1,100 workers

Fresno County (clerical), California; Service Employees, 1,200 workers

Michigan State (human services and administrative employees), Michigan; Automobile Workers, 21,500 workers

Milwaukee County, Wisconsin; State, County and Municipal Employees, 8,000 workers

Monroe County (multiunit), New York; State, County and Municipal Employees, 3,000 workers

Onondaga County (multiunit), New York; State, County and Municipal Employees, 3,700 workers

Pittsburgh (blue collar), Pittsburgh, PA; Joint Collective Bargaining Committee (Ind.), 1,050 workers

Rensselaer County (general unit), New York; State, County and Municipal Employees, 1,400 workers

Saratoga County (blue and white collar), New York; State, County and Municipal Employees, 1,300 workers

Health services

Essex County (nonprofessional-mental health unit), New Jersey; Overbrook Employees Association (Ind.), 1,500 workers

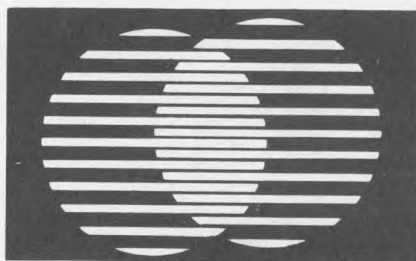
Milwaukee County (nurses), Wisconsin; Federation of Nurses and Health Professionals, 1,100 workers

New York City Health and Hospitals Corp. (licensed practical nurses), New York, NY; Service Employees, 1,700 workers

Protective services

Columbus Police Department, Columbus, OH; Fraternal Order of Police (Ind.), 1,300 workers

Developments in industrial relations



Auto negotiations

United Automobile Workers' (UAW) agreements for some 500,000 workers at General Motors (GM), Ford Motor Co., and Chrysler Corp. expired September 14, the first time in 11 years that the three contracts expired on the same date. Job security and cost-of-living adjustments on pensions were expected to be key negotiating issues, with wages, job safety, and time off as other important topics.

The UAW began contract negotiations with the three automakers in mid-July. This year's "strike target" (the company the UAW focuses on in negotiations) was GM. (In selecting a strike target, the union traditionally picks the company that best fits its bargaining goals and strategy.) GM was chosen because of its size, large parts operations, and its history of plant closings and layoffs since the 1987 contract was signed.

In early August, GM had sustained a 6-day job action by UAW members at its Flint, MI, plant that ended only after the automaker agreed to invest \$20 million in new manufacturing technology, to accept strict local limits on "outsourcing" (buying auto parts from outside suppliers), and to guarantee jobs to the 2,800 employees at the Flint plant through 1996. At its peak, the stoppage led to layoffs at 16 other facilities. Many industry observers viewed the job action as the UAW's signal of their determination to gain improved job security during national auto negotiations.

As it usually does, the UAW broke off contract talks with the other automakers, and concentrated on signing an agreement with GM before the expiration date of the

1987 contract. When negotiators failed to reach an agreement by midnight September 14, the union extended the strike deadline on a day-by-day basis (an unusual, but expected move) until an accord was reached.

The new 3-year agreement provides enhanced income and job security for GM's 300,000 salaried employees represented by the UAW, in exchange for a reduction of the work force through attrition and "buyouts" of older workers. The contract enhancements demonstrate the UAW's "building-block" approach to bargaining, in which the union first negotiates a basic benefit and then improves upon the level of the benefit in subsequent negotiations. (Industry analysts were speculating that GM's goal was to close three plants and to cut its work force by 60,000.)

Under the new income and job security program, GM will spend about \$4 billion (up from \$2.3 billion under the old contract) to guarantee income to senior employees. In addition to restricting layoffs to no more than 36 weeks over the term of the contract, the agreement provides laid-off workers with up to 36 weeks of supplemental unemployment benefits (SUB) equal to 95 percent of their take-home pay during the time they are laid off. After the 36 weeks, employees will be paid at 100 percent of their take-home pay during the term of the contract if they still are on layoff status.

To encourage employees to retire early, the maximum monthly pension benefit for early retirement (under age 62 with 30 years of service) will be increased by \$300 (to \$1,800) over the term of the contract, and restrictions on outside income (the amount an employee is permitted to earn before sacrificing benefits) will be raised from \$3,000 to \$15,000. The agreement also calls for "pre-retirement" leave that permits older employees to leave their jobs and receive 85 percent of their full-time

pay until they are eligible for retirement, with their positions being filled by laid-off GM workers; a reduction in the minimum retirement age, from 55 to 50; a \$3,000 to \$7,000 increase in payments under the voluntary separation program (Voluntary Employment Termination Program), under which employees are given a lump-sum payment to quit, with a maximum "buyout" of \$72,000 (was \$65,000) and 6 months of free basic health care insurance coverage for employees with at least 25 years of service.

New contract language dealing with job security provides for the right to submit outsourcing disputes to arbitration; increased "insourcing" (use of GM employees to do work previously performed by a subcontractor) and use of GM employees to do new work; and an increase in the hourly excess overtime penalty (previously, \$1.25 an hour for all hours of overtime), to \$1.25-\$5, with the actual rate depending on the number of excess overtime hours. (The penalty, which is levied in an effort to decrease overtime and enhance job opportunities, is paid into the Joint Skill Development and Training Fund.) The agreement also maintains the "one-for-two" attrition formula that requires GM to hire one worker for every two who die, retire, or quit. In addition, the contract retains language barring plant closures, even though GM had found a loophole in the same language under the prior agreement and "indefinitely idled" four plants rather than "closed" them.

The contract calls for improved benefits for currently laid-off workers. The currently laid-off workers who are between the ages of 50 and 61 and who have at least 10 years of service will be eligible for special retirement during a preset retirement "window." The currently laid-off workers with at least 10 years of service who are not eligible for retirement will be eligible for an additional 52 weeks of extended SUB or special lump-sum payments if they

"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.

voluntarily quit their jobs under the voluntary separation program, while those with fewer than 10 years are eligible for an additional 26 weeks of extended SUB, or a special payment under the voluntary separation program. Over and above these benefits, workers who were laid off at the four plants idled during the 1987 contract are eligible for an additional 12 weeks of SUB, and have preferential hiring rights to openings at other GM plants.

Other contract terms include a 3-percent general wage increase in the first year, lump-sum payments in the second and third years equal to 3 percent of an employee's gross earnings in the preceding 12 months, and the roll-in to wages of \$1.68 of the \$1.73 in COLA earned under the previous contract (current average hourly earnings reportedly are \$15.75); a \$4.45 increase (to \$30.70-\$31.45) over the term of the contract in the monthly pension rate for each year of credited service for future retirees (employees retiring after October 1, 1990); for current retirees, a \$1.25 increase in the monthly pension rate for each year of credited service, with a minimum \$20 monthly pension rate (previously, the highest minimum was \$16, and some employees received less), and annual lump-sum payments of \$630 in the second and third years of the contract; a \$1,100 minimum monthly pension for current retirees under "30-and-out"; maintenance of the major current health care provisions (GM had proposed an employee health care copayment), with an increase in dental benefits and a new mental health and substance abuse program; improvements in the profit sharing plan, including benefits calculated on a "first dollar" basis (previously, calculated after profits were above 1.8 percent of sales) and an increase in maximum payout (from 16 percent of profits on sales to 17 percent); elimination of the \$600 annual bonus for perfect attendance in exchange for \$600 Christmas bonuses in 1991 and 1992; increases in life insurance coverage, sickness and accident insurance benefits, extended disability benefits, and survivor income benefits; establishment of a nationwide joint labor-management ergonomics program; and a child care program on a test basis.

The 1987 contracts with Ford and Chrysler were automatically extended beyond the September 14 expiration date while the UAW completed negotiations with GM. In the past, the union has taken the agreement with the target company to the two other automakers and modified it as necessary to reach an agreement. By the end of October, Ford and Chrysler had both signed tentative 3-year agreements with the UAW that reportedly mirrored the GM contract.

Settlement at "Big Brown"

Against the recommendations of their union leaders and predictions of rejection by dissidents within the union, Teamsters rank-and-file union members ratified United Parcel Service of America's (UPS) second "final" contract offer. Teamsters union leaders recommended that the proposal be voted down because of "inadequate" wage increases and the company's insistence on both the use of additional part-time workers and adherence to strict production standards. (UPS is the largest package-shipping company in the United States.)

The accord was seen by some in industry as potentially setting the pattern and the tone for the Teamsters' 1991 master national freight negotiations. The 3-year contract, which covers some 140,000 workers nationwide, boosted hourly wages for full-time workers 50 cents each year, from about \$16.10 an hour, on average, to \$17.60 an hour over the term of the contract. Part-timers, who currently start at \$8-\$9 an hour, also received a \$1.50 an hour increase over the term of the contract. Full-time workers received a \$1,000 ratification bonus, and part-timers received \$500. The company's contribution rate for health benefits and pensions was increased each year by 35 cents an hour for each full-time employee (from \$8,330, on average, to \$10,500 annually over the term of the contract).

Other contract provisions include annual cost-of-living allowances in the second and third years of the contract, equal to 1 cent (capped at 20 cents per hour annually) for each 0.3-point increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers; a

sixth week of vacation after 25 years of service; establishment of labor-management committees to study safety and health issues, such as concerns about equipment used by employees and the handling of hazardous materials; maintenance of strict production standards; and the right of management to use additional part-time employees.

Grocery accord

The Food Employers Council Inc. and 10 locals of the Food and Commercial Workers reached agreement on a 38-month master contract, covering some 80,000 clerks and meat department workers at six grocery chains in southern California. The agreement is expected to set a pattern for an additional 20,000 grocery workers at several other large food chains and independent grocery stores. (The Council bargained for Albertson's, Alpha Beta, Lucky Stores, Ralph's, Safeway Stores, Stater Bros., and Vons.) Health care, wages, staffing, guaranteed hours of work, and use of nonunion vendors were the major issues in dispute.

Terms of the contract call for a general wage increase of 60 cents per hour for clerks and meatcutters in the first year, 55 cents in the second year, and 50 cents in the third year. (Supermarket clerks earned between \$4.25 and \$13.05 an hour under the prior agreement; and meatcutters, between \$9.31 and \$14.33.)

Regarding benefits, the current pension plan benefits were increased 10 percent. In addition, a new optional contributory pension benefit plan, with employee contributions of 10 cents an hour, was established effective in the third year of the contract. To preserve health care benefit levels, employer contributions to the health and welfare fund were increased over the term of the contract by 87 cents per hour worked (to \$2.92 an hour). The number of hours of work needed to qualify for health coverage in a quarter was increased to 76 (previously, 64 hours) in any 2-month period in the previous quarter. A \$3 copayment for prescription drugs, previously paid only by meat department employees, was extended to the clerks. In addition, a new managed health care program for mental health and drug abuse was established.

Other terms include the protection of full-time positions by filling vacant full-time positions with senior part-timers (previously, the full-time positions were converted to part-time positions); a 4-hour increase (to 20 hours) in the guaranteed number of hours per week for part-timers; and the elimination of the 3 months of free health care coverage to employees who leave the industry.

General Dynamics-Machinists pact

Negotiators for the General Dynamics Corp. and three locals of the Machinists union reached agreement on a 3-year contract, covering about 4,900 workers at the company's Convair, Space Systems, and Data Systems West divisions in the San Diego, CA, area, and an additional 415 workers off-site at Cape Canaveral, FL, and Vandenberg Air Force Base, CA. The contract reportedly provides the first wage increase in 6 years, and is the first to be reached without a work stoppage since 1981.

Terms call for a general wage increase of 4 percent in the first year, 3 percent in both the second and third years, and a \$2,000 signing bonus. (The base hourly rate under the previous contract averaged \$11.50.) The agreement also restores merit increases and provides for new labor grades and rate ranges.

Several changes were made in the health care area. Newly required employee contributions to the three health maintenance organization (HMO) plans were set at \$2 per week for single coverage and \$4 for family coverage effective January 1, 1991, and \$3 and \$6, respectively, effective January 1, 1993. In addition, a new optional self-insured medical plan was established effective January 1, 1991, with an annual deductible of \$100 per person and \$200 per family, "out-of-pocket" (catastrophic) costs of \$1,000 per person and \$2,000 per family, a \$500,000 lifetime benefit, and weekly employee contributions of \$2 for single coverage and \$4 for family coverage. The deductible, "out-of-pocket," and weekly employee contributions would increase 50 percent effective January 1, 1993.

Other terms include the establishment of a joint labor-management com-

mittee to study ways to protect jobs adversely affected by automation; biannual cost-of-living adjustment allowances, equal to 1 cent per hour for each 0.3-point rise in the Consumer Price Index for Urban Wage Earners and Clerical Workers; the roll-in to wages of cost-of-living allowances paid under the prior contract; a \$3 increase (to \$26) in the pension rate for each year of credited service for both past and future service, with an additional \$3 on September 1, 1992; increases of 8 percent to 25 percent in pension benefits for retirees, with the increase depending on the employee's date of retirement; a 10-cent-an-hour increase (to 35 cents) in the second shift premium; and military leave pay for hourly workers in the reserves.

Beech Aircraft accord

Reflecting the improved financial condition of the company, Machinists District Lodge No. 70 and the Beech Aircraft Corp. signed a 3-year collective bargaining agreement providing for a 13.6-percent wage increase over the term of the contract. The pact covers 5,090 workers in plants in Wichita and Salina, KS. Wages and health insurance premiums were the major sticking points in the negotiations.

The accord calls for a 5-percent general wage increase in the first year, 4-percent raises in the second and third years, and a lump-sum payment in the first year equal to 4 percent of an employee's gross earnings in the preceding 12 months. (The average hourly wage rate was \$12.50 under the prior contract.) The employees' monthly contributions for health care were maintained, set at \$4 for single coverage and \$12 for family coverage. (The company had proposed that employees pay 10 percent of the premiums.)

Other terms include a 22-percent increase in the company's pension contributions; increased pension benefits for employees retiring after August 5, 1990; and 100-percent (previously, 50 percent) payment for unused sick leave that accrued in the year.

The Beech contract was the first signed in the current round of bargaining between the Machinists and the three general aircraft manufacturing

companies in the Wichita area. The union's contract with Cessna Aircraft Co., covering about 2,500 workers, expired October 7; and the contract with Learjet, covering some 1,000 workers, expired November 6.

Restoration contract in steel

At the 11th hour, negotiators for the Wheeling-Pittsburgh Steel Corp. and 13 locals of the Steelworkers, representing some 5,500 workers at the company's seven facilities in West Virginia, Ohio, and Pennsylvania, signed a collective bargaining agreement that reportedly allows employees to approach comparability with workers at other major domestic steelmakers. The contract also should help Wheeling-Pittsburgh, the eighth largest steel company in the United States, to emerge from the Chapter 11 bankruptcy protection it has been under since April 1985.

Contract talks, the first held by the parties since 1985, began in November 1989. The initial company proposal, made in December 1989, was rejected. Talks resumed, but stalled for several weeks this spring because union leaders refused to continue to negotiate until the company's Chapter 11 reorganization plan was resolved, while the company insisted on negotiating a new contract before filing a revised reorganization plan. A second proposal was rejected last June, and a strike vote was taken in early July (however, a work stoppage never occurred). Union representatives cited subcontracting, successorship (recognition of the union if Wheeling-Pittsburgh is sold), restoration of past wage and benefit cuts, and local rules as strike issues.

After negotiations resumed, a third company proposal was rejected by the unions' negotiating team. Bargaining continued, and an accord was reached before the deadline set by the unions for a job action.

The new contract will be effective upon approval of the company's reorganization plan by the bankruptcy court, and will remain in effect until March 1, 1994. Terms provide for an immediate \$1.50-an-hour wage increase (which effectively restores pay cuts agreed to under the 1982 and 1985 agreements);

50-cent-an-hour wage increases on April 1 of 1991 and 1992, and on January 1, 1993; an immediate \$3,000 signing bonus; and an additional \$500 bonus in 1991. (Union leaders had claimed that hourly pay of their members was nearly \$5 an hour behind workers at the other major steel companies. Reportedly, the members had not had a wage increase for 10 years until the bankruptcy judge permitted a 50-cent-an-hour raise in July 1990.) The pact also restores 1 week of vacation, vacation bonuses, five holidays, time and a half for working on Sundays, and incentive rates.

Other terms include the payment of common stock (approximately 11 percent of the company's equity) in exchange for the \$26.8 million workers had in an employee investment program; contract language "severely restricting" contracting out of work; a successorship clause; a career development program; improved severance pay and supplemental unemployment benefits; company payment of one-half of the premiums for optional major medical insurance for retirees; and a special enrollment period for retirees not already under the optional major medical plan.

Lockout ends at Western Union

Ending a 5-day lockout, negotiators for the Western Union Corp. and the Communications Workers reached agreement on three 2-year contracts covering about 2,500 operators, customer rela-

tions clerks, clerical workers, and field technicians. The major issues in dispute were wages, job security, health care cost sharing, subcontracting, use of part-time workers, and consolidation of job classifications. (The ailing financial and telecommunications company has had financial problems over the last 6 years and is in the process of restructuring its debts.)

After the union refused to extend the old contract 90 days, the company locked out some 2,000 employees represented by the Communications Workers, and "temporarily" replaced them with trainees and management employees. The union filed unfair labor practice charges with the National Labor Relations Board, alleging that Western Union "selectively" locked out union-represented employees in particular facilities and job functions. (The company sent notices to the 2,000 workers telling them not to report to work.)

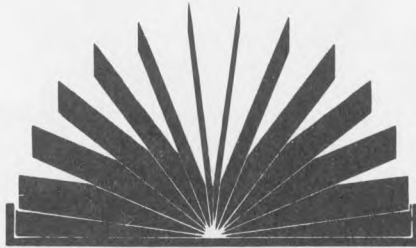
Meanwhile, bargaining sessions continued between company and labor negotiators until agreements were reached. Terms of the contracts provided for a 3.5-percent wage increase for full-time workers in each of the 2 years; unspecified wage increases for part-timers; contract language giving Western Union more flexibility in using part-time workers and subcontractors; reinstatement of locked out employees, and giving them 4 days of back pay; preservation of the profit-sharing plan; and maintenance of the current pension benefit levels.

(Western Union currently has 3,400 employees and 11,200 retirees.)

NBC implements final offer

After 7 months of negotiations and the rejection of two company proposed contracts, the National Broadcasting Company (NBC) implemented its "final offer" to the National Association of Broadcast Engineers and Technicians. The union, which bargained for 2,373 engineers, news writers, traffic and communications workers, couriers, and building service employees covered under 14 labor agreements, filed unfair labor practice charges against NBC, alleging that the company failed to bargain in "good faith" and unilaterally changed the terms and conditions of employment prior to a deadlock in bargaining. The major issue in the dispute reportedly was the question of jurisdiction over personnel hired by the day, rather than on a full-time basis.

The terms of the proposal implemented by NBC call for a 4-year contract with 3-percent wage increases in the first and second years, a 4-percent wage increase in the fourth year, and a bonus in the third year equal to 5 percent of an employee's gross earnings in the preceding 12 months. In addition, the implemented proposal allows NBC to employ more "daily hires" and permits producers who lease or rent NBC studios for new programs to use nonunion employees. □



Setting new standards for skills in the workplace

Horst Brand

A commission chaired by former U.S. Secretaries of Labor Ray Marshall and William E. Brock has published the third, and in many ways, the most alarming of recent reports about the plight of the U.S. work force.

The report, *America's Choice: High Skills or Low Wages*, deals with workers without a college education (roughly 70 percent) and youngsters not college-bound—a group the commission calls the “frontline workers” who are “ill-equipped to meet employers’ current needs and ill-prepared for the rapidly approaching, high-technology, service-oriented future.”

The commission’s concern is heightened by the fact that it found little awareness of these skills problems during visits to hundreds of firms in all sectors of the economy and interviews with thousands of employers, personnel managers, production supervisors, and ordinary workers.

Although more than 80 percent of employers did express concern about skills shortages, “they generally mean a good work ethic and social skills.” The commission says that “only 15 percent of employers report difficulty finding workers with appropriate occupational skills,” but these were in underpaid “women’s” occupations and traditional craft trades. The commission found little evidence of a far-reaching desire for a more educated work force.

Outmoded model

It is easy to determine why employers find their workers’ skills and training adequate to the needs of the jobs being held. The commission reports that more

than one-third of American workers have only an eighth grade education, and fewer than 30 percent are 4-year college graduates.

This, the commission argues, is adequate for an organization of work “largely modeled after the system of manufacture made famous by Henry Ford in the early 20th century,” and conceived by Frederick W. Taylor—with complex jobs fragmented into many simple, repetitive tasks requiring little skill and education, albeit supervised by a knowledgeable planning and managerial staff.¹

The Taylor system came to be virtually synonymous with mass production; its influence has not been limited to manufacturing but “still determines the way we organize our schools, our offices, our hospitals, and our banks.”² But while the “America of the 1950’s and 1960’s prospered with the Taylor model,” mass production has come to be outdated.³ It is no longer adequate to today’s needs, which require higher quality products and greater product variety. The automated systems spells greater complexity, and make it increasingly difficult for small groups of managers to centralize control in their hands. “The reason why we have no skills shortage today,” writes the commission, “is because we are using a turn-of-the-century work organization.”

As the report’s title indicates, the commission views low wages as a major problem for American society. For the past two decades, it says, economic growth has stemmed mostly from additions to the labor force rather than from increases in productivity. “Because our economic growth has not come from improved productivity our...wages have not improved.”⁴ Moreover, the failure of real wages to rise—or their decline—has affected workers unequally, so that the gap between the upper 30 percent of earnings recipients and the lower 70 percent has widened over the past decade and a half. For example, the pay differential be-

tween white-collar professionals and skilled trades people has grown from 2 percent to 37 percent; that between professionals and clerical personnel from 47 percent to 86 percent.⁵

In arguing for a more participatory work force, the commission confines itself to detailing two examples of strikingly contrasting company work organizations. One company has sought to deskill its work force by replacing higher paid workers who have seniority, with younger, lower paid workers, and subcontracting work to overseas establishments. Unit costs were thus reduced but no clear gain in productivity was attained. The other company trained its work force to become “multiskilled” and enabled it to partake in shopfloor decisions hitherto reserved for management. It also reduced the ratio of support to “frontline” employees.⁶ Higher productivity resulted, but at the cost of substantial investment in training. The large majority of American firms, as the report states, cannot afford (or believe they cannot afford) such investments.

The MIT Commission on Industrial Productivity characterized the mass production system as among the “outdated strategies” of American business, contrasting it, for example, with the Japanese automobile industry, which “is based on a system different in almost every feature from Detroit’s mass production system.” Being based on “technologies, product development methods, and patterns of workplace organization that allow them to reduce the volume of production and increase the speed with which new products are brought to market,” this system “has required the creation of a highly skilled work force.”⁷ The MIT Commission calls for “cultivating a new economic citizenship in the work force,” and states that “effective use of new technology will require people to develop their capabilities for planning, judgment, collaboration, and the analysis of complex systems.”⁸

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Human resource policy

The Skills Commission writes that “. . . (W)ork organization is pivotal,” and that “Work organization drives the demand for high skills.”⁹ The reasons it cites why American business has tended to adopt a low-wage rather than a high-productivity policy lie outside the realm of technology altogether; and its proposals for raising productivity focus entirely on human resource policy, examples of foreign success with such policy being given great weight in the argument. The commission’s report suggests that human resource policy drives technological and hence productivity advance. And the commission’s concerns are evidently fed by the conviction that social progress and political balance in the United States hinge on such advance and the elevation of the human factors that underlie it.

According to the commission, American business has followed the “low-wage” path over the past two decades for three reasons: (1) The initial investment for retraining personnel and upgrading technical skills required by the “high productivity path” is costly, and companies run the risk of losing this investment when trained employees leave. (2) Such investment, moreover, demands a long-term horizon, but this approach is vitiated by the “perverse short-term financial horizons by which most American companies operate.” (3) There is the overarching problem of the lack of a public policy commitment to full employment, which encourages the low-wage path by making it easier for business to employ part-time or temporary workers who can be laid off at will.¹⁰

Education and training

The commission presents a brief analysis and critique of the educational preparation for work in the United States. “The educational performance of those students who become frontline workers is well below the average performance of their counterparts in some newly industrializing countries where labor costs are only a small fraction of our own. Our frontline workers. . . are fast becoming unemployable at American wage levels.”¹¹ American high school students “anchor the bottom” on most international tests. In Japan, close to 80 percent of the students take algebra, and

Three commissions studied the work force

America's Choice: High Skills or Low Wages! The Report of the Commission on the Skills of the American Workforce. Rochester, NY, National Center on Education and the Economy's Commission on the Skills of the American Workforce, 1990. \$18 from the Center, 39 State Street, Suite 500, Rochester, NY 14614.

Investing in People: Strategy to Address America's Workforce Crisis. Report by the Secretary of Labor's Commission on Workforce Quality and Labor Market Efficiency. Washington, 1989. \$3.75, Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The monographs underlying the report are titled *Investing in People, Background Papers*, Vol. I and Vol. II, and are also available from the U.S. Government Printing Office.

Made in America: Regaining the Productive Edge, by Michael L. Dertouzos and other members of the MIT Commission on Industrial Productivity. Cambridge, MA, The MIT Press, 1989.

The concerns expressed in these three reports have been shared throughout the 1980's by a number of public and private bodies. Particularly notable are:

Workforce 2000: Work and Workers for the Twenty-First Century. By William B. Johnston and Arnold E. Packer. Indianapolis, IN, Hudson Institute, 1987. *Workforce 2000* was written at the initiative of the U.S. Department of Labor.

Building a Quality Workforce. A joint initiative by the U.S. Departments of Labor, Education, and Commerce. Washington, U.S. Department of Labor, Employment and Training Administration, 1988.

The MIT study summarizes numerous related policy studies in Appendix I (see especially p. 309 ff.), while *Building a Quality Workforce* features a selected bibliography bearing upon the themes it discusses.

score at the top; in the United States, little more than 40 percent of students choose algebra, and score the lowest. The American educational system, the commission asserts, “is almost wholly oriented towards the needs of the college-bound,” and the property tax, which mostly funds the system, favors those most likely to go to college.¹² Almost one-half of all high school students are relegated to general curriculum courses, which are of little value to their subsequent pursuits. One-fourth of these students attend vocational courses, with only a small proportion going into occupations that relate to these courses. Employers as a rule do not even expect particular proficiencies of high school graduates applying for jobs; “most employers look at the high school diploma as evidence of staying power, not academic achievement.”¹³

Furthermore, the commission says, no assistance is offered to youths not bound for college in their transition

from school to work; many of them mill about in the labor market from dead-end job to dead-end job. Guidance services are inadequate, there are no employment services to aid them, and there are very few apprenticeship programs. By the time they reach ages 24 or 25, they are “no match for the highly trained German, Danish, Swedish or Swiss youth of 19.”¹⁴

The education and training (or retraining) of more seasoned workers is also lagging, according to the commission. Of the estimated \$30 billion spent by employers on formal training, about one-third is apportioned to frontline workers, and only 8 percent of them benefit by it. Moreover, approximately 15,000 firms account for nine-tenths of business spending on training, and fewer than 200 firms spend in excess of 2 percent of their payroll for this purpose. “The fact that employers in this country do not spend much money on training of frontline workers is not surprising. The ‘Taylor’

model of work organization still followed by most of our companies does not require skills from the vast majority of their workers."¹⁵

The force of the commission's argument regarding the inadequacy of the education and training of frontline workers is to an extent lessened by its review of the many initiatives that have been taken by the Federal Government and many States to overcome such inadequacy. Its survey of these initiatives—for example, the community college system that began in 1947; Pell Grants and Guaranteed Student Loans for postsecondary education; the Job Training Partnership Act; and the many "customized training" efforts made by individual States to attract industry—is all too brief, and its criticism that "The network of public training activities. . . has. . . been created as a result of unrelated educational, social and economic development goals rather than from any overall vision of human resource development" is not argued in sufficiently searching detail.¹⁶

The commission's recommendations draw upon the relevant programs and policies in Germany, Japan, Sweden, and Denmark, outlined in one of the report's chapters. First, the commission would set a new, national educational performance standard for all students, to be met by age 16. Based on an assessment of the student's performance in meeting the standards, a Certificate of Initial Mastery would be awarded. This certificate would be required for all subsequent schooling, and would attest to the student's ability to read, write, compute, and, generally, perform "at world class levels" in general school subjects.¹⁷

The States would be responsible for its students achieving the certificate, and would also create and fund alternative learning environments for youths unable to meet the standard at age 16. This inability often arises from a youth's preference for taking a job to earn money over continuing his or her education. Hence, local employers should provide jobs for such youth on the condition that their education continue. The commission is particularly concerned that the problem of high school dropouts be overcome, in part, by establishing strong ties between ed-

ucational achievement and the provision of private or public employment.

At the center of the commission's vision of a coherent human resource policy lies the professionalization of the work force not bound for college or college-educated, by means of a system of educational certificates, associate degrees, and part-time work and training by cooperating employers as part of a general curriculum. The certification system would be supervised by a national board setting standards, and serving under the Secretaries of Labor, Commerce, and Education. The program would encompass all occupations as defined or redefined by the proposed board. The commission strongly argues for governmental financing of its recommendation, citing the G.I. Bill as having paid for itself many times over in increased income. "Our goal is to establish a structure that will give our frontline workers the systematic skills, professional qualifications, and respect that their counterparts enjoy in other countries."¹⁸

The final recommendation would integrate American business in the proposed national education and training effort. It would do so by requiring all employers, regardless of size, to spend an initial sum of at least 1 percent of their payroll on certified education and training programs; or to remit that sum to a national skills development fund, devoted to training disadvantaged or dislocated workers.¹⁹ It cites a number of foreign examples in amplifying this recommendation. For example, German corporations contribute close to 3.5 percent of their payrolls to training and employment schemes through the national unemployment insurance fund, the apprenticeship system, and to local chambers of commerce (which often mandate such schemes as a condition of membership). Likewise, Japanese firms contribute 1 percent of payrolls to the National Employment Insurance Fund; and about one-half of the tax goes to finance employment and training initiatives.²⁰ The commission also urges government-run technical assistance services to promote the high-performance work organizations which it believes necessary to supersede "Taylorism."²¹

It is patent that the commission's rec-

ommendations would radically revamp existing institutions of education and training, and require new ones as well. Those recommendations are perhaps more far-reaching than any others pertaining to the advancement of the majority of the American work force that is not bound for college.²² Although other responsible panels that have examined the issues discussed here may not agree with the commission's recommendations, all seem to agree that fundamental changes in human resource policy are urgently needed. The MIT Commission on Industrial Productivity put it this way: ". . . without major changes in the ways schools and firms train workers over the course of a lifetime, no amount of macroeconomic fine-tuning or technological innovation will be able to produce significantly improved economic performance and a rising standard of living."²³ □

Footnotes

¹ *America's Choice: High Skills or Low Wages!* The Report of the Commission on the Skills of the American Workforce (Rochester, NY, National Center on Education and the Economy's Commission on the Skills of the American Workforce, 1990), p. 37.

² *Ibid.*

³ *Ibid.*, pp. 37, 38.

⁴ *Ibid.*, p. 19.

⁵ *Ibid.*, p. 20.

⁶ *Ibid.*, p. 31.

⁷ See Michael L. Dertouzos and others, *Made in America: Regaining the Productive Edge* (Cambridge, MA, The MIT Press, 1989).

⁸ *Ibid.*, pp. 134-35.

⁹ *America's Choice*, pp. 41-42.

¹⁰ *Ibid.*, p. 40.

¹¹ *Ibid.*, p. 43.

¹² *Ibid.*, p. 44.

¹³ *Ibid.*, p. 45.

¹⁴ *Ibid.*, p. 46.

¹⁵ *Ibid.*, p. 50.

¹⁶ *Ibid.*, p. 53.

¹⁷ *Ibid.*, p. 69.

¹⁸ *Ibid.*, p. 77.

¹⁹ *Ibid.*, p. 82.

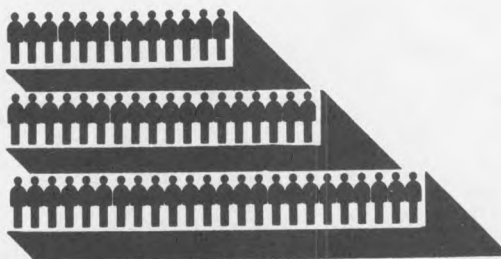
²⁰ *Ibid.*, pp. 115, 117.

²¹ *Ibid.*, p. 84.

²² *Ibid.*, p. 84.

²³ Dertouzos and others, *Made in America*, p. 82.

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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 October 1990 *Review* and reflect the experience through May 1990. 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 1982 = 100, the hourly rate expressed in 1982 dollars is \$2 ($\$3/150 \times 100 = \2). The \$2 (or any other resulting values) are described as "real," "constant," or "1982" 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 biennially by the Bureau. BLS bulletins are issued covering productivity, injury and illness, and other data in this section. Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

n.e.c. = not elsewhere classified.

n.e.s. = not elsewhere specified.

p = preliminary. To increase the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.

r = revised. Generally, this revision reflects the availability of later data but may also reflect other adjustments.

Comparative Indicators

(Tables 1-3)

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

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonfarm 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 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 of the Bureau of Labor Statistics*, Report 774 (Bureau of Labor Statistics, 1990).

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 non-institutional 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 appears 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, January 1983).

At the end of each calendar year, season-

ally 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 revisions 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 340,000 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 non-supervisory 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 non-supervisory 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. Table 18 provides an index on private nonfarm employment based on 356 industries, and a manufacturing index based on 139 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 lat-

est adjustment, which incorporated March 1989 benchmarks, was made with the release of August 1990 data, published in the October 1990 issue of the *Review*. Coincident with the benchmark adjustments, seasonally adjusted data were revised to reflect the experience through May 1990, and industries are coded in accordance with the 1987 *Standard Industrial Classification (SIC) Manual*. Unadjusted data from April 1989 forward and seasonally adjusted data from January 1986 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 and published twice a year. 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 as final in March.

Additional sources of information

Detailed national data from the establishment survey are published monthly in the BLS periodical, *Employment and Earnings*. Historically comparable unadjusted and seasonally adjusted data will be published in *Employment, Hours, and Earnings, United States, 1909–90*, Bulletin 2370 (Bureau of Labor Statistics, 1990) 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 in employer cost.

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

the contract term take account of the compounding of successive changes.

Notes on the data

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 the 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, and fishing; mining; and 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 International 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 re-pricing 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 effort 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 Consumer Price Index for All Urban Consumers.

Unit labor costs are the labor compensation costs expended in the production of a unit of output and are derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current-dollar value of output and dividing by output. **Unit nonlabor costs** contain all the components of unit nonlabor payments *except* unit profits.

Unit profits include corporate profits with inventory valuation and capital consumption adjustments per unit of output.

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

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

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 non-profit 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 sec-

tors 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 self-employed) are constructed.

Additional sources of information

For a 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 the *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 jobs 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), Italy (1986), the Netherlands (1983), and Sweden (1987). For both Germany and the Netherlands, the breaks

reflect the replacement of labor force survey results tabulated by the national statistical offices with those tabulated by the European Community Statistical Office (EUROSTAT). The Dutch figures for 1983 onward also reflect the replacement of man-year employment data with data from the Dutch Survey of Employed Persons. The impact of the changes was to lower the adjusted unemployment rate by 0.3 percentage point for Germany and by about 2 percentage points for the Netherlands.

For Italy, the break in series reflects more accurate enumeration of time of last job search. This resulted in a significant increase in the number of people reported as seeking work in the 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.

Manufacturing productivity and labor costs

Description of the series

Table 50 presents comparative measures of manufacturing labor productivity, hourly compensation costs, and unit labor costs for the United States, Canada, Japan, and nine European countries. These measures are limited to trend comparisons—that is, intercountry series of changes over time—rather than level comparisons because reliable international comparisons of the levels of manufacturing output are unavailable.

Definitions

Output is constant value output (value added), generally taken from the national accounts of each country. While the national accounting methods for measuring

real output differ considerably among the 12 countries, the use of different procedures does not, in itself, connote lack of comparability—rather, it reflects differences among countries in the availability and reliability of underlying data series.

Hours refer to all employed persons including the self-employed in the United States and Canada; to all wage and salary employees in the other countries. The U.S. hours measure is hours paid; the hours measures for the other countries are hours worked.

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

Notes on the data

For most of the countries, the measures refer to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France (beginning 1959), Italy (beginning 1970), and the United Kingdom (beginning 1971), refer to manufacturing and mining less energy-related products and the figures for the Netherlands exclude petroleum refining from 1969 to 1976. For all countries, manufacturing includes the activities of government enterprises.

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

Additional sources of information

For additional information, see the *BLS Handbook of Methods*, Bulletin 2285 (Bureau of Labor Statistics, 1988), and periodic *Monthly Labor Review* articles. Historical data are provided in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985). The

statistics are issued twice per year—in a news release (generally in June) and in a *Monthly Labor Review* article.

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). 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. □

Current Labor Statistics: Comparative Indicators

1. Labor market indicators

Selected indicators	1988	1989	1988		1989				1990	
			III	IV	I	II	III	IV	I	II
Employment data										
Employment status of the civilian noninstitutionalized population (household survey): ¹										
Labor force participation rate	65.9	66.5	66.0	66.1	66.3	66.5	66.5	66.5	66.5	66.5
Employment-population ratio	62.3	63.0	62.3	62.6	62.9	63.0	63.0	63.0	63.0	63.0
Unemployment rate	5.5	5.3	5.5	5.3	5.2	5.3	5.3	5.3	5.2	5.3
Men	5.5	5.2	5.5	5.3	5.2	5.1	5.2	5.3	5.2	5.4
16 to 24 years	11.4	11.4	11.5	11.1	11.2	11.1	11.4	11.8	11.0	11.4
25 years and over	4.2	3.9	4.2	4.1	3.9	3.9	3.9	4.0	4.1	4.1
Women	5.6	5.4	5.5	5.3	5.2	5.4	5.4	5.4	5.3	5.2
16 to 24 years	10.6	10.4	10.5	10.3	10.2	10.4	10.5	10.4	10.2	10.2
25 years and over	4.3	4.2	4.3	4.1	4.1	4.2	4.2	4.3	4.2	4.1
Unemployment rate, 15 weeks and over	1.3	1.1	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.1
Employment, nonfarm (payroll data), in thousands: ¹										
Total	105,536	108,413	105,938	106,766	107,630	108,162	108,662	109,203	109,911	110,541
Private sector	88,150	90,644	88,531	89,215	90,006	90,443	90,829	91,299	91,845	92,108
Goods-producing	25,173	25,326	25,220	25,295	25,362	25,353	25,329	25,260	25,262	25,178
Manufacturing	19,350	19,426	19,366	19,455	19,514	19,474	19,413	19,308	19,211	19,168
Service-producing	80,363	83,087	80,719	81,471	82,267	82,809	83,333	83,942	84,649	85,363
Average hours:										
Private sector	34.7	34.6	34.7	34.7	34.6	34.6	34.6	34.5	34.5	34.6
Manufacturing	41.1	41.0	41.1	41.1	41.1	41.0	41.0	40.7	40.8	40.9
Overtime	3.9	3.8	3.9	3.9	3.9	3.8	3.8	3.7	3.6	3.7
Employment Cost Index										
Percent change in the ECI, compensation:										
All workers (excluding farm, household, and Federal workers)	4.9	5.0	1.4	1.0	1.2	1.1	1.6	1.0	1.7	1.1
Private industry workers	4.8	4.8	.9	1.0	1.2	1.2	1.2	1.1	1.6	1.3
Goods-producing ²	4.4	4.3	.6	.8	1.0	1.1	1.1	1.0	1.8	1.3
Service-producing ²	5.1	5.1	1.2	1.1	1.5	1.2	1.3	1.0	1.5	1.3
State and local government workers	5.6	6.2	2.8	1.1	1.2	.6	3.3	1.0	1.4	.7
Workers by bargaining status (private industry):										
Union	3.9	3.7	.7	.5	.8	1.0	.9	.9	1.5	.8
Nonunion	5.1	5.1	1.0	1.1	1.4	1.2	1.4	1.0	1.7	1.3

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				1990	
			III	IV	I	II	III	IV	I	II
Compensation data^{1, 2}										
Employment Cost Index--compensation (wages, salaries, benefits):										
Civilian nonfarm	4.9	5.0	1.4	1.0	1.2	1.1	1.6	1.0	1.7	1.1
Private nonfarm	4.8	4.8	.9	1.0	1.2	1.2	1.2	1.1	1.6	1.3
Employment Cost Index--wages and salaries										
Civilian nonfarm	4.3	4.4	1.4	.9	1.1	.8	1.6	.8	1.2	1.1
Private nonfarm	4.1	4.1	.9	1.0	1.0	1.0	1.2	.8	1.2	1.3
Price data¹										
Consumer Price Index (All urban consumers): All items	4.4	4.6	1.5	.6	1.5	1.5	.7	.9	2.1	.9
Producer Price Index:										
Finished goods	4.0	4.9	.8	1.3	1.9	2.0	-.6	1.6	1.6	.6
Finished consumer goods	4.0	5.3	1.0	1.1	2.2	2.3	-.8	1.5	1.8	.7
Capital equipment	3.6	3.8	.4	1.8	.9	1.1	.1	1.6	.9	.3
Intermediate materials, supplies, components	5.6	2.3	1.2	.6	1.9	1.1	-.3	-.4	.4	.4
Crude materials	3.1	7.1	-1.2	.6	6.1	.9	-1.7	1.9	1.3	-4.4
Productivity data³										
Output per hour of all persons:										
Business sector	2.0	-.2	2.5	-1.2	.5	.0	-1.5	-2.0	-1.5	1.9
Nonfarm business sector	2.2	-.3	2.8	.5	-1.7	-.5	-.8	-2.2	-1.9	1.6
Nonfinancial corporations ⁴	1.1	-1.3	-.7	-.9	-2.5	-1.4	.8	-4.2	-2.2	1.7

¹ Annual changes are December-to-December change. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted and the price data are not compounded.

² Excludes Federal and private household workers.

³ Annual rates of change are computed by comparing annual averages.

Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.

⁴ Output per hour of all employees.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ended--					
	1989				1990		1989				1990	
	I	II	III	IV	I	II	I	II	III	IV	I	II
Average hourly compensation:¹												
All persons, business sector	2.0	2.4	1.3	2.6	3.8	6.1	4.1	3.4	2.4	2.1	2.5	3.4
All persons, nonfarm business sector	2.0	1.5	1.8	2.7	3.2	5.8	4.1	3.2	2.4	2.0	2.3	3.4
Employment Cost Index--compensation:												
Civilian nonfarm ²	1.2	1.1	1.6	1.0	1.7	1.1	4.8	4.8	5.1	5.0	5.5	5.4
Private nonfarm	1.2	1.2	1.2	1.1	1.6	1.3	4.6	4.5	4.8	4.8	5.2	5.2
Union .....	.8	1.0	.9	.9	1.5	.8	3.0	3.1	3.3	3.7	4.3	4.1
Nonunion	1.4	1.2	1.4	1.0	1.7	1.3	5.1	4.9	5.3	5.1	5.4	5.5
State and local governments	1.2	.6	3.3	1.0	1.4	.7	5.5	5.8	6.4	6.2	6.4	6.5
Employment Cost Index--wages and salaries:												
Civilian nonfarm ²	1.1	.8	1.6	.8	1.2	1.1	4.4	4.3	4.5	4.4	4.4	4.7
Private nonfarm	1.0	1.0	1.2	.8	1.2	1.3	4.2	4.1	4.3	4.1	4.2	4.5
Union .....	.7	.8	.6	1.0	1.0	.7	2.5	2.6	2.4	3.1	3.4	3.3
Nonunion	1.3	1.0	1.3	.8	1.3	1.4	4.8	4.6	4.9	4.5	4.4	4.8
State and local governments .....	.8	.5	3.1	.8	1.2	.6	4.7	5.0	5.5	5.3	5.6	5.7
Total effective wage adjustments³												
From current settlements .....	.5	1.0	1.0	.7	.6	1.1	2.7	2.8	3.0	3.2	3.2	3.3
From prior settlements .....	.1	.3	.4	.2	.2	.3	.8	.7	.9	1.2	1.3	1.2
From cost-of-living provision .....	.3	.5	.4	.2	.3	.6	1.3	1.3	1.3	1.3	1.2	1.4
From cost-of-living provision .....	.1	.2	.2	.1	.1	.3	.6	.8	.8	.7	.7	.7
Negotiated wage adjustments from settlements:³												
First-year adjustments	3.2	3.9	3.6	4.9	3.7	4.7	2.7	3.2	3.5	4.0	4.0	4.2
Annual rate over life of contract	3.1	3.3	3.0	4.0	3.3	4.2	2.5	2.9	3.0	3.4	3.4	3.6
Negotiated wage and benefit adjustments from settlements:⁴												
First-year adjustment	3.2	5.1	3.9	5.3	4.6	5.8	3.3	3.8	4.0	4.5	4.6	4.8
Annual rate over life of contract	3.1	3.4	2.7	4.3	3.6	4.8	2.6	3.0	2.8	3.4	3.5	3.7

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.

Current Labor Statistics: Employment Data

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

(Numbers in thousands)

Employment status	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
TOTAL															
Noninstitutional population ^{1, 2}	186,322	188,081	188,428	188,580	188,721	188,865	188,990	189,090	189,198	189,326	189,467	189,607	189,763	189,901	190,002
Labor force ²	123,378	125,557	125,725	125,857	126,192	126,246	126,094	126,308	126,498	126,543	126,643	126,466	126,394	126,300	126,568
Participation rate ³	66.2	66.8	66.7	66.7	66.9	66.8	66.7	66.8	66.9	66.8	66.8	66.7	66.6	66.5	66.6
Total employed ²	116,677	119,030	119,121	119,294	119,540	119,588	119,560	119,713	120,003	119,773	119,989	120,019	119,580	119,298	119,499
Employment-population ratio ⁴	62.6	63.3	63.2	63.3	63.3	63.3	63.3	63.3	63.4	63.3	63.3	63.3	63.0	62.8	62.9
Resident Armed Forces ¹	1,709	1,688	1,702	1,709	1,704	1,700	1,697	1,678	1,669	1,657	1,639	1,630	1,627	1,640	1,601
Civilian employed	114,968	117,342	117,419	117,585	117,836	117,888	117,863	118,035	118,334	118,116	118,350	118,389	117,953	117,658	117,898
Agriculture	3,169	3,199	3,219	3,197	3,160	3,197	3,134	3,079	3,200	3,133	3,305	3,348	3,085	3,137	3,181
Nonagricultural industries	111,800	114,142	114,200	114,388	114,676	114,691	114,728	114,957	115,133	114,983	115,045	115,041	114,867	114,521	114,717
Unemployed	6,701	6,528	6,604	6,563	6,652	6,658	6,535	6,594	6,495	6,770	6,653	6,447	6,814	7,003	7,069
Unemployment rate ⁵	5.4	5.2	5.3	5.2	5.3	5.3	5.2	5.2	5.1	5.3	5.3	5.1	5.4	5.5	5.6
Not in labor force	62,944	62,523	62,703	62,723	62,529	62,619	62,896	62,782	62,700	62,783	62,824	63,141	63,369	63,601	63,434
Men, 16 years and over															
Noninstitutional population ^{1, 2}	89,404	90,283	90,456	90,535	90,606	90,678	90,772	90,822	90,874	90,942	91,014	91,087	91,168	91,240	91,271
Labor force ²	68,474	69,360	69,360	69,599	69,635	69,725	69,539	69,639	69,712	69,779	69,737	69,599	69,544	69,459	69,809
Participation rate ³	76.6	76.8	76.7	76.9	76.9	76.9	76.6	76.7	76.7	76.7	76.6	76.4	76.3	76.1	76.5
Total employed ²	64,820	65,835	65,681	66,046	66,011	66,143	65,943	66,108	66,208	66,043	66,058	66,000	65,740	65,596	65,867
Employment-population ratio ⁴	72.5	72.9	72.6	73.0	72.9	72.9	72.6	72.8	72.9	72.6	72.6	72.5	72.1	71.9	72.2
Resident Armed Forces ¹	1,547	1,520	1,531	1,533	1,529	1,525	1,523	1,506	1,497	1,499	1,472	1,465	1,462	1,475	1,441
Civilian employed	63,273	64,315	64,150	64,513	64,482	64,618	64,420	64,602	64,711	64,544	64,586	64,535	64,278	64,121	64,426
Unemployed	3,655	3,525	3,679	3,553	3,624	3,582	3,597	3,530	3,505	3,735	3,679	3,599	3,804	3,863	3,943
Unemployment rate ⁵	5.3	5.1	5.3	5.1	5.2	5.1	5.2	5.1	5.0	5.4	5.3	5.2	5.5	5.6	5.6
Women, 16 years and over															
Noninstitutional population ^{1, 2}	96,918	97,798	97,972	98,045	98,115	98,187	98,218	98,268	98,324	98,383	98,453	98,520	98,595	98,661	98,731
Labor force ²	54,904	56,198	56,365	56,258	56,557	56,521	56,555	56,669	56,785	56,764	56,906	56,867	56,849	56,842	56,758
Participation rate ³	56.6	57.5	57.5	57.4	57.6	57.6	57.6	57.7	57.8	57.7	57.8	57.7	57.7	57.6	57.5
Total employed ²	51,858	53,195	53,440	53,248	53,529	53,445	53,617	53,605	53,795	53,729	53,931	54,019	53,839	53,702	53,632
Employment-population ratio ⁴	53.5	54.4	54.5	54.3	54.6	54.4	54.6	54.5	54.7	54.6	54.8	54.8	54.6	54.4	54.3
Resident Armed Forces ¹	162	168	171	176	175	175	174	172	172	158	167	165	165	165	160
Civilian employed	51,696	53,027	53,269	53,072	53,354	53,270	53,443	53,433	53,623	53,571	53,764	53,854	53,674	53,537	53,472
Unemployed	3,046	3,003	2,925	3,010	3,028	3,076	2,938	3,064	2,990	3,034	2,975	2,848	3,010	3,140	3,126
Unemployment rate ⁵	5.5	5.3	5.2	5.4	5.4	5.4	5.2	5.4	5.3	5.3	5.2	5.0	5.3	5.5	5.5

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	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
TOTAL															
Civilian noninstitutional population ¹	184,613	186,393	186,726	186,871	187,017	187,165	187,293	187,412	187,529	187,669	187,828	187,977	188,136	188,261	188,401
Civilian labor force	121,669	123,869	124,023	124,148	124,488	124,546	124,397	124,630	124,829	124,886	125,004	124,836	124,767	124,660	124,967
Participation rate	65.9	66.5	66.4	66.4	66.6	66.5	66.4	66.5	66.6	66.6	66.6	66.4	66.3	66.2	66.3
Employed	114,968	117,342	117,419	117,585	117,836	117,888	117,863	118,035	118,334	118,116	118,350	118,389	117,953	117,658	117,898
Employment-population ratio ²	62.3	63.0	62.9	62.9	63.0	63.0	62.9	63.0	63.1	62.9	63.0	63.0	62.7	62.5	62.6
Unemployed	6,701	6,528	6,604	6,563	6,652	6,658	6,535	6,594	6,495	6,770	6,653	6,447	6,814	7,003	7,069
Unemployment rate	5.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2	5.4	5.3	5.2	5.5	5.6	5.7
Not in labor force	62,944	62,523	62,703	62,723	62,529	62,619	62,896	62,782	62,700	62,783	62,824	63,141	63,369	63,601	63,434
Men, 20 years and over															
Civilian noninstitutional population ¹	80,553	81,619	81,790	81,905	81,968	82,055	82,168	82,248	82,378	82,487	82,581	82,676	82,790	82,862	82,940
Civilian labor force	62,768	63,704	63,771	63,918	63,967	64,071	63,958	64,101	64,183	64,251	64,312	64,364	64,344	64,362	64,573
Participation rate	77.9	78.1	78.0	78.0	78.0	78.1	77.8	77.9	77.9	77.9	77.9	77.9	77.7	77.7	77.9
Employed	59,781	60,837	60,729	61,026	61,033	61,154	60,976	61,172	61,270	61,138	61,265	61,345	61,196	61,143	61,264
Employment-population ratio ²	74.2	74.5	74.2	74.5	74.5	74.5	74.2	74.4	74.4	74.1	74.2	74.2	73.9	73.8	73.9
Agriculture	2,271	2,307	2,330	2,304	2,292	2,293	2,269	2,254	2,268	2,258	2,388	2,400	2,262	2,246	2,295
Nonagricultural industries	57,510	58,530	58,399	58,722	58,741	58,861	58,706	58,918	59,002	58,879	58,877	58,945	58,934	58,897	58,969
Unemployed	2,987	2,867	3,042	2,892	2,934	2,917	2,983	2,929	2,913	3,113	3,047	3,019	3,148	3,219	3,309
Unemployment rate	4.8	4.5	4.8	4.5	4.6	4.6	4.7	4.6	4.5	4.8	4.7	4.7	4.9	5.0	5.1
Women, 20 years and over															
Civilian noninstitutional population ¹	89,532	90,550	90,771	90,860	90,952	91,042	91,091	91,157	91,237	91,330	91,414	91,495	91,581	91,688	91,765
Civilian labor force	50,870	52,212	52,358	52,281	52,541	52,586	52,686	52,814	52,800	52,954	53,146	53,174	53,211	53,315	53,121
Participation rate	56.8	57.7	57.7	57.5	57.8	57.8	57.8	57.9	57.9	58.0	58.1	58.1	58.1	58.1	57.9
Employed	48,383	49,745	49,984	49,796	50,043	50,048	50,255	50,287	50,344	50,427	50,709	50,776	50,719	50,699	50,489
Employment-population ratio ²	54.0	54.9	55.1	54.8	55.0	55.0	55.2	55.2	55.2	55.2	55.5	55.5	55.4	55.3	55.0
Agriculture	625	642	660	641	624	618	594	582	648	669	680	700	585	639	619
Nonagricultural industries	47,757	49,103	49,324	49,155	49,419	49,430	49,661	49,704	49,696	49,758	50,029	50,077	50,135	50,060	49,870
Unemployed	2,487	2,467	2,374	2,485	2,498	2,538	2,431	2,527	2,456	2,526	2,438	2,398	2,492	2,616	2,632
Unemployment rate	4.9	4.7	4.5	4.8	4.8	4.8	4.6	4.8	4.7	4.8	4.6	4.5	4.7	4.9	5.0
Both sexes, 16 to 19 years															
Civilian noninstitutional population ¹	14,527	14,223	14,166	14,107	14,097	14,067	14,034	14,008	13,914	13,852	13,832	13,806	13,764	13,711	13,696
Civilian labor force	8,031	7,954	7,894	7,949	7,980	7,889	7,752	7,715	7,846	7,681	7,545	7,298	7,212	6,983	7,272
Participation rate	55.3	55.9	55.7	56.3	56.6	56.1	55.2	55.1	56.4	55.4	54.6	52.9	52.4	50.9	53.1
Employed	6,805	6,759	6,706	6,763	6,760	6,686	6,631	6,577	6,720	6,551	6,376	6,268	6,038	5,815	6,144
Employment-population ratio ²	46.8	47.5	47.3	47.9	48.0	47.5	47.3	47.0	48.3	47.3	46.1	45.4	43.9	42.4	44.9
Agriculture	273	250	229	252	244	286	270	243	285	206	237	249	239	251	266
Nonagricultural industries	6,532	6,510	6,477	6,511	6,516	6,400	6,361	6,334	6,435	6,345	6,139	6,019	5,799	5,564	5,878
Unemployed	1,226	1,194	1,188	1,186	1,220	1,203	1,121	1,138	1,126	1,130	1,169	1,030	1,174	1,168	1,128
Unemployment rate	15.3	15.0	15.0	14.9	15.3	15.2	14.5	14.8	14.4	14.7	15.5	14.1	16.3	16.7	15.5
White															
Civilian noninstitutional population ¹	158,194	159,338	159,549	159,644	159,736	159,832	159,938	160,007	160,076	160,170	160,271	160,365	160,468	160,550	160,640
Civilian labor force	104,756	106,355	106,393	106,618	106,834	106,896	106,884	107,080	107,061	107,133	107,353	107,273	107,230	107,135	107,451
Participation rate	66.2	66.7	66.7	66.8	66.9	66.9	66.8	66.9	66.9	66.9	67.0	66.9	66.8	66.7	66.9
Employed	99,812	101,584	101,579	101,862	101,991	102,032	102,074	102,117	102,206	102,027	102,362	102,461	102,260	101,968	102,260
Employment-population ratio ²	63.1	63.8	63.7	63.8	63.8	63.8	63.8	63.8	63.8	63.7	63.9	63.9	63.7	63.5	63.7
Unemployed	4,944	4,770	4,814	4,756	4,843	4,864	4,811	4,962	4,856	5,106	4,991	4,812	4,970	5,167	5,190
Unemployment rate	4.7	4.5	4.5	4.5	4.5	4.6	4.5	4.6	4.5	4.8	4.6	4.5	4.6	4.8	4.8
Black															
Civilian noninstitutional population ¹	20,692	21,021	21,085	21,108	21,136	21,164	21,163	21,188	21,211	21,228	21,261	21,289	21,318	21,337	21,361
Civilian labor force	13,205	13,497	13,518	13,507	13,576	13,522	13,510	13,437	13,581	13,570	13,587	13,472	13,379	13,366	13,470
Participation rate	63.8	64.2	64.1	64.0	64.2	63.9	63.8	63.4	64.0	63.9	63.9	63.3	62.8	62.6	63.1
Employed	11,658	11,953	11,938	11,923	11,954	11,920	11,978	12,030	12,148	12,161	12,179	12,064	11,870	11,791	11,839
Employment-population ratio ²	56.3	56.9	56.6	56.5	56.6	56.3	56.6	56.8	57.3	57.3	57.3	56.7	55.7	55.3	55.4
Unemployed	1,547	1,544	1,580	1,584	1,622	1,602	1,532	1,407	1,433	1,409	1,408	1,407	1,510	1,575	1,631
Unemployment rate	11.7	11.4	11.7	11.7	11.9	11.8	11.3	10.5	10.6	10.4	10.4	10.4	11.3	11.8	12.1

See footnotes at end of table.

Current Labor Statistics: Employment Data

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	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Hispanic origin															
Civilian noninstitutional population ¹	13,325	13,791	13,894	13,936	13,977	14,019	14,080	14,119	14,159	14,198	14,238	14,277	14,317	14,356	14,396
Civilian labor force	8,982	9,323	9,342	9,339	9,424	9,495	9,440	9,400	9,565	9,618	9,669	9,651	9,665	9,707	9,643
Participation rate	67.4	67.6	67.2	67.0	67.4	67.7	67.0	66.6	67.6	67.7	67.9	67.6	67.5	67.6	67.0
Employed	8,250	8,573	8,564	8,595	8,672	8,691	8,769	8,666	8,831	8,850	8,927	8,967	8,899	8,951	8,808
Employment-population ratio ²	61.9	62.2	61.6	61.7	62.0	62.0	62.3	61.4	62.4	62.3	62.7	62.8	62.2	62.3	61.2
Unemployed	732	750	778	744	752	804	671	734	734	768	742	684	767	757	835
Unemployment rate	8.2	8.0	8.3	8.0	8.0	8.5	7.1	7.8	7.7	8.0	7.7	7.1	7.9	7.8	8.7

¹ The population figures are not seasonally adjusted.

² Civilian employment as a percent of the civilian noninstitutional population.

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

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

6. Selected employment indicators, monthly data seasonally adjusted

(In thousands)

Selected categories	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
CHARACTERISTIC															
Civilian employed, 16 years and over	114,968	117,342	117,419	117,585	117,836	117,888	117,863	118,035	118,334	118,116	118,350	118,389	117,953	117,658	117,898
Men	63,273	64,315	64,150	64,513	64,482	64,618	64,420	64,602	64,711	64,544	64,586	64,535	64,278	64,121	64,426
Women	51,696	53,027	53,269	53,072	53,354	53,270	53,443	53,433	53,623	53,571	53,764	53,854	53,674	53,537	53,472
Married men, spouse present ..	40,472	40,760	40,649	40,839	40,886	41,041	40,982	41,347	40,989	40,730	40,881	40,554	40,545	40,604	40,919
Married women, spouse present	28,756	29,404	29,506	29,544	29,767	29,695	29,897	29,704	29,618	29,742	30,046	29,856	29,909	29,949	29,780
Women who maintain families ..	6,211	6,338	6,429	6,354	6,351	6,349	6,215	6,378	6,291	6,325	6,400	6,467	6,380	6,365	6,382
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,621	1,665	1,680	1,678	1,687	1,677	1,634	1,578	1,620	1,621	1,728	1,685	1,628	1,666	1,808
Self-employed workers	1,398	1,403	1,424	1,406	1,373	1,369	1,354	1,375	1,457	1,429	1,502	1,507	1,377	1,357	1,275
Unpaid family workers	150	131	132	124	122	125	107	118	115	112	101	106	96	93	112
Nonagricultural industries:															
Wage and salary workers	103,021	105,259	105,476	105,504	105,960	105,643	105,747	106,117	106,029	105,938	106,176	105,985	105,885	105,691	105,800
Government	17,114	17,469	17,613	17,595	17,681	17,728	17,626	17,607	17,724	17,816	18,113	17,863	17,788	17,842	17,555
Private industries	85,907	87,790	87,863	87,909	88,279	87,915	88,121	88,510	88,306	88,122	88,063	88,121	88,097	87,849	88,246
Private households	1,153	1,101	1,065	987	1,051	1,077	1,035	1,021	1,003	957	941	1,056	989	1,033	1,074
Other	84,754	86,689	86,798	86,922	87,228	86,838	87,086	87,489	87,302	87,165	87,122	87,065	87,108	86,816	87,171
Self-employed workers	8,519	8,605	8,581	8,610	8,528	8,653	8,733	8,628	8,852	8,716	8,783	8,759	8,709	8,629	8,810
Unpaid family workers	260	279	279	280	264	251	256	313	261	258	254	226	269	229	235
PERSONS AT WORK PART TIME¹															
All industries:															
Part time for economic reasons ..	5,206	4,894	4,864	4,767	4,803	4,802	4,983	4,887	5,004	4,871	4,831	5,013	4,870	5,036	5,365
Slack work	2,350	2,303	2,321	2,314	2,297	2,277	2,402	2,307	2,476	2,407	2,439	2,499	2,565	2,424	2,654
Could only find part-time work ..	2,487	2,233	2,161	2,082	2,162	2,106	2,255	2,211	2,127	2,138	2,052	2,224	2,070	2,123	2,462
Voluntary part time	14,963	15,393	15,506	15,368	15,254	15,388	14,931	15,381	15,464	15,193	15,592	15,125	15,311	15,377	15,283
Nonagricultural industries:															
Part time for economic reasons ..	4,965	4,657	4,605	4,526	4,552	4,554	4,729	4,703	4,747	4,630	4,666	4,734	4,710	4,780	5,093
Slack work	2,199	2,143	2,165	2,166	2,132	2,111	2,240	2,183	2,293	2,218	2,317	2,284	2,408	2,242	2,481
Could only find part-time work ..	2,408	2,166	2,095	2,021	2,097	2,051	2,172	2,173	2,050	2,096	2,004	2,141	2,048	2,069	2,386
Voluntary part time	14,509	14,963	15,076	14,936	14,805	14,983	14,515	14,924	14,975	14,804	15,064	14,627	14,922	14,899	14,858

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	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
CHARACTERISTIC															
Total, all civilian workers	5.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2	5.4	5.3	5.2	5.5	5.6	5.7
Both sexes, 16 to 19 years	15.3	15.0	15.0	14.9	15.3	15.2	14.5	14.8	14.4	14.7	15.5	14.1	16.3	16.7	15.5
Men, 20 years and over	4.8	4.5	4.8	4.5	4.6	4.6	4.7	4.6	4.5	4.8	4.7	4.7	4.9	5.0	5.1
Women, 20 years and over	4.9	4.7	4.5	4.8	4.8	4.8	4.6	4.8	4.7	4.8	4.6	4.5	4.7	4.9	5.0
White, total	4.7	4.5	4.5	4.5	4.5	4.6	4.5	4.6	4.5	4.8	4.6	4.5	4.6	4.8	4.8
Both sexes, 16 to 19 years	13.1	12.7	12.2	12.4	12.9	13.0	12.7	13.0	12.9	13.1	13.7	12.2	13.7	14.5	13.9
Men, 16 to 19 years	13.9	13.7	13.3	13.8	14.3	14.0	12.9	12.7	13.0	13.8	14.2	12.9	15.1	15.7	15.3
Women, 16 to 19 years	12.3	11.5	11.1	10.9	11.3	11.9	12.4	13.2	12.7	12.4	13.1	11.4	12.3	13.2	12.5
Men, 20 years and over	4.1	3.9	4.2	3.9	3.9	3.9	4.0	4.1	4.0	4.3	4.2	4.1	4.1	4.3	4.3
Women, 20 years and over	4.1	4.0	3.8	4.0	4.0	4.1	4.0	4.1	3.9	4.1	3.9	3.9	4.0	4.2	4.2
Black, total	11.7	11.4	11.7	11.7	11.9	11.8	11.3	10.5	10.6	10.4	10.4	10.4	11.3	11.8	12.1
Both sexes, 16 to 19 years	32.4	32.4	36.3	33.4	32.5	30.7	26.7	28.0	28.2	25.8	29.4	31.4	31.8	36.7	28.9
Men, 16 to 19 years	32.7	31.9	33.8	32.0	32.3	30.1	29.2	28.5	30.0	27.2	31.1	37.4	32.3	38.4	30.6
Women, 16 to 19 years	32.0	33.0	38.8	34.9	32.7	31.4	24.0	27.5	26.2	24.3	27.6	25.3	31.2	35.0	26.9
Men, 20 years and over	10.1	10.0	10.1	10.3	10.6	10.8	11.2	9.2	9.6	9.4	9.1	9.4	10.7	10.6	11.8
Women, 20 years and over	10.4	9.8	9.7	9.9	10.2	10.0	9.2	9.4	9.0	9.2	9.1	8.9	9.4	9.9	10.3
Hispanic origin, total	8.2	8.0	8.3	8.0	8.0	8.5	7.1	7.8	7.7	8.0	7.7	7.1	7.9	7.8	8.7
Married men, spouse present	3.3	3.0	3.3	3.0	3.1	3.0	3.4	3.0	3.2	3.3	3.3	3.2	3.3	3.5	3.4
Married women, spouse present	3.9	3.7	3.8	3.9	3.8	3.9	3.7	3.8	3.6	3.5	3.5	3.7	3.5	3.9	4.0
Women who maintain families	8.1	8.1	7.7	7.8	8.2	8.1	7.5	7.5	8.4	7.5	7.4	8.0	8.5	8.5	8.9
Full-time workers	5.2	4.9	5.0	4.9	5.0	5.0	5.0	4.9	4.9	5.1	4.9	4.8	5.0	5.2	5.4
Part-time workers	7.6	7.3	7.3	7.1	7.4	7.5	7.0	7.4	7.2	7.1	7.4	7.6	8.1	7.9	7.1
Unemployed 15 weeks and over	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.3	1.3
Labor force time lost ¹	6.3	5.9	6.0	5.9	5.9	6.0	6.0	5.9	5.9	6.2	6.0	5.9	6.0	6.3	6.4
INDUSTRY															
Nonagricultural private wage and salary workers ...	5.5	5.3	5.4	5.3	5.4	5.4	5.5	5.5	5.5	5.7	5.5	5.3	5.5	5.7	5.8
Mining	7.9	5.8	8.4	4.8	6.2	4.4	6.8	4.8	5.9	4.6	3.3	3.6	4.4	4.9	3.8
Construction	10.6	10.0	10.1	9.3	9.8	9.8	9.3	8.9	10.0	10.6	11.5	9.7	10.2	11.1	11.8
Manufacturing	5.3	5.1	5.2	5.4	5.4	5.6	5.9	5.9	5.5	5.9	5.4	4.9	5.7	5.8	5.7
Durable goods	5.0	4.8	4.9	5.2	5.4	5.4	5.8	5.5	5.3	5.7	5.5	4.9	5.6	5.9	6.0
Nondurable goods	5.7	5.5	5.5	5.6	5.3	5.9	5.9	6.4	5.9	6.3	5.2	5.0	5.7	5.6	5.3
Transportation and public utilities	3.9	3.9	4.5	3.9	3.6	3.4	4.3	4.0	3.4	4.3	3.2	3.0	3.7	4.1	3.9
Wholesale and retail trade	6.2	6.0	5.9	5.9	6.4	6.3	6.2	6.0	6.2	6.2	6.3	6.2	6.0	6.2	6.6
Finance and service industries	4.5	4.4	4.5	4.3	4.3	4.2	4.3	4.4	4.5	4.5	4.4	4.5	4.5	4.7	4.7
Government workers	2.8	2.7	2.8	2.7	2.7	2.6	2.4	2.5	2.3	2.1	2.5	2.9	2.8	2.8	2.9
Agricultural wage and salary workers	10.6	9.6	7.8	9.8	12.1	9.7	9.2	9.3	10.1	11.0	7.9	10.0	10.6	9.7	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	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Total, 16 years and over	5.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2	5.4	5.3	5.2	5.5	5.6	5.7
16 to 24 years	11.0	10.9	11.1	11.1	11.3	11.2	10.6	10.7	10.5	11.2	11.0	10.3	11.0	11.5	11.6
16 to 19 years	15.3	15.0	15.0	14.9	15.3	15.2	14.5	14.8	14.4	14.7	15.5	14.1	16.3	16.7	15.5
16 to 17 years	17.4	17.2	17.2	16.9	17.4	18.1	14.8	16.8	16.9	17.4	20.0	16.1	17.4	19.2	18.4
18 to 19 years	13.8	13.6	14.2	13.5	13.8	13.4	14.2	13.0	12.9	13.0	12.8	13.4	15.2	15.0	14.4
20 to 24 years	8.7	8.6	8.8	8.9	9.0	8.9	8.5	8.4	8.3	9.3	8.5	8.2	8.3	8.8	9.6
25 years and over	4.3	4.0	4.1	4.1	4.1	4.1	4.2	4.2	4.1	4.2	4.1	4.1	4.3	4.4	4.5
25 to 54 years	4.5	4.2	4.3	4.2	4.2	4.3	4.3	4.3	4.3	4.4	4.3	4.4	4.5	4.6	4.7
55 years and over	3.1	3.1	3.0	3.0	3.2	3.2	3.4	3.4	3.3	3.3	3.0	2.8	3.2	3.5	3.3
Men, 16 years and over	5.5	5.2	5.4	5.2	5.3	5.3	5.3	5.2	5.1	5.5	5.4	5.3	5.6	5.7	5.8
16 to 24 years	11.4	11.4	11.9	11.7	12.0	11.8	11.2	10.9	10.9	11.8	11.2	11.1	11.6	11.6	12.0
16 to 19 years	16.0	15.9	15.7	15.9	16.7	16.1	15.1	14.9	14.7	15.4	16.0	15.4	17.5	17.8	16.7
16 to 17 years	18.2	18.6	19.5	18.5	19.0	19.6	14.2	16.5	16.9	18.1	20.6	16.4	18.4	21.5	18.8
18 to 19 years	14.6	14.2	13.7	14.2	15.1	13.8	15.6	13.7	13.6	13.8	13.4	14.8	16.3	15.5	16.2
20 to 24 years	8.9	8.8	9.8	9.3	9.4	9.5	8.9	8.6	8.8	9.8	8.6	8.9	8.5	8.5	9.5
25 years and over	4.2	3.9	4.1	3.9	4.0	3.9	4.2	4.1	4.0	4.2	4.1	4.1	4.4	4.6	4.6
25 to 54 years	4.4	4.1	4.1	4.0	4.1	4.0	4.3	4.2	4.2	4.4	4.3	4.3	4.5	4.6	4.7
55 years and over	3.3	3.2	3.5	3.2	3.5	3.6	3.6	3.5	3.4	3.5	3.4	3.1	3.6	3.8	3.8
Women, 16 years and over	5.6	5.4	5.2	5.4	5.4	5.5	5.2	5.4	5.3	5.4	5.2	5.0	5.3	5.5	5.5
16 to 24 years	10.6	10.4	10.2	10.4	10.4	10.4	10.1	10.4	10.0	10.5	10.7	9.3	10.4	11.4	11.2
16 to 19 years	14.4	14.0	14.4	13.8	13.8	14.3	13.7	14.6	14.0	13.9	14.9	12.8	14.9	15.6	14.2
16 to 17 years	16.6	15.7	14.7	15.0	15.7	16.5	15.5	17.3	16.9	16.7	19.4	15.9	16.4	16.6	17.9
18 to 19 years	12.9	13.0	14.6	12.8	12.3	13.0	12.6	12.3	12.0	12.1	12.2	11.9	13.9	14.4	12.6
20 to 24 years	8.5	8.3	7.7	8.5	8.5	8.2	8.0	8.1	7.7	8.7	8.4	7.5	8.0	9.3	9.6
25 years and over	4.3	4.2	4.1	4.2	4.2	4.3	4.1	4.3	4.2	4.2	4.1	4.1	4.2	4.3	4.4
25 to 54 years	4.6	4.4	4.4	4.4	4.4	4.6	4.3	4.5	4.4	4.4	4.4	4.4	4.4	4.5	4.6
55 years and over	2.8	2.8	2.4	2.8	2.9	2.7	3.3	3.3	3.3	2.9	2.5	2.4	2.6	3.1	2.6

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

(Numbers in thousands)

Reason for unemployment	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Job losers	3,092	2,983	2,932	2,979	3,092	3,097	3,183	3,103	3,038	3,147	3,171	3,151	3,088	3,367	3,511
On layoff	851	850	852	780	969	957	1,033	964	941	999	979	918	960	973	1,127
Other job losers	2,241	2,133	2,080	2,199	2,123	2,140	2,150	2,139	2,097	2,148	2,192	2,233	2,128	2,394	2,384
Job leavers	983	1,024	1,034	994	1,049	1,055	1,016	1,006	1,014	1,179	1,014	995	1,027	984	934
Reentrants	1,809	1,843	1,920	1,890	1,845	1,853	1,730	1,805	1,859	1,780	1,820	1,789	1,960	1,879	1,985
New entrants	816	677	648	685	695	686	640	680	644	617	683	534	687	677	656
PERCENT OF UNEMPLOYED															
Job losers	46.1	45.7	44.9	45.5	46.3	46.3	48.5	47.1	46.3	46.8	47.4	48.7	45.7	48.7	49.5
On layoff	12.7	13.0	13.0	11.9	14.5	14.3	15.7	14.6	14.4	14.9	14.6	14.2	14.2	14.1	15.9
Other job losers	33.4	32.7	31.8	33.6	31.8	32.0	32.7	32.4	32.0	31.9	32.8	34.5	31.5	34.7	33.6
Job leavers	14.7	15.7	15.8	15.2	15.7	15.8	15.5	15.3	15.5	17.5	15.2	15.4	15.2	14.3	13.2
Reentrants	27.0	28.2	29.4	28.9	27.6	27.7	26.3	27.4	28.4	26.5	27.2	27.7	29.0	27.2	28.0
New entrants	12.2	10.4	9.9	10.5	10.4	10.3	9.7	10.3	9.8	9.2	10.2	8.3	10.2	9.8	9.3
PERCENT OF CIVILIAN LABOR FORCE															
Job losers	2.5	2.4	2.4	2.4	2.5	2.5	2.6	2.5	2.4	2.5	2.5	2.5	2.5	2.7	2.8
On layoff .....	.8	.8	.8	.8	.8	.8	.8	.8	.8	.9	.8	.8	.8	.8	.7
Other job losers	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.4	1.5	1.4	1.6	1.5	1.6
Job leavers .....	.7	.5	.5	.6	.6	.6	.5	.5	.5	.5	.5	.4	.6	.5	.5

10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

Weeks of unemployment	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Less than 5 weeks	3,084	3,174	3,169	3,166	3,258	3,302	3,119	3,159	3,194	3,204	3,026	3,046	3,120	3,325	3,044
5 to 14 weeks	2,007	1,978	2,030	1,995	1,991	2,013	2,012	2,079	2,044	2,175	2,236	2,049	2,159	2,048	2,479
15 weeks and over	1,610	1,375	1,359	1,378	1,422	1,362	1,430	1,369	1,333	1,386	1,374	1,406	1,513	1,609	1,620
15 to 26 weeks	801	730	769	743	765	730	777	731	702	697	764	763	809	845	872
27 weeks and over	809	646	590	635	657	632	653	638	631	688	610	643	704	764	748
Mean duration in weeks	13.5	11.9	11.5	11.7	11.6	11.5	12.1	11.7	12.0	12.1	11.6	12.0	12.0	12.3	12.5
Median duration in weeks	5.9	4.8	5.0	5.0	4.8	4.8	5.1	5.4	5.1	5.0	5.4	5.1	5.2	5.2	6.2

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

State	Aug. 1989	Aug. 1990 ^P	State	Aug. 1989	Aug. 1990 ^P
Alabama	7.4	7.6	Montana	4.8	4.4
Alaska	4.7	5.5	Nebraska	3.0	2.3
Arizona	6.2	5.7	Nevada	4.7	4.0
Arkansas	6.5	6.1	New Hampshire	3.7	5.3
California	4.7	5.4	New Jersey	4.2	4.6
Colorado	5.1	4.6	New Mexico	6.8	6.1
Connecticut	4.0	5.2	New York	4.8	4.8
Delaware	3.1	4.4	North Carolina	3.5	3.5
District of Columbia	4.7	6.1	North Dakota	3.8	3.3
Florida	5.4	6.8	Ohio	4.7	4.7
Georgia	5.6	5.6	Oklahoma	4.8	5.3
Hawaii	1.5	2.5	Oregon	5.2	5.2
Idaho	4.9	5.0	Pennsylvania	3.9	4.3
Illinois	5.8	6.3	Rhode Island	3.8	6.0
Indiana	4.3	6.5	South Carolina	4.6	4.7
Iowa	4.3	4.0	South Dakota	4.2	3.8
Kansas	3.8	4.4	Tennessee	4.9	5.0
Kentucky	5.4	4.9	Texas	7.2	5.9
Louisiana	7.5	6.4	Utah	4.6	4.4
Maine	3.2	4.2	Vermont	3.5	4.6
Maryland	3.6	4.4	Virginia	3.1	4.1
Massachusetts	3.9	6.4	Washington	5.9	4.6
Michigan	6.7	7.4	West Virginia	7.6	8.7
Minnesota	4.0	4.3	Wisconsin	3.8	3.7
Mississippi	7.3	7.9	Wyoming	6.1	4.0
Missouri	4.9	5.7			

^P = preliminary

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 nonfarm payrolls by State, data not seasonally adjusted

(In thousands)

State	Aug. 1989	July 1990	Aug. 1990 ^P	State	Aug. 1989	July 1990	Aug. 1990 ^P
Alabama	1,590.9	1,603.1	1,596.1	Nebraska	703.9	719.6	721.9
Alaska	249.1	251.9	251.0	Nevada	593.7	627.3	629.3
Arizona	1,421.4	1,468.9	1,474.6	New Hampshire	523.2	502.3	505.7
Arkansas	894.9	914.5	918.5	New Jersey	3,725.4	3,754.3	3,745.5
California	12,432.1	12,772.2	12,755.9	New Mexico	561.2	566.9	565.4
Colorado	1,469.8	1,499.7	1,501.5	New York	8,253.7	8,280.1	8,261.0
Connecticut	1,671.0	1,667.9	1,661.3	North Carolina	3,052.2	3,067.7	3,077.1
Delaware	347.8	350.0	351.6	North Dakota	260.1	265.6	265.3
District of Columbia	688.5	697.0	681.5	Ohio	4,830.3	4,934.0	4,941.1
Florida	5,203.4	5,426.3	5,412.7	Oklahoma	1,145.1	1,160.0	1,164.6
Georgia	2,957.3	3,005.1	3,009.8	Oregon	1,218.9	1,244.6	1,254.8
Hawaii	507.1	518.2	516.6	Pennsylvania	5,101.6	5,128.7	5,113.9
Idaho	371.2	384.4	387.9	Rhode Island	460.1	447.8	449.4
Illinois	5,174.2	5,222.8	5,222.5	South Carolina	1,506.7	1,541.7	1,547.3
Indiana	2,462.0	2,528.5	2,534.0	South Dakota	278.3	282.0	281.7
Iowa	1,195.7	1,220.1	1,219.5	Tennessee	2,171.2	2,170.3	2,183.3
Kansas	1,061.5	1,079.7	1,084.4	Texas	6,803.5	6,930.3	6,936.3
Kentucky	1,442.3	1,471.0	1,473.8	Utah	692.0	719.2	723.8
Louisiana	1,508.3	1,529.3	1,528.4	Vermont	259.5	253.3	252.9
Maine	554.3	533.9	537.5	Virginia	2,871.5	2,932.1	2,928.7
Maryland	2,153.8	2,186.1	2,177.7	Washington	2,065.7	2,139.4	2,151.4
Massachusetts	3,098.3	3,024.2	3,010.0	West Virginia	610.0	630.6	618.4
Michigan	3,887.1	3,897.7	3,876.5	Wisconsin	2,249.9	2,283.7	2,290.3
Minnesota	2,104.7	2,136.9	2,141.6	Wyoming	199.9	199.9	199.7
Mississippi	915.2	927.0	924.8	Puerto Rico	823.0	871.8	842.8
Missouri	2,315.6	2,327.5	2,324.8	Virgin Islands	43.3	41.5	41.9
Montana	293.3	297.1	298.1				

^P = preliminary

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

Current Labor Statistics: Employment Data

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

(In thousands)

Industry	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
TOTAL	105,536	108,413	108,868	108,980	109,245	109,383	109,654	109,958	110,122	110,177	110,617	110,829	110,740	110,657	110,556
PRIVATE SECTOR	88,150	90,644	90,985	91,096	91,344	91,456	91,656	91,917	91,963	91,922	92,120	92,282	92,300	92,307	92,240
GOODS-PRODUCING	25,173	25,326	25,304	25,283	25,280	25,218	25,188	25,339	25,259	25,180	25,191	25,162	25,105	25,013	24,929
Mining	713	700	709	710	716	718	723	727	729	734	738	744	745	736	738
Construction	5,110	5,200	5,225	5,239	5,258	5,216	5,294	5,368	5,313	5,256	5,286	5,270	5,229	5,194	5,174
General building contractors	1,353	1,338	1,343	1,338	1,339	1,335	1,361	1,368	1,351	1,338	1,334	1,334	1,319	1,306	1,308
Manufacturing	19,350	19,426	19,370	19,334	19,306	19,284	19,171	19,244	19,217	19,190	19,167	19,148	19,131	19,083	19,017
Production workers	13,221	13,257	13,204	13,171	13,144	13,124	13,009	13,084	13,061	13,046	13,023	13,007	13,010	12,967	12,911
Durable goods	11,381	11,422	11,369	11,337	11,314	11,296	11,192	11,278	11,261	11,229	11,217	11,201	11,179	11,130	11,072
Production workers	7,596	7,615	7,567	7,541	7,519	7,506	7,400	7,488	7,479	7,461	7,450	7,439	7,438	7,396	7,347
Lumber and wood products	769	758	750	753	752	753	753	751	751	750	748	743	742	739	737
Furniture and fixtures	528	526	524	521	521	519	519	518	518	516	516	515	511	514	509
Stone, clay, and glass products	569	569	563	566	567	566	567	568	565	560	559	556	552	551	546
Primary metal industries	771	772	767	764	760	759	754	756	754	755	755	756	759	755	751
Blast furnaces and basic steel products	279	278	276	274	272	273	272	272	270	271	271	270	271	271	270
Fabricated metal products	1,432	1,446	1,438	1,433	1,429	1,426	1,412	1,418	1,418	1,419	1,417	1,415	1,419	1,420	1,413
Industrial machinery and equipment	2,092	2,132	2,132	2,125	2,129	2,130	2,132	2,126	2,119	2,112	2,112	2,108	2,104	2,096	2,083
Electronic and other electrical equipment	1,766	1,753	1,743	1,737	1,732	1,722	1,722	1,720	1,718	1,713	1,711	1,703	1,695	1,685	1,672
Transportation equipment	2,038	2,054	2,041	2,031	2,023	2,024	1,933	2,023	2,022	2,014	2,010	2,021	2,015	1,997	1,983
Motor vehicles and equipment	857	857	843	833	826	828	736	828	825	820	817	826	824	814	805
Instruments and related products	1,033	1,026	1,023	1,021	1,018	1,011	1,011	1,009	1,008	1,005	1,002	1,000	996	990	994
Miscellaneous manufacturing industries	384	386	388	386	383	386	389	389	388	385	387	384	386	383	384
Nondurable goods	7,969	8,004	8,001	7,997	7,992	7,988	7,979	7,966	7,956	7,961	7,950	7,947	7,952	7,953	7,945
Production workers	5,625	5,642	5,637	5,630	5,625	5,618	5,609	5,596	5,582	5,585	5,573	5,568	5,572	5,571	5,564
Food and kindred products	1,631	1,645	1,653	1,651	1,651	1,650	1,651	1,650	1,648	1,651	1,650	1,643	1,645	1,650	1,649
Tobacco products	55	49	48	48	48	47	47	47	46	46	46	47	46	47	47
Textile mill products	729	724	720	721	718	716	715	711	709	708	703	702	702	701	697
Apparel and other textile products	1,088	1,074	1,070	1,066	1,064	1,061	1,053	1,045	1,037	1,036	1,031	1,029	1,027	1,025	1,025
Paper and allied products	690	697	697	697	697	698	697	699	698	699	698	699	701	702	701
Printing and publishing	1,548	1,564	1,566	1,567	1,571	1,573	1,576	1,576	1,578	1,579	1,581	1,582	1,583	1,583	1,581
Chemicals and allied products	1,059	1,074	1,075	1,076	1,077	1,081	1,081	1,083	1,083	1,084	1,085	1,086	1,088	1,087	1,089
Petroleum and coal products	160	157	157	158	158	157	158	159	159	159	159	160	160	161	162
Rubber and misc. plastics products	868	884	880	878	875	873	869	865	867	869	868	871	874	873	870
Leather and leather products	143	136	135	135	133	132	132	131	131	130	129	128	126	124	124
SERVICE-PRODUCING	80,363	83,087	83,564	83,697	83,965	84,165	84,466	84,619	84,863	84,997	85,426	85,667	85,635	85,644	85,627
Transportation and public utilities	5,527	5,648	5,656	5,671	5,693	5,776	5,790	5,804	5,808	5,809	5,833	5,846	5,841	5,845	5,859
Transportation	3,312	3,450	3,483	3,500	3,523	3,548	3,568	3,583	3,589	3,588	3,613	3,627	3,625	3,630	3,644
Communications and public utilities	2,215	2,199	2,173	2,171	2,170	2,228	2,222	2,221	2,219	2,221	2,220	2,219	2,216	2,215	2,215
Wholesale trade	6,055	6,271	6,303	6,313	6,335	6,344	6,356	6,357	6,361	6,363	6,369	6,383	6,374	6,375	6,374
Retail trade	19,077	19,580	19,634	19,665	19,714	19,710	19,807	19,758	19,764	19,778	19,795	19,822	19,851	19,838	19,828
General merchandise stores	2,473	2,535	2,534	2,527	2,542	2,519	2,529	2,505	2,495	2,493	2,487	2,496	2,494	2,491	2,482
Food stores	3,079	3,190	3,211	3,230	3,240	3,247	3,263	3,268	3,272	3,287	3,295	3,302	3,304	3,298	3,295
Automotive dealers and service stations	2,075	2,109	2,109	2,115	2,116	2,113	2,117	2,118	2,120	2,118	2,121	2,120	2,131	2,135	2,140
Eating and drinking places	6,286	6,449	6,476	6,491	6,511	6,523	6,538	6,556	6,563	6,573	6,583	6,598	6,619	6,613	6,623
Finance, insurance, and real estate	6,649	6,724	6,753	6,756	6,774	6,785	6,794	6,817	6,821	6,823	6,838	6,844	6,842	6,850	6,843
Finance	3,283	3,307	3,317	3,320	3,327	3,329	3,327	3,340	3,333	3,336	3,338	3,344	3,341	3,348	3,345
Insurance	2,079	2,103	2,111	2,109	2,114	2,119	2,124	2,128	2,135	2,135	2,139	2,143	2,147	2,151	2,151
Real estate	1,287	1,314	1,325	1,327	1,333	1,337	1,343	1,349	1,353	1,352	1,361	1,363	1,354	1,351	1,347
Services	25,669	27,096	27,335	27,408	27,548	27,623	27,721	27,842	27,950	27,969	28,094	28,225	28,287	28,386	28,407
Business services	4,669	4,931	4,980	4,970	4,990	4,986	4,993	5,010	5,021	5,026	5,048	5,060	5,051	5,053	5,037
Health services	7,121	7,551	7,648	7,690	7,743	7,789	7,837	7,889	7,936	7,984	8,040	8,096	8,132	8,194	8,239
Government	17,386	17,769	17,883	17,884	17,901	17,927	17,998	18,041	18,159	18,255	18,497	18,547	18,440	18,350	18,316
Federal	2,971	2,988	2,992	2,986	2,982	2,977	3,000	3,005	3,089	3,151	3,346	3,338	3,164	3,049	3,010
State	4,076	4,175	4,215	4,202	4,212	4,206	4,225	4,239	4,249	4,252	4,262	4,296	4,298	4,317	4,297
Local	10,339	10,606	10,676	10,696	10,707	10,744	10,773	10,797	10,821	10,852	10,889	10,913	10,978	10,984	11,009

^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 nonfarm payrolls by industry, monthly data seasonally adjusted

Industry	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
PRIVATE SECTOR	34.7	34.6	34.6	34.6	34.5	34.4	34.4	34.6	34.6	34.5	34.5	34.7	34.5	34.5	34.7
MINING	42.3	43.0	43.7	43.6	43.7	43.0	43.6	43.7	43.5	43.4	43.6	44.4	43.7	43.8	43.9
MANUFACTURING	41.1	41.0	40.9	40.8	40.7	40.6	40.7	40.8	40.8	40.7	40.9	41.0	40.9	41.0	41.0
Overtime hours	3.9	3.8	3.8	3.7	3.7	3.7	3.6	3.6	3.7	3.5	3.8	3.8	3.7	3.8	3.7
Durable goods	41.8	41.6	41.5	41.3	41.2	41.2	41.3	41.3	41.4	41.2	41.5	41.6	41.5	41.6	41.6
Overtime hours	4.1	3.9	3.8	3.7	3.7	3.7	3.6	3.6	3.8	3.5	3.9	3.9	3.8	3.9	3.8
Lumber and wood products	40.1	40.1	40.1	40.3	40.2	40.0	40.4	40.1	40.4	40.2	40.4	40.3	40.2	40.4	40.7
Furniture and fixtures	39.4	39.5	39.5	39.2	39.4	39.1	39.6	39.3	39.2	39.0	39.2	39.3	39.6	39.4	38.9
Stone, clay, and glass products	42.3	42.3	42.2	42.4	42.4	41.6	42.3	42.2	42.0	42.0	42.1	42.3	41.7	42.3	42.1
Primary metal industries	43.5	43.0	42.6	42.5	42.5	42.5	42.6	42.5	42.7	41.8	43.0	43.0	43.1	43.0	43.0
Blast furnaces and basic steel products	44.0	43.4	43.1	42.8	43.0	42.9	43.1	42.9	43.0	42.9	43.5	43.3	44.1	43.5	43.8
Fabricated metal products	41.9	41.6	41.5	41.4	41.3	41.2	41.1	41.4	41.5	41.2	41.7	41.6	41.7	41.6	41.5
Industrial machinery and equipment	42.7	42.4	42.2	42.1	42.2	42.1	42.1	42.0	41.8	42.1	42.0	42.0	42.1	42.1	42.1
Electronic and other electrical equipment	41.0	40.8	41.0	41.0	40.8	40.5	40.9	41.1	41.0	40.9	40.9	41.0	40.7	40.5	40.9
Transportation equipment	42.7	42.4	42.7	41.3	41.0	41.7	41.5	41.6	42.0	41.9	42.5	42.6	42.8	42.7	42.7
Motor vehicles and equipment	43.5	43.1	43.0	42.7	42.3	42.2	41.0	41.5	42.3	41.8	43.4	43.7	43.6	43.8	43.5
Instruments and related products	41.4	41.1	40.9	41.0	41.0	41.0	40.9	41.0	41.1	41.2	41.1	41.2	41.2	41.3	41.4
Miscellaneous manufacturing	39.2	39.4	39.2	39.3	39.7	39.3	39.5	39.5	39.4	39.2	39.4	39.4	39.5	39.8	39.9
Nondurable goods	40.2	40.2	40.2	40.1	40.1	40.0	40.0	40.0	40.0	40.0	40.1	40.3	40.1	40.2	40.1
Overtime hours	3.6	3.6	3.7	3.6	3.6	3.6	3.5	3.5	3.6	3.4	3.6	3.6	3.6	3.7	3.6
Food and kindred products	40.3	40.7	40.9	40.8	40.8	40.7	40.6	40.6	40.7	40.6	40.8	40.9	40.5	40.9	41.1
Textile mill products	41.0	40.9	40.6	40.6	40.4	40.2	40.3	40.2	40.0	40.0	40.2	40.4	40.2	39.9	39.7
Apparel and other textile products	37.0	36.9	36.8	36.9	36.8	36.4	36.6	36.6	36.3	36.4	36.6	36.7	36.6	36.6	36.7
Paper and allied products	43.3	43.3	43.2	43.3	43.4	43.2	43.2	43.1	43.2	43.3	43.3	43.5	43.5	43.5	42.9
Printing and publishing	38.0	37.9	38.0	37.8	37.9	37.7	37.9	37.9	38.0	37.8	37.9	38.0	38.0	38.2	38.0
Chemicals and allied products	42.2	42.4	42.5	42.5	42.4	42.6	42.7	42.4	42.5	42.6	42.6	42.6	42.4	42.5	42.7
Rubber and miscellaneous plastics products	41.7	41.4	41.1	41.1	41.1	40.9	40.8	41.2	41.4	40.9	41.4	41.6	41.5	41.3	41.3
Leather and leather products	37.5	37.9	38.2	37.7	37.6	37.4	37.4	37.7	37.7	37.5	37.4	37.5	37.4	37.7	37.4
TRANSPORTATION AND PUBLIC UTILITIES	38.8	38.9	38.8	38.8	38.6	38.6	38.3	38.7	39.0	39.0	39.1	39.2	39.0	39.0	39.3
WHOLESALE TRADE	38.1	38.0	38.1	38.1	38.1	38.1	38.0	38.0	38.1	38.1	38.0	38.1	38.1	38.1	38.1
RETAIL TRADE	29.1	28.9	28.9	28.9	28.8	28.8	28.8	28.9	29.0	29.0	29.0	29.0	28.9	28.7	28.9
SERVICES	32.6	32.6	32.6	32.7	32.6	32.6	32.5	32.6	32.5	32.6	32.5	32.6	32.6	32.5	32.8

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

15. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls by industry, seasonally adjusted

Industry	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
PRIVATE SECTOR (in current dollars)	\$9.28	\$9.66	\$9.73	\$9.78	\$9.78	\$9.83	\$9.82	\$9.88	\$9.93	\$9.96	\$9.98	\$10.03	\$10.07	\$10.08	\$10.14
Mining	12.80	13.25	13.31	13.32	13.32	13.40	13.33	13.33	13.51	13.59	13.58	13.73	13.79	13.72	13.75
Construction	13.08	13.52	13.56	13.61	13.66	13.76	13.55	13.63	13.66	13.62	13.71	13.73	13.76	13.78	13.85
Manufacturing	10.19	10.49	10.55	10.57	10.58	10.62	10.57	10.67	10.73	10.75	10.81	10.86	10.89	10.90	10.93
Excluding overtime	9.73	10.02	10.09	10.10	10.12	10.17	10.13	10.22	10.28	10.34	10.35	10.38	10.40	10.40	10.43
Transportation and public utilities	12.26	12.61	12.68	12.71	12.65	12.73	12.78	12.83	12.87	12.96	12.88	12.92	13.02	13.01	13.06
Wholesale trade	9.98	10.39	10.48	10.54	10.55	10.60	10.57	10.62	10.67	10.74	10.74	10.80	10.84	10.84	10.92
Retail trade	6.31	6.53	6.57	6.60	6.61	6.64	6.68	6.69	6.73	6.74	6.76	6.78	6.79	6.82	6.85
Finance, insurance, and real estate	9.06	9.54	9.65	9.72	9.66	9.75	9.73	9.77	9.82	9.88	9.87	9.98	10.08	10.04	10.14
Services	8.88	9.39	9.49	9.55	9.55	9.61	9.63	9.67	9.72	9.79	9.80	9.85	9.92	9.92	9.99
PRIVATE SECTOR (in constant (1982) dollars)	7.69	7.64	7.64	7.65	7.62	7.63	7.54	7.55	7.56	7.57	7.58	7.58	7.58	7.53	-

- Data not available.
^P = preliminary
NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

Current Labor Statistics: Employment Data

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

Industry	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
PRIVATE SECTOR	\$9.28	\$9.66	\$9.77	\$9.81	\$9.81	\$9.84	\$9.87	\$9.91	\$9.93	\$9.97	\$9.97	\$9.98	\$10.00	\$10.00	\$10.17
MINING	12.80	13.25	13.29	13.23	13.27	13.46	13.46	13.46	13.57	13.66	13.56	13.66	13.69	13.62	13.74
CONSTRUCTION	13.08	13.52	13.65	13.71	13.69	13.84	13.59	13.59	13.63	13.58	13.68	13.63	13.70	13.74	13.95
MANUFACTURING	10.19	10.49	10.56	10.54	10.59	10.68	10.60	10.68	10.75	10.75	10.81	10.85	10.88	10.82	10.94
Durable goods	10.71	11.01	11.11	11.07	11.11	11.19	11.06	11.18	11.25	11.22	11.33	11.37	11.38	11.35	11.49
Lumber and wood products	8.59	8.84	8.95	8.96	8.96	9.01	9.00	8.95	9.05	9.09	9.11	9.09	9.16	9.15	9.20
Furniture and fixtures	7.95	8.26	8.40	8.41	8.41	8.43	8.45	8.42	8.43	8.42	8.47	8.52	8.50	8.57	8.65
Stone, clay, and glass products	10.56	10.83	10.87	10.90	10.95	10.96	10.96	10.93	11.03	11.18	11.15	11.17	11.21	11.15	11.22
Primary metal industries	12.16	12.42	12.54	12.50	12.57	12.59	12.56	12.66	12.71	12.86	12.82	12.90	13.04	12.94	13.02
Blast furnaces and basic steel products	13.98	14.25	14.40	14.42	14.50	14.43	14.47	14.62	14.56	14.84	14.71	14.74	14.95	14.85	14.94
Fabricated metal products	10.29	10.57	10.68	10.61	10.65	10.72	10.60	10.70	10.75	10.65	10.79	10.85	10.86	10.84	10.95
Industrial machinery and equipment	11.08	11.40	11.46	11.48	11.53	11.62	11.55	11.60	11.64	11.55	11.70	11.75	11.78	11.80	11.92
Electronic and other electrical equipment	9.79	10.05	10.13	10.08	10.11	10.14	10.13	10.16	10.17	10.17	10.22	10.27	10.34	10.32	10.42
Transportation equipment	13.29	13.68	13.86	13.82	13.83	13.91	13.55	13.88	14.02	13.89	14.14	14.20	14.06	14.08	14.36
Motor vehicles and equipment	13.99	14.25	14.45	14.42	14.43	14.46	13.72	14.30	14.59	14.41	14.75	14.85	14.59	14.55	14.90
Instruments and related products	10.60	10.83	10.94	10.97	10.99	11.10	11.09	11.13	11.19	11.20	11.23	11.27	11.37	11.36	11.45
Miscellaneous manufacturing	8.00	8.29	8.36	8.36	8.47	8.57	8.57	8.56	8.59	8.56	8.59	8.61	8.60	8.60	8.63
Nondurable goods	9.45	9.75	9.81	9.81	9.87	9.96	9.97	9.97	10.04	10.10	10.10	10.12	10.20	10.12	10.19
Food and kindred products	9.12	9.38	9.37	9.33	9.43	9.56	9.53	9.54	9.61	9.61	9.63	9.67	9.68	9.54	9.57
Tobacco products	14.67	15.36	14.71	14.91	15.01	15.33	15.49	15.73	16.46	17.09	17.17	17.24	17.42	16.23	15.76
Textile mill products	7.38	7.67	7.74	7.76	7.80	7.85	7.90	7.90	7.94	7.91	7.98	8.02	8.01	8.04	8.09
Apparel and other textile products	6.12	6.35	6.41	6.39	6.43	6.45	6.40	6.45	6.53	6.56	6.60	6.61	6.59	6.64	6.70
Paper and allied products	11.69	11.96	12.04	12.01	12.10	12.13	12.11	12.11	12.11	12.25	12.25	12.23	12.36	12.29	12.39
Printing and publishing	10.53	10.88	11.07	11.06	11.07	11.09	11.12	11.13	11.17	11.12	11.17	11.16	11.25	11.29	11.41
Chemicals and allied products	12.71	13.09	13.20	13.27	13.28	13.32	13.34	13.27	13.34	13.53	13.46	13.51	13.58	13.55	13.63
Petroleum and coal products	14.97	15.41	15.41	15.60	15.62	15.75	15.87	15.90	16.11	16.31	16.13	16.23	16.22	16.01	16.35
Rubber and miscellaneous plastics products	9.19	9.47	9.50	9.50	9.54	9.64	9.65	9.64	9.68	9.66	9.75	9.77	9.85	9.78	9.86
Leather and leather products	6.28	6.60	6.65	6.65	6.68	6.74	6.82	6.84	6.87	6.94	6.92	6.91	6.79	6.84	6.94
TRANSPORTATION AND PUBLIC UTILITIES	12.26	12.61	12.73	12.74	12.71	12.76	12.79	12.87	12.83	12.96	12.82	12.86	12.99	12.97	13.11
WHOLESALE TRADE	9.98	10.39	10.48	10.51	10.56	10.63	10.61	10.66	10.66	10.78	10.73	10.76	10.82	10.77	10.92
RETAIL TRADE	6.31	6.53	6.59	6.61	6.63	6.65	6.73	6.72	6.74	6.75	6.75	6.75	6.74	6.75	6.87
FINANCE, INSURANCE, AND REAL ESTATE	9.06	9.54	9.60	9.70	9.67	9.73	9.80	9.87	9.84	9.97	9.90	9.90	10.00	9.94	10.09
SERVICES	8.88	9.39	9.49	9.58	9.61	9.68	9.72	9.75	9.76	9.82	9.77	9.75	9.79	9.77	9.99

^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 nonfarm payrolls by industry

Industry	Annual average		1989				1990								
	1988	1989	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
PRIVATE SECTOR															
Current dollars	\$322.02	\$334.24	\$339.02	\$341.39	\$338.45	\$340.46	\$336.57	\$338.92	\$340.60	\$342.97	\$342.97	\$347.30	\$349.00	\$348.00	\$353.92
Seasonally adjusted	-	-	336.66	338.39	337.41	338.15	337.81	341.85	343.58	343.62	344.31	348.04	347.42	347.76	351.86
Constant (1982) dollars	266.79	264.22	265.69	266.29	263.59	264.74	259.10	259.91	259.60	261.01	260.62	262.31	262.80	259.51	-
MINING	541.44	569.75	584.76	583.44	581.23	588.20	586.86	582.82	583.51	588.75	585.79	606.50	596.88	597.92	608.68
CONSTRUCTION	495.73	512.41	526.89	537.43	520.22	512.08	510.98	506.91	516.58	506.53	522.58	532.93	524.71	535.86	545.45
MANUFACTURING															
Current dollars	418.81	430.09	435.07	431.09	435.25	441.08	430.36	431.47	437.53	427.85	442.13	445.94	440.64	441.46	450.73
Constant (1982) dollars	346.98	339.99	340.96	336.26	338.98	342.99	331.30	330.88	333.48	325.61	335.97	336.81	331.81	329.20	-
Durable goods	447.68	458.02	463.29	458.30	461.07	468.86	455.67	458.38	465.75	452.17	470.20	474.13	466.58	467.62	479.13
Lumber and wood products	344.46	354.48	361.58	363.78	359.30	362.20	359.10	351.74	363.81	364.51	369.87	370.87	366.40	371.49	376.28
Furniture and fixtures	313.23	326.27	336.84	334.72	334.72	338.89	332.09	326.70	328.77	319.96	328.64	333.98	330.65	339.37	341.68
Stone, clay, and glass products	446.69	458.11	464.15	468.70	466.47	453.74	453.74	448.13	457.75	467.32	472.76	476.96	470.82	476.11	477.97
Primary metal industries	528.96	534.06	536.71	530.00	536.74	541.37	536.31	535.52	542.72	534.98	551.26	557.28	558.11	551.24	562.46
Blast furnaces and basic steel products	615.12	618.45	620.64	612.85	623.50	623.38	625.10	624.27	624.62	635.15	641.36	645.61	659.30	641.52	654.37
Fabricated metal products	431.15	439.71	445.36	440.32	445.17	450.24	435.86	439.77	446.13	426.00	448.86	453.53	444.17	447.69	456.62
Industrial machinery and equipment	473.12	483.36	484.76	482.16	488.87	499.66	487.41	487.20	490.04	468.93	491.40	494.68	490.05	490.88	503.02
Electronic and other electrical equipment	401.39	410.04	417.36	414.29	416.53	420.81	415.33	415.54	416.97	402.73	414.93	421.07	414.63	415.90	427.22
Transportation equipment	567.48	580.03	593.21	570.77	571.18	591.18	560.97	574.63	593.05	566.71	605.19	607.76	589.11	589.95	614.61
Motor vehicles and equipment	608.57	614.18	627.13	620.06	619.05	620.33	559.78	589.16	622.99	589.37	647.53	653.40	617.16	618.38	655.60
Instruments and related products	438.84	445.11	447.45	449.77	454.99	463.98	454.69	456.33	461.03	451.36	458.18	464.32	461.62	464.62	474.03
Miscellaneous manufacturing	313.60	326.63	328.55	331.89	340.49	342.80	336.80	335.55	338.45	326.99	337.59	340.10	333.68	340.56	344.34
Nondurable goods	379.89	391.95	397.31	395.34	398.75	402.38	396.81	394.81	399.59	395.92	404.00	407.84	406.98	407.84	412.70
Food and kindred products	367.54	381.77	388.86	383.46	388.52	394.83	384.06	379.69	385.36	382.48	391.94	395.50	393.01	394.96	400.03
Tobacco products	583.87	591.36	592.81	600.87	585.39	584.07	582.42	593.02	638.65	651.13	673.06	680.98	672.41	618.36	611.49
Textile mill products	302.58	313.70	317.34	317.38	318.24	317.93	316.79	314.42	316.01	308.49	320.00	325.61	318.00	323.21	325.22
Apparel and other textile products	226.44	234.32	236.53	237.07	238.55	236.72	232.32	234.78	236.39	230.91	240.90	243.91	239.22	243.69	246.56
Paper and allied products	506.18	517.87	526.15	521.23	528.77	532.51	525.57	518.31	519.52	520.63	529.20	530.78	533.95	530.93	537.73
Printing and publishing	400.14	412.35	425.09	419.17	422.87	424.75	418.11	419.60	425.58	415.89	419.99	419.62	424.13	432.41	439.29
Chemicals and allied products	536.36	555.02	561.00	562.65	567.06	575.42	569.62	561.32	566.95	576.38	570.70	575.53	571.72	571.81	582.00
Petroleum and coal products	664.67	682.66	684.20	705.12	699.78	715.05	698.28	699.60	712.06	725.80	712.95	759.56	725.03	701.24	724.31
Rubber and miscellaneous plastics products	383.22	392.06	392.35	392.35	394.00	399.10	393.72	394.28	399.78	387.37	403.65	407.41	402.87	401.96	409.19
Leather and leather products	235.50	250.14	254.03	252.04	250.50	254.77	253.70	255.13	256.25	252.62	259.50	263.96	253.95	259.92	259.56
TRANSPORTATION AND PUBLIC UTILITIES	475.69	490.53	495.20	496.86	491.88	493.81	483.46	494.21	496.52	504.14	498.70	506.68	511.81	509.72	516.53
WHOLESALE TRADE	380.24	394.82	399.29	401.48	402.34	406.07	401.06	402.95	404.01	410.72	407.74	411.03	414.41	410.34	417.14
RETAIL TRADE	183.62	188.72	190.45	191.03	189.62	194.85	189.11	190.18	192.09	195.75	194.40	197.78	200.18	198.45	198.54
FINANCE, INSURANCE, AND REAL ESTATE	325.25	341.53	341.76	350.17	344.25	346.39	348.88	352.36	350.30	359.92	351.45	354.42	362.00	354.86	365.26
SERVICES	289.49	306.11	308.43	314.22	312.33	314.60	314.93	315.90	316.22	320.13	315.57	318.83	323.07	320.46	326.67

- Data not available.

^P = preliminary

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

Current Labor Statistics: Employment Data

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 nonfarm payrolls, 356 industries												
Over 1-month span:												
1989	64.5	58.7	58.0	57.0	55.6	57.3	55.8	57.7	50.0	55.2	59.6	56.6
1990	55.6	58.6	53.7	49.9	55.8	49.9	50.8	47.3	44.0	-	-	-
Over 3-month span:												
1989	65.3	64.2	60.0	60.1	59.7	58.3	59.7	54.5	55.2	55.8	57.7	60.3
1990	58.4	56.7	54.8	53.1	53.7	55.3	51.1	45.4	-	-	-	-
Over 6-month span:												
1989	67.6	65.4	65.0	61.0	61.2	58.7	57.0	58.1	56.2	58.3	57.4	58.4
1990	57.3	56.5	55.5	55.9	52.0	48.6	-	-	-	-	-	-
Over 12-month span:												
1989	67.1	67.7	65.3	64.6	64.9	61.2	60.0	59.8	58.6	57.3	56.7	56.0
1990	54.8	53.8	52.9	-	-	-	-	-	-	-	-	-
Manufacturing payrolls, 139 industries												
Over 1-month span:												
1989	60.4	48.6	50.4	47.1	45.3	45.7	45.0	45.7	34.2	48.6	43.5	48.2
1990	42.4	45.7	45.3	46.8	45.7	40.3	48.2	41.0	35.6	-	-	-
Over 3-month span:												
1989	54.0	54.7	45.3	43.9	43.2	42.8	41.7	33.1	36.3	34.9	41.7	39.2
1990	40.3	37.1	44.2	41.4	40.6	44.2	40.6	32.7	-	-	-	-
Over 6-month span:												
1989	56.5	49.6	49.3	43.5	42.1	37.1	36.7	34.9	34.2	35.3	33.1	36.0
1990	37.1	35.6	36.3	43.2	38.8	32.7	-	-	-	-	-	-
Over 12-month span:												
1989	53.6	55.0	49.3	45.3	43.9	39.9	37.1	35.6	33.8	32.4	30.9	31.7
1990	31.3	30.9	30.2	-	-	-	-	-	-	-	-	-

- 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	105,536	108,413
Private sector	75,126	73,729	74,330	78,472	81,125	82,832	85,190	88,150	90,644
Goods-producing	25,497	23,813	23,334	24,727	24,859	24,553	24,708	25,173	25,326
Mining	1,139	1,128	952	966	927	777	717	713	700
Construction	4,188	3,905	3,948	4,383	4,673	4,816	4,967	5,110	5,200
Manufacturing	20,170	18,781	18,434	19,378	19,260	18,965	19,024	19,350	19,426
Service-producing	65,659	65,753	66,866	69,769	72,660	74,967	77,492	80,363	83,087
Transportation and public utilities	5,165	5,082	4,954	5,159	5,238	5,255	5,372	5,527	5,648
Wholesale trade	5,376	5,296	5,286	5,574	5,736	5,774	5,865	6,055	6,271
Retail trade	15,172	15,161	15,595	16,526	17,336	17,909	18,462	19,077	19,580
Finance, insurance, and real estate	5,298	5,341	5,468	5,689	5,955	6,283	6,547	6,649	6,724
Services	18,619	19,036	19,694	20,797	21,999	23,053	24,235	25,669	27,096
Government	16,031	15,837	15,869	16,024	16,394	16,693	17,010	17,386	17,769
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	4,076	4,175
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 nonfarm 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	34.6
Average hourly earnings (in dollars)	7.25	7.68	8.02	8.32	8.57	8.76	8.98	9.28	9.66
Average weekly earnings (in dollars)	255.20	267.26	280.70	292.86	299.09	304.85	312.50	322.02	334.24
Mining:									
Average weekly hours	43.7	42.7	42.5	43.3	43.4	42.2	42.4	42.3	43.0
Average hourly earnings (in dollars)	10.04	10.77	11.28	11.63	11.98	12.46	12.54	12.80	13.25
Average weekly earnings (in dollars)	438.75	459.88	479.40	503.58	519.93	525.81	531.70	541.44	569.75
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	13.08	13.52
Average weekly earnings (in dollars)	399.26	426.82	442.97	458.51	464.46	466.75	480.44	495.73	512.41
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	10.19	10.49
Average weekly earnings (in dollars)	318.00	330.26	354.08	374.03	386.37	396.01	406.31	418.81	430.09
Transportation and public utilities:									
Average weekly hours	39.4	39.0	39.0	39.4	39.5	39.2	39.2	38.8	38.9
Average hourly earnings (in dollars)	9.70	10.32	10.79	11.12	11.40	11.70	12.03	12.26	12.61
Average weekly earnings (in dollars)	382.18	402.48	420.81	438.13	450.30	458.64	471.58	475.69	490.53
Wholesale trade:									
Average weekly hours	38.5	38.3	38.5	38.5	38.4	38.3	38.1	38.1	38.0
Average hourly earnings (in dollars)	7.55	8.08	8.54	8.88	9.15	9.34	9.59	9.98	10.39
Average weekly earnings (in dollars)	290.75	309.23	328.25	341.78	351.08	357.57	365.30	380.24	394.82
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	6.53
Average weekly earnings (in dollars)	157.99	163.83	171.13	174.47	174.81	175.80	178.80	183.62	188.72
Finance, insurance, and real estate:									
Average weekly hours	36.3	36.2	36.2	36.5	36.4	36.4	36.3	35.9	35.8
Average hourly earnings (in dollars)	6.31	6.78	7.29	7.63	7.94	8.36	8.73	9.06	9.54
Average weekly earnings (in dollars)	228.73	245.68	263.68	278.04	289.20	304.49	316.37	325.25	341.53
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	8.88	9.39
Average weekly earnings (in dollars)	209.16	225.87	239.04	247.25	256.49	265.93	276.03	289.49	306.11

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

(June 1989=100)

Series	1988			1989				1990		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1990	
Civilian workers²	95.4	96.7	97.7	98.9	100.0	101.6	102.6	104.3	105.4	1.1	5.4
Workers, by occupational group:											
White-collar workers	95.0	96.4	97.6	99.0	100.0	102.0	102.9	104.6	105.8	1.1	5.8
Professional specialty and technical	-	-	-	-	100.0	102.6	103.7	105.5	106.3	.8	6.3
Executive, administrative, and managerial	-	-	-	-	100.0	101.2	101.9	104.0	105.4	1.3	5.4
Administrative support, including clerical	-	-	-	-	100.0	101.4	102.5	104.4	105.4	1.0	5.4
Blue-collar workers	96.4	97.1	97.8	98.8	100.0	101.1	102.0	103.6	104.8	1.2	4.8
Service occupations	95.4	97.4	98.2	99.2	100.0	101.7	102.8	104.2	105.1	.9	5.1
Workers, by industry division:											
Goods-producing	96.5	97.1	97.9	98.9	100.0	101.1	102.1	103.9	105.2	1.3	5.2
Manufacturing	96.2	96.9	97.6	98.9	100.0	101.1	102.0	104.0	105.3	1.3	5.3
Service-producing	94.9	96.5	97.6	99.0	100.0	102.0	102.9	104.4	105.5	1.1	5.5
Services	94.3	96.7	97.9	99.2	100.0	102.7	103.7	105.5	106.6	1.0	6.6
Health services	94.2	95.8	97.0	98.9	100.0	102.2	103.9	105.9	107.1	1.1	7.1
Hospitals	93.9	95.6	96.9	98.7	100.0	102.3	103.7	105.6	106.7	1.0	6.7
Educational services	-	-	-	99.5	100.0	104.1	104.8	106.0	106.6	.6	6.6
Public administration ³	95.8	97.5	97.8	99.2	100.0	102.5	103.2	105.1	105.5	.4	5.5
Nonmanufacturing	95.2	96.6	97.7	99.0	100.0	101.9	102.8	104.3	105.5	1.2	5.5
Private industry workers	95.7	96.6	97.6	98.8	100.0	101.2	102.3	103.9	105.2	1.3	5.2
Excluding sales occupations	95.9	96.9	97.7	99.0	100.0	101.2	102.1	103.9	105.1	1.2	5.1
Workers, by occupational group:											
White-collar workers	95.1	96.2	97.3	98.9	100.0	101.4	102.4	104.1	105.5	1.3	5.5
Excluding sales occupations	95.5	96.7	97.5	99.0	100.0	101.3	102.2	104.2	105.4	1.2	5.4
Professional specialty and technical occupations	95.4	96.9	97.5	99.0	100.0	101.8	102.9	104.9	105.8	.9	5.8
Executive, administrative, and managerial occupations	95.7	96.6	97.8	99.1	100.0	100.9	101.5	103.7	105.3	1.5	5.3
Sales occupations	93.6	94.1	96.3	98.3	100.0	101.9	103.3	103.6	105.6	1.9	5.6
Administrative support occupations, including clerical	95.3	96.6	97.3	98.9	100.0	101.2	102.3	104.2	105.3	1.1	5.3
Blue-collar workers	96.4	97.1	97.9	98.8	100.0	101.1	101.9	103.5	104.7	1.2	4.7
Precision production, craft, and repair occupations	96.8	97.3	98.0	98.7	100.0	101.2	102.0	103.4	104.7	1.3	4.7
Machine operators, assemblers, and inspectors	95.8	96.5	97.6	98.9	100.0	100.9	101.8	103.7	105.0	1.3	5.0
Transportation and material moving occupations	97.0	97.9	98.2	99.0	100.0	101.2	101.4	103.1	104.3	1.2	4.3
Handlers, equipment cleaners, helpers, and laborers	96.2	97.0	97.7	98.8	100.0	101.3	102.2	103.6	104.7	1.1	4.7
Service occupations	95.6	97.1	98.2	99.2	100.0	101.1	102.5	103.9	104.9	1.0	4.9
Production and nonsupervisory occupations ⁴	95.5	96.6	97.5	98.8	100.0	101.4	102.4	103.8	105.1	1.3	5.1
Workers, by industry division:											
Goods-producing	96.5	97.1	97.9	98.9	100.0	101.1	102.1	103.9	105.2	1.3	5.2
Excluding sales occupations	96.5	97.1	97.9	98.9	100.0	101.1	102.2	103.9	105.1	1.2	5.1
White-collar occupations	96.4	97.2	97.8	99.0	100.0	101.2	101.9	104.1	105.3	1.2	5.3
Excluding sales occupations	96.4	97.1	97.7	99.0	100.0	101.2	102.0	103.9	105.2	1.3	5.2
Blue-collar occupations	96.6	97.1	98.0	98.9	100.0	101.1	102.3	103.9	105.1	1.2	5.1
Service occupations	95.7	96.2	97.0	98.9	100.0	100.9	102.2	104.0	104.4	.4	4.4
Construction	96.4	97.2	98.0	99.0	100.0	101.2	102.4	103.1	104.3	1.2	4.3
Manufacturing	96.2	96.9	97.6	98.9	100.0	101.1	102.0	104.0	105.3	1.3	5.3
White-collar occupations	96.4	97.1	97.7	99.0	100.0	101.1	101.9	104.1	105.3	1.2	5.3
Excluding sales occupations	96.3	97.1	97.7	99.0	100.0	101.1	101.9	104.0	105.1	1.1	5.1
Blue-collar occupations	96.1	96.7	97.6	98.8	100.0	101.1	102.1	104.0	105.2	1.2	5.2
Service occupations	95.9	96.4	97.3	98.8	100.0	100.8	102.1	104.1	104.5	.4	4.5
Durables	96.5	97.0	97.7	99.0	100.0	101.1	102.2	104.0	105.1	1.1	5.1
Nondurables	95.6	96.5	97.5	98.8	100.0	101.2	101.9	104.1	105.5	1.3	5.5
Service-producing	95.1	96.2	97.3	98.8	100.0	101.3	102.3	103.8	105.2	1.3	5.2
Excluding sales occupations	95.4	96.7	97.5	98.9	100.0	101.2	102.1	103.9	105.1	1.2	5.1
White-collar occupations	94.7	95.9	97.2	98.8	100.0	101.4	102.6	104.2	105.5	1.2	5.5
Excluding sales occupations	95.1	96.6	97.5	99.0	100.0	101.4	102.3	104.4	105.6	1.1	5.6
Blue-collar occupations	96.2	97.1	97.5	98.7	100.0	101.1	101.1	102.6	103.9	1.3	3.9
Service occupations	95.6	97.1	98.4	99.3	100.0	101.1	102.5	103.9	105.0	1.1	5.0
Transportation and public utilities	96.8	97.5	97.5	98.7	100.0	100.7	101.2	103.0	103.3	.3	3.3
Transportation	96.9	97.6	97.3	98.8	100.0	100.5	100.8	102.8	103.0	.2	3.0
Public utilities	96.7	97.3	97.7	98.8	100.0	101.0	101.7	103.2	103.8	.6	3.8
Communications	96.9	97.5	97.5	98.5	100.0	101.0	101.6	103.1	103.1	.0	3.1
Electric, gas, and sanitary services	96.7	97.1	98.0	99.2	100.0	101.0	101.7	103.2	104.6	1.4	4.6
Wholesale and retail trade	95.8	96.8	97.6	98.9	100.0	101.6	102.6	103.5	105.0	1.4	5.0
Excluding sales occupations	96.2	97.3	98.2	99.2	100.0	101.3	102.0	103.0	104.5	1.5	4.5
Wholesale trade	94.7	95.6	96.1	98.5	100.0	102.6	104.5	104.8	105.4	.6	5.4
Excluding sales occupations	96.2	97.2	97.7	98.9	100.0	101.8	102.6	103.7	105.0	1.3	5.0
Retail trade	96.3	97.3	98.4	99.1	100.0	101.1	101.6	103.0	104.8	1.7	4.8
Food stores	96.8	97.1	98.2	99.8	100.0	100.8	101.7	103.2	104.6	1.4	4.6
General merchandise stores	97.2	98.5	99.6	100.5	100.0	100.4	101.5	102.6	105.7	3.0	5.7

See footnotes at end of table.

Current Labor Statistics: Compensation & Industrial Relations

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

(June 1989=100)

Series	1988			1989				1990		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1990	
Finance, insurance, and real estate	92.8	92.9	96.2	98.3	100.0	100.4	101.4	102.6	104.4	1.8	4.4
Excluding sales occupations	94.6	95.4	97.1	98.5	100.0	100.1	101.0	103.5	104.7	1.2	4.7
Banking, savings and loan, and other credit agencies	96.0	97.0	97.8	98.8	100.0	100.6	100.7	102.1	104.1	2.0	4.1
Insurance	95.0	95.8	97.0	98.3	100.0	99.9	101.0	103.2	105.2	1.9	5.2
Services	94.5	96.4	97.5	99.0	100.0	101.8	102.9	105.0	106.5	1.4	6.5
Business services	94.9	96.2	97.2	98.1	100.0	100.7	101.3	103.6	105.3	1.6	5.3
Health services	94.1	95.6	97.0	98.9	100.0	101.9	103.7	105.8	107.1	1.2	7.1
Hospitals	93.6	95.2	96.6	98.8	100.0	101.9	103.5	105.4	106.6	1.1	6.6
Educational services	-	-	98.3	99.1	100.0	103.9	104.2	105.4	105.9	.5	5.9
Colleges and universities	-	-	98.2	99.0	100.0	103.3	103.8	105.2	105.7	.5	5.7
Nonmanufacturing	95.4	96.5	97.5	98.8	100.0	101.3	102.3	103.8	105.1	1.3	5.1
White-collar occupations	94.8	95.9	97.2	98.8	100.0	101.4	102.6	104.1	105.5	1.3	5.5
Excluding sales occupations	95.3	96.6	97.5	99.0	100.0	101.4	102.3	104.3	105.6	1.2	5.6
Blue-collar occupations	96.8	97.6	98.1	98.8	100.0	101.1	101.7	102.9	104.1	1.2	4.1
Service occupations	95.6	97.1	98.3	99.2	100.0	101.0	102.4	103.9	105.0	1.1	5.0
State and local government workers	94.5	97.1	98.2	99.4	100.0	103.3	104.3	105.8	106.5	.7	6.5
Workers, by occupational group:											
White-collar workers	94.3	97.0	98.3	99.5	100.0	103.6	104.6	106.1	106.7	.6	6.7
Professional specialty and technical	-	-	-	-	100.0	103.8	104.7	106.4	107.0	.6	7.0
Executive, administrative, and managerial	-	-	-	-	100.0	103.1	104.1	105.7	106.4	.7	6.4
Administrative support, including clerical	-	-	-	-	100.0	102.9	103.9	105.4	106.0	.6	6.0
Blue-collar workers	95.4	97.0	97.5	99.3	100.0	102.1	103.7	105.5	106.3	.8	6.3
Workers, by industry division:											
Services	94.0	97.0	98.5	99.5	100.0	103.8	104.7	106.1	106.8	.7	6.8
Services excluding schools ⁵	94.8	96.5	97.8	99.1	100.0	102.5	103.2	105.4	106.4	.9	6.4
Health services	94.4	96.5	97.3	98.8	100.0	103.1	104.2	106.2	106.9	.7	6.9
Hospitals	94.8	97.0	97.6	98.6	100.0	103.2	104.5	106.0	107.0	.9	7.0
Educational services	-	-	-	99.5	100.0	104.1	104.9	106.2	106.8	.6	6.8
Schools	93.7	97.2	98.7	99.6	100.0	104.4	105.3	106.4	106.9	.5	6.9
Elementary and secondary	93.8	97.4	99.1	99.6	100.0	104.6	105.5	106.5	107.1	.6	7.1
Colleges and universities	-	-	-	99.6	100.0	103.4	104.7	106.1	106.3	.2	6.3
Public administration ³	95.8	97.5	97.8	99.2	100.0	102.5	103.2	105.1	105.5	.4	5.5

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 This series has the same industry and occupational coverage as the Hourly Earnings Index, which was discontinued in January 1989.

⁵ Includes, for example, library, social, and health services.

- Data not available.

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

(June 1989=100)

Series	1988			1989			1990			Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1990	June 1990
Civilian workers ¹	95.9	97.2	98.1	99.2	100.0	101.6	102.4	103.6	104.7	1.1	4.7
Workers, by occupational group:											
White-collar workers	95.5	96.9	98.0	99.2	100.0	101.9	102.8	104.1	105.2	1.1	5.2
Professional specialty and technical	-	-	-	-	100.0	102.5	103.3	104.8	105.5	.7	5.5
Executive, administrative, and managerial	-	-	-	-	100.0	101.1	101.8	103.6	105.0	1.4	5.0
Administrative support, including clerical	-	-	-	-	100.0	101.4	102.4	103.7	104.7	1.0	4.7
Blue-collar workers	96.8	97.4	98.1	99.0	100.0	101.0	101.7	102.8	103.9	1.1	3.9
Service occupations	96.2	97.9	98.7	99.4	100.0	101.4	102.5	103.4	104.2	.8	4.2
Workers, by industry division:											
Goods-producing	96.9	97.4	98.1	99.0	100.0	100.9	101.9	103.1	104.2	1.1	4.2
Manufacturing	96.8	97.3	98.1	99.0	100.0	100.9	101.9	103.3	104.5	1.2	4.5
Service-producing	95.4	97.0	98.0	99.2	100.0	101.8	102.7	103.8	104.9	1.1	4.9
Services	94.9	97.2	98.3	99.4	100.0	102.5	103.3	104.8	105.9	1.0	5.9
Health services	94.4	96.1	97.4	99.0	100.0	102.0	103.5	105.3	106.2	.9	6.2
Hospitals	94.3	96.0	97.3	98.9	100.0	102.2	103.5	105.0	106.0	1.0	6.0
Educational services	-	-	-	99.5	100.0	103.8	104.4	105.4	105.8	.4	5.8
Public administration ²	96.4	98.1	98.4	99.4	100.0	102.1	102.8	104.3	104.6	.3	4.6
Nonmanufacturing	95.6	97.1	98.0	99.2	100.0	101.8	102.6	103.7	104.8	1.1	4.8
Private industry workers	96.1	97.0	98.0	99.0	100.0	101.2	102.0	103.2	104.5	1.3	4.5
Excluding sales occupations	96.3	97.3	98.0	99.1	100.0	101.1	101.9	103.2	104.4	1.2	4.4
Workers, by occupational group:											
White-collar workers	95.6	96.7	97.8	99.0	100.0	101.4	102.4	103.6	104.9	1.3	4.9
Excluding sales occupations	95.9	97.1	98.0	99.2	100.0	101.2	102.1	103.7	104.8	1.1	4.8
Professional specialty and technical occupations	95.9	97.4	97.9	99.3	100.0	101.6	102.5	104.1	104.8	.7	4.8
Executive, administrative, and managerial occupations	95.9	96.7	98.0	99.3	100.0	100.8	101.5	103.3	104.9	1.5	4.9
Sales occupations	94.3	94.8	96.9	98.6	100.0	102.1	103.7	103.3	105.3	1.9	5.3
Administrative support occupations, including clerical	95.8	97.2	97.8	99.1	100.0	101.1	102.2	103.6	104.7	1.1	4.7
Blue-collar workers	96.8	97.4	98.2	99.0	100.0	101.0	101.6	102.7	103.8	1.1	3.8
Precision production, craft, and repair occupations	96.8	97.2	97.9	98.8	100.0	101.0	101.6	102.5	103.6	1.1	3.6
Machine operators, assemblers, and inspectors	96.5	97.1	98.1	99.0	100.0	100.6	101.6	103.0	104.2	1.2	4.2
Transportation and material moving occupations	97.4	98.4	98.6	99.3	100.0	101.2	101.2	102.0	103.1	1.1	3.1
Handlers, equipment cleaners, helpers, and laborers	96.9	97.6	98.3	99.1	100.0	101.1	102.0	103.0	104.4	1.4	4.4
Service occupations	96.4	97.7	98.7	99.4	100.0	100.9	102.3	103.1	104.2	1.1	4.2
Production and nonsupervisory occupations ³	96.0	97.0	97.9	99.0	100.0	101.3	102.2	103.2	104.3	1.1	4.3
Workers, by industry division:											
Goods-producing	96.9	97.5	98.2	99.1	100.0	101.0	102.0	103.1	104.2	1.1	4.2
Excluding sales occupations	96.9	97.4	98.2	99.1	100.0	101.0	102.0	103.0	104.2	1.2	4.2
White-collar occupations	96.9	97.6	98.3	99.2	100.0	101.0	101.9	103.5	104.6	1.1	4.6
Excluding sales occupations	96.9	97.6	98.2	99.2	100.0	101.0	102.0	103.3	104.4	1.1	4.4
Blue-collar occupations	96.9	97.3	98.1	99.0	100.0	101.0	101.9	102.9	104.1	1.2	4.1
Service occupations	96.8	96.9	97.8	99.0	100.0	100.7	101.9	102.7	103.0	.3	3.0
Construction	97.0	97.7	98.3	99.1	100.0	101.1	101.7	102.0	102.9	.9	2.9
Manufacturing	96.8	97.3	98.1	99.0	100.0	100.9	101.9	103.3	104.5	1.2	4.5
White-collar occupations	96.9	97.5	98.2	99.2	100.0	100.9	101.8	103.7	104.7	1.0	4.7
Excluding sales occupations	96.8	97.4	98.0	99.1	100.0	100.9	101.9	103.4	104.4	1.0	4.4
Blue-collar occupations	96.8	97.2	98.1	98.9	100.0	100.9	102.0	103.1	104.4	1.3	4.4
Service occupations	97.0	97.2	98.1	98.9	100.0	100.7	102.0	102.9	103.2	.3	3.2
Durables	96.9	97.4	98.0	99.0	100.0	100.7	101.9	103.2	104.3	1.1	4.3
Nondurables	96.5	97.2	98.2	99.0	100.0	101.1	101.8	103.6	104.8	1.2	4.8
Service-producing	95.5	96.7	97.8	99.1	100.0	101.4	102.2	103.3	104.6	1.3	4.6
Excluding sales occupations	95.8	97.1	98.0	99.2	100.0	101.2	101.8	103.4	104.5	1.1	4.5
White-collar occupations	95.1	96.3	97.5	99.0	100.0	101.5	102.5	103.6	105.0	1.4	5.0
Excluding sales occupations	95.5	96.9	97.9	99.2	100.0	101.3	102.1	103.8	105.0	1.2	5.0
Blue-collar occupations	96.7	97.5	98.0	99.0	100.0	100.9	100.9	102.1	103.3	1.2	3.3
Service occupations	96.3	97.7	98.8	99.4	100.0	100.8	102.3	103.2	104.3	1.1	4.3
Transportation and public utilities	97.9	98.7	98.6	99.5	100.0	100.7	101.2	102.6	103.2	.6	3.2
Transportation	98.2	99.0	98.7	99.4	100.0	100.6	100.7	102.3	102.3	.0	2.3
Public utilities	97.6	98.3	98.7	99.5	100.0	101.1	101.8	103.0	104.1	1.1	4.1
Communications	98.1	98.9	99.0	99.9	100.0	101.1	101.8	103.1	104.1	1.0	4.1
Electric, gas, and sanitary services	96.9	97.3	98.2	99.0	100.0	101.0	101.7	103.0	104.2	1.2	4.1

See footnotes at end of table.

Current Labor Statistics: Compensation & Industrial Relations

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

(June 1989 = 100)

Series	1988			1989				1990		Percent change		
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended	
	June 1990											
Wholesale and retail trade	96.2	97.2	97.9	99.1	100.0	101.6	102.7	103.3	104.6	1.3	4.6	
Excluding sales occupations	96.6	97.5	98.4	99.4	100.0	101.1	101.9	102.6	104.2	1.6	4.2	
Wholesale trade	95.1	96.1	96.4	99.0	100.0	102.8	105.2	104.6	105.2	.6	5.2	
Excluding sales occupations	96.7	97.7	98.3	99.2	100.0	101.7	102.5	103.2	104.7	1.5	4.7	
Retail trade	96.6	97.7	98.5	99.1	100.0	101.0	101.6	102.7	104.4	1.7	4.4	
Food stores	97.8	98.2	99.0	100.0	100.0	100.4	101.7	102.8	104.3	1.5	4.3	
General merchandise stores	95.6	97.0	98.2	99.2	100.0	100.3	101.4	102.4	105.2	2.7	5.2	
Finance, insurance, and real estate	92.9	92.9	96.3	98.3	100.0	100.6	101.3	101.8	103.5	1.7	3.5	
Excluding sales occupations	94.5	95.3	97.1	98.4	100.0	100.2	100.9	103.0	103.9	.9	3.9	
Banking, savings and loan, and other credit agencies	96.0	97.0	97.8	98.8	100.0	101.1	100.9	101.6	103.6	2.0	3.6	
Insurance	95.4	96.2	97.4	98.5	100.0	99.6	100.8	102.3	104.1	1.8	4.1	
Services	94.9	96.9	97.8	99.1	100.0	101.6	102.5	104.2	105.7	1.4	5.7	
Business services	95.1	96.5	97.4	98.4	100.0	100.9	101.2	103.0	105.1	2.0	5.1	
Health services	94.4	96.0	97.3	99.1	100.0	101.9	103.5	105.3	106.3	.9	6.3	
Hospitals	94.0	95.6	96.9	98.9	100.0	101.9	103.3	105.0	106.0	1.0	6.0	
Educational services	-	-	-	98.8	99.1	100.0	103.7	103.9	104.7	105.0	.3	5.0
Colleges and universities	-	-	98.7	99.1	100.0	103.3	103.7	104.4	104.8	.4	4.8	
Nonmanufacturing	95.8	96.9	97.8	99.1	100.0	101.4	102.2	103.2	104.5	1.3	4.5	
White-collar occupations	95.2	96.4	97.6	99.1	100.0	101.5	102.5	103.6	105.0	1.4	5.0	
Excluding sales occupations	95.6	97.0	97.9	99.2	100.0	101.3	102.0	103.8	105.0	1.2	5.0	
Blue-collar occupations	96.9	97.7	98.1	99.0	100.0	101.0	101.3	102.2	103.2	1.0	3.2	
Service occupations	96.3	97.7	98.8	99.4	100.0	100.8	102.3	103.2	104.3	1.1	4.3	
State and local government workers	95.2	97.7	98.7	99.5	100.0	103.1	103.9	105.1	105.7	.6	5.7	
Workers, by occupational group:												
White-collar workers	95.0	97.6	98.8	99.6	100.0	103.4	104.2	105.5	106.0	.5	6.0	
Professional specialty and technical	-	-	-	-	100.0	103.7	104.4	105.8	106.3	.5	6.3	
Executive, administrative, and managerial	-	-	-	-	100.0	102.8	103.7	104.9	105.7	.8	5.7	
Administrative support, including clerical	-	-	-	-	100.0	102.4	103.0	104.4	104.8	.4	4.8	
Blue-collar workers	96.1	97.8	98.2	99.5	100.0	101.9	103.3	104.3	105.3	1.0	5.3	
Workers, by industry division:												
Services	94.9	97.7	98.9	99.6	100.0	103.6	104.3	105.5	106.0	.5	6.0	
Services excluding schools ⁴	95.5	97.3	98.2	99.1	100.0	102.5	103.0	105.4	106.4	.9	6.4	
Health services	94.4	96.7	97.7	98.9	100.0	102.7	103.7	105.5	106.1	.6	6.1	
Hospitals	94.8	97.0	97.9	98.7	100.0	102.9	103.8	105.0	105.9	.9	5.9	
Educational services	-	-	-	99.6	100.0	103.8	104.5	105.5	106.0	.5	6.0	
Schools	94.6	97.7	99.1	99.7	100.0	104.0	104.7	105.5	105.9	.4	5.9	
Elementary and secondary	94.5	97.8	99.3	99.7	100.0	104.2	104.9	105.5	105.9	.4	5.9	
Colleges and universities	-	-	-	99.6	100.0	102.9	104.1	105.6	105.9	.3	5.9	
Public administration ²	96.4	98.1	98.4	99.4	100.0	102.1	102.8	104.3	104.6	.3	4.6	

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

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

³ This series has the same industry and occupational coverage as the Hourly

Earnings Index, which was discontinued in January 1989.

⁴ 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 1989 = 100)

Series	1988			1989				1990		Percent change	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
	June 1990										
Private industry workers	94.7	95.7	96.7	98.4	100.0	101.4	102.6	105.5	106.9	1.3	6.9
Workers, by occupational group:											
White-collar workers	94.0	95.0	96.2	98.3	100.0	101.4	102.6	105.6	107.1	1.4	7.1
Blue-collar workers	95.7	96.5	97.4	98.6	100.0	101.4	102.6	105.2	106.6	1.3	6.6
Workers, by industry group:											
Goods-producing	95.7	96.5	97.3	98.7	100.0	101.5	102.6	105.7	107.2	1.4	7.2
Service-producing	93.8	94.9	96.1	98.2	100.0	101.4	102.6	105.3	106.6	1.2	6.6
Manufacturing	94.9	95.8	96.6	98.8	100.0	101.6	102.3	105.5	106.9	1.3	6.9
Nonmanufacturing	94.5	95.5	96.8	98.2	100.0	101.4	102.8	105.4	106.9	1.4	6.9

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

(June 1989=100)

Series	1988			1989			1990		Percent change		
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	3 months ended	12 months ended
										June 1990	
COMPENSATION											
Workers, by bargaining status¹											
Union	97.0	97.7	98.2	99.0	100.0	100.9	101.8	103.3	104.1	0.8	4.1
Goods-producing	97.1	97.7	98.4	98.9	100.0	100.9	101.9	103.3	104.5	1.2	4.5
Service-producing	96.9	97.6	97.9	99.1	100.0	100.8	101.7	103.2	103.6	.4	3.6
Manufacturing	96.4	97.0	97.8	99.0	100.0	100.8	102.0	103.6	104.7	1.1	4.7
Nonmanufacturing	97.5	98.3	98.5	98.9	100.0	100.8	101.6	103.0	103.7	.7	3.7
Nonunion	95.3	96.3	97.4	98.8	100.0	101.4	102.4	104.1	105.5	1.3	5.5
Goods-producing	96.2	96.9	97.7	98.9	100.0	101.3	102.3	104.2	105.5	1.2	5.5
Service-producing	94.7	95.9	97.2	98.7	100.0	101.5	102.4	103.9	105.5	1.5	5.5
Manufacturing	96.1	96.8	97.6	98.8	100.0	101.2	102.1	104.2	105.5	1.2	5.5
Nonmanufacturing	94.9	96.0	97.3	98.8	100.0	101.4	102.4	104.0	105.4	1.3	5.4
Workers, by region¹											
Northeast	93.8	95.0	96.7	98.7	100.0	101.8	102.9	104.4	105.3	.9	5.3
South	96.7	97.4	98.1	99.0	100.0	101.2	102.2	104.0	105.7	1.6	5.7
Midwest (formerly North Central)	96.2	97.0	97.9	98.9	100.0	101.0	101.9	103.5	104.8	1.3	4.8
West	96.3	97.0	97.7	98.8	100.0	101.0	101.8	103.3	104.5	1.2	4.5
Workers, by area size¹											
Metropolitan areas	95.3	96.3	97.4	98.8	100.0	101.4	102.2	103.9	105.1	1.2	5.1
Other areas	98.0	98.5	98.9	99.4	100.0	100.8	102.0	103.6	105.2	1.5	5.2
WAGES AND SALARIES											
Workers, by bargaining status¹											
Union	97.5	98.2	98.5	99.2	100.0	100.6	101.6	102.6	103.3	.7	3.3
Goods-producing	97.2	97.8	98.4	99.0	100.0	100.6	101.6	102.3	103.5	1.2	3.5
Service-producing	97.8	98.8	98.8	99.6	100.0	100.7	101.7	102.9	103.1	.2	3.1
Manufacturing	97.0	97.5	98.3	99.0	100.0	100.5	101.7	102.6	103.8	1.2	3.8
Nonmanufacturing	97.9	98.8	98.8	99.4	100.0	100.7	101.5	102.5	103.0	.5	3.0
Nonunion	95.6	96.6	97.7	99.0	100.0	101.3	102.1	103.4	104.8	1.4	4.8
Goods-producing	96.8	97.3	98.1	99.1	100.0	101.1	102.1	103.5	104.5	1.0	4.5
Service-producing	95.1	96.3	97.6	98.9	100.0	101.4	102.2	103.4	104.9	1.5	4.9
Manufacturing	96.7	97.2	98.0	98.9	100.0	101.0	102.0	103.6	104.8	1.2	4.8
Nonmanufacturing	95.3	96.4	97.7	99.0	100.0	101.4	102.3	103.3	104.8	1.5	4.8
Workers, by region¹											
Northeast	94.0	95.1	96.9	98.7	100.0	101.8	102.9	104.0	104.8	.8	4.8
South	97.2	97.9	98.4	99.2	100.0	101.2	102.1	103.5	105.2	1.6	5.2
Midwest (formerly North Central)	96.5	97.4	98.2	99.1	100.0	100.8	101.6	102.6	103.7	1.1	3.7
West	96.7	97.7	98.2	99.1	100.0	100.8	101.4	102.5	104.0	1.5	4.0
Workers, by area size¹											
Metropolitan areas	95.7	96.7	97.8	99.0	100.0	101.3	102.1	103.3	104.4	1.1	4.4
Other areas	98.4	98.7	98.9	99.6	100.0	100.7	101.9	103.0	104.6	1.6	4.6

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	1988		1989				1990	
			III	IV	I	II	III	IV	IP	IIP
Specified adjustments:										
Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:										
First year of contract	3.1	4.5	3.4	3.5	3.2	5.1	3.9	5.3	4.6	5.8
Annual rate over life of contract	2.5	3.4	3.2	2.1	3.1	3.4	2.7	4.3	3.6	4.8
Wage adjustments, settlements covering 1,000 workers or more:										
First year of contract	2.5	4.0	2.7	2.6	3.2	3.9	3.6	4.9	3.7	4.7
Annual rate over life of contract	2.4	3.4	2.8	2.2	3.1	3.3	3.0	4.0	3.3	4.2
Effective adjustments:										
Total effective wage adjustment ³	2.6	3.2	.8	.5	.5	1.0	1.0	.7	.6	1.1
From settlements reached in period .....	.7	1.2	.2	.1	.1	.3	.4	.4	.2	.3
Deferred from settlements reached in earlier periods	1.3	1.3	.4	.2	.3	.5	.4	.2	.3	.6
From cost-of-living-adjustments clauses .....	.6	.7	.2	.2	.1	.2	.2	.1	.1	.3

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

compensation or wages.

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

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

P = preliminary.

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				1990	
	III	IV	I	II	III	IV	IP	IIP
Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:								
First year of contract	3.1	3.1	3.3	3.8	4.0	4.5	4.6	4.8
Annual rate over life of contract	2.5	2.5	2.6	3.0	2.8	3.4	3.5	3.7
Specified wage adjustments, settlements covering 1,000 workers or more:								
All industries:								
First year of contract	2.5	2.5	2.7	3.2	3.5	4.0	4.0	4.2
Contracts with COLA clauses	2.4	2.4	2.4	2.2	2.6	3.9	3.8	3.9
Contracts without COLA clauses	2.6	2.7	2.9	3.4	3.6	4.0	4.1	4.3
Annual rate over life of contract	2.2	2.4	2.5	2.9	3.0	3.4	3.4	3.6
Contracts with COLA clauses	1.5	1.8	1.8	1.8	2.0	2.8	2.7	2.7
Contracts without COLA clauses	2.8	2.8	2.9	3.2	3.2	3.5	3.6	3.8
Manufacturing:								
First year of contract	2.6	2.2	2.2	2.6	2.6	3.9	3.9	4.4
Contracts with COLA clauses	2.4	2.1	2.1	2.1	2.1	5.4	4.8	4.9
Contracts without COLA clauses	3.0	2.5	2.5	3.1	2.8	3.1	3.5	4.2
Annual rate over life of contract	1.9	2.1	2.2	2.4	2.5	3.2	3.2	3.4
Contracts with COLA clauses	1.4	1.8	1.8	1.7	1.7	3.5	3.1	3.1
Contracts without COLA clauses	3.1	2.6	2.8	3.1	2.9	3.0	3.3	3.5
Nonmanufacturing:								
First year of contract	2.4	2.8	3.0	3.5	3.8	4.0	4.1	4.1
Contracts with COLA clauses	2.4	2.9	2.9	3.0	3.0	3.2	3.2	3.3
Contracts without COLA clauses	2.5	2.7	3.0	3.5	3.9	4.2	4.3	4.3
Annual rate over life of contract	2.4	2.5	2.7	3.2	3.1	3.4	3.4	3.6
Contracts with COLA clauses	1.8	1.7	1.7	2.5	2.1	2.4	2.4	2.4
Contracts without COLA clauses	2.7	2.8	3.0	3.3	3.3	3.7	3.7	3.9
Construction:								
First year of contract	2.1	2.2	2.4	2.4	2.6	2.8	2.9	3.5
Contracts with COLA clauses	(¹)	(¹)	(¹)	(²)	(²)	(²)	(²)	(²)
Contracts without COLA clauses	2.1	2.2	2.4	(²)	(²)	(²)	(²)	(²)
Annual rate over life of contract	2.4	2.6	2.7	2.9	2.9	3.0	3.1	3.9
Contracts with COLA clauses	(¹)	(¹)	(¹)	(²)	(²)	(²)	(²)	(²)
Contracts without COLA clauses	2.4	2.6	2.7	(²)	(²)	(²)	(²)	(²)

¹ None of the settlements included COLA provisions.

² Data do not meet publication standards.

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				1990	
	IV	I	II	III	IV	I ^P	II ^P
For all workers:¹							
Total	2.6	2.7	2.8	3.0	3.2	3.2	3.3
From settlements reached in period .....	.7	.8	.7	.9	1.2	1.3	1.2
Deferred from settlements reached in earlier period	1.3	1.3	1.3	1.3	1.3	1.2	1.4
From cost-of-living-adjustments clauses .....	.6	.6	.8	.8	.7	.7	.7
For workers receiving changes:							
Total	3.3	3.5	3.8	4.0	4.0	4.0	4.1
From settlements reached in period	3.1	3.2	3.5	3.7	4.2	4.1	4.1
Deferred from settlements reached in earlier period	3.0	3.2	3.2	3.4	3.4	3.4	3.3
From cost-of-living-adjustments clauses	2.7	2.9	3.2	3.8	3.3	3.3	3.4

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		
	1988	1989	First 6 months 1990
Specified adjustments:			
Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:			
First year of contract	5.4	5.1	5.5
Annual rate over life of contract	5.3	4.9	5.4
Wage adjustments, settlements covering 1,000 workers or more:			
First year of contract	5.1	5.1	5.1
Annual rate over life of contract	5.3	5.1	5.1
Effective adjustments:			
Total effective wage adjustment ³	4.7	5.1	1.7
From settlements reached in period	2.3	2.5	.4
Deferred from settlements reached in earlier periods	2.4	2.6	1.2
From cost-of-living-adjustment clauses	(*)	(*)	(*)

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	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar. ^P	Apr. ^P	May ^P	June ^P	July ^P	Aug. ^P	Sept. ^P
Number of stoppages:															
Beginning in period	40	51	6	5	5	1	3	3	5	5	4	5	1	5	4
In effect during period	43	52	12	13	14	9	9	7	8	12	11	9	8	9	9
Workers involved:															
Beginning in period (in thousands)	118.3	452.1	14.5	68.9	8.0	5.0	4.5	18.0	39.6	33.1	6.2	13.7	6.4	33.5	10.9
In effect during period (in thousands)	121.9	454.1	108.7	171.1	169.1	104.1	20.3	31.4	51.1	70.3	31.5	34.8	36.8	38.2	35.2
Days idle:															
Number (in thousands)	4,364.3	16,996.3	1,922.3	3,220.9	2,343.7	376.0	311.9	280.7	720.2	812.7	535.3	527.3	564.3	752.5	565.2
Percent of estimated working time ¹ .....	.02	.07	.09	.14	.11	.02	.01	.01	.03	.03	.02	.02	.03	.03	.03

¹ Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found

in "'Total economy' measure of strike idleness," *Monthly Labor Review*, October 1968, pp. 54-56.

^P = preliminary.

Current Labor Statistics: Price Data

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	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS:															
All items	118.3	124.0	125.0	125.6	125.9	126.1	127.4	128.0	128.7	128.9	129.2	129.9	130.4	131.6	132.7
All items (1967=100)	354.3	371.3	374.6	376.2	377.0	377.6	381.5	383.3	385.5	386.2	386.9	389.1	390.7	394.1	397.5
Food and beverages	118.2	124.9	125.9	126.3	126.7	127.2	130.0	130.9	131.2	131.0	131.1	131.7	132.4	132.7	133.0
Food	118.2	125.1	126.1	126.5	126.9	127.4	130.4	131.3	131.5	131.3	131.3	132.0	132.7	132.9	133.2
Food at home	116.6	124.2	125.0	125.4	125.8	126.5	131.0	132.1	131.9	131.1	130.9	131.7	132.5	132.7	132.9
Cereals and bakery products	122.1	132.4	134.6	135.0	135.3	136.1	136.9	137.4	137.6	138.9	139.3	140.1	140.5	141.4	141.6
Meats, poultry, fish, and eggs	114.3	121.3	122.9	122.4	122.8	123.8	126.8	126.7	127.9	128.2	127.8	129.9	130.4	131.1	131.9
Dairy products	108.4	115.6	116.1	118.2	120.2	122.9	125.8	126.9	126.8	125.2	124.7	124.9	125.7	127.3	127.6
Fruits and vegetables	128.1	138.0	136.6	137.1	137.8	136.7	157.9	153.7	159.9	149.0	147.4	147.1	149.4	146.1	145.1
Other foods at home	113.1	119.1	119.7	120.3	119.9	120.1	121.3	121.9	122.2	122.2	122.6	123.1	123.5	124.3	124.5
Sugar and sweets	114.0	119.4	120.8	121.3	120.7	121.1	122.5	122.9	123.0	123.6	124.4	124.5	124.9	125.6	125.8
Fats and oils	113.1	121.2	121.3	121.6	121.0	121.6	123.5	123.4	124.2	124.3	125.0	125.5	126.6	127.4	128.2
Nonalcoholic beverages	107.5	111.3	111.0	111.8	111.2	111.0	112.4	113.3	113.1	112.4	112.7	113.3	114.0	114.3	114.2
Other prepared foods	118.0	125.5	126.7	127.2	127.3	127.6	128.3	128.9	129.6	129.9	130.4	130.9	130.9	132.0	132.5
Food away from home	121.8	127.4	128.8	129.1	129.5	129.8	130.3	131.0	131.8	132.5	133.0	133.4	133.9	134.3	134.6
Alcoholic beverages	118.6	123.5	124.8	125.2	125.5	125.6	126.2	126.9	127.8	128.2	128.9	129.3	129.9	130.2	130.8
Housing	118.5	123.0	124.3	124.4	124.5	124.9	125.9	126.1	126.8	126.8	127.1	128.3	129.2	130.2	130.5
Shelter	127.1	132.8	134.1	134.8	135.2	135.6	136.3	136.6	137.8	138.0	138.3	139.5	141.1	142.4	142.3
Renters' costs (12/82=100)	133.6	138.9	139.4	140.0	140.1	140.1	142.0	143.5	144.8	144.7	144.4	145.3	148.7	150.7	148.9
Rent, residential	127.8	132.8	133.9	134.7	135.2	135.5	135.8	136.0	136.5	137.0	137.3	137.9	138.7	139.4	140.0
Other renters' costs	134.8	140.7	139.1	139.2	138.0	137.2	143.6	149.3	152.7	150.7	148.5	150.1	161.4	167.4	158.1
Homeowners' costs (12/82=100)	131.1	137.3	138.9	139.7	140.3	140.9	141.1	141.0	142.2	142.5	143.1	144.4	145.4	146.5	147.0
Owners' equivalent rent (12/82=100)	131.1	137.4	139.0	139.9	140.5	141.0	141.2	141.1	142.4	142.7	143.2	144.6	145.7	146.7	147.3
Household insurance (12/82=100)	129.0	132.6	133.6	133.7	133.8	134.0	134.1	134.5	134.8	134.4	134.9	135.2	135.3	135.6	135.7
Maintenance and repairs	114.7	118.0	118.6	118.6	119.3	119.5	120.4	120.8	121.2	121.2	122.2	121.8	122.1	121.2	124.6
Maintenance and repair services	117.9	120.6	120.9	121.0	121.7	122.2	123.7	124.6	124.8	125.6	126.2	125.4	125.6	124.1	129.9
Maintenance and repair commodities	110.4	114.6	115.6	115.5	116.2	115.8	116.0	115.9	116.4	115.4	116.7	117.0	117.4	117.5	117.3
Fuel and other utilities	104.4	107.8	109.7	108.0	107.5	108.4	110.8	110.2	109.9	109.4	109.9	112.2	111.3	112.7	114.0
Fuels	98.0	100.9	103.5	101.0	99.9	101.2	104.5	103.1	102.3	101.2	101.9	105.4	104.5	105.6	107.6
Fuel oil, coal, and bottled gas	78.1	81.7	79.3	82.0	83.9	88.7	113.1	95.4	91.5	89.6	88.0	84.9	82.7	91.8	104.4
Gas (piped) and electricity	104.6	107.5	111.0	107.6	106.1	107.0	107.5	108.3	107.9	106.8	107.8	112.4	111.7	111.6	112.4
Other utilities and public services	122.9	127.1	128.1	127.6	127.9	128.2	129.3	130.0	130.7	130.9	131.2	131.8	130.8	132.8	132.9
Household furnishings and operations	109.4	111.2	111.7	111.9	111.9	111.7	112.1	112.8	112.8	113.2	113.1	113.1	113.6	113.3	113.8
Housefurnishings	105.1	105.5	105.7	106.1	106.0	105.5	106.1	106.9	106.9	106.6	106.7	106.3	106.8	106.5	106.9
Housekeeping supplies	114.7	120.9	122.3	122.5	122.5	123.6	123.2	123.5	123.4	123.9	125.0	125.8	125.9	125.6	126.2
Housekeeping services	114.3	117.3	117.5	117.4	117.6	117.6	117.9	118.4	118.7	119.1	119.5	119.8	120.5	120.4	121.1
Apparel and upkeep	115.4	118.6	120.0	122.7	122.1	119.2	116.7	120.4	125.4	126.7	125.5	123.3	120.8	122.2	126.8
Apparel commodities	113.7	116.7	118.2	121.1	120.4	117.1	114.3	118.3	123.7	125.0	123.6	121.1	118.4	119.9	124.7
Men's and boys' apparel	113.4	117.0	117.7	120.3	121.1	118.8	116.3	117.0	119.3	121.0	121.9	119.9	118.6	119.3	121.7
Women's and girls' apparel	114.9	116.4	119.0	123.1	121.3	116.4	112.0	117.7	126.8	127.9	124.7	120.9	116.1	118.9	127.0
Infants' and toddlers' apparel	116.4	119.1	118.0	118.3	117.2	115.3	112.7	124.3	127.6	130.0	127.2	127.8	127.7	126.5	127.7
Footwear	109.9	114.4	114.1	117.6	116.6	114.7	113.1	114.5	116.9	118.6	118.5	117.3	116.1	116.3	118.6
Other apparel commodities	116.0	122.1	124.5	123.0	123.5	122.8	125.1	130.6	132.7	132.8	132.1	131.4	131.1	131.3	132.8
Apparel services	123.7	129.4	129.7	129.8	130.8	131.3	132.4	132.9	133.8	134.8	136.2	136.4	136.8	138.2	138.7
Transportation	108.7	114.1	113.7	114.5	115.0	115.2	117.2	117.1	116.8	117.3	117.7	118.2	118.4	120.6	123.0
Private transportation	107.6	112.9	112.4	113.3	113.7	113.9	115.9	115.6	115.1	115.5	115.9	116.4	116.6	119.0	121.4
New vehicles	116.5	119.2	117.1	118.5	120.6	121.9	122.4	122.2	121.6	121.1	121.0	120.6	120.2	119.9	119.6
New cars	116.9	119.2	117.0	118.6	120.5	121.8	122.3	121.9	121.3	120.7	120.7	120.3	119.8	119.5	119.0
Used cars	118.0	120.4	119.8	119.7	120.1	119.7	118.9	117.4	116.6	116.2	116.9	117.6	118.2	118.3	118.3
Motor fuel	80.9	88.5	88.8	88.9	87.2	85.8	91.4	90.6	89.3	91.2	92.5	94.6	94.3	103.2	112.0
Gasoline	80.8	88.5	88.8	88.8	87.0	85.5	90.6	90.2	89.1	91.0	92.4	94.6	94.4	103.1	111.8
Maintenance and repair	119.7	124.9	126.2	126.7	126.7	126.9	127.3	127.6	128.8	129.4	129.4	129.6	130.2	130.4	131.5
Other private transportation	127.9	135.8	135.7	137.1	138.2	139.0	140.3	140.8	140.7	140.8	140.8	141.0	142.1	142.4	143.0
Other private transportation commodities	98.9	101.5	102.0	101.9	102.1	102.3	101.9	102.1	102.0	101.9	101.8	101.8	101.7	102.2	102.2
Other private transportation services	133.9	143.2	142.9	144.8	146.0	146.9	148.7	149.3	149.2	149.4	149.3	149.7	151.0	151.3	152.0
Public transportation	123.3	129.5	130.1	130.6	131.3	131.7	134.2	136.7	139.1	140.3	140.9	141.5	141.6	141.9	144.0
Medical care	138.6	149.3	151.7	152.7	153.9	154.4	155.9	157.5	158.7	159.8	160.8	161.9	163.5	165.0	165.8
Medical care commodities	139.9	150.8	153.3	154.1	155.3	156.0	156.9	158.6	159.9	161.3	162.2	163.3	164.1	164.8	166.0
Medical care services	138.3	148.9	151.3	152.3	153.6	154.1	155.7	157.2	158.5	159.4	160.5	161.5	163.4	165.0	165.8
Professional services	137.5	146.4	148.0	148.6	149.3	149.9	151.1	152.3	153.2	154.1	155.1	155.8	157.0	157.8	158.2
Hospital and related services	143.9	160.5	164.3	166.0	167.9	167.9	169.9	171.6	173.0	173.7	174.3	175.4	178.1	180.9	181.8
Entertainment	120.3	126.5	127.8	128.4	128.6	129.1	129.9	130.4	130.9	131.4	131.7	131.9	132.7	133.0	134.1
Entertainment commodities	115.0	119.8	120.5	121.2	121.3	121.6	122.3	122.5	123.1	123.5	123.7	123.5	124.4	124.8	124.9
Entertainment services	127.7	135.4	137.2	137.8	138.2	138.8	139.8	140.5	141.0	141.6	142.0	142.6	143.3	143.6	145.5
Other goods and services	137.0	147.7	151.2	151.8	151.9	152.9	154.0	154.7	155.2	155.8	156.6	157.8	159.2	160.4	162.6
Tob															

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	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
All items	118.3	124.0	125.0	125.6	125.9	126.1	127.4	128.0	128.7	128.9	129.2	129.9	130.4	131.6	132.7
Commodities	111.5	116.7	117.3	118.1	118.3	118.2	119.9	120.6	121.1	121.4	121.6	121.6	121.6	122.8	124.6
Food and beverages	118.2	124.9	125.9	126.3	126.7	127.2	130.0	130.9	131.2	131.0	131.1	131.7	132.4	132.7	133.0
Commodities less food and beverages	107.3	111.6	111.9	113.0	113.0	112.6	113.7	114.2	114.9	115.4	115.5	115.4	115.0	116.8	119.4
Nondurables less food and beverages	105.2	111.2	112.4	113.6	113.1	112.0	113.7	114.5	116.1	117.1	117.1	117.1	116.4	119.5	124.1
Apparel commodities	113.7	116.7	118.2	121.1	120.4	117.1	114.3	118.3	123.7	125.0	123.6	121.1	118.4	119.9	124.7
Nondurables less food, beverages, and apparel	103.2	111.0	112.0	112.4	111.9	112.0	116.0	115.3	114.8	115.7	116.5	117.7	118.1	122.1	126.6
Durables	110.4	112.2	111.3	112.1	113.0	113.5	113.8	113.7	113.4	113.1	113.2	112.9	113.0	112.9	112.8
Services	125.7	131.9	133.4	133.7	134.1	134.6	135.4	136.0	136.9	137.1	137.6	138.8	139.9	140.9	141.4
Rent of shelter (12/82=100)	132.0	138.0	139.3	140.1	140.5	140.9	141.6	142.0	143.3	143.5	143.7	145.0	146.7	148.1	147.9
Household services less rent of shelter (12/82=100)	115.3	118.7	120.7	119.0	118.5	119.0	119.6	120.3	120.5	120.1	120.8	123.1	122.6	123.2	123.8
Transportation services	128.0	135.6	135.9	137.1	138.0	138.6	140.2	141.1	141.9	142.4	142.5	142.9	143.8	144.0	145.2
Medical care services	138.3	148.9	151.3	152.3	153.6	154.1	155.7	157.2	158.5	159.4	160.5	161.5	163.4	165.0	165.8
Other services	132.6	140.9	143.8	144.3	144.6	145.1	146.1	146.6	147.2	147.8	148.5	148.9	149.6	151.0	153.5
Special indexes:															
All items less food	118.3	123.7	124.8	125.4	125.6	125.8	126.7	127.3	128.1	128.4	128.7	129.4	130.0	131.3	132.6
All items less shelter	115.9	121.6	122.6	123.1	123.3	123.5	125.0	125.7	126.2	126.5	126.7	127.3	127.5	128.6	130.1
All items less homeowners' costs (12/82=100)	119.5	125.3	126.3	126.8	127.0	127.1	128.7	129.5	130.1	130.4	130.6	131.2	131.6	132.8	134.1
All items less medical care	117.0	122.4	123.4	124.0	124.2	124.4	125.7	126.2	126.9	127.1	127.3	128.0	128.5	129.6	130.8
Commodities less food	107.7	112.0	112.4	113.4	113.4	113.0	114.1	114.6	115.4	115.9	115.9	115.8	115.5	117.2	119.8
Nondurables less food	105.8	111.7	112.9	114.1	113.6	112.6	114.2	115.0	116.5	117.4	117.5	117.6	117.0	119.9	124.1
Nondurables less food and apparel	104.0	111.3	112.4	112.8	112.4	112.5	116.1	115.5	115.2	116.0	116.8	118.0	118.3	121.9	125.9
Nondurables	111.8	118.2	119.3	120.1	120.0	119.8	122.0	122.9	123.8	124.2	124.2	124.6	124.6	126.3	128.7
Services less rent of shelter (12/82=100)	128.3	135.1	137.0	137.0	137.2	137.8	138.9	139.8	140.3	140.6	141.2	142.5	143.0	143.8	145.0
Services less medical care	124.3	130.1	131.6	131.8	132.1	132.6	133.4	133.9	134.7	134.9	135.3	136.5	137.5	138.5	139.0
Energy	89.3	94.3	95.9	94.6	93.2	93.2	97.6	96.4	95.5	95.7	96.7	99.5	98.9	103.6	108.8
All items less energy	122.3	128.1	129.1	129.9	130.4	130.6	131.5	132.3	133.3	133.5	133.7	134.2	134.8	135.5	136.4
All items less food and energy	123.4	129.0	130.0	130.9	131.3	131.5	132.0	132.8	133.9	134.2	134.4	134.8	135.5	136.4	137.2
Commodities less food and energy	115.8	119.6	120.1	121.2	121.6	121.2	121.0	122.2	123.4	123.7	123.6	123.2	122.9	123.2	124.5
Energy commodities	80.8	87.9	88.0	88.3	87.0	86.4	94.2	91.3	89.8	91.2	92.2	93.7	93.2	102.1	111.4
Services less energy	127.9	134.4	135.8	136.5	137.0	137.5	138.4	138.9	140.0	140.3	140.7	141.6	142.8	144.0	144.5
Purchasing power of the consumer dollar:															
1982-84=\$1.00	84.6	80.7	80.0	79.6	79.5	79.3	78.5	78.2	77.7	77.6	77.4	77.0	76.7	76.0	75.4
1967=\$1.00	28.2	26.9	26.7	26.6	26.5	26.5	26.2	26.1	25.9	25.9	25.8	25.7	25.6	25.4	25.2
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS:															
All items	117.0	122.6	123.6	124.2	124.4	124.6	125.9	126.4	127.1	127.3	127.5	128.3	128.7	129.9	131.1
All items (1967=100)	348.4	365.2	368.3	369.8	370.6	371.1	375.0	376.6	378.5	379.2	379.9	382.1	383.4	386.9	390.5
Food and beverages	117.9	124.6	125.6	126.0	126.4	126.9	129.7	130.6	130.9	130.7	130.7	131.5	132.1	132.4	132.7
Food	117.9	124.8	125.8	126.2	126.6	127.1	130.1	131.1	131.2	130.9	131.0	131.8	132.4	132.7	133.0
Food at home	116.2	123.9	124.6	125.0	125.5	126.2	130.5	131.6	131.5	130.6	130.4	131.4	132.2	132.4	132.6
Cereals and bakery products	122.2	132.4	134.6	135.1	135.3	136.0	137.4	137.6	138.8	139.2	140.0	140.4	141.3	141.5	141.5
Meats, poultry, fish, and eggs	114.1	121.2	122.7	122.2	122.9	123.8	126.7	126.6	127.8	128.1	127.8	130.0	130.5	131.2	131.9
Dairy products	108.1	115.4	115.9	118.0	120.0	122.8	125.7	126.9	126.8	125.1	124.6	128.5	128.5	127.3	127.6
Fruits and vegetables	127.6	136.6	136.1	136.5	137.0	135.8	152.9	157.7	153.3	147.9	146.4	146.6	148.9	145.6	144.4
Other foods at home	113.0	119.0	119.6	120.2	119.8	120.1	121.3	121.8	122.2	122.1	122.6	123.1	123.5	124.2	124.4
Sugar and sweets	113.9	119.5	120.9	121.4	120.7	121.1	122.5	123.0	123.1	123.4	124.4	124.6	124.9	125.7	125.8
Fats and oils	113.0	121.1	121.2	121.5	120.9	121.5	123.4	123.2	124.0	124.1	124.9	125.4	126.4	127.3	128.1
Nonalcoholic beverages	107.7	111.4	111.0	112.0	111.3	111.2	112.7	113.6	113.4	112.7	112.9	113.6	114.2	114.6	114.2
Other prepared foods	117.8	125.3	126.6	127.0	127.1	127.4	128.2	128.7	129.5	129.7	130.2	130.8	130.7	131.8	132.3
Food away from home	121.6	127.3	128.6	129.0	129.4	129.7	130.2	130.9	131.7	132.3	132.8	133.2	133.7	134.1	134.5
Alcoholic beverages	118.3	123.1	124.4	124.7	125.1	125.2	125.9	126.7	127.4	128.0	128.7	129.1	129.5	129.8	130.4
Housing	116.8	121.2	122.5	122.5	122.7	123.1	123.9	124.1	124.7	124.7	125.1	126.2	127.0	127.9	128.3
Shelter	124.3	129.8	131.1	131.8	132.3	132.6	133.2	133.4	134.5	134.7	135.0	136.1	137.5	138.7	138.8
Renters' costs (12/84=100)	119.2	123.9	124.6	125.1	125.3	125.4	126.6	127.5	128.4	128.4	128.4	129.2	131.4	132.7	132.0
Rent, residential	127.5	132.3	133.4	134.2	134.6	135.0	135.3	135.4	136.0	136.4	136.8	137.4	138.2	138.8	139.6
Other renters' costs	135.2	141.5	140.9	140.4	139.1	137.6	144.1	149.8	153.2	150.9	148.8	150.7	161.9	167.9	158.6
Homeowners' costs (12/84=100)	119.5	125.1	126.6	127.3	127.8	128.3	128.5	129.6	129.6	129.9	130.3	131.5	132.4	133.5	134.0
Owners' equivalent rent (12/84=100)	119.5	125.2	126.7	127.4	128.0	128.5	128.6	129.7	130.0	130.4	131.6	132.6	133.7	134.2	
Household insurance (12/84=100)	118.2	121.4	122.4	122.5	122.5	122.7	122.8	123.1	123.3	123.0	123.6	123.8	123.9	124.1	124.2
Maintenance and repairs	114.0	117.6	118.0	118.1	118.9	119.0	120.0	120.7	120.8	120.6	121.7	121.8	122.1	121.3	124.0
Maintenance and repair services	117.7	120.4	120.7	120.9	121.7	122.4	124.1	125.0	125.1	125.9	126.9	126.4	126.6	125.2	130.8
Maintenance and repair commodities	108.3	112.6	113.3	113.4	114.0	113.6	113.8	114.3	114.3	113.0	114.3	114.9	115.3	115.3	114.8
Fuel and other utilities	104.1	107.5	109.5	107.6	107.2	108.0	110.2	109.8	109.6	109.0	109.5	112.0	111.1	112.4	113.5
Fuels	97.7	100.6	103.3	100.6	99.5	100.7	103.8	102.5	101.8	100.6	101.2	105.0	104.2	105.1	106.9
Fuel oil, coal, and bottled gas	77.9	81.4	79.2	81.8	83.6	88.1	112.7	95.2	91.3	89.4	87.9	84.9	82.7	91.6	103.8
Gas (piped) and electricity	104.4	107.3	110.7	107.2	105.8	106.7	107.2	107.9	107.5	106.4	107.2	112.1	111.4	111.3	112.0
Other utilities and public services	122.9	127.4	128.3	127.8	128.2	128.4	129.6	130.4	131.0	131.4	131.7	132.3	131.2	133.3	133.4
Household furnishings and operations	108.9	110.													

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	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
												†			
Apparel and upkeep	114.9	117.9	119.3	122.0	121.4	118.5	116.1	119.3	124.4	125.8	124.7	122.4	119.8	121.3	125.7
Apparel commodities	113.4	116.1	117.6	120.5	119.8	116.6	114.0	117.3	122.8	124.2	122.9	120.4	117.6	119.0	123.7
Men's and boys' apparel	112.8	116.1	116.9	119.6	120.2	118.0	115.8	116.2	118.3	120.0	120.7	118.9	117.4	118.0	120.7
Women's and girls' apparel	114.5	115.5	118.1	122.0	120.5	115.5	111.3	116.4	125.7	126.9	123.8	119.8	115.0	118.1	125.7
Infants' and toddlers' apparel	118.6	122.5	122.0	122.2	121.0	119.3	116.8	127.1	129.9	132.2	129.6	130.2	129.8	129.2	130.1
Footwear	110.4	114.7	114.5	118.0	117.0	115.4	113.8	115.0	117.4	119.2	119.3	118.3	116.9	116.8	119.2
Other apparel commodities	114.9	120.5	122.5	121.9	122.4	121.5	123.2	127.0	130.5	130.7	130.3	128.8	128.2	128.1	130.4
Apparel services	123.0	128.6	128.8	129.0	130.0	130.6	131.7	132.2	133.2	134.2	135.5	135.6	135.9	137.6	138.1
Transportation	108.3	113.9	113.5	114.3	114.6	114.8	116.8	116.6	116.2	116.6	117.1	117.7	117.8	120.3	122.9
Private transportation	107.5	113.0	112.6	113.3	113.7	113.8	115.8	115.5	114.9	115.4	115.8	116.4	116.5	119.1	121.8
New vehicles	116.2	119.0	117.1	118.4	120.5	122.0	124.4	123.3	121.7	121.2	121.1	120.7	120.3	120.0	119.8
New cars	116.6	119.1	116.9	118.4	120.2	121.7	122.2	121.8	121.2	120.6	120.5	120.2	119.7	119.3	118.8
Used cars	117.9	120.3	119.6	119.5	119.9	119.5	118.7	117.2	116.4	116.0	116.6	117.3	118.0	118.0	118.1
Motor fuel	80.9	88.6	89.0	89.1	87.3	85.9	91.7	90.7	89.4	91.3	92.6	94.7	94.4	103.4	112.2
Gasoline	80.8	88.6	89.0	89.0	87.2	85.6	91.0	90.4	89.2	91.2	92.5	94.8	94.5	103.3	112.1
Maintenance and repair	119.8	124.9	126.2	126.7	126.8	126.9	127.3	127.9	129.0	129.6	129.7	129.9	130.3	130.7	131.7
Other private transportation	125.8	133.7	133.6	134.9	136.0	136.8	138.1	138.5	138.4	138.3	138.6	139.5	139.5	139.7	140.3
Other private transportation commodities	98.6	101.1	101.6	101.5	101.7	101.9	101.4	101.7	101.5	101.4	101.3	101.3	101.3	101.7	101.8
Other private transportation services	131.7	141.0	140.6	142.5	143.8	144.7	146.5	146.9	146.8	146.9	146.8	147.2	148.4	148.5	149.2
Public transportation	122.5	128.2	129.1	129.4	129.7	130.1	132.9	135.4	137.4	138.4	138.9	139.6	139.7	140.0	141.5
Medical care	139.0	149.6	152.1	153.0	154.2	154.7	156.1	157.6	158.8	159.8	160.8	161.8	163.3	164.7	165.5
Medical care commodities	139.0	149.7	152.2	153.1	154.2	154.8	155.7	157.4	158.6	160.0	161.0	162.1	162.9	163.7	164.9
Medical care services	139.0	149.6	152.1	153.0	154.2	154.7	156.2	157.7	158.8	159.7	160.7	161.7	163.4	165.0	165.7
Professional services	137.7	146.7	148.4	149.0	149.6	150.2	151.5	152.6	153.5	154.3	155.3	156.1	157.2	158.1	158.5
Hospital and related services	143.3	159.4	163.3	164.7	166.5	166.8	168.4	170.1	171.3	172.1	172.7	173.8	176.3	178.8	179.7
Entertainment	119.7	125.8	127.0	127.7	127.9	128.4	129.1	129.5	130.0	130.6	130.8	131.0	131.7	132.1	132.9
Entertainment commodities	115.1	119.9	120.6	121.3	121.4	121.7	122.3	123.0	123.4	123.6	123.4	124.2	124.7	124.5	125.4
Entertainment services	127.2	135.1	137.1	137.6	138.0	138.7	139.6	140.4	140.9	141.6	141.9	142.5	143.1	143.4	145.4
Other goods and services	136.5	147.4	150.8	151.4	151.5	152.7	153.9	154.6	155.1	155.7	156.3	157.8	159.4	160.5	162.4
Tobacco products	146.0	164.2	168.0	168.6	168.5	171.8	173.8	174.8	174.8	175.3	176.4	180.6	185.4	185.5	185.5
Personal care	119.3	124.8	125.7	126.3	126.8	126.9	127.3	128.1	128.7	130.0	129.9	130.7	130.3	130.5	131.1
Toilet goods and personal care appliances	118.0	123.3	124.1	124.6	125.1	124.7	124.9	126.0	126.8	128.2	128.1	129.1	128.2	128.2	128.8
Personal care services	120.5	126.6	127.5	128.2	128.7	129.4	130.1	130.5	130.8	132.1	131.9	132.6	132.8	133.2	133.7
Personal and educational expenses	147.4	157.3	161.8	162.5	162.5	163.1	164.2	164.8	165.6	166.0	166.5	166.9	167.7	169.9	173.5
School books and supplies	147.1	156.9	161.7	162.8	162.8	162.9	166.2	168.5	168.7	168.6	168.6	168.6	169.2	169.6	172.9
Personal and educational services	147.7	157.7	162.1	162.7	162.8	163.4	164.3	164.8	165.7	166.1	166.7	167.1	167.9	170.3	173.9
All items	117.0	122.6	123.6	124.2	124.4	124.6	125.9	126.4	127.1	127.3	127.5	128.3	128.7	129.9	131.1
Commodities	111.0	116.3	116.9	117.7	117.8	117.8	119.5	120.1	120.5	120.8	120.9	121.2	121.3	122.6	124.4
Food and beverages	117.9	124.6	125.6	126.0	126.4	126.9	129.7	130.6	130.9	130.7	130.7	131.5	132.1	132.4	132.7
Commodities less food and beverages	106.8	111.2	111.6	112.5	112.5	112.1	113.3	113.6	114.2	114.8	114.9	114.6	114.6	116.5	119.2
Nondurables less food and beverages	104.6	110.9	112.0	113.2	112.6	111.6	113.4	114.0	115.4	116.5	116.6	116.8	116.2	119.6	124.3
Apparel commodities	113.4	116.1	117.6	120.5	119.8	116.6	114.0	117.3	122.8	124.2	122.9	120.4	117.6	119.0	123.7
Nondurables less food, beverages, and apparel	102.9	110.9	112.0	112.3	111.7	111.7	115.7	115.0	114.5	115.5	116.3	117.8	118.2	122.6	127.4
Durables	108.9	110.8	110.0	110.6	111.6	112.0	112.2	112.0	111.6	111.4	111.4	111.2	111.4	111.3	111.2
Services	124.7	130.8	132.3	132.6	132.9	133.4	134.2	134.8	135.6	135.8	136.2	137.4	138.3	139.3	139.9
Rent of shelter (12/84=100)	119.4	124.8	126.0	126.7	127.1	127.5	128.0	128.2	129.3	129.5	129.8	130.8	132.2	133.4	133.5
Household services less rent of shelter (12/84=100)	105.9	109.1	111.0	109.3	108.8	109.3	110.0	110.6	110.7	110.3	110.9	113.3	112.7	113.3	113.9
Transportation services	127.1	134.8	135.0	136.3	137.1	137.8	139.4	140.2	140.7	141.1	141.2	141.5	142.4	142.5	143.5
Medical care services	139.0	149.6	152.1	153.0	154.2	154.7	156.2	157.7	158.8	159.7	160.7	161.7	163.4	165.0	165.7
Other services	131.4	139.6	142.3	142.9	143.2	143.8	144.7	145.3	145.9	146.6	147.1	147.5	148.1	149.4	151.8
Special indexes:															
All items less food	116.7	122.0	123.1	123.6	123.8	124.0	124.9	125.3	126.1	126.4	126.7	127.4	127.8	129.2	130.6
All items less shelter	115.2	120.9	121.8	122.3	122.5	122.6	124.2	124.8	125.3	125.5	125.8	126.4	126.5	127.7	129.3
All items less homeowners' costs (12/84=100)	110.4	115.7	116.6	117.1	117.3	117.4	118.8	119.4	119.9	120.2	120.3	121.0	121.3	122.4	123.7
All items less medical care	115.8	121.2	122.2	122.7	122.9	123.1	124.4	124.9	125.5	125.7	125.9	126.6	127.0	128.2	129.4
Commodities less food	107.2	111.6	112.0	112.9	112.9	112.6	113.7	114.0	114.6	115.2	115.3	115.4	115.1	117.0	119.6
Nondurables less food	105.3	111.3	112.5	113.6	113.1	112.2	113.9	114.5	115.8	116.9	117.1	117.3	116.8	119.9	124.2
Nondurables less food and apparel	103.7	111.2	112.3	112.7	112.1	112.2	115.8	115.3	114.9	115.8	116.7	117.0	118.3	122.3	126.5
Nondurables	111.5	118.0	119.1	119.8	119.7	119.5	121.8	122.6	123.4	123.8	123.9	124.4	124.4	126.3	128.7
Services less rent of shelter (12/84=100)	115.6	121.7	123.3	123.2	123.4	123.9	124.9	125.7	126.1	126.3	126.8	128.0	128.4	129.1	130.1
Services less medical care	123.3	129.0	130.4	130.6	130.9	131.4	132.2	132.7	133.4	133.6	133.9	135.1	136.0	136.9	137.5
Energy	88.6	93.9	95.5	94.2	92.8	92.7	97.1	96.0	94.9	95.4	96.3	99.2	98.7	103.7	109.1
All items less energy	121.0	126.7	127.7	128.5	128.9	129.1	130.1	130.8	131.6	131.9	132.0	132.5	133.1	133.8	134.5
All items less food and energy	121.9	127.3	128.3	129.1	129.6	129.7	130.1	130.8	131.8	132.2	132.3	132.7	133.3	134.1	134.9
Commodities less food and energy	114.7	118.6	119.0	120.1	120.5	120.2	119.9	120.8	122.0	122.3	122.2	121.9	121.7	122.0	123.2
Energy commodities	80.9	88.2	88.4	88.7	87.2	86.4	93.9	91.4	89.8	91.4	92.5	94.1	93.6	102.6	111.8

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					
		Sept.	Oct.	May	June	July	Aug.	Sept.	Sept.	Oct.	May	June	July	Aug.	Sept.
U.S. city average	M	125.0	125.6	129.2	129.9	130.4	131.6	132.7	123.6	124.2	127.5	128.3	128.7	129.9	131.1
Region and area size³															
Northeast urban	M	130.0	130.6	134.7	134.9	136.0	137.4	138.6	128.8	129.4	133.3	133.6	134.6	135.8	137.2
Size A - More than 1,200,000	M	130.6	131.1	135.4	135.4	136.7	138.0	139.1	128.7	129.1	133.1	133.3	134.3	135.5	136.8
Size B - 500,000 to 1,200,000	M	128.9	130.0	133.6	134.4	135.2	137.2	137.8	127.6	128.6	132.1	132.9	133.8	135.6	136.2
Size C - 50,000 to 500,000	M	128.1	128.9	132.5	133.4	133.9	134.6	137.3	130.8	131.5	134.9	135.7	136.1	136.8	139.6
North Central urban	M	122.5	123.0	126.0	126.9	126.9	128.4	129.4	120.4	120.9	123.9	124.8	124.7	126.3	127.4
Size A - More than 1,200,000	M	124.1	124.3	127.4	128.6	128.6	129.9	130.7	121.2	121.4	124.4	125.6	125.6	127.0	127.8
Size B - 360,000 to 1,200,000	M	121.0	122.5	125.3	125.6	125.8	127.6	128.3	118.6	120.0	122.8	123.1	123.2	125.2	126.0
Size C - 50,000 to 360,000	M	122.2	122.9	125.9	126.5	126.2	127.8	129.9	120.9	121.6	124.6	125.2	124.8	126.5	128.7
Size D - Nonmetropolitan (less than 50,000)	M	117.8	118.2	121.4	122.3	122.6	124.1	125.0	117.7	118.1	121.1	122.0	122.2	123.9	125.0
South urban	M	122.5	123.0	126.5	127.3	127.8	128.7	129.7	121.9	122.4	125.6	126.4	126.9	127.8	128.9
Size A - More than 1,200,000	M	123.5	123.9	127.1	127.8	128.6	129.0	130.2	122.5	122.9	125.9	126.7	127.3	127.8	129.2
Size B - 450,000 to 1,200,000	M	123.9	124.5	128.0	128.2	128.6	129.8	130.7	121.7	122.1	125.4	125.7	126.1	127.3	128.3
Size C - 50,000 to 450,000	M	120.9	121.7	124.5	125.3	126.0	127.6	128.5	121.5	122.2	124.9	125.7	126.3	128.0	129.0
Size D - Nonmetropolitan (less than 50,000)	M	120.2	120.7	125.8	128.2	128.0	128.5	128.8	121.0	121.6	126.4	128.5	128.4	129.0	129.5
West urban	M	125.6	126.1	130.0	130.8	131.3	132.2	133.5	124.2	124.6	128.3	129.1	129.6	130.4	131.7
Size A - More than 1,250,000	M	127.5	127.8	132.0	132.6	133.1	133.9	135.3	124.6	124.9	128.8	129.4	129.9	130.7	132.0
Size C - 50,000 to 330,000	M	122.8	123.7	126.4	127.7	128.8	130.0	131.4	122.1	123.0	125.7	126.8	127.8	129.1	130.4
Size classes:															
A (12/86=100)	M	113.8	114.2	117.5	118.1	118.7	119.6	120.6	113.7	114.0	117.2	117.8	118.3	119.3	120.3
B	M	124.2	125.2	128.5	129.0	129.6	130.8	131.7	122.8	123.6	126.8	127.4	127.8	129.2	130.1
C	M	122.9	123.7	126.7	127.5	128.0	129.4	131.0	123.3	124.0	126.9	127.7	128.0	129.5	131.2
D	M	120.8	121.3	125.6	127.0	127.2	128.2	129.1	121.2	121.7	125.6	126.9	127.1	128.2	129.2
Selected local areas															
Chicago, IL-Northwestern IN ...	M	127.1	126.8	130.4	131.7	132.0	133.2	133.8	123.1	122.9	126.5	127.9	128.0	129.3	129.9
Los Angeles-Long Beach, Anaheim, CA	M	130.1	130.0	134.6	135.0	135.6	136.3	137.7	126.5	126.5	130.7	131.1	131.6	132.3	133.5
New York, NY-Northeastern NJ	M	132.2	132.8	137.2	137.1	138.4	140.0	140.8	130.3	130.8	134.9	135.0	136.0	137.4	138.7
Philadelphia, PA-NJ	M	130.2	130.5	134.6	135.1	136.3	137.3	138.2	130.4	130.6	134.9	135.5	136.6	137.5	138.6
San Francisco-Oakland, CA	M	126.8	127.5	130.8	131.6	132.3	133.1	134.0	126.1	126.7	129.9	130.7	131.3	132.0	132.9
Baltimore, MD	M	125.9	-	129.0	-	130.2	-	132.9	125.4	-	128.3	-	129.5	-	132.3
Boston, MA	1	132.2	-	137.0	-	138.0	-	141.7	132.6	-	137.3	-	137.9	-	141.4
Cleveland, OH	1	123.7	-	128.1	-	128.8	-	131.1	118.2	-	122.1	-	122.7	-	125.0
Miami, FL	1	122.9	-	126.4	-	128.7	-	130.1	121.4	-	124.6	-	126.7	-	128.2
St. Louis, MO-IL	1	123.9	-	126.7	-	128.0	-	129.9	123.5	-	126.0	-	127.3	-	129.3
Washington, DC-MD-VA	1	130.1	-	134.0	-	135.7	-	138.0	129.5	-	132.8	-	134.6	-	136.9
Dallas-Ft. Worth, TX	1	-	121.4	-	123.8	-	126.0	-	-	121.1	-	123.2	-	125.4	-
Detroit, MI	2	-	124.6	-	127.7	-	129.4	-	-	121.5	-	124.7	-	126.5	-
Houston, TX	2	-	115.7	-	119.7	-	121.5	-	-	115.8	-	120.0	-	121.9	-
Pittsburgh, PA	2	-	121.7	-	125.0	-	127.1	-	-	116.8	-	120.3	-	122.0	-

¹ Area is the Consolidated Metropolitan Statistical Area (CMSA), exclusive of farms and military. Area definitions are those established by the Office of Management and Budget in 1983, except for Boston-Lawrence-Salem, MA-NH Area (excludes Monroe County); and Milwaukee, WI Area (includes only the Milwaukee MSA). Definitions do not include revisions made since 1983.

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

M - Every month.

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

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

³ Regions are defined as the four Census regions.

- Data not available.

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

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	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Finished goods	108.0	113.6	114.9	114.9	115.4	117.6	117.4	117.2	117.2	117.7	117.9	118.0	119.2	120.3
Finished consumer goods	106.2	112.1	113.3	113.2	113.9	116.7	116.4	115.9	115.8	116.5	116.7	116.9	118.4	119.8
Finished consumer foods	112.6	118.7	119.5	120.1	121.1	123.9	124.6	124.4	123.2	124.5	124.5	124.9	125.0	124.1
Finished consumer goods excluding foods	103.1	108.9	110.3	109.9	110.4	113.2	112.4	111.8	112.2	112.7	112.8	112.9	115.1	117.7
Nondurable goods less food	97.3	103.8	104.8	104.3	105.0	109.2	107.9	107.1	107.7	108.3	108.2	108.5	111.5	115.1
Durable goods	113.8	117.6	120.0	119.6	119.7	119.1	119.4	119.2	119.3	119.4	120.2	120.1	120.0	119.9
Capital equipment	114.3	118.8	120.5	120.8	120.8	121.2	121.6	121.9	122.2	122.2	122.3	122.5	122.9	122.9
Intermediate materials, supplies, and components	107.1	112.0	112.3	112.0	111.9	113.4	112.5	112.4	112.8	113.1	112.9	113.0	114.4	116.3
Materials and components for manufacturing	113.2	118.1	117.9	117.7	117.4	117.6	117.5	117.9	118.2	118.4	118.4	118.4	118.7	119.3
Materials for food manufacturing	106.0	112.7	113.1	115.4	115.5	115.5	114.9	115.8	117.2	120.4	120.9	120.9	120.5	118.8
Materials for nondurable manufacturing	112.9	118.5	117.0	116.7	116.6	116.7	117.1	117.0	117.0	117.0	117.2	116.9	116.7	118.7
Materials for durable manufacturing	118.7	123.6	123.1	121.9	120.3	120.1	119.0	120.0	120.8	120.7	120.0	120.3	121.6	122.2
Components for manufacturing	112.3	116.4	117.2	117.3	117.4	118.1	118.2	118.5	118.7	118.7	118.7	118.8	118.9	119.1
Materials and components for construction	116.1	121.3	122.3	122.1	121.7	121.8	121.9	122.5	123.0	123.2	122.8	122.9	122.9	123.2
Processed fuels and lubricants	71.2	76.4	77.8	76.3	77.3	84.2	79.4	77.8	78.0	78.4	78.4	78.3	85.7	94.0
Containers	120.1	125.4	126.3	126.8	126.7	127.3	127.4	127.8	127.7	127.7	127.7	127.4	127.6	127.6
Supplies	113.7	118.1	118.3	118.3	118.3	118.8	118.5	118.7	118.9	119.4	119.2	119.5	119.3	119.7
Crude materials for further processing	96.0	103.1	102.1	102.6	104.2	106.5	106.8	105.6	103.0	104.7	101.0	101.2	110.2	115.1
Foodstuffs and feedstuffs	106.1	111.2	107.9	109.9	112.6	113.5	113.9	115.3	115.1	117.0	115.2	115.4	113.5	110.8
Crude nonfood materials	85.5	93.4	94.0	93.5	94.3	97.5	97.6	94.9	91.0	92.5	87.9	88.0	103.2	112.4
Special groupings:														
Finished goods, excluding foods	106.5	111.8	113.3	113.1	113.5	115.5	115.1	114.8	115.2	115.5	115.6	115.8	117.3	119.1
Finished energy goods	59.8	65.7	65.8	64.6	64.8	72.7	69.2	67.0	68.0	68.5	67.6	67.8	74.4	82.0
Finished goods less energy	115.8	121.2	122.7	123.0	123.5	124.6	125.1	125.2	125.0	125.6	125.9	126.1	126.2	126.1
Finished consumer goods less energy	116.3	122.1	123.6	123.8	124.5	125.9	126.5	126.5	126.1	126.8	127.3	127.4	127.5	127.2
Finished goods less food and energy	117.0	122.1	123.9	124.0	124.4	124.8	125.2	125.4	125.6	125.9	126.3	126.5	126.6	126.8
Finished consumer goods less food and energy	118.5	124.0	126.0	125.9	126.5	127.0	127.4	127.5	127.7	128.1	128.8	128.8	128.9	129.0
Consumer nondurable goods less food and energy	122.0	128.8	130.4	130.5	131.6	132.7	133.2	133.5	133.8	134.4	135.0	135.2	135.3	135.7
Intermediate materials less foods and feeds	106.9	111.9	112.4	111.9	111.9	113.4	112.5	112.5	112.8	112.9	112.8	112.8	114.4	116.4
Intermediate foods and feeds	109.5	113.8	112.3	113.2	113.0	113.2	111.0	111.4	112.5	115.9	115.5	116.1	115.0	113.9
Intermediate energy goods	70.9	76.1	77.5	76.0	76.9	83.7	79.0	77.4	77.7	78.0	78.1	78.0	85.3	93.5
Intermediate goods less energy	114.6	119.5	119.6	119.5	119.2	119.5	119.4	119.7	120.1	120.4	120.2	120.3	120.4	120.9
Intermediate materials less foods and energy	115.2	120.2	120.3	120.0	119.7	120.0	120.0	120.3	120.6	120.7	120.5	120.5	120.8	121.4
Crude energy materials	67.7	75.9	76.6	76.9	78.5	82.3	82.6	78.6	73.1	74.5	69.5	69.4	87.1	97.9
Crude materials less energy	112.6	117.7	115.1	115.8	117.1	117.8	117.9	119.7	120.5	122.1	120.4	120.7	119.9	118.1
Crude nonfood materials less energy	133.0	137.9	137.6	134.3	132.0	132.1	131.3	134.2	137.8	138.8	137.1	137.7	139.9	140.6

35. Producer Price indexes, by durability of product

(1982 = 100)

Grouping	Annual average		1989			1990								
	1988	1989	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Total durable goods	114.7	119.0	120.2	119.9	119.7	120.0	120.0	120.4	120.9	120.9	120.9	121.0	121.5	121.6
Total nondurable goods	101.1	107.1	107.2	107.2	107.9	110.7	109.9	109.3	108.9	109.7	109.1	109.2	112.3	115.2
Total manufactures	109.1	114.3	115.2	115.1	115.2	116.6	116.0	116.1	116.6	117.1	117.0	116.9	118.2	119.7
Durable	114.1	118.3	119.6	119.5	119.3	119.6	119.6	120.0	120.3	120.4	120.4	120.5	120.8	121.0
Nondurable	104.1	110.2	110.7	110.7	111.0	113.3	112.1	112.2	112.8	113.5	113.4	113.1	115.3	117.9
Total raw or slightly processed goods	95.9	101.3	100.4	100.2	101.8	105.5	105.6	103.8	101.2	102.2	100.6	101.4	106.6	110.1
Durable	148.0	151.6	146.5	141.2	138.0	138.7	136.0	140.7	146.0	147.7	144.7	145.1	150.7	152.6
Nondurable	93.4	98.9	98.3	98.3	100.1	103.9	104.1	102.0	99.1	100.1	98.5	99.3	104.5	108.1

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

(December 1984 = 100, unless otherwise indicated)

Industry	SIC	Annual average		1989			1990								
		1988	1989	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Total mining industries		70.6	76.4	76.1	76.3	77.6	81.0	81.1	78.1	74.8	75.3	72.3	73.7	80.5	86.7
Metal mining	10	100.7	100.3	101.0	96.2	93.6	89.2	86.1	90.9	92.6	91.3	92.2	93.9	96.1	102.0
Anthracite mining (12/85 = 100)	11	100.2	102.7	102.9	103.0	103.2	105.0	105.0	105.0	104.4	103.6	103.5	103.6	104.2	104.0
Bituminous coal and lignite mining (12/85 = 100)	12	94.6	94.3	95.1	96.1	95.6	95.6	95.2	95.4	96.0	97.0	97.0	96.6	96.4	96.4
Oil and gas extraction (12/85 = 100)	13	68.5	75.7	75.2	75.5	77.3	82.0	82.3	77.9	73.1	73.8	69.4	71.5	80.9	89.3
Mining and quarrying of nonmetallic minerals, except fuels	14	108.0	111.2	111.3	111.3	111.2	111.7	112.3	113.2	113.4	113.8	113.7	113.6	114.0	114.3
Total manufacturing industries		104.4	109.6	110.8	110.8	111.0	112.7	112.2	112.3	112.6	113.1	113.1	113.0	114.6	116.2
Food and kindred products	20	107.1	112.2	112.3	113.2	113.7	114.4	114.6	115.2	115.4	116.9	117.2	117.3	117.3	116.9
Tobacco manufactures	21	141.8	161.4	165.7	165.7	173.8	175.8	176.1	176.1	176.1	179.6	185.9	186.0	186.0	186.2
Textile mill products	22	106.8	109.3	110.0	110.1	110.0	111.0	111.3	111.5	111.7	111.6	111.8	111.6	111.8	111.7
Apparel and other finished products made from fabrics and similar materials	23	107.2	110.2	111.1	111.3	111.6	112.3	112.3	112.5	112.7	112.7	112.7	113.1	113.5	113.6
Lumber and wood products, except furniture	24	109.2	115.3	118.1	117.3	116.1	116.3	116.9	117.6	119.2	118.8	117.7	117.9	117.1	116.7
Furniture and fixtures	25	111.4	115.6	117.0	117.0	117.2	117.7	118.0	118.1	118.5	119.0	119.2	119.2	119.3	119.5
Paper and allied products	26	113.7	120.8	121.7	121.7	121.6	121.6	121.6	121.5	121.9	121.6	121.7	121.7	121.8	122.0
Printing, publishing, and allied industries	27	118.2	124.7	126.0	126.3	126.4	128.2	128.7	129.1	129.4	129.9	130.0	130.2	130.8	131.3
Chemicals and allied products	28	113.0	119.6	118.7	118.7	118.6	119.0	119.5	119.8	120.0	120.1	120.3	120.2	120.5	121.6
Petroleum refining and related products	29	67.7	75.7	77.4	75.9	76.0	87.4	80.3	78.5	79.9	80.2	78.7	77.0	90.3	104.6
Rubber and miscellaneous plastic products	30	106.7	110.2	110.3	110.3	110.5	110.9	110.7	111.0	111.0	111.3	111.3	111.1	110.9	111.1
Leather and leather products	31	113.4	118.0	119.5	119.4	120.2	121.1	121.8	122.5	122.3	123.0	122.6	122.8	123.0	123.3
Stone, clay, glass, and concrete products	32	105.8	107.9	108.3	108.5	108.6	109.3	109.5	109.7	109.9	110.0	110.3	110.3	110.3	110.4
Primary metal industries	33	113.0	118.8	118.8	118.0	116.6	116.1	115.2	116.3	116.6	116.7	116.2	116.5	117.3	117.7
Fabricated metal products, except machinery and transportation equipment	34	107.4	112.6	113.6	113.8	113.9	114.3	114.5	114.6	114.7	114.9	115.1	115.1	115.3	115.4
Machinery, except electrical	35	106.4	110.7	111.8	112.1	112.2	112.8	113.0	113.3	113.5	113.7	113.9	113.8	114.1	114.4
Electrical and electronic machinery, equipment, and supplies	36	104.6	107.1	107.8	107.8	107.8	108.4	108.4	108.5	108.6	108.6	108.7	108.9	108.9	108.9
Transportation equipment	37	107.8	112.1	115.0	114.6	114.6	114.2	114.5	114.4	114.5	114.4	115.0	114.9	115.0	114.7
Measuring and controlling instruments; photographic, medical, optical goods; watches, clocks	38	107.0	110.8	111.9	112.1	112.4	113.3	113.6	114.0	114.3	114.5	114.5	114.7	114.8	115.0
Miscellaneous manufacturing industries (12/85 = 100)	39	107.5	111.8	112.7	112.8	113.1	113.7	114.3	114.5	114.5	114.6	114.8	115.0	115.3	115.3
Service industries:															
Pipelines, except natural gas (12/86 = 100)	46	94.8	94.4	94.4	94.4	94.4	95.5	95.5	95.5	95.5	95.5	95.8	95.8	96.2	96.2

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	113.6
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	118.8
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	118.1
Materials and components for construction	97.9	100.0	102.8	105.6	107.3	108.1	109.8	116.1	121.3
Processed fuels and lubricants	100.6	100.0	95.4	95.7	92.8	72.7	73.3	71.2	76.4
Containers	96.7	100.0	100.4	105.9	109.0	110.3	114.5	120.1	125.4
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	103.1
Foodstuffs and feedstuffs	103.9	100.0	101.8	104.7	94.8	93.2	96.2	106.1	111.2
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				1990	
		Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	
ALL COMMODITIES		104.9	106.5	109.5	111.9	111.6	113.3	113.2	112.4	112.4	112.9	113.3	
Food	0	94.6	95.2	103.4	118.7	114.2	117.6	115.5	110.4	108.2	107.4	108.8	
Meat and meat preparations	01	116.8	122.8	131.0	137.0	130.3	132.9	128.2	119.4	117.0	125.9	123.3	
Fish and crustaceans	03	138.5	140.9	145.0	175.9	174.0	169.1	158.9	137.1	132.3	131.5	127.4	
Grain and grain preparations	04	77.4	79.8	87.2	108.5	102.0	108.4	106.4	101.5	101.0	98.4	101.8	
Vegetables and fruit	05	100.5	97.5	104.3	109.9	110.3	108.8	113.6	113.9	110.3	114.5	115.6	
Animal feeds, excluding unmilled cereals	08	145.2	134.6	158.1	161.0	157.0	154.1	144.0	139.5	129.0	121.7	118.4	
Miscellaneous food products	09	100.3	102.3	102.8	105.2	104.9	107.0	108.0	107.7	108.5	109.6	110.1	
Beverages and tobacco	1	107.0	109.6	110.6	112.0	111.7	117.2	117.6	120.4	120.1	122.3	124.5	
Tobacco and tobacco products	12	107.0	109.8	110.7	112.1	111.8	117.6	117.9	120.8	120.4	122.6	124.9	
Crude materials	2	125.2	130.0	139.9	140.8	135.8	142.6	143.0	139.1	136.6	136.8	137.2	
Raw hides and skins	21	157.1	171.4	166.8	156.7	136.8	146.7	149.9	156.3	158.0	161.8	160.9	
Oilseeds	22	109.6	115.6	143.0	154.7	135.7	139.3	129.8	111.5	109.5	109.5	110.4	
Crude rubber	23	105.3	104.5	106.1	109.1	109.9	111.1	114.6	117.7	117.3	115.0	115.5	
Wood	24	146.0	150.2	149.6	150.0	148.6	157.3	170.7	177.6	176.9	180.6	178.9	
Pulp and waste paper	25	160.4	171.2	179.5	181.7	182.1	192.9	193.5	193.3	193.9	186.7	174.0	
Textile fibers	26	111.6	107.5	109.9	100.8	103.6	106.7	115.5	117.4	116.4	117.1	124.4	
Crude minerals	27	91.6	92.8	94.2	94.8	94.8	98.8	99.2	99.3	97.7	98.7	99.7	
Metal ores and metal scrap	28	125.9	131.8	146.0	145.0	150.4	163.5	157.2	150.5	138.5	138.5	142.7	
Fuels and related products	3	82.5	79.3	82.1	79.5	79.4	81.7	86.0	87.9	91.1	90.8	88.8	
Coal and coke	32	89.8	90.6	92.0	92.9	93.4	93.7	94.3	95.6	96.3	96.2	97.3	
Crude petroleum and petroleum products	33	100.0	90.8	97.2	89.2	88.4	94.5	105.4	108.7	116.5	113.6	106.9	
Fats and oils	4	81.6	92.7	97.3	101.5	91.5	90.3	87.3	83.8	86.7	89.1	94.6	
Animal oils and fats	41	88.7	101.3	101.6	104.3	95.7	91.8	89.6	84.6	88.0	84.4	84.0	
Fixed vegetable oils and fats	42	75.4	85.7	93.7	99.1	87.1	88.2	84.4	81.6	84.5	91.8	101.7	
Chemicals and related products	5	112.9	117.9	121.6	124.9	125.5	125.5	121.9	117.7	115.2	115.4	115.9	
Organic chemicals	51	123.5	135.1	144.6	153.3	150.8	149.6	145.0	134.0	127.8	123.0	120.9	
Dyeing, tanning, and coloring materials	53	108.5	109.1	110.1	111.5	113.0	115.5	116.5	118.3	117.3	118.8	119.7	
Medicinal and pharmaceutical products (12/85=100)	54	105.4	109.3	106.3	105.9	107.5	109.0	108.9	109.3	108.5	109.6	109.9	
Essential oils, polish, and cleaning preparations	55	108.4	111.2	113.6	120.2	122.4	125.3	124.7	122.4	122.9	125.0	126.1	
Fertilizers, manufactured	56	106.5	110.6	109.8	116.4	119.9	119.4	108.0	108.9	94.8	94.7	102.8	
Artificial resins, plastics and cellulose	57	124.8	129.4	137.5	138.2	132.5	125.8	118.6	111.6	111.5	117.1	115.8	
Chemical materials and products, n.e.s.	58	98.2	100.3	101.7	104.1	105.4	108.4	109.4	109.5	110.2	112.8	113.8	
Intermediate manufactured products	6	111.2	114.4	117.7	119.6	120.6	122.6	123.1	122.8	122.5	122.8	122.9	
Leather and furskins	61	118.0	125.7	125.1	128.6	125.0	118.3	120.7	121.7	124.8	124.5	125.6	
Rubber manufactures	62	104.1	105.2	108.8	109.4	110.4	113.0	112.9	113.4	114.0	114.3	114.5	
Paper and paperboard products	64	122.4	126.2	129.0	130.2	131.1	132.5	133.7	132.9	130.9	130.8	130.0	
Textiles	65	105.2	106.5	107.9	108.6	111.6	113.9	115.4	115.8	117.0	119.0	118.4	
Non-metallic mineral manufactures (9/85=100)	66	111.3	113.4	114.1	115.6	116.8	120.4	122.4	123.9	124.8	127.7	127.5	
Iron and steel	67	102.9	106.1	110.8	111.4	112.1	116.0	117.2	116.7	116.4	116.2	117.4	
Nonferrous metals	68	124.4	134.0	143.5	149.1	150.0	151.7	145.8	140.4	135.9	131.2	132.5	
Metal manufactures, n.e.s.	69	103.4	104.5	107.6	109.9	110.9	112.6	113.9	114.4	115.3	116.7	116.8	
Machinery and transport equipment, excluding military and commercial aircraft	7	102.4	103.2	104.0	104.8	105.8	106.7	107.2	107.9	108.6	109.5	110.0	
Power generating machinery and equipment	71	105.2	107.0	108.4	108.5	109.3	111.8	112.8	114.5	114.7	116.3	117.3	
Machinery specialized for particular industries	72	100.9	102.1	103.6	104.7	106.0	107.3	108.8	109.9	111.4	113.1	113.2	
Metalworking machinery	73	108.2	109.3	110.8	111.0	114.4	115.7	117.3	117.7	118.6	119.6	120.6	
General industrial machines and parts, n.e.s.	74	105.4	106.7	108.1	109.3	110.3	112.7	113.3	114.2	115.3	117.2	118.1	
Office machines and automatic data processing equipment	75	95.5	95.8	95.7	96.8	96.4	95.8	94.8	94.8	94.8	94.7	94.6	
Telecommunications, sound recording and reproducing equipment	76	101.9	102.8	104.6	104.1	105.1	106.7	107.5	108.7	109.5	109.2	110.2	
Electrical machinery and equipment	77	101.8	103.1	103.4	105.3	105.7	106.1	106.5	106.9	106.9	107.8	107.4	
Road vehicles and parts	78	104.6	104.5	104.9	105.4	106.8	107.2	107.8	108.8	110.0	110.4	110.8	
Other transport equipment, excluding military and commercial aviation	79	106.6	107.4	109.6	109.7	111.9	113.5	114.7	114.8	116.0	117.9	121.2	
Miscellaneous manufactured articles	8	105.6	106.9	108.1	108.9	110.5	111.4	112.8	113.6	114.9	115.4	116.4	
Furniture and parts	82	110.0	111.2	111.4	111.7	114.2	114.3	117.3	117.3	119.0	120.5	121.8	
Professional, scientific, and controlling instruments and apparatus	87	107.1	110.0	111.1	112.5	113.9	115.5	118.2	119.5	121.3	122.7	124.8	
Photographic apparatus and supplies, optical goods, watches, and clocks	88	97.9	97.6	100.1	99.4	99.9	98.5	99.2	99.4	101.0	98.2	97.6	
Miscellaneous manufactured articles, n.e.s.	89	105.8	105.4	106.5	106.5	108.7	110.2	110.1	110.4	111.4	112.1	112.6	

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

(1985 = 100, unless otherwise indicated)

Category	1974 SITC	1988			1989			1990		
		June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June
ALL COMMODITIES		116.8	115.3	117.6	119.7	119.8	118.4	119.9	121.0	119.0
ALL COMMODITIES, EXCLUDING FUELS		126.7	126.1	129.1	129.6	128.5	127.6	128.5	129.7	129.1
Food and live animals	0	114.0	112.7	114.3	114.1	111.3	106.1	108.2	111.6	111.7
Meat and meat preparations	01	107.0	111.2	108.7	111.2	109.7	124.1	134.1	130.4	136.8
Dairy products and eggs	02	125.0	122.2	125.8	124.0	120.2	120.3	123.2	129.2	133.0
Fish and crustaceans	03	129.3	125.9	126.7	127.0	122.7	121.6	122.1	125.9	125.9
Bakery goods, pasta products, grain, and grain preparations	04	139.8	136.9	142.2	140.4	140.2	141.6	142.9	148.5	147.4
Fruits and vegetables	05	120.3	123.7	127.7	123.4	123.2	119.1	128.2	131.3	126.2
Sugar, sugar preparations, and honey	06	110.0	112.1	110.8	109.8	111.8	114.4	117.0	116.2	116.7
Coffee, tea, cocoa	07	93.3	87.4	90.6	91.2	85.3	62.5	57.3	65.2	66.2
Beverages and tobacco	1	116.2	115.3	116.2	117.0	117.2	120.7	122.4	124.7	127.7
Beverages	11	120.0	118.9	119.9	120.7	120.7	122.9	124.1	126.9	129.6
Crude materials	2	137.8	135.4	143.2	146.2	144.3	137.2	136.1	133.1	132.0
Crude rubber (including synthetic and reclaimed)	23	151.1	133.3	121.5	123.0	103.4	98.3	98.5	101.0	104.0
Cork and wood	24	111.4	109.7	107.8	112.1	112.4	113.5	111.6	114.0	114.9
Pulp and waste paper	25	160.5	169.6	174.7	184.7	190.0	190.1	189.6	186.9	183.7
Textile fibers	26	145.5	141.9	145.6	151.5	145.4	141.7	140.2	133.9	126.3
Crude fertilizers and crude minerals	27	101.0	97.2	100.2	103.3	104.7	101.2	98.0	96.8	97.5
Metalliferous ores and metal scrap	28	167.6	172.2	205.4	204.3	212.3	183.4	176.6	168.1	160.7
Crude animal and vegetable materials, n.e.s.	29	148.2	122.0	139.5	138.5	110.3	108.6	127.7	111.9	117.6
Fuels and related products	3	63.4	57.7	56.4	66.8	73.3	68.8	74.0	74.9	65.0
Crude petroleum and petroleum products	33	63.6	57.7	56.1	67.3	74.4	69.5	74.8	75.3	65.3
Fats and oils	4	111.2	114.0	112.3	112.5	117.4	106.7	100.7	98.3	95.8
Fixed vegetable oils and fats (9/87=100)	42	116.1	119.2	117.4	117.3	122.6	110.7	104.2	101.5	98.5
Chemicals and related products	5	116.4	119.2	122.2	123.6	120.4	117.7	118.9	118.9	117.8
Organic chemicals	51	107.3	111.3	115.1	117.6	114.0	110.3	112.7	114.2	113.5
Inorganic chemicals	52	92.3	93.0	96.1	93.1	86.6	85.7	86.0	84.4	84.2
Medicinal and pharmaceutical products	54	140.3	145.4	146.4	154.9	153.5	149.2	149.7	152.3	151.9
Essential oils and perfumes	55	126.2	127.5	130.5	130.3	130.2	127.2	135.3	131.3	132.1
Manufactured fertilizers	56	136.3	136.5	139.9	143.5	142.1	132.4	130.5	129.3	128.6
Artificial resins and plastics and cellulose	58	124.3	127.6	129.5	129.5	129.8	130.8	130.6	129.4	129.0
Chemical materials and products, n.e.s.	59	148.5	153.4	156.5	154.8	151.6	150.2	150.9	150.2	142.1
Intermediate manufactured products	6	132.2	132.3	135.0	137.3	136.1	135.3	134.0	133.8	134.9
Leather and furskins	61	137.0	136.6	134.9	134.6	133.8	133.9	133.4	141.1	142.6
Rubber manufactures, n.e.s.	62	107.7	109.1	111.1	111.7	112.2	113.7	114.0	115.1	115.6
Cork and wood manufactures	63	138.2	136.1	134.1	136.9	139.8	140.8	140.5	141.6	144.4
Paper and paperboard products	64	118.3	119.5	119.9	120.6	120.8	119.7	118.8	117.5	120.9
Textiles	65	120.6	119.1	120.5	120.5	122.1	121.7	122.8	124.8	126.3
Nonmetallic mineral manufactures, n.e.s.	66	142.5	139.7	141.9	147.5	149.5	151.7	153.1	157.6	159.7
Iron and steel	67	127.2	129.9	130.7	132.6	133.6	133.7	130.9	128.7	125.7
Nonferrous metals	68	159.7	158.9	169.1	172.8	158.6	150.7	144.1	137.8	143.5
Metal manufactures	69	126.9	127.5	130.7	132.4	132.6	133.2	133.8	135.6	134.4
Machinery and transport equipment	7	127.3	126.7	129.9	130.1	129.2	129.0	130.2	131.2	130.0
Machinery (including SITC 71-77)	7hyb	126.4	125.9	128.7	129.2	128.4	127.8	128.1	129.8	129.2
Machinery specialized for particular industries	72	149.8	143.7	150.8	149.1	145.7	145.7	148.2	157.4	159.1
Metalworking machinery	73	142.4	139.7	144.1	142.9	139.5	143.9	144.2	148.0	149.9
General industrial machinery and parts, n.e.s.	74	143.7	139.6	144.2	144.7	143.0	143.7	145.5	151.1	153.1
Office machines and automatic data processing equipment	75	119.5	118.7	118.7	119.6	119.3	117.2	117.9	117.0	115.6
Telecommunications, sound recording and reproducing apparatus	76	113.8	113.9	115.5	115.7	115.7	115.0	113.9	112.9	111.2
Electrical machinery and equipment	77	124.2	125.9	129.3	130.5	129.6	128.7	129.0	129.8	127.7
Road vehicles and parts	78	127.6	127.1	130.8	130.5	129.6	129.5	131.9	131.3	129.4
Miscellaneous manufactured articles	8	125.7	124.2	126.6	126.6	126.6	127.2	128.7	131.7	131.9
Plumbing, heating, and lighting fixtures	81	126.9	124.5	127.2	130.0	131.5	133.0	136.6	141.9	140.8
Furniture and parts	82	129.6	128.0	129.1	127.2	127.9	128.8	130.9	135.7	137.6
Travel goods, handbags, and similar goods (6/85=100)	83	107.3	111.3	115.1	117.6	114.0	110.3	112.7	114.2	113.5
Clothing	84	114.9	116.7	117.2	118.5	119.9	120.8	121.7	121.7	122.7
Footwear	85	129.6	128.0	129.1	127.2	127.9	128.8	130.9	135.7	137.6
Professional, scientific, and controlling instruments and apparatus	87	142.5	135.8	141.9	141.1	136.5	136.3	137.1	143.3	144.7
Photographic apparatus and supplies, optical goods, watches, and clocks	88	129.3	125.4	130.6	130.2	127.9	126.3	128.7	131.4	131.9
Miscellaneous manufactured articles, n.e.s.	89	132.1	128.2	131.4	131.7	131.4	131.9	133.8	139.2	137.2

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

(1985 = 100 unless otherwise indicated)

Category	1988			1989				1990	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June
Foods, feeds, and beverages	110.1	124.5	117.4	120.8	117.2	110.3	108.2	107.3	108.8
Industrial supplies and materials	118.3	118.7	118.6	120.7	120.9	119.5	118.7	118.7	118.2
Capital goods	104.3	104.9	105.7	106.7	107.4	108.2	108.8	109.9	110.5
Automotive	104.8	106.5	107.7	108.1	108.6	109.4	110.7	111.2	111.6
Consumer goods	110.6	111.3	112.9	115.3	115.6	116.5	117.1	118.9	119.6
Consumer nondurables, manufactured, except rugs	108.7	109.3	110.0	111.4	111.5	111.7	112.7	114.2	115.0
Consumer durables, manufactured	110.4	110.7	112.6	115.4	115.4	116.5	116.8	118.6	119.3
Agricultural (9/88=100)	110.9	120.6	114.0	117.7	116.1	111.2	109.8	109.5	111.4
All exports, excluding agricultural (9/88=100)	109.7	110.8	111.6	112.9	113.1	113.0	113.1	113.7	113.8

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

(1985=100)

Category	1988			1989				1990	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June
All imports, excluding petroleum (6/88=100)	126.2	125.4	128.3	129.0	128.0	127.1	128.0	129.2	128.5
Foods, feeds, and beverages	113.7	112.7	114.2	113.8	111.7	107.1	109.0	112.0	112.6
Industrial supplies and materials	97.8	95.2	96.4	102.1	104.2	100.6	102.7	102.6	97.6
Petroleum and petroleum products, excluding natural gas	63.5	57.5	56.2	67.2	74.1	69.1	74.6	75.2	65.4
Industrial supplies and materials, excluding petroleum	126.4	126.4	129.6	131.2	129.4	126.9	126.2	125.5	124.3
Capital goods, except automotive	131.0	129.0	132.3	132.4	131.0	130.6	131.5	134.4	134.1
Automotive vehicles, parts and engines	125.8	126.0	129.2	129.1	128.2	128.2	130.0	129.9	128.1
Consumer goods except automotive	126.3	125.0	127.4	128.7	129.1	129.5	130.8	133.0	133.1
Nondurables, manufactured	124.2	123.8	125.4	126.5	127.5	128.5	129.9	132.7	133.5
Durables, manufactured	125.5	124.5	127.4	127.9	127.9	127.8	128.6	130.4	129.5

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

(1985=100)

Industry group	1988			1989				1990	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June
Manufacturing:									
Food and kindred products	125.1	128.9	123.5	124.5	122.7	119.5	117.2	118.7	117.7
Lumber and wood products, except furniture	145.4	146.1	144.0	151.7	164.4	171.2	170.7	173.5	172.3
Furniture and fixtures	112.9	112.9	115.3	115.2	116.0	116.5	118.1	119.6	120.4
Paper and allied products	129.8	133.1	135.6	139.9	141.4	141.6	140.4	137.7	133.6
Chemicals and allied products	122.3	125.4	125.5	125.9	122.5	118.5	115.9	116.6	117.3
Petroleum and coal products	77.8	73.7	75.4	79.8	86.9	88.7	94.4	90.4	85.5
Primary metal products	133.8	133.5	133.6	130.8	125.7	122.5	122.9	122.5	119.1
Machinery, except electrical	101.3	102.2	102.8	103.4	103.7	104.4	105.2	106.3	106.6
Electrical machinery	103.7	104.9	105.4	106.3	106.8	107.5	107.7	108.3	108.4
Transportation equipment	109.1	109.4	110.9	111.8	112.7	113.4	114.5	115.1	116.5
Scientific instruments; optical goods; clocks	110.8	112.0	113.4	114.5	116.7	117.7	119.7	120.0	121.3

¹ SIC-based classification.

Current Labor Statistics: Price and Productivity Data

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

(1985=100)

Industry group	1988			1989				1990	
	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June
Manufacturing:									
Food and kindred products	114.4	115.0	115.4	114.9	114.0	114.8	115.9	118.7	120.9
Textile mill products	128.9	127.0	127.8	139.0	139.8	137.5	138.8	141.1	141.2
Apparel and related products	115.8	117.0	117.5	118.9	120.3	121.2	122.1	122.3	123.5
Lumber and wood products, except furniture	120.3	118.6	117.0	120.5	122.2	123.3	122.1	124.0	125.8
Furniture and fixtures	124.0	124.8	128.0	126.3	126.1	128.7	128.6	130.9	131.9
Paper and allied products	121.3	123.8	125.2	127.4	128.2	127.3	126.6	125.1	127.4
Chemicals and allied products	121.3	123.5	130.6	130.7	130.0	123.9	123.7	123.6	121.1
Petroleum refining and allied products	119.2	110.8	111.6	121.3	139.1	128.0	134.9	139.0	128.5
Rubber and miscellaneous plastics products	119.0	117.7	122.6	122.3	123.1	124.2	125.2	125.4	124.8
Leather and leather products	124.6	123.7	124.0	122.8	123.5	124.6	126.0	130.3	131.8
Stone, clay, glass, and concrete products	141.5	140.5	144.3	145.1	144.8	147.4	148.0	152.4	152.3
Primary metal products	137.0	136.2	140.2	140.6	135.2	132.0	129.6	127.2	126.0
Fabricated metal products	133.3	133.0	136.3	138.9	140.3	141.3	142.0	144.4	144.1
Machinery, except electrical	138.2	135.0	138.4	138.6	136.7	135.8	137.8	141.8	142.5
Electrical machinery and supplies	116.1	116.7	119.0	119.7	119.4	118.9	118.5	118.8	117.2
Transportation equipment	129.5	129.3	132.8	132.6	131.9	132.0	134.1	134.2	132.5
Scientific instruments; optical goods; clocks	137.0	132.2	137.7	136.7	133.8	132.8	134.2	137.8	138.1
Miscellaneous manufactured commodities	133.1	130.6	132.2	136.6	137.7	138.4	139.8	143.5	143.2

¹ SIC - based classification.

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

(1982=100)

Item	Quarterly Indexes										
	1987	1988				1989				1990	
	IV	I	II	III	IV	I	II	III	IV	I	II
Business:											
Output per hour of all persons	112.0	113.1	112.8	113.5	113.1	113.3	113.3	112.8	112.3	111.9	112.3
Compensation per hour	125.6	126.9	128.6	130.3	131.5	132.2	133.0	133.4	134.3	135.5	137.5
Real compensation per hour	105.0	105.3	105.5	105.6	105.5	104.6	103.7	103.3	103.0	101.9	102.5
Unit labor costs	112.1	112.2	114.0	114.8	116.3	116.7	117.4	118.2	119.6	121.1	122.4
Unit nonlabor payments	123.2	124.5	125.0	127.4	128.8	130.8	133.2	133.8	134.4	135.5	137.0
Implicit price deflator	115.7	116.2	117.5	118.9	120.3	121.2	122.5	123.3	124.3	125.8	127.1
Nonfarm business:											
Output per hour of all persons	110.9	112.1	111.9	112.7	112.8	112.4	112.2	112.0	111.4	110.8	111.2
Compensation per hour	124.9	126.2	127.7	129.4	130.8	131.4	131.9	132.5	133.4	134.4	136.3
Real compensation per hour	104.4	104.7	104.8	104.9	104.9	104.0	102.9	102.6	102.3	101.1	101.6
Unit labor costs	112.6	112.6	114.1	114.8	115.9	116.9	117.5	118.3	119.8	121.3	122.6
Unit nonlabor payments	124.1	125.4	125.8	127.4	130.6	130.9	133.9	134.7	135.3	135.7	137.5
Implicit price deflator	116.2	116.6	117.8	118.8	120.5	121.4	122.7	123.5	124.7	125.8	127.3
Nonfinancial corporations:											
Output per hour of all employees	112.9	113.8	113.7	113.5	113.2	112.5	112.1	112.3	111.1	110.5	111.0
Compensation per hour	122.6	123.8	125.3	126.8	127.9	128.9	129.4	130.0	130.7	131.4	133.3
Real compensation per hour	102.5	102.7	102.8	102.8	102.6	102.0	100.9	100.7	100.2	98.8	99.3
Total unit costs	106.8	107.1	108.2	109.7	110.9	112.7	114.1	115.0	117.0	118.1	119.2
Unit labor costs	108.6	108.8	110.2	111.8	113.0	114.6	115.4	115.7	117.6	118.9	120.1
Unit nonlabor costs	102.2	102.6	102.9	104.2	105.6	108.0	110.6	113.3	115.2	116.2	116.8
Unit profits	174.0	176.6	178.1	171.4	179.1	162.3	162.9	159.3	147.2	147.6	152.9
Unit nonlabor payments	116.1	116.9	117.5	117.2	119.8	118.5	120.7	122.2	121.4	122.3	123.8
Implicit price deflator	111.0	111.4	112.6	113.5	115.2	115.9	117.1	117.8	118.9	120.0	121.3
Manufacturing:											
Output per hour of all persons	126.1	126.7	127.5	128.8	129.2	130.1	130.9	130.5	131.3	133.0	134.3
Compensation per hour	120.4	122.4	123.1	124.3	125.7	126.5	126.6	127.6	128.4	129.2	131.2
Real compensation per hour	100.7	101.5	100.9	100.7	100.8	100.2	98.7	98.8	98.5	97.2	97.8
Unit labor costs	95.5	96.6	96.5	96.5	97.3	97.3	96.7	97.8	97.8	97.1	97.7

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

(1977=100)

Item	1960	1970	1973	1978	1980	1981	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	100.6	100.3	103.0	105.6	107.9	110.3	111.2
Output per unit of capital services	103.7	102.7	105.6	101.9	94.1	92.3	86.6	88.3	92.7	92.9	93.0	93.7
Multifactor productivity	78.5	93.1	99.2	101.2	97.4	97.6	95.2	97.6	100.9	102.4	103.9	104.7
Output	55.3	80.2	93.0	105.8	106.6	108.9	105.4	109.9	119.2	124.3	128.7	133.4
Inputs:												
Hours of all persons	82.2	90.8	96.9	105.0	107.5	108.2	105.2	106.7	112.9	115.2	116.7	120.0
Capital services	53.3	78.1	88.0	103.8	113.3	117.9	121.8	124.4	128.6	133.8	138.5	142.4
Combined units of labor and capital input	70.5	86.1	93.7	104.6	109.4	111.5	110.7	112.6	118.1	121.4	123.9	127.4
Capital per hour of all persons	64.9	86.1	90.8	98.9	105.4	108.9	115.8	116.6	113.9	116.1	118.7	118.6
Private nonfarm business:												
Productivity:												
Output per hour of all persons	70.7	89.2	96.4	100.8	98.7	99.6	99.1	102.5	104.7	106.2	108.3	109.1
Output per unit of capital services	104.9	103.5	106.3	101.9	93.3	91.0	85.1	87.3	91.3	91.0	90.8	91.5
Multifactor productivity	81.2	93.8	99.7	101.2	96.9	96.7	94.1	97.0	99.9	100.7	102.0	102.7
Output	54.4	79.9	92.9	106.0	106.6	108.4	104.8	110.1	119.3	124.0	128.3	133.2
Inputs:												
Hours of all persons	77.0	89.6	96.3	105.1	108.0	108.8	105.7	107.4	114.0	116.8	118.5	122.0
Capital services	51.9	77.2	87.3	104.0	114.2	119.1	123.3	126.1	130.6	136.3	141.3	145.5
Combined units of labor and capital input	67.1	85.2	93.2	104.7	110.0	112.2	111.4	113.5	119.4	123.1	125.8	129.6
Capital per hour of all persons	67.4	86.2	90.7	99.0	105.7	109.4	116.6	117.4	114.6	116.7	119.3	119.2
Manufacturing:												
Productivity:												
Output per hour of all persons	62.2	80.8	93.4	101.5	101.4	103.6	105.9	112.0	118.1	123.6	127.7	131.9
Output per unit of capital services	103.0	99.1	112.0	102.0	91.0	89.0	81.6	86.7	95.5	97.3	98.4	102.0
Multifactor productivity	72.0	85.3	98.0	101.6	98.6	99.7	99.2	105.0	112.1	116.4	119.5	123.6
Output	52.5	78.6	96.3	106.0	103.2	104.8	98.4	104.7	117.5	122.0	124.7	130.1
Inputs:												
Hours of all persons	84.4	97.3	103.1	104.4	101.7	101.1	92.9	93.5	99.5	98.7	97.7	98.6
Capital services	51.0	79.3	86.0	103.9	113.4	117.8	120.5	120.8	123.0	125.4	126.8	127.6
Combined units of labor and capital inputs	72.9	92.1	98.3	104.2	104.6	105.1	99.2	99.7	104.8	104.8	104.4	105.3
Capital per hour of all persons	60.4	81.5	83.4	99.5	111.5	116.5	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

(1982=100)

Item	1960	1970	1973	1978	1980	1982	1983	1984	1985	1986	1987	1988	1989
Business:													
Output per hour of all persons	66.0	87.4	95.0	100.7	99.2	100.0	102.4	105.0	107.1	109.5	110.7	113.0	112.8
Compensation per hour	21.2	36.9	45.4	70.1	85.1	100.0	103.8	108.1	112.8	118.6	123.1	129.1	133.1
Real compensation per hour	69.2	91.9	98.7	103.8	99.7	100.0	100.6	100.4	101.2	104.4	104.6	105.3	103.5
Unit labor costs	32.2	42.3	47.8	69.7	85.8	100.0	101.4	103.0	105.4	108.4	111.2	114.3	118.0
Unit nonlabor payments	34.0	43.6	53.3	78.3	86.9	100.0	107.3	114.8	118.1	119.0	122.5	126.5	133.1
Implicit price deflator	32.8	42.7	49.6	72.5	86.2	100.0	103.3	106.8	109.5	111.8	114.8	118.2	122.8
Nonfarm business:													
Output per hour of all persons	70.1	89.2	96.6	101.8	99.9	100.0	103.0	105.1	106.5	108.6	109.8	112.3	111.9
Compensation per hour	22.3	37.3	45.7	70.2	85.1	100.0	104.0	108.1	112.5	118.2	122.5	128.3	132.1
Real compensation per hour	72.8	92.7	99.3	104.0	99.6	100.0	100.7	100.4	100.9	104.1	104.1	104.7	102.8
Unit labor costs	31.8	41.8	47.3	69.0	85.2	100.0	101.0	102.8	105.6	108.8	111.6	114.3	118.1
Unit nonlabor payments	34.0	44.1	51.0	77.6	86.8	100.0	108.8	114.9	119.0	120.0	123.6	127.4	133.7
Implicit price deflator	32.5	42.5	48.4	71.7	85.7	100.0	103.5	106.6	109.8	112.3	115.3	118.4	123.0
Nonfinancial corporations:													
Output per hour of all employees	71.8	90.0	96.6	100.4	99.0	100.0	102.7	105.2	106.9	109.4	112.1	113.4	111.9
Compensation per hour	23.4	38.1	46.1	70.4	85.2	100.0	103.2	107.1	111.3	116.7	120.5	125.8	129.6
Real compensation per hour	76.4	94.6	100.1	104.2	99.8	100.0	100.0	99.4	99.9	102.8	102.4	102.6	100.9
Total unit costs	31.0	40.7	45.6	67.3	83.7	100.0	100.0	100.8	102.9	105.7	106.2	109.0	114.7
Unit labor costs	32.7	42.3	47.7	70.1	86.1	100.0	100.4	101.8	104.2	106.7	107.5	111.0	115.8
Unit nonlabor costs	26.6	36.4	40.1	59.9	77.5	100.0	98.8	98.4	99.6	103.0	102.7	103.8	111.8
Unit profits	76.2	66.6	83.6	129.9	108.5	100.0	141.4	174.0	169.5	156.8	171.1	176.3	157.9
Unit nonlabor payments	36.2	42.3	48.5	73.5	83.5	100.0	107.0	113.0	113.1	113.4	115.9	117.8	120.7
Implicit price deflator	33.8	42.3	48.0	71.2	85.2	100.0	102.6	105.4	107.1	108.9	110.2	113.2	117.4
Manufacturing:													
Output per hour of all persons	56.9	75.2	86.9	95.3	95.3	100.0	105.2	110.8	115.9	120.2	124.7	127.6	130.1
Compensation per hour	22.5	35.9	43.0	68.2	83.7	100.0	102.5	106.0	111.1	116.1	119.0	123.4	126.7
Real compensation per hour	73.2	89.3	93.5	101.0	98.0	100.0	99.3	98.4	99.6	102.3	101.1	100.6	98.6
Unit labor costs	39.5	47.7	49.5	71.6	87.8	100.0	97.5	95.6	95.9	96.6	95.5	96.7	97.4
Unit nonlabor payments	52.8	56.4	62.2	89.6	85.9	100.0	112.9	121.8	114.6	118.9	121.5	-	-
Implicit price deflator	42.6	49.8	52.5	75.9	87.3	100.0	101.1	101.8	100.4	101.9	101.7	-	-

- Data not available.

Current Labor Statistics: Productivity Data

47. Annual productivity indexes for selected industries

(1977 = 100)

Industry	SIC	1970	1975	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Iron mining, crude ore	1011	99.9	112.7	122.7	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	122.8	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	109.1	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	98.2	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	99.4	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	99.6	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	102.7	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	106.9	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	101.7	107.0	107.9	112.3	115.9	117.0	119.5	117.3	115.3	-
Meatpacking plants	2011	78.7	88.6	104.6	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	95.0	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	106.1	105.7	116.4	125.6	131.7	130.3	133.2	127.3	135.4	-
Fluid milk	2026	73.7	95.5	115.6	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	98.9	100.8	99.2	107.9	110.8	112.4	113.4	118.3	116.4	-
Grain mill products	204	79.7	87.1	101.0	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	97.3	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	96.3	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	95.0	93.7	96.2	103.3	106.9	106.8	108.5	114.4	113.3	-
Sugar	2061,62,63	85.9	94.0	103.1	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	101.5	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	104.6	102.1	98.7	94.8	94.5	108.0	100.7	111.8	139.2	138.2
Malt beverages	2082	56.7	86.1	109.9	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	103.4	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	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	102.4	101.8	99.6	99.5	104.1	107.2	111.7	115.5	123.1	119.9
Cigars	2121	88.4	93.7	101.4	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	100.7	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	107.9	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	103.8	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	96.9	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	106.3	104.2	107.9	117.1	126.8	132.3	139.2	155.1	151.1	148.7
Millwork	2431	95.9	100.2	92.2	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	94.5	102.8	106.9	114.4	121.1	120.0	125.1	128.8	132.1	-
Household furniture	251	82.2	97.5	101.5	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	101.6	97.2	97.3	98.2	103.8	105.5	104.4	111.9	110.5	-
Upholstered household furniture	2512	84.4	97.2	105.1	102.3	110.5	115.9	121.6	122.7	124.6	127.1	125.2	-
Mattresses and bedsprings	2515	67.7	96.9	102.8	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	107.2	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	105.4	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	98.0	94.6	92.3	95.3	102.9	105.6	107.1	112.3	110.5	-
Folding paperboard boxes	2651	77.4	98.5	104.6	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	106.9	111.0	109.8	111.9	114.0	118.9	122.5	126.7	123.3	124.3
Industrial inorganic chemicals	281	-	86.5	112.2	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	114.6	90.3	89.3	80.8	85.8	95.0	91.5	90.6	92.0	-
Synthetic fibers	2823,24	53.8	84.5	115.0	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	105.3	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	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	104.8	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	113.4	98.9	103.9	87.2	105.3	113.9	112.5	119.6	132.1	-
Agricultural chemicals	287	-	86.7	102.0	97.2	97.7	94.5	106.2	119.8	115.6	110.0	129.4	-
Petroleum refining	2911	73.8	88.7	94.9	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	107.3	102.4	118.1	128.2	136.1	146.8	146.7	151.4	162.2	169.7
Miscellaneous plastic products	3079	-	86.2	94.8	95.7	98.5	110.1	107.2	110.5	113.0	114.1	125.4	-
Footwear	314	100.3	101.3	100.2	99.1	95.6	106.4	103.9	105.7	107.3	109.3	107.7	109.4
Glass containers	3221	87.2	98.5	102.4	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	96.0	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	95.9	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	91.6	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	85.4	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	110.2	109.6	111.1	100.0	121.6	115.1	114.1	122.9	121.9	-
Concrete products	3271,72	82.3	91.9	92.7	90.4	88.5	91.0	97.6	99.2	100.5	105.9	102.1	-
Ready-mixed concrete	3273	81.1	97.5	99.9	93.1	95.4	90.6	93.7	96.3	97.4	100.1	104.5	-
Steel	331	87.6	93.3	106.9	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	96.8	90.8	92.7	93.7	98.3	106.8	104.2	107.4	108.8	112.1
Steel foundries	3324,25	90.6	107.5	100.6	99.8	91.6	89.0	89.9	98.8	95.6	100.3	95.0	-
Steel foundries, not elsewhere classified	3325	-	107.7	100.4	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	106.5	103.7	118.6	128.0	141.2	148.0	181.5	210.8	259.8	-
Primary copper	3331	79.8	83.0	113.3	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	99.7	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	98.1	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	100.3	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	103.6	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	103.9	98.4	95.2	92.8	88.8	89.5	90.1	89.2	93.9	-
Heating equipment, except electric	3433	-	80.4	95.8	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	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	92.8	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	102.3	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	105.3	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	100.5	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	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Construction machinery and equipment	3531	83.4	93.9	100.3	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	105.6	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	102.0	98.8	96.5	88.0	83.0	93.6	96.7	97.7	110.8	106.0
Metal-cutting machine tools	3541	89.5	102.9	103.0	100.6	98.9	89.2	81.1	93.3	96.4	97.6	112.4	95.1
Metal-forming machine tools	3542	98.5	104.0	99.2	93.5	89.4	85.0	87.6	93.7	96.6	97.1	105.9	127.4
Pumps and compressors	3561,63	85.8	91.4	102.9	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	105.8	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	101.4	93.8	99.4	100.1	100.9	105.5	103.7	101.5	107.9	-
Carburetors, pistons, rings, and valves	3592	-	100.1	94.6	90.3	91.7	92.0	99.6	110.3	114.0	111.1	118.8	-
Transformers	3612	89.1	89.3	108.4	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	102.8	103.2	99.5	101.3	106.1	107.4	110.6	110.7	107.9	112.8
Motors and generators	3621	87.8	93.0	99.3	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	108.7	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	108.9	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	112.3	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	108.1	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	102.6	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	105.2	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	94.6	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	118.5	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	138.1	149.4	171.6	197.9	211.5	229.2	206.4	215.6	292.2	318.2
Motor vehicles and equipment	371	70.5	87.7	97.8	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	100.2	108.4	111.9	119.2	121.8	133.7	130.4	122.2	132.2	-
Photographic equipment and supplies	3861	67.6	92.9	120.6	112.7	111.2	110.2	124.8	131.8	131.1	144.3	153.4	-
Railroad transportation, revenue traffic	401 Class I	77.7	89.5	104.7	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	102.9	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	98.3	100.9	90.7	98.8	95.4	90.9	87.4	86.8	90.6	-
Intercity trucking	4213 pt.	83.5	89.2	116.7	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	116.4	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	113.1	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	101.7	93.0	86.0	89.2	94.3	104.5	104.9	107.0	104.9	110.7
Telephone communications	4811	62.1	85.9	110.8	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	97.6	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	95.4	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	103.4	102.1	98.1	89.0	81.1	83.6	82.1	74.1	71.6	74.7
Scrap and waste materials	5093	-	-	110.6	108.2	104.8	103.0	123.5	122.2	127.9	133.8	138.7	-
Hardware stores	5251	-	97.8	114.8	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	104.4	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	102.4	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	98.3	100.3	97.1	95.5	95.2	95.6	95.8	93.7	92.7	91.8
Grocery stores	5411	-	98.6	99.0	100.1	97.9	97.9	98.6	100.1	98.4	96.3	93.8	92.1
Retail bakeries	546	-	93.1	98.6	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	97.7	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	103.2	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	107.4	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	112.9	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	108.6	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	116.0	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	108.2	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	112.8	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	107.6	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	104.8	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	112.4	124.0	132.4	128.7	143.4	158.0	180.0	198.9	211.9	243.2
Household appliance stores	572	-	89.5	111.3	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	112.7	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	99.5	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	103.8	107.0	107.6	107.9	110.9	105.7	105.5	104.6	103.8	105.3
Liquor stores	5921	-	96.3	96.6	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	99.3	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	100.0	95.0	91.6	88.8	95.4	102.1	97.5	92.8	88.0	-
Laundry and cleaning services	721	94.7	96.6	97.7	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	107.4	102.9	109.2	108.3	114.0	103.9	98.6	97.3	99.1	96.0
Beauty shops	7231	-	100.1	108.0	106.2	114.7	113.1	120.1	112.3	104.1	98.8	100.1	96.2
Automotive repair shops	753	-	102.0	100.4	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					1990	
	1988	1989	IV	I	II	III	IV	I	II	
Total labor force basis										
United States	5.4	5.2	5.2	5.1	5.2	5.2	5.3	5.2	5.2	
Canada	7.7	7.5	7.7	7.5	7.5	7.4	7.6	7.5	7.4	
Australia	7.2	6.1	6.7	6.6	6.1	6.0	5.9	6.2	6.4	
Japan	2.5	2.3	2.4	2.3	2.3	2.2	2.2	2.1	2.1	
France	10.0	9.5	9.9	9.6	9.5	9.5	9.4	9.4	9.3	
Germany	6.2	5.6	6.0	5.7	5.6	5.6	5.5	5.3	5.2	
Italy ^{1, 2}	7.8	7.7	7.7	7.6	7.8	7.7	7.5	7.2	6.6	
Sweden	1.6	1.3	1.4	1.4	1.3	1.3	1.4	1.3	1.3	
United Kingdom	8.5	6.9	7.9	7.5	7.1	6.7	6.3	6.1	6.1	
Civilian labor force basis										
United States	5.5	5.3	5.3	5.2	5.3	5.3	5.3	5.2	5.3	
Canada	7.8	7.5	7.7	7.5	7.6	7.4	7.6	7.6	7.4	
Australia	7.2	6.2	6.8	6.6	6.1	6.1	5.9	6.2	6.4	
Japan	2.5	2.3	2.4	2.4	2.3	2.3	2.2	2.1	2.1	
France	10.2	9.7	10.2	9.8	9.8	9.7	9.6	9.6	9.5	
Germany	6.3	5.7	6.2	5.9	5.7	5.7	5.6	5.4	5.3	
Italy ^{1, 2}	7.9	7.8	7.8	7.8	8.0	7.8	7.7	7.4	6.8	
Sweden	1.6	1.3	1.4	1.4	1.3	1.3	1.4	1.4	1.3	
United Kingdom	8.6	7.0	8.0	7.6	7.2	6.7	6.4	6.2	6.2	

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

cent for 1986 onward.
 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	1989
Labor force										
United States	106,940	108,670	110,204	111,550	113,544	115,461	117,834	119,865	121,669	123,869
Canada	11,573	11,899	11,926	12,109	12,316	12,532	12,746	13,011	13,275	13,503
Australia	6,693	6,810	6,910	6,997	7,135	7,300	7,588	7,758	7,974	8,237
Japan	55,740	56,320	56,980	58,110	58,480	58,820	59,410	60,050	60,860	61,920
France	22,800	22,950	23,160	23,140	23,300	23,360	23,440	23,550	23,590	23,750
Germany	27,260	27,540	27,710	27,670	27,800	28,020	28,240	28,380	28,580	28,790
Italy	21,120	21,320	21,410	21,590	21,670	21,800	22,290	22,350	22,660	22,530
Netherlands	5,860	6,080	6,140	6,170	6,260	6,280	6,370	6,540	6,560	6,650
Sweden	4,312	4,327	4,350	4,369	4,385	4,418	4,443	4,480	4,540	4,599
United Kingdom	26,520	26,590	26,560	26,590	27,010	27,210	27,380	27,720	28,150	28,250
Participation rate¹										
United States	63.8	63.9	64.0	64.0	64.4	64.8	65.3	65.6	65.9	66.5
Canada	64.1	64.8	64.1	64.4	64.8	65.3	65.7	66.2	66.7	67.0
Australia	62.1	61.9	61.7	61.4	61.5	61.6	62.8	63.0	63.3	64.2
Japan	62.6	62.6	62.7	63.1	62.7	62.3	62.1	61.9	61.9	62.2
France	57.2	57.1	57.1	56.6	56.6	56.3	56.1	55.9	55.5	55.5
Germany	54.7	54.7	54.6	54.3	54.4	54.7	54.9	55.0	54.9	55.0
Italy	48.2	48.3	47.7	47.5	47.3	47.2	47.8	47.6	47.4	47.1
Netherlands	55.3	56.6	56.5	56.1	56.2	55.7	55.9	56.7	56.3	56.7
Sweden	66.9	66.8	66.8	66.7	66.6	66.9	67.0	67.1	67.6	68.1
United Kingdom	62.5	62.2	61.9	61.6	62.1	62.2	62.3	62.7	63.5	63.6
Employed										
United States	99,303	100,397	99,526	100,834	105,005	107,150	109,597	112,440	114,968	117,342
Canada	10,708	11,001	10,618	10,675	10,932	11,221	11,531	11,861	12,245	12,486
Australia	6,284	6,416	6,415	6,300	6,494	6,697	6,974	7,129	7,398	7,728
Japan	54,600	55,060	55,620	56,550	56,870	57,260	57,740	58,320	59,310	60,500
France	21,330	21,200	21,240	21,170	20,980	20,920	20,950	21,020	21,180	21,440
Germany	26,490	26,450	26,150	25,770	25,830	26,010	26,380	26,580	26,770	27,140
Italy	20,200	20,280	20,250	20,320	20,390	20,490	20,610	20,590	20,870	20,770
Netherlands	5,510	5,540	5,510	5,410	5,490	5,640	5,730	5,890	5,940	6,050
Sweden	4,226	4,219	4,213	4,218	4,249	4,293	4,326	4,396	4,467	4,538
United Kingdom	24,670	23,800	23,560	23,450	23,830	24,150	24,300	24,860	25,740	26,270
Employment-population ratio²										
United States	59.2	59.0	57.8	57.9	59.5	60.1	60.7	61.5	62.3	63.0
Canada	59.3	59.9	57.1	56.8	57.5	58.5	59.4	60.4	61.6	62.0
Australia	58.3	58.4	57.3	55.3	56.0	56.5	57.7	57.9	58.7	60.2
Japan	61.3	61.2	61.2	61.4	61.0	60.6	60.4	60.1	60.4	60.8
France	53.5	52.8	52.3	51.8	51.0	50.4	50.2	49.9	49.8	50.1
Germany	53.1	52.5	51.6	50.6	50.5	50.7	51.3	51.5	51.5	51.9
Italy	46.1	45.9	45.2	44.7	44.5	44.4	44.2	43.8	43.7	43.4
Netherlands	52.0	51.6	50.7	49.2	49.3	50.0	50.2	51.1	51.0	51.5
Sweden	65.6	65.1	64.7	64.4	64.5	65.0	65.2	65.8	66.5	67.2
United Kingdom	58.1	55.7	54.9	54.3	54.8	55.2	55.2	56.2	58.1	59.2
Unemployed										
United States	7,637	8,273	10,678	10,717	8,539	8,312	8,237	7,425	6,701	6,528
Canada	865	898	1,308	1,434	1,384	1,311	1,215	1,150	1,031	1,018
Australia	409	394	495	697	641	603	613	629	576	509
Japan	1,140	1,260	1,360	1,560	1,610	1,560	1,670	1,730	1,550	1,420
France	1,470	1,750	1,920	1,970	2,320	2,440	2,490	2,530	2,410	2,310
Germany	770	1,090	1,560	1,900	1,970	2,010	1,860	1,800	1,810	1,650
Italy	920	1,040	1,160	1,270	1,280	1,310	1,680	1,760	1,790	1,760
Netherlands	350	540	630	760	770	640	640	650	620	600
Sweden	86	108	137	151	136	125	117	84	73	61
United Kingdom	1,850	2,790	3,000	3,140	3,180	3,060	3,080	2,860	2,410	1,980
Unemployment rate										
United States	7.1	7.6	9.7	9.6	7.5	7.2	7.0	6.2	5.5	5.3
Canada	7.5	7.5	11.0	11.8	11.2	10.5	9.5	8.8	7.8	7.5
Australia	6.1	5.8	7.2	10.0	9.0	8.3	8.1	8.1	7.2	6.2
Japan	2.0	2.2	2.4	2.7	2.8	2.6	2.8	2.9	2.5	2.3
France	6.4	7.6	8.3	8.5	10.0	10.4	10.6	10.7	10.2	9.7
Germany	2.8	4.0	5.6	6.9	7.1	7.2	6.6	6.3	6.3	5.7
Italy	4.4	4.9	5.4	5.9	5.9	6.0	7.5	7.9	7.9	7.8
Netherlands	6.0	8.9	10.3	12.3	12.3	10.2	10.0	9.9	9.5	9.0
Sweden	2.0	2.5	3.1	3.5	3.1	2.8	2.6	1.9	1.6	1.3
United Kingdom	7.0	10.5	11.3	11.8	11.8	11.2	11.2	10.3	8.6	7.0

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.

Current Labor Statistics: International Comparisons Data

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

(1977=100)

Item and country	1960	1970	1973	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Output per hour															
United States	56.9	75.2	86.9	95.3	95.3	95.3	97.5	100.0	105.2	110.8	115.9	120.2	124.7	127.6	130.1
Canada	51.6	76.9	91.9	102.9	103.8	99.9	104.8	100.0	107.3	116.4	119.8	118.4	119.2	121.2	123.8
Japan	17.2	48.0	61.5	80.0	85.0	90.9	94.3	100.0	105.4	113.0	119.4	121.3	130.7	136.9	144.8
Belgium	24.2	44.2	57.7	77.8	82.0	87.3	94.2	100.0	110.2	114.7	116.9	118.2	122.8	128.8	-
Denmark	32.4	57.2	72.7	88.6	92.9	98.0	99.6	100.0	104.9	104.3	105.0	98.9	100.6	103.8	106.8
France	30.7	58.5	68.7	85.7	89.9	90.6	93.4	100.0	102.5	104.5	108.8	110.8	113.8	119.6	125.1
Germany	36.9	65.2	76.3	94.1	97.9	97.8	99.3	100.0	105.1	108.5	112.4	111.4	109.5	114.4	119.6
Italy	28.9	54.3	64.9	82.9	90.7	95.1	97.6	100.0	105.3	115.8	122.1	123.2	126.5	130.1	133.8
Netherlands	27.3	54.1	68.4	89.2	94.1	95.1	97.7	100.0	106.7	116.4	121.1	122.4	123.3	128.9	134.7
Norway	47.8	74.5	86.4	92.2	97.7	96.3	96.5	100.0	105.2	112.6	116.0	114.6	120.4	123.9	131.7
Sweden	36.5	69.6	81.8	88.7	95.6	96.4	95.8	100.0	106.5	111.9	112.6	114.3	115.7	117.4	119.3
United Kingdom	49.4	70.8	84.1	89.3	90.3	89.9	94.5	100.0	108.4	114.3	118.0	122.6	130.1	137.1	144.1
Output															
United States	53.4	79.9	97.9	107.7	109.8	104.8	106.5	100.0	106.4	119.4	124.0	126.8	132.3	139.9	144.0
Canada	44.1	78.5	100.0	111.7	115.9	110.7	114.8	100.0	106.5	120.2	127.0	128.4	135.8	144.1	146.9
Japan	14.0	51.0	67.0	77.8	83.0	90.4	94.5	100.0	108.0	120.5	128.9	129.6	138.9	150.0	161.1
Belgium	37.8	70.8	86.8	91.3	93.7	96.2	95.8	100.0	105.0	107.3	108.4	107.1	108.4	113.9	-
Denmark	45.4	75.7	88.5	92.0	97.3	101.7	98.4	100.0	106.7	111.7	115.3	115.3	111.8	111.6	113.2
France	35.1	72.7	87.0	98.4	101.3	100.6	99.0	100.0	99.9	98.7	99.1	99.1	99.6	103.0	107.2
Germany	48.8	84.6	93.8	99.4	104.0	104.0	102.4	100.0	101.1	103.9	107.4	107.4	105.2	109.5	114.8
Italy	27.8	58.1	70.4	88.4	97.5	102.7	101.0	100.0	100.9	105.5	108.7	111.1	115.6	124.4	128.2
Netherlands	42.7	80.3	91.2	97.9	101.0	101.5	101.5	100.0	101.9	107.9	111.1	113.7	114.4	119.6	125.7
Norway	56.0	88.4	101.3	99.8	102.7	101.7	100.7	100.0	99.3	105.0	108.8	108.8	110.8	107.5	107.8
Sweden	51.8	91.0	98.7	95.7	101.9	102.3	99.6	100.0	105.7	113.7	115.9	116.7	119.9	123.7	126.5
United Kingdom	82.3	109.8	121.2	116.4	116.2	106.1	99.8	100.0	102.9	107.1	109.8	111.1	116.9	125.5	131.1
Total hours															
United States	93.8	106.1	112.7	113.0	115.2	110.0	109.2	100.0	101.2	107.7	107.0	105.5	106.1	109.6	110.6
Canada	85.5	102.1	108.8	108.6	111.6	110.8	109.6	100.0	99.2	103.3	106.0	108.5	114.0	118.9	118.6
Japan	81.3	106.1	108.8	97.2	97.6	99.5	100.3	100.0	102.5	106.6	108.0	106.8	106.3	109.6	111.2
Belgium	156.2	159.9	150.3	117.4	114.3	110.1	101.7	100.0	95.2	93.6	92.7	90.6	88.3	88.4	-
Denmark	140.0	132.3	121.8	103.9	104.7	103.7	98.8	100.0	101.7	107.1	109.8	116.6	111.2	107.6	106.0
France	114.5	124.1	126.7	114.8	112.6	111.0	106.0	100.0	97.4	94.4	91.0	89.4	87.5	86.1	85.7
Germany	132.0	129.7	123.0	105.6	106.2	106.4	103.1	100.0	96.2	95.8	95.6	96.4	96.1	95.7	96.0
Italy	96.2	107.0	108.3	106.6	107.4	108.0	103.4	100.0	95.8	91.1	89.0	90.1	91.4	95.7	95.9
Netherlands	156.6	148.5	133.4	109.8	107.4	106.8	103.9	100.0	95.5	92.7	91.8	92.9	92.7	92.8	93.3
Norway	117.3	118.6	117.3	108.3	105.1	105.5	104.3	100.0	94.3	93.2	93.8	94.9	92.1	86.8	81.8
Sweden	141.9	130.7	120.6	108.0	106.5	106.1	103.9	100.0	99.2	101.6	103.0	102.1	103.6	105.3	106.0
United Kingdom	166.7	155.0	144.1	130.3	128.8	118.1	105.6	100.0	94.8	93.7	93.1	90.6	89.9	91.5	91.0
Compensation per hour															
United States	22.5	35.9	43.0	68.2	74.9	83.7	91.8	100.0	102.5	106.0	111.1	116.1	119.2	123.5	128.8
Canada	16.4	28.7	35.9	64.4	71.0	78.6	90.4	100.0	106.1	111.1	116.8	121.4	126.3	132.5	143.8
Japan	6.5	24.8	40.4	78.1	83.1	88.4	95.0	100.0	103.0	106.1	110.9	116.3	119.0	121.6	129.9
Belgium	9.1	23.1	35.5	71.5	77.9	86.3	95.9	100.0	106.0	114.8	121.8	126.6	129.4	131.6	-
Denmark	7.7	22.3	34.5	67.7	75.6	83.4	91.9	100.0	106.9	113.0	120.6	123.1	135.7	140.5	147.8
France	7.4	17.8	25.5	55.4	62.9	72.8	84.3	100.0	110.4	120.0	130.2	135.9	142.7	148.7	155.5
Germany	13.7	35.1	48.9	78.6	83.9	90.4	96.2	100.0	104.4	108.9	115.1	119.7	125.0	130.1	136.0
Italy	3.9	11.6	17.7	49.4	59.8	70.2	84.8	100.0	117.0	134.3	150.9	157.1	166.7	175.6	194.4
Netherlands	9.1	28.5	44.1	78.8	85.0	89.6	93.7	100.0	104.6	107.9	113.6	117.1	120.7	123.8	125.7
Norway	9.9	24.6	35.3	70.9	74.7	81.2	90.3	100.0	110.3	120.9	132.2	145.0	165.6	175.9	183.3
Sweden	9.3	24.4	34.3	70.5	76.1	84.5	93.0	100.0	109.9	119.3	130.9	141.8	151.6	162.9	180.7
United Kingdom	7.2	14.9	22.6	55.1	65.6	79.7	91.5	100.0	106.9	114.2	122.6	132.1	140.5	149.2	164.3
Unit labor costs: National currency basis															
United States	39.5	47.7	49.5	71.6	78.6	87.8	94.1	100.0	97.5	95.6	95.9	96.6	95.6	96.8	99.0
Canada	31.9	37.3	39.1	62.6	68.4	78.7	86.3	100.0	98.9	95.5	97.6	102.5	106.0	109.3	116.1
Japan	37.9	51.6	65.6	97.5	97.7	97.2	100.8	100.0	97.7	93.9	92.9	95.9	91.1	88.9	89.7
Belgium	37.8	52.3	61.4	92.0	95.0	98.9	101.8	100.0	96.1	100.1	104.2	107.2	105.4	102.2	-
Denmark	23.8	39.0	47.4	76.4	81.4	85.1	92.2	100.0	101.9	108.3	114.9	124.5	134.9	135.5	138.3
France	24.0	30.4	37.1	64.6	70.0	80.3	90.3	100.0	107.6	114.9	119.6	122.6	125.4	124.4	124.3
Germany	37.2	53.8	64.1	83.5	85.7	92.4	96.8	100.0	99.4	100.4	102.4	107.5	114.1	113.7	113.7
Italy	13.6	21.4	27.2	59.5	65.9	73.8	86.9	100.0	111.2	115.9	123.6	127.5	131.8	135.0	145.4
Netherlands	33.4	52.7	64.5	88.4	90.4	94.2	95.9	100.0	98.1	92.7	93.9	95.7	97.9	96.0	93.3
Norway	20.6	33.0	40.9	76.9	76.5	84.3	93.6	100.0	104.8	107.4	114.0	126.5	137.6	142.0	139.1
Sweden	25.5	35.0	42.0	79.5	79.5	87.6	97.0	100.0	103.1	106.7	116.3	124.1	131.0	138.7	151.4
United Kingdom	14.6	21.0	26.9	61.7	72.7	88.7	96.8	100.0	98.6	99.9	103.9	107.8	108.0	108.8	114.0
Unit labor costs: U.S. dollar basis															
United States	39.5	47.7	49.5	71.6	78.6	87.8	94.1	100.0	97.5	95.6	95.9	96.6	95.6	96.8	99.0
Canada	40.6	44.1	48.2	67.8	72.1	83.1	88.9	100.0	99.0	91.0	88.2	91.1	98.6	109.7	121.0
Japan	26.2	35.9	60.3	116.6	111.5	107.3	113.8	100.0	102.5	98.5	97.0	141.9	156.9	172.7	161.8
Belgium	34.7	48.2	72.5	133.9	148.2	155.0	125.9	100.0	86.1	79.3	80.4	109.8	129.1	127.1	-
Denmark	28.8	43.4	65.7	115.7	129.1	126.2	107.8	100.0	92.9	87.3	90.4	128.3	164.4	167.7	157.7
France	32.2	36.2	55.0	94.4	108.2	125.2	109.2	100.0	92.9	86.5	87.7	116.4	137.2	137.3	128.2
Germany	21.7	35.8	58.8	101.1	113.5	123.6	104.3	100.0	94.5	85.7	84.5	120.2	154.1	157.1	146.8
Italy	29.6	46.2	63.4	95.0	107.4	116.8	103.3	100.0	99.1	89.4	87.7	115.8	137.6	140.3	143.4
Netherlands	23.7	38.9	62.0	109.3	120.4	126.8	103.0	100.0	91.8	77.2	75.6	104.4	129.1	129.7	117.5

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 SECTOR³									
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 fishing³									
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.

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