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In this issue:

The declining middle class thesis re-examined
Recent growth of U.S. multifactor productivity
Wage change in 1987 contracts





U.S. DEPARTMENT OF LABOR
Ann McLaughlin, Secretary

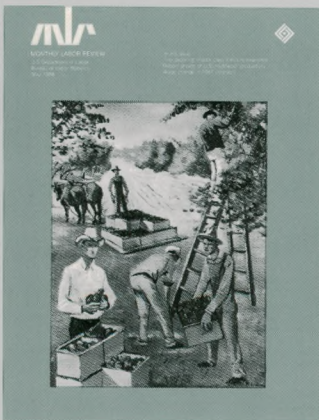
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Labor Month In Review



UNDOCUMENTED ALIENS. The Bureau of Labor Statistics received many inquiries concerning the effect that legalization of undocumented aliens may be having on employment numbers, particularly those from the payroll survey. The questions are based on the theory that recent increases in payroll employment reflect the sudden reporting of aliens who, although long employed, were not reported until they were legalized under the new immigration law. This is how BLS responded to the inquiries:

The sudden reporting theory relies on the critical assumption that the illegal aliens being processed through the "legalization" program *had not previously been reported by their employers.* Inherent in this assumption is the belief that employers of illegal aliens had previously faced serious sanctions, or censure, and that these have been removed through the legalization program.

However, prior to the Immigration Reform and Control Act of 1986, there had been no "adverse legal consequences" that would have dissuaded employers from reporting illegal aliens on their payrolls. There was, in fact, no reason why the employers should have cared about the nationality and legal status of their workers *until after the passage of the immigration bill.* More importantly, employers have never been asked the nationality or legal status of their employees in the surveys conducted by the Bureau of Labor Statistics. They are asked only how many employees they have, the hours they work, the earnings they receive, etc. There was, therefore, no meaningful incentive for employers to under-report the level of their payrolls to BLS. Even if some employers were paying some of their employees "under the table" and thus off payroll, this was not very likely occurring on a large scale.

Moreover, several studies of "apprehended" illegal aliens have found that the majority had valid Social Security cards and had been paying taxes. One study, by David North in the 1970's, found the percentage of illegal aliens with Social Security cards to be as high as 77 percent. In fact, until the late 1970's, Social Security cards could be obtained on demand, by anyone, regardless of citizenship, place of birth, or legal-residence status. Because the legalization program applies only to persons who arrived in this country prior to 1982, it would not be surprising if most of these had valid Social Security cards—and were "on the books" of their employers.

California data. Because California accounted for 57 percent of the legalization claims, the sudden reporting hypothesis would suggest an unusually large spurt in this State's payroll data for the period in question. But, from September 1987 to February 1988, the payroll employment data for California (not seasonally adjusted) show an increase of 97,000, hardly different from the increase of 91,000 posted over the same period one year earlier (September 1986 to February 1987).

Only by examining the data for the entire February 1987 to February 1988 period, can one find evidence of a modest spurt in employment growth in California. Over this 1-year period, the number of payroll jobs in California increased by 450,000 (compared with 375,000 the previous year). The State's growth in the latest 12-month period accounted for 14.5 percent of the total growth in payroll employment for the Nation, a somewhat greater share than the State's share of the payroll employment pie (11.5 percent). But the "excess" growth, whether computed on the basis of the previous year's growth for the State or as a share of the national gains,

is only on the order of 80,000 to 90,000. Moreover, this growth was achieved when the State's unemployment rate was declining substantially. From February 1987 to February 1988, it dropped from 6.7 to 5.8 percent.

It should be noted that the highest number of legalization claims per month actually were filed over the June-to-September 1987 period. Thus, the employment effects — if any — should also have been concentrated during this period. California's "excess" growth did occur during this period, and thus it could be argued that it was linked to the legalization program. But even if all of this "excess" growth was attributable entirely to the legalization program, it would still not have had a major impact on the national data. Given that the "excess" growth for California did not exceed 90,000 for the 1-year period ended in February, and given further that this State accounted for nearly three-fifths of all the legalizations, the total impact on the national data could hardly have exceeded 150,000. Over the same 1-year period, payroll employment was estimated to have grown by more than 3 million.

The legalization program even could have had a depressing effect on the payroll numbers. This is because: (1) those aliens who have entered the United States since January 1, 1982, cannot be legalized, and (2) employers of illegal aliens are now facing sanctions that they did not face before. Anecdotal evidence suggests that some aliens have lost their jobs because their employers did not want to be in violation of the new law, even this effect is likely to have been very small.

In sum, BLS' interpretation of the possible affects of the immigration bill, coupled with an analysis of the actual data, suggest that the impact on the payroll numbers probably has been minimal.

The declining middle-class thesis: a sensitivity analysis

New study supports the hypothesis of a shrinking middle; the declining proportion of families in the middle has largely moved to the upper class, although the share of income held by the lower class has declined

MICHAEL W. HORRIGAN AND STEVEN E. HAUGEN

In recent years, there has been considerable interest in the changing distribution of income in the United States. The consensus within the literature is that the distribution has become more unequal over the past one or two decades, as evidenced by several measures of income inequality.¹ In addition, a number of studies point to increasing proportions of the population in the lower and upper income classes, and thus a decreasing share in the middle class, as evidence of this trend.

Across these studies, however, opinions differ as to the extent to which the middle class has declined and how this decline has been divided between the lower and upper classes. The lack of agreement among findings can be attributed to variations in both the definition and measurement of the middle. Indeed, most studies fail to test the sensitivity of the results to alternative specifications of the middle class and to different techniques for measuring its size over time.

This article describes the nature and results of such a sensitivity analysis. Data on family income from the March Current Population Survey are used to track changes in the proportions of families in the lower, middle, and upper income classes over the 1969–86 period. By choosing alternative income intervals for defining the three classes, evaluating different methods for measuring changes in class size over time, and

examining these changes from both a secular and cyclical perspective, the sensitivity of the findings is assessed. Through such sensitivity analysis, we attempt to reconcile the divergent views on secular changes in the size of the three classes over time. Although the underlying causes of the shifts are important, we do not attempt to identify them.

Consistent with the results found in the literature, we find that the proportion of families in the middle class has declined substantially over time. However, in contrast to many studies, we conclude that the majority of the decline in the middle is offset by an increase in the upper class. It is important to note that our findings do not run counter to arguments of growing inequality in the distribution of income. Indeed, in terms of its share of aggregate income, there has been a growing disparity between the lower class and the remainder of the distribution.

Overview of the literature

A brief review of a few examples from the literature demonstrates some of the differences between studies, both in terms of overall approach and conclusions drawn.² For instance, Lester Thurow defined the middle class as including households with income between 75 and 125 percent of median household income, and found that the middle shrank from 28 percent of all households in 1967, a business cycle recovery year, to 24 percent by

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1982, a trough year. The loss was evenly distributed between the lower and upper tiers.³

A study by Robert Lawrence concentrated on the weekly earnings of wage and salary workers who usually work full time. Lawrence set the middle-class bracket at roughly two-thirds and four-thirds of men's median weekly earnings in 1983. Under this concept, the proportion of all workers in the middle fell from 50 percent to 46 percent between 1969, a peak year, and 1983, the first year of a recovery. Most of the loss was accounted for by a widening of the lower class, which expanded to 33 percent of all persons.⁴

Katharine Bradbury, using family income to define the middle class, suggested that a reasonable definition of the middle class includes all families with incomes between \$20,000 and \$49,999, in 1984 dollars. After deflating this interval back to 1973, a peak year, she found that the middle class declined from 53 percent to 48 percent of all families by 1984, the second year of a recovery. Once again, the vast majority of the loss showed up as a widening of the lower class.⁵

Determining the 'middle class'—the choices

Certain critical choices are made in studies of the middle class.⁶ First, researchers choose among three sampling units—individuals, families, and households—and between two measures of compensation—wage and salary earnings and total income.⁷ Second, one must select a method for measuring the size of the middle class in each year over the relevant time period. Analysts generally adopt one of two methods: they either use dollar intervals adjusted to represent constant purchasing power over time, or they use an interval representing fixed percentages above and below median income. Finally, a technique must be chosen for uncovering the long-run trends in the size of the middle class. Some analysts simply make year-to-year comparisons of class sizes. An alternative approach often employed is to use regression analysis to establish long-run trends.

Selection of a sampling distribution. In this study, the middle class is identified on the basis of family income. This choice is based on both economic and cultural considerations. For instance, it is widely accepted that by virtue of family membership, individuals in families experience significant economies of scale in consumption that do not exist for single individuals, or even for most households comprised of two or more unrelated individuals. For example, suppose that a husband and wife each has average or slightly below-average income. By combining both incomes, they can sustain a level of consumption, such as homeownership, which they could not sustain individually. Each spouse is thus able to enjoy a somewhat higher "standard of living" than he or she would attain alone. Because the vast majority of persons

live in families (about four-fifths in 1987), these economies of scale figure importantly in our choice of sampling unit.

In addition, the cultural view of the middle class seems to be one in which the family is the typical income unit. Significant changes have taken place among families over the last two decades, including the very large inflow of wives (and mothers) into the labor force and increases in the percentage of families maintained by single parents (mostly women). This increased heterogeneity among family types gives added impetus to using the family unit in examining changes in the size of the lower, middle, and upper income classes.

None of these reasons, however, diminishes the importance of examining other sampling units, such as the household or the individual; rather, it is simply the lack of agreement across studies as to which group is the most appropriate for analysis of the declining middle-class thesis which invites researchers to explore the issue from different perspectives.⁸

Total money income is chosen as the measure of compensation for the family unit. This measure includes before-tax income from all sources (yearly totals of wage and salary earnings, self-employment earnings, Social Security, public assistance, interest, dividends, rent, and all other sources of money income regularly received) and thus is a comprehensive measure of a family's financial resources.⁹

In addition to economic criteria, numerous social characteristics are also frequently associated with the middle class. These include educational and occupational standards for the earners in the family, as well as certain political and moral values, goals and aspirations, and so forth. At best, these variables can only be imperfectly proxied. Certainly, they cannot be easily quantified. As a result, studies of the middle class, including this one, define the concept in terms of income alone.

Selecting middle-class income intervals. Given the selection of the family and total income as the focus of this study, the income intervals used to define the middle class in any given year need to be determined (in effect, splitting the distribution of incomes into three classes). Most studies do not explicitly identify the criteria by which the choice of a middle-class income interval is made. Although this is understandable given the arbitrary and intuitive nature of the middle-class concept, such an approach does not permit systematic examination of the sensitivity of findings to the choice of a middle-class income interval. To address this shortcoming, two criteria are selected which determine a range of middle-class income intervals used in this study. These criteria impose reasonable bounds on the income intervals defining the middle class, and, at the same time, provide a large number for use in sensitivity analysis.

First, the lower endpoint of the 1986 middle-class income interval is required to be somewhere in the 60- to 90-percent range of median family income in that year (\$29,460). Hence, a range of lower endpoints between \$17,676 (60 percent of the 1986 median) and \$26,514 (90 percent) is chosen. The lower bound of 60 percent reflects an intent to ensure that the lower endpoint of the middle class represents an income *significantly above the poverty level*, which was about a third of median family income in 1986.¹⁰

Second, in any given year, a middle-class interval is admissible only if the percentage of families in the middle class is between 40 and 60 percent. While some may intuitively view the middle as consisting of the middle third of families, our choice reflects a desire to create a middle class with a larger proportion of all families. However, the upper end of each middle-class income interval is restricted so that the resulting percentage of families in the upper class is always equal to or greater than 5 percent.

Adhering to these criteria, the procedure for arriving at the set of middle-class income intervals involved two steps. First, the income intervals which represent the boundaries or limits of the two criteria were determined. Second, a range of intervals within these limits was selected. As discussed below, the admissible intervals vary according to the method used to measure the size of the middle class over time.

Comparisons over time

There are essentially two approaches in the literature used to make comparisons of the three classes over time. First, many studies use an interval deflator approach, in which a price index is used to deflate income intervals, thereby maintaining the purchasing power of the middle class over time. The second technique defines the middle class in each year as consisting of those families whose incomes are within given percentages of median family income for that year, thus preserving the relative position of the middle class in the overall distribution of incomes over time.

Interval deflator approach. In this method, we use 1986 as the base year and deflate each chosen middle-class interval back to each year between 1969 and 1986. In deflating incomes, however, there are several price indexes from which to choose, and they often indicate different rates of inflation over any given period. The choice of a price index can affect the cutoff points for the middle interval, and, consequently, the number of families falling into the lower, middle, and upper intervals.

Most studies use the Bureau of Labor Statistics' Consumer Price Index for All Urban Consumers (CPI-U) to measure inflation. However, the methodology used in constructing the CPI-U changed in 1983. Prior to 1983,

the measurement of homeowner costs included changes in the asset value of homes. Recognizing that this approach mixed the investment and consumption aspects of homeownership, the BLS conducted extensive research and testing which led to the introduction of the rental equivalence methodology in 1983. The BLS also developed, for research purposes, an index which links the period before and after 1983, thereby treating homeownership costs in a manner consistent with the new approach. (See appendix.) This study uses the research index titled Consumer Price Index for All Urban Consumers, Experimental Measure 1 (REBASED)—hereafter referred to as the CPI-U-X1—because it provides a continuous series with no major change in methodology. However, to test the sensitivity of our results to the choice of a price index, two alternative price indexes, the CPI-U and the Bureau of Economic Analysis' Fixed Weight Personal Consumption Expenditure (FW-PCE) index, are also applied.¹¹

Fixed percentage of median income approach. In this method, the middle class in each year consists of families whose incomes are within given percentages of median family income for that year.¹² The purchasing power of the middle-class income intervals produced by this method depends on the behavior of median family income. For example, if median family income is increasing in real value over time, so too will the real value of the associated middle-class income intervals. Indeed, when the CPI-U-X1 is used to calculate the real value of median family income over the 1969–86 period (in 1986 dollars), the real value of median family income has increased, albeit modestly.¹³ (See chart 1.)

Secular comparisons

Many studies in the literature compare pairs of years to infer long-run trends in the relative size of income classes. However, we demonstrate that such inferences are very sensitive to the years chosen. As one might expect, results obtained from comparing a peak and trough year differ markedly from a comparison of similar points in successive business cycles. We use regression analysis to uncover the secular nature of changes in the size of each of the three classes over the 1969–86 period. This eliminates the sensitivity of the findings to the choice of years. Regression analysis essentially involves estimating trend lines for each of the lower, middle, and upper class income intervals selected for this study. The procedure first isolates cyclical movements and then estimates the remaining secular trend.¹⁴ However, to demonstrate the sensitive nature of conclusions drawn from making year-to-year comparisons, numerous peak-to-peak and peak-to-trough comparisons are also conducted.

The sensitivity results

Interval deflator approach. The results of applying regression analysis to estimate the trends in the size of the lower, middle, and upper classes over the 1969–86 period are summarized in table 1. (The values of the estimated parameters and their associated levels of statistical significance are shown in appendix table A-1.) In this case, the income intervals created using the CPI-U-X1 are examined. There is a substantial range of income intervals for which the relative size of the middle class declined secularly over the 1969–86 period; in particular, this result holds for all middle-class intervals with starting incomes ranging from \$17,676, the lower limit of our first criterion, to \$22,000. As income requirements for membership in the middle class are made more stringent, however, changes in the distribution around the \$24,000–\$26,000 mark help to create an upper limit on the range of intervals over which the declining middle-class thesis holds.

These results support the declining middle-class thesis. There is a consistent decline in the middle class across a substantial range of alternative income intervals. The key question however is, *where did the middle go?* Across virtually all the intervals for which the declining middle-class thesis holds, one fact consistently emerges—the

Table 1. Interval deflator approach (CPI-U-X1): direction of secular change in the relative size of the lower, middle, and upper classes, using selective middle-class income intervals (in 1986 dollars), 1969–86

Middle-class income interval	Lower class	Middle class	Upper class
\$17,676 to -			
\$39,999	0	-	+
\$48,999	0	-	+
\$18,000 to -			
\$39,999	0	-	+
\$41,999	0	-	+
\$49,999	0	-	+
\$20,000 to -			
\$42,999	0	-	+
\$49,999	0	-	+
\$55,999	0	-	+
\$59,999	0	-	+
\$22,000 to -			
\$45,999	0	-	+
\$49,999	0	-	+
\$51,999	0	-	+
\$59,999	0	-	+
\$61,999	0	-	+
\$63,999	0	-	+
\$24,000 to -			
\$49,999	-	-	+
\$51,999	-	-	+
\$59,999	-	-	+
\$61,999	-	0	+
\$63,999	-	0	+
\$26,000 to -			
\$54,999	-	-	+
\$59,999	-	0	+
\$61,999	-	0	+
\$63,999	-	0	+
\$26,514 to -			
\$55,999	-	0	+
\$63,999	-	0	+

NOTE: 0 = trend that is not statistically different from zero,
 - = statistically significant negative trend, and
 + = statistically significant positive trend.

Chart 1. Median family income, 1969–86



NOTE: Broken line represents secular trend from which cyclical movements have been removed.

relative size of the lower class has been secularly stable over time. Hence, as table 1 indicates, the upper class has experienced secular increases in relative size over the period being considered. Chart 2 uses the \$20,000–\$55,999 interval definition of the middle class to depict the changes in the size of the lower, middle, and upper classes and the estimated secular trends.

What has happened to the *share of income held by the lower class*? The secularly stable trend in the size of the lower class has been accompanied by a secular decline in the share of aggregate income held.¹⁵ Using the \$20,000–\$55,999 interval to define the middle class, chart 3 shows the secular decline in the proportion of income held by the lower class. Thus, the picture which emerges is one of a lower class that, although stable in size, is receiving a *declining share of the pie over time*.

Choice of a price index. The preceding analysis was conducted using the CPI-U-X1. To test the sensitivity of findings to the choice of an index, regression analysis was conducted to estimate the secular behavior of the three classes using two alternative price indexes, the Consumer Price Index for All Urban Consumers (CPI-U) and the

Fixed Weight Personal Consumption Expenditure (FW-PCE) index. Again, the \$20,000–\$55,999 income interval is used. As was the case for the CPI-U-X1, the coefficients of the regressions indicate a secular decline in the relative size of the middle class for both of these alternative price indexes. However, in contrast to the stability in the size of the lower class when the CPI-U-X1 was used, the lower class exhibited a secular *increase* when the CPI-U was employed, and a secular *decline* when the FW-PCE index was used.¹⁶

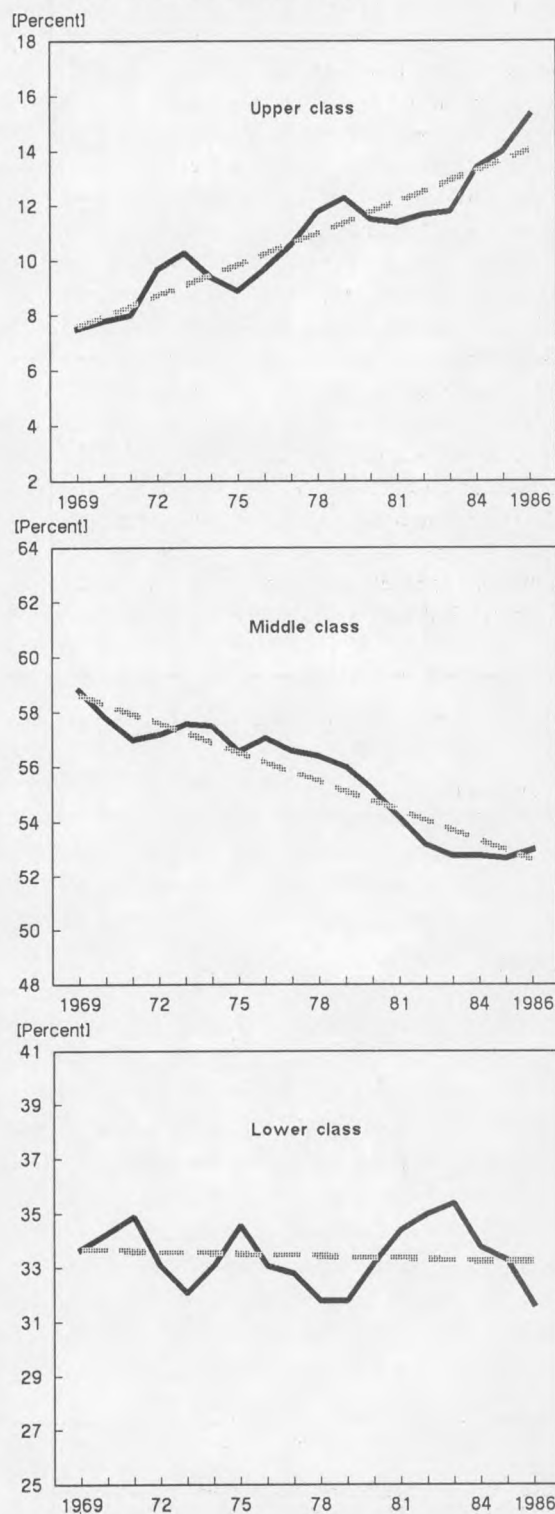
Given these overall secular trends, it is informative to compare class size over time using alternative price indexes. To do so, the distribution of family incomes in 1969 is compared to that of 1986.¹⁷ Results using all three price indexes show a decline in the relative size of the middle class between 1969 and 1986. (See table 2.) With the CPI-U, this decline in the middle was accompanied by an increase in the relative size of the lower class. In contrast, the decline in the middle class associated with the CPI-U-X1 was accompanied by a decline in the proportion of families in the lower class. Finally, the FW-PCE index shows a substantial decline in the relative size of both the middle and lower classes. Clearly, any examination of the declining middle-class thesis using an interval deflator approach is quite sensitive to the choice of a price index.

Fixed percentage of median income approach. The results of the fixed percentage around median family income approach to examining secular trends are shown in table 3. Here, the middle class declined over the 1969–86 period for an even broader range of income intervals than for the interval deflator approach.¹⁸ In terms of where the decline has gone, the results differ from those associated with the interval deflator method. For each interval, as the middle declines in relative size, both the lower and upper classes experience secular *increases* in relative size. (See appendix table A-2.)

Using 68–190 percent as the fixed percentage interval to define the middle class (equivalent to \$20,000–\$55,999 in 1986), the proportions of the decline in the middle going to the lower and upper classes between 1969 and 1986 are about 40 and 60 percent, respectively. Across the entire range of intervals, the proportion of the decline in the middle going to the lower class varies from roughly 20 percent to 50 percent.¹⁹ The proportion of families in each of the three classes over the 1969–86 period is depicted in chart 4.

It is important to note that while these findings suggest that the lower class has increased in relative size over the 1969–86 period, the share of aggregate income held by this group has either remained the same or declined secularly.²⁰ Hence, despite differences between the fixed percentage and interval deflator methods in measured

Chart 2. Interval deflator approach: proportions of families in the upper, middle, and lower classes, 1969–86, using the \$20,000–\$55,999 income interval (in 1986 dollars)



NOTE: Broken line represents secular trend from which cyclical movements have been removed.

Table 2. Percent distribution of families in the lower, middle, and upper classes, using alternative price indexes, 1969 and 1986

Price index and year	Middle-class income interval	Percent distribution of families		
		Lower class	Middle class	Upper class
CPI-U-X1:				
1986	\$20,000-\$55,999	31.7	53.0	15.3
1969	7,180 - 20,104	33.7	58.8	7.5
CPI-U:				
1986	20,000-55,999	31.7	53.0	15.3
1969	6,680 - 18,704	30.4	60.0	9.7
FW-PCE:				
1986	20,000-55,999	31.7	53.0	15.3
1969	7,440 - 20,832	35.6	57.8	6.7

effects, both point to a fundamental decline in the lower class per-family share of total aggregate income.

Differences between the two approaches. What accounts for the differences in the findings of these two approaches? Using the CPI-U-X1 to deflate both endpoints of the \$20,000-\$55,999 income interval produces a 1969 income interval of \$7,180-\$20,104. This interval represents the same level of purchasing power as the \$20,000-\$55,999 interval in 1986. In the fixed percentage of the median approach, the endpoints \$20,000 and \$55,999 represent roughly 68 percent and 190 percent of 1986 median family income, respectively. When applied to the value of median family income in 1969, these percentages yield a middle-class income interval of \$6,404-\$17,931.

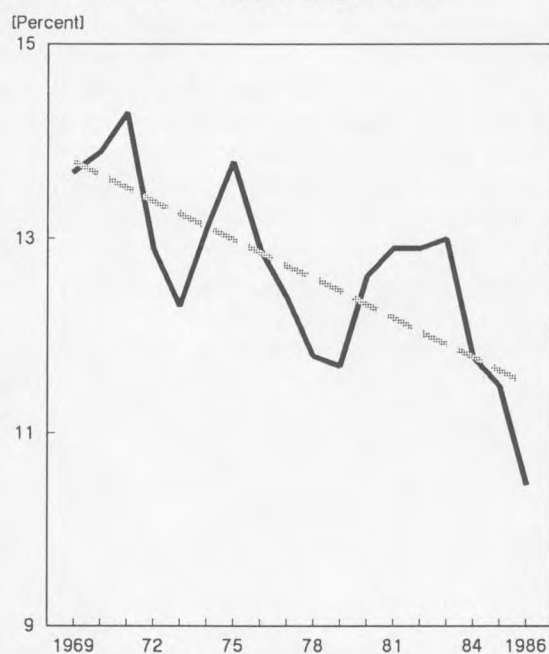
Because the real value of median family income increased over the 1969-86 period, the middle class associated with the fixed percentage approach has a lower level of purchasing power in 1969 than the one associated with the interval deflator approach. Moreover, by simply comparing the lower endpoints of the two income intervals, it is evident that the size of the lower class in 1969 was smaller for the fixed percentage approach than for the interval deflator approach. Hence, because the income intervals in both approaches grow to the same value in 1986, \$20,000-\$55,999, the fixed percentage approach shows a greater growth in the lower class between 1969 and 1986 than does the interval deflator approach.

The following tabulation shows the distribution of families in the lower, middle, and upper classes in 1969 and 1986, using both the interval deflator and the fixed percentage of median family income approaches:

	Middle-class income interval	Percent distribution of families		
		Lower class	Middle class	Upper class
Interval deflator (CPI-U-X1)				
1986	\$20,000 - \$55,999	31.7	53.0	15.3
1969	7,180 - 20,104	33.7	58.8	7.5
Fixed percentage interval of median income [68-190]:				
1986	\$20,000 - \$55,999	31.7	53.0	15.3
1969	6,404 - 17,931	28.7	60.2	11.1

Which of the two approaches is preferred? The answer depends on one's view of what constitutes middle-class income. If one takes the position that the middle should represent a particular standard of living that is maintained over time, then the interval deflator approach is preferred. However, it is also compelling to argue that the middle-class concept is more reflective of where one stands in the relative profile of family incomes, and using the current median or "representative" level of family

Chart 3. Proportion of aggregate income held by the lower class, 1969-86, using the interval deflator approach



NOTE: Broken line represents secular trend from which cyclical movements have been removed.

Table 3. Fixed percentage of median family income approach: direction of secular trend in the relative size of the lower, middle, and upper classes for selective middle-class income intervals, 1969-86

Middle-class income interval	Lower class	Middle class	Upper class
60 to -			
136	+	-	+
166	+	-	+
61 to -			
136	+	-	+
170	+	-	+
68 to -			
146	+	-	+
190	+	-	+
75 to -			
156	+	-	+
217	+	-	+
81 to -			
170	+	-	+
217	+	-	+
244	+	-	+
88 to -			
187	+	-	+
217	+	-	+
244	+	-	+
90 to -			
190	+	-	+
217	+	-	+
244	+	-	+
Symmetric income interval:			
60-140	+	-	+

NOTE: + = statistically significant positive trend, and
- = statistically significant negative trend.

income as a fulcrum is quite reasonable. This study does not make a choice in this debate.

Year-to-year comparisons

In this study, we use regression analysis to evaluate secular trends in the relative size of the lower, middle, and upper classes. Many middle-class studies, however, infer long-run trends in the distribution of incomes by making comparisons between two points in time. To demonstrate the sensitivity of such inferences to the particular choice of years, several year-to-year comparisons are made using the interval deflator approach (although the fixed percentage approach could just as easily be used).

The proportions of families in the lower, middle, and upper classes are very cyclically sensitive. (See chart 2; see also table 4 which provides the percent distribution of families in the lower, middle, and upper classes from 1969 to 1986.) Consequently, if year-to-year comparisons are made, it is inappropriate to choose years at cyclically dissimilar points in business cycles. For example, compare the distribution in 1969, a peak year, with that in 1982, a trough year. It is reasonable to expect that the proportion of families in the lower class will increase from a peak to a trough year. Indeed, the decline in the middle class over this period, 5.6 percentage points, coincides with a 1.3-percentage point increase in the lower class. By 1985, however, after 3 years of economic recovery, the lower class had fallen slightly below its

1969 proportion of 33.7 percent, and by 1986 had declined even further to 31.7 percent. Indeed, a comparison of each recession with its subsequent recovery gives evidence of a definite cyclical pattern in the shift in the distribution of family incomes, with the lower class growing during recessions, but then recovering its prerecession share in the subsequent economic expansion.

Next, compare two cyclically similar years. Between peak years 1969 and 1979, the middle-class decline of 2.8 percentage points was accompanied by a decline in the lower class of 1.9 percentage points; the upper class absorbed these declines, thereby increasing in size by nearly 5 points. Alternatively, comparing 1973 and 1985, both representing the third year of a recovery, the 4.9-percentage point decline in the middle was accompanied by a 1.2-point rise in the size of the lower class. Thus, even if care is taken to compare cyclically similar years, the findings may misrepresent the underlying secular trends.

Conclusion

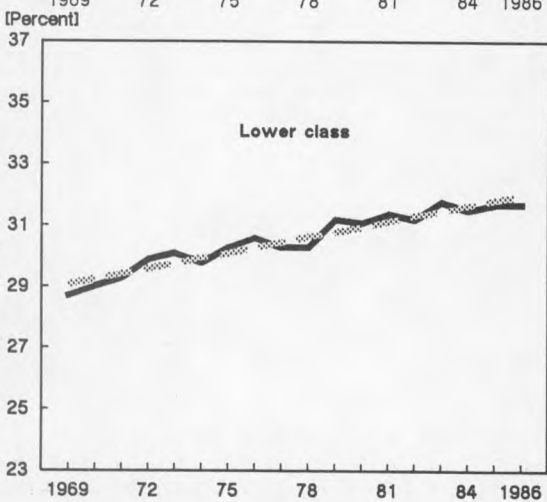
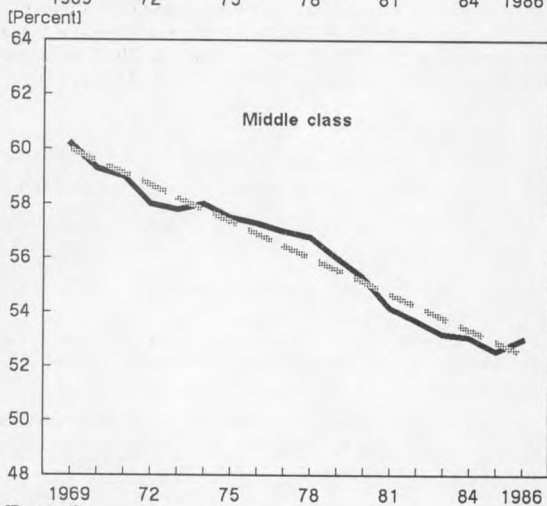
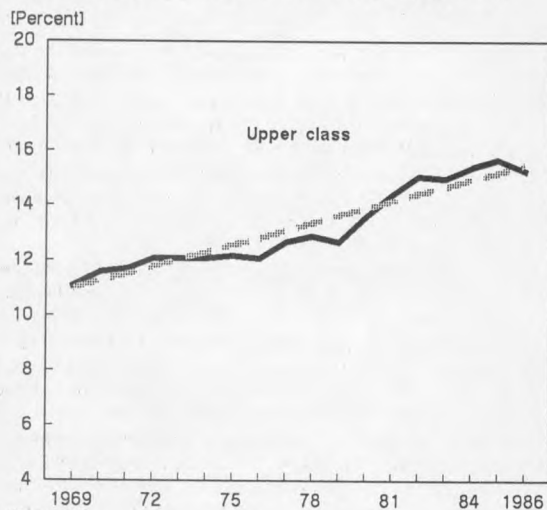
This study suggests that the consensus view of a declining middle class is correct. However, unlike some studies, this one finds that most of the decline in the proportion of families in the middle has gone to the upper class, not the lower. However, the size of this effect varies with the method used to measure the middle class. If the CPI-U-X1 is used to deflate middle-class income intervals (thereby maintaining the purchasing power of the middle class over time), virtually all of the decline in the middle goes to the upper class. Alternatively, if the middle is based on a fixed percentage around median income for each year, the decline in the middle is split between the

Table 4. Distribution of families in the lower, middle, and upper classes, 1969-86, using the interval deflator approach (CPI-U-X1) to adjust the 1986 income interval, \$20,000-\$55,999

[In percent]

Year	Lower class	Middle class	Upper class
1969.....	33.7	58.8	7.5
1970.....	34.3	57.8	7.8
1971.....	34.9	57.0	8.0
1972.....	33.1	57.2	9.7
1973.....	32.1	57.6	10.3
1974.....	33.1	57.5	9.4
1975.....	34.6	56.6	8.9
1976.....	33.1	57.1	9.7
1977.....	32.8	56.6	10.6
1978.....	31.8	56.4	11.8
1979.....	31.8	56.0	12.3
1980.....	33.2	55.2	11.5
1981.....	34.4	54.2	11.4
1982.....	35.0	53.2	11.7
1983.....	35.4	52.8	11.8
1984.....	33.8	52.8	13.4
1985.....	33.3	52.7	14.0
1986.....	31.7	53.0	15.3

Chart 4. Fixed percentage approach: proportions of families in the upper, middle, and lower classes, 1969-86



NOTE: Broken line represents secular trend from which cyclical movements have been removed.

The percentages of median family income used to define the endpoints of the middle class are roughly 68 and 190; in 1986, this produced a middle-class income interval of \$20,000 to \$55,999.

lower and upper classes, although the majority of the decline shows up as an increase in the upper class.

Despite these differences, however, it is clear that in both the interval deflator and the fixed percentage approaches, the behavior of the share of aggregate income held by the lower class indicates a growing disparity between the lower class and the rest of the distribution. This result is consistent with other studies which show an increase in income inequality over the past couple of decades.

In seeking to further explain the sensitive nature of findings to analytical choices, we examined the influence of two factors: (1) the choice of a price index in studies which use the interval deflator approach to measure changes in the size of the three classes, and (2) the practice in some studies of making secular inferences from comparisons of two years, rather than using a regression method such as the one employed in this paper.

This study employs a research price index developed by the BLS which, unlike the CPI-U, provides a continuous series with no major changes in methodology. Use of this research index, the CPI-U-X1, suggests that virtually all of the decline in the middle goes to the upper class, whereas the CPI-U indicates that a significant proportion of the decline goes to the lower class.

Finally, several middle-class studies compare pairs of years in order to infer long-run trends in the distribution of incomes, often selecting years for comparison that are at cyclically dissimilar points. Because there is a substantial cyclical pattern to the distribution of family incomes—the size of the lower class widens dramatically in recessions, and shrinks during expansions—such comparisons can give very different results than studies making secular comparisons. Moreover, even comparing similar points in different business cycles can, depending on the points chosen, give very different indications of long-run trends. □

—FOOTNOTES—

ACKNOWLEDGMENTS: The authors thank Robert J. McIntire and Bernard R. Altschuler, Office of Employment and Unemployment Statistics, Bureau of Labor Statistics, for constructing the computer programs used in this study.

¹Several studies, using measures of income inequality such as the Gini coefficient and the log-variance approach, have found evidence of increased inequality over the past two decades. See, for example, McKinley L. Blackburn and David E. Bloom, "Family Income Inequality in the United States, 1967-84," *Proceedings of the 39th Annual Meetings* (Industrial Relations Research Association, 1986), pp. 349-58; W. Norton Grubb and Robert H. Wilson, "The Distribution of Wages and Salaries, 1960-1980: The Contributions of Gender, Race, Sectoral Shifts and Regional Shifts," Working Paper 39 (University of Texas, 1987); and Chris Tilly, Barry Bluestone, and Bennett Harrison, "What is Making American Wages More Unequal?" *Proceedings of the 39th Annual Meetings* (Industrial Relations Research Association, 1986), pp. 338-48.

²The list of articles on the declining middle-class thesis is quite extensive. See, for example, Barry Bluestone and Bennett Harrison, *The Deindustrialization of America* (New York, Basic Books, Inc., 1982); Bob Kuttner, "The Declining Middle," *The Atlantic Monthly*, July 1983, pp. 60-72; McKinley L. Blackburn and David E. Bloom, "What is happening to the middle class?" *American Demographics*, January 1985, pp. 19-25; Neal H. Rosenthal, "The shrinking middle class: myth or reality?" *Monthly Labor Review*, March 1985, pp. 3-10; Patrick J. McMahon and John H. Tschetter, "The declining middle class: a further analysis," *Monthly Labor Review*, September 1986, pp. 22-27; David Wessel, "U.S. Rich and Poor Increase in Numbers, Middle Loses Ground," *The Wall Street Journal*, Sept. 22, 1986; "Is the Middle Class Shrinking?" *Time*, Nov. 3, 1986, pp. 54-56; Barry Bluestone and Bennett Harrison, "The Great American Job Machine: The Proliferation of Low Wage Employment in the U.S. Economy," a study prepared for the U.S. Congress, Joint Economic Committee, December 1986; and Marvin H. Kosters and Murray N. Ross, "The Distribution of Earnings and Employment Opportunities: a Re-examination of the Evidence," *Studies in Economic Policy* (Washington, American Enterprise Institute, 1987).

³See Lester C. Thurow, "The Disappearance of the Middle Class," *The New York Times*, Feb. 5, 1984, p. F3.

⁴See Robert Z. Lawrence, "Sectoral Shifts and the Size of the Middle Class," *The Brookings Review*, Fall 1984, pp. 3-11.

⁵See Katharine L. Bradbury, "The Shrinking Middle Class," *New England Economic Review*, September/October 1986, pp. 41-55.

⁶For a review of the analytical choices made in studies of income distributions, as well as a comprehensive literature review, see Gary W. Loveman and Chris Tilly, "Good jobs or bad jobs—What does the evidence say?" *New England Economic Review*, January/February 1988, pp. 46-65.

⁷A household is defined by the Bureau of the Census as consisting of all persons who occupy a housing unit. A household includes the related family members and all the unrelated persons, if any, who share the housing unit. The term "family" is defined as a group of two persons or more (one of whom is the householder) related by birth, marriage, or adoption and residing together.

Total income is defined as yearly totals (before taxes) of wage and salary earnings plus all other reported sources of money income, such as interest, transfer payments, and so forth. Although a few studies focus on weekly earnings, annual measures are usually preferred because they take into account the number of weeks worked per year.

⁸While the family is chosen for this study, it is important at some point to consider the consistency of findings between studies using individuals or households, and studies using families as the unit of analysis.

⁹Note that the ideal data, after-tax income, are not available from the March Current Population Survey. Also, we exclude families reporting negative income from our universe.

¹⁰Poverty levels of income are determined by the Bureau of the Census and vary with the size of the family. The poverty level of income for a three-person family in 1986 was \$8,737, 28 percent of median family income for a three-person family in that year; that for a four-person family was \$11,203, or 32 percent of the median. The average family size in 1986 was 3.2 persons.

¹¹What is the potential effect of using alternative choices of price indexes? To illustrate, let the 1986 income interval, \$20,000-\$55,999, represent the middle class in that year. Using the price index approach, we derive nominal values for these two endpoints over the 1969-85 period which represent the same amount of purchasing power as the \$20,000-\$55,999 interval in 1986.

Consider the effect of using the CPI-U, which shows a greater rate of inflation over the time period than the CPI-U-X1. Under the CPI-U-X1 the nominal value of the \$20,000 endpoint in 1969 dollars is \$7,180. Using the CPI-U, this value is \$6,680, lower because of the relatively higher rate of inflation associated with this index. In other words, the relative size of the lower class in 1969 will automatically be smaller from using the CPI-U than from using the CPI-U-X1. Hence, because both values grow to \$20,000 by 1986, the change in the size of the lower class between 1969 and 1986 will necessarily be larger for the CPI-U than for the CPI-U-X1.

In contrast, consider the use of the Fixed Weight Personal Consumption Expenditure (FW-PCE) index. Because this index indicates a slower rate of inflation than the CPI-U-X1, the nominal value of the \$20,000 endpoint in 1969 dollars will be higher than the figure from the CPI-U-X1. Accordingly, the change in the size of the lower class over the period in question will be smaller for the FW-PCE than for the CPI-U-X1.

¹²Note that, using a fixed percentage approach to define the middle class in any given year, the intervals representing the limits of our two criteria are asymmetric with respect to median family income in 1986. Most symmetric intervals violate our criteria for interval selection. For example, choosing \$26,000 (roughly 88 percent of the median) as our left endpoint of the middle class, to satisfy symmetry our upper endpoint becomes \$32,920 (approximately 112 percent of the median). However, in this case, only 12.9 percent of families are found in the middle class.

By applying our two criteria, the resulting qualifying symmetric intervals vary within a small range of each other. Specifically, the narrowest and widest represent 62 to 138 and 60 to 140 percent of median family income, respectively. However, to further test the sensitivity of our findings to the variety of choices which can be made in this type of study, we incorporate into our approach the symmetric interval 60 to 140 percent of median family income.

In addition, it should be noted that while many studies in the literature use symmetric intervals, such a choice is inconsistent with the asymmetric nature of the distribution. For example, consider the interval representing 50 and 150 percent of median family income. The percentage of families found in the 50-100 percent interval is not equal to the percentage in the 100-150 percent interval. The former interval contains 28.6 percent of families and the latter, 23.3 percent:

Percentage interval of median family income	Percentage of families
[80-100, 100-120].....	[11.2, 10.5]
[70-100, 100-130].....	[16.8, 15.2]
[60-100, 100-140].....	[22.7, 19.6]
[50-100, 100-150].....	[28.6, 23.3]
[40-100, 100-160].....	[34.5, 26.6]
[30-100, 100-170].....	[39.8, 29.5]

The data also indicate that, as the symmetric intervals around median family income get larger, the asymmetry of the distribution becomes more pronounced.

¹³As the tabulation below indicates, the real value of median family income has increased slightly over the 1969-86 period:

Year	Current dollars	Constant (1986) dollars
1969	\$ 9,433	\$26,276
1970	9,867	26,172
1971	10,285	26,170
1972	11,116	27,447
1973	12,051	28,026
1974	12,902	27,219
1975	13,719	26,743
1976	14,958	27,598
1977	16,009	27,793
1978	17,640	28,636
1979	19,587	29,018
1980	21,023	27,993
1981	22,388	27,236
1982	23,433	26,873
1983	24,674	27,144
1984	26,433	27,912
1985	27,735	28,272
1986	29,458	29,458

Current-dollar data were taken from various issues of *Current Population Reports*, Series P-60 (Bureau of the Census). Constant-dollar data were derived by inflating the current-dollar figures by the CPI-U-X1, a price index developed by the Bureau of Labor Statistics for research purposes.

¹⁴In order to isolate the secular trend in the time series behavior of the class size associated with any income interval, we estimated three separate equations. The first equation regresses real values of gross

national product against a linear function of time. The error terms from this regression represent the cyclical portion of real gross national product.

These error terms are then used as an independent variable in a regression with the proportion of families in a given income class (lower, middle, or upper) as the dependent variable (also a simple linear form). The error terms from this regression represent the secular behavior of the dependent variable; that is, the secular trend associated with the time series behavior of the proportion of families in the class.

We then fit a linear regression of the error terms from the second equation against time. The coefficient on time can be tested to determine if it is statistically different from zero. Because the error terms represent the secular behavior of the proportion of families in a given class, this provides a test of whether this trend is positive, negative, or zero.

¹⁵Results are available from the authors.

¹⁶Results are available from the authors.

¹⁷The reader should be cautioned against inferring long-run trends from year-to-year comparisons. However, given the results of our regression analysis (and hence, *a priori* knowledge of long-run trends in the distribution), the example presented in the text is an acceptable way of demonstrating the sensitivity of findings to the choice of a price index.

¹⁸The conclusions we have drawn under the fixed percentage of median income approach remain unchanged when we specifically consider symmetric percentage intervals. As noted earlier, the range of symmetric intervals which satisfy our criteria is very small. We present results of one such interval which represents 60 percent and 140 percent of median family income in each year. The regression results show that the long-run trend in the size of the three classes is the same as for the other fixed percentage intervals. (See appendix table A-2.)

¹⁹Results are available from the authors.

²⁰Results are available from the authors.

APPENDIX: Comparison of price indexes

In 1983, a new methodology using a rental equivalence approach was incorporated into the CPI-U. (For a discussion of methods used to estimate changes in housing prices, see the following *Monthly Labor Review* articles: Janet L. Norwood, "Two Consumer Price Index issues: weighting and homeownership," March 1981, pp. 58-59; "Indexing Federal programs: the CPI and other indexes," March 1981, pp. 60-65; and "The effect of rental equivalence on the Consumer Price Index, 1967-82," February 1985, pp. 53-55. Also see, "Changing the Homeownership Component of the Consumer Price Index to Rental Equivalence," *CPI Detailed Report*, January 1983, pp. 7-13.) Before adopting this change in method, the Bureau developed several experimental price indexes. One such index, the CPI-U-X1, became the model for the changes that were incorporated into the CPI-U in 1983.

In this paper, we employ a price index developed by the BLS for research purposes which links the pre-1983 CPI-U-X1 to the post-1982 CPI-U series. This results in a research price index which is consistent with the current treatment of housing in the CPI-U. The tabulation below presents figures for the CPI-U, CPI-U-X1, and the Bureau

of Economic Analysis' Fixed Weight Personal Consumption Expenditure (FW-PCE) index, which is also used in this study:

Year	Price indexes (1986=100)		
	CPI-U	CPI-U-X1 (REBASED)	FW-PCE
1969.....	33.4	35.9	37.2
1970.....	35.4	37.7	38.8
1971.....	36.9	39.3	40.5
1972.....	38.2	40.5	41.9
1973.....	40.5	43.0	44.3
1974.....	45.0	47.4	48.4
1975.....	49.1	51.3	52.2
1976.....	51.9	54.2	55.1
1977.....	55.3	57.6	58.6
1978.....	59.5	61.6	62.7
1979.....	66.2	67.5	68.2
1980.....	75.2	75.1	75.3
1981.....	82.9	82.2	82.1
1982.....	88.0	87.2	86.8
1983.....	90.9	90.9	90.5
1984.....	94.7	94.7	94.1
1985.....	98.1	98.1	97.5
1986.....	100.0	100.0	100.0

Summary of regression results

Table A-1. Interval deflator approach: secular trend coefficients on the relative size of the lower, middle, and upper classes for alternative middle-class income intervals (in 1986 dollars), 1969-86

Middle - class income interval	Lower class	Middle class	Upper class
\$17,676 to -			
\$39,999.....	.020	-.548**	.529**
\$48,999.....		-.502**	.465**
\$18,000 to -			
\$39,999.....	.018	-.548**	.529**
\$41,999.....		-.537**	.519**
\$49,999.....		-.496**	.461**
\$20,000 to -			
\$42,999.....	-.028	-.493**	.514**
\$49,999.....		-.448**	.461**
\$55,999.....		-.353**	.380**
\$59,999.....		-.302**	.328**
\$22,000 to -			
\$45,999.....	-.083	-.430**	.494**
\$49,999.....		-.393**	.461**
\$51,999.....		-.358**	.432**
\$59,999.....		-.247**	.328**
\$61,999.....		-.215**	.299**
\$63,999.....		-.190**	.276**
\$24,000 to -			
\$49,999.....	-.182**	-.293**	.461**
\$51,999.....		-.256**	.432**
\$59,999.....		-.145*	.328**
\$61,999.....		-.113	.299**
\$63,999.....		-.087	.276**
\$26,000 to -			
\$54,999.....	-.249**	-.148*	.394**
\$59,999.....		-.081	.328**
\$61,999.....		-.049	.299**
\$63,999.....		-.024	.276**
\$26,514 to -			
\$55,999.....	-.249**	-.132	.379**
\$63,999.....		-.096	.313**

NOTE: *indicates coefficient is statistically different from zero at the 95-percent level of confidence.
**indicates coefficient is statistically different from zero at the 99-percent level of confidence.

Table A-2. Fixed percentage of median family income approach: secular trend coefficients on the relative size of the lower, middle, and upper classes for alternative middle-class income intervals, 1969-86

Middle - class income interval	Lower class	Middle class	Upper class
60 to -			
136.....	.187**	-.447**	.260**
166.....		-.492**	.301**
61 to -			
136.....	.184**	-.444**	.260**
170.....		-.497**	.307**
68 to -			
146.....	.173**	-.452**	.278**
190.....		-.442**	.265**
75 to -			
156.....	.159**	-.452**	.291**
217.....		-.380**	.215**
81 to -			
170.....	.118**	-.430**	.307**
217.....		-.339**	.215**
244.....		-.290**	.168**
88 to -			
187.....	.068**	-.351**	.278**
217.....		-.292**	.215**
244.....		-.242**	.168**
90 to -			
190.....	.063**	-.338**	.265**
217.....		-.335**	.272**
244.....		-.238**	.168**
Symmetric income interval: 60-140.....	.187**	-.456**	.268**

NOTE: **indicates that the coefficient is statistically different from zero at the 99-percent level of confidence.

Recent changes in the growth of U.S. multifactor productivity

Since 1979, multifactor productivity growth has recovered completely only in manufacturing; for the rest of private business, growth has recovered partially, but remains below the 1948-73 trend rate

EDWIN DEAN AND KENT KUNZE

The dramatic slowdown in productivity growth that began about 1973 has been the focus of much analysis and discussion. In recent months, this discussion has taken on new life, as analysts continue to probe the influence of U.S. productivity growth on the country's competitiveness in world trade. Other commentators have raised the possibility that the slowdown has ended and productivity growth has resumed its earlier pace.

The present article contributes to the discussion by presenting and analyzing recent Bureau of Labor Statistics measures of growth in multifactor productivity in the United States. It also presents preliminary results of BLS studies of factors that have affected productivity change. Special attention is given to the productivity growth record for recent years, to examine whether productivity might have resumed its pre-1973 pace.

BLS multifactor measures

In 1983, the BLS introduced measures of multifactor productivity for three major sectors of the U.S. economy—private business, private nonfarm business, and manufacturing. Since that year, annual news releases have provided current multifactor productivity measures. Because the methods used to develop these measures

have been described in two 1983 publications,¹ only a brief summary is presented here.

In the BLS measures, growth in multifactor productivity is measured as the difference between the growth rate of output and the growth rate of combined capital and labor inputs.² Growth in multifactor productivity reflects increase in output due to factors other than growth in capital and labor inputs.³ Multifactor productivity calculated in this way provides a numerical answer to the question: What is the portion of the growth rate of output that cannot be accounted for by the growth rate of combined inputs?

The measured multifactor productivity growth rates reflect changes in all influences on output other than the inputs. They reflect changes in technology, including changes that result from research and development activities; economies of scale; changes in the management or organization of resources; and changes in the skills and efforts workers bring to the job.

Multifactor productivity is closely related to the commonly used concept of labor productivity, or output per unit of labor input. It can be shown that, under certain assumptions,⁴ growth in labor productivity is equal to growth in multifactor productivity plus another factor. That factor is the growth in capital input per labor hour times the share of capital income in the value of output—or capital's share, for short. It follows that growth in labor productivity can be decomposed into two parts, the

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part due to growth in multifactor productivity and the part due to growth in capital input per labor hour or the capital-labor ratio. Over long periods in most economies, all three of these terms will be positive, so that a positive growth rate in labor productivity is the sum of positive growth in multifactor productivity plus the positive growth rate in the capital-labor ratio times the capital share in output. (Of course, it is possible for one or more of these growth rates to be negative.)

This relationship can be expressed in an equation:

$$(1) \left(\frac{\dot{Q}}{Q} - \frac{\dot{L}}{L} \right) = \frac{\dot{A}}{A} + s_K \left(\frac{\dot{K}}{K} - \frac{\dot{L}}{L} \right)$$

where Q is output, L is labor hours, K is capital input, s_K is capital's share, and A represents the state of technology. A dot over a variable indicates the rate of change of the variable with respect to time. The ratio \dot{K}/K is therefore the *percentage* rate of change of capital.

The term $\frac{\dot{Q}}{Q} - \frac{\dot{L}}{L}$ is the percentage rate of change over

time in labor productivity, Q/L (output per hour). Similarly, \dot{A}/A is the percentage rate of change in multifactor productivity, or output per unit of combined

labor and capital inputs. The term $\frac{\dot{K}}{K} - \frac{\dot{L}}{L}$ is the

percentage rate of change in capital input per hour, the capital-labor ratio, while s_K is capital's share. (Capital's share, s_K , and labor's share, s_L , both are fractions and their sum exhausts the total value of output; it follows that $s_K + s_L = 1$.)

Equation 1 expresses the relationship described earlier: The percentage rate of change in labor productivity,

$\frac{\dot{Q}}{Q} - \frac{\dot{L}}{L}$, is equal to the percentage rate of change in

multifactor productivity, \dot{A}/A , plus the percentage rate

of change in the capital-labor ratio, $\frac{\dot{K}}{K} - \frac{\dot{L}}{L}$, times the share of capital in output, s_K .

Equation 1 decomposes the change in the familiar labor productivity ratio, Q/L , into the role of multifactor productivity and the role of capital input relative to labor input (the capital-labor ratio).⁵

Long-term trends

Annual measures of productivity change often are sensitive to cyclical effects. It is helpful to look at long-term trends in order to minimize the effects of cyclical disturbances. In addition, long-term trends help to provide a benchmark for gauging the relative performance of productivity growth for shorter periods. Such a

gauge has become increasingly important with the deceleration of productivity growth over the last 15 years.

From 1948 to 1986, multifactor productivity in the private business sector increased at an average rate of 1.4 percent per year (table 1). This growth reflects a 3.2-percent average annual increase in output and a 1.8-percent rate of growth of combined inputs of labor and capital services. Labor services (hours) in private business increased at a rate of 0.9 percent per year, and capital services grew 3.4 percent annually. The capital-labor ratio grew 2.4 percent per year.

The nonfarm business sector had a pattern of productivity growth for the 1948-86 period that was similar to that of private business. Multifactor productivity increased 1.1 percent annually for the entire period as output rose 3.3 percent yearly and combined inputs grew at a 2.1-percent annual rate. Hours increased 1.4 percent annually in private nonfarm business, a faster rate of growth than in private business, reflecting a decline in hours in farm production. Inputs of capital services increased 3.6 percent per year in private nonfarm business.

In manufacturing, multifactor productivity grew at an annual rate of 1.9 percent between 1948 and 1986. Output increased at a 3.3-percent rate and combined inputs grew 1.4 percent yearly. Labor hours rose at an annual rate of only 0.6 percent, and capital services grew 3.4 percent per year.

The measured relationship between multifactor productivity and labor productivity was approximately the same for the three sectors. Multifactor productivity growth accounted for 60 to 70 percent of labor productivity growth during the postwar period, with the remainder

Table 1. Average annual growth rates of multifactor productivity and related measures for private business, private nonfarm business, and manufacturing, 1948-86

[In percent]

Measure	Private business ¹	Private nonfarm business ¹	Manufacturing
Productivity:			
Multifactor productivity ²	1.4	1.1	1.9
Output per hour of all persons	2.3	1.9	2.7
Output per unit of capital services	-1	-2	-1
Output	3.2	3.3	3.3
Inputs:			
Labor hours .....	.9	1.4	.6
Capital services	3.4	3.6	3.4
Combined units of labor and capital inputs ³	1.8	2.1	1.4
Capital-labor ratio ⁴	2.4	2.1	2.9
Contribution of capital intensity ⁵ .....	.9	.8	.8

¹ Excludes government enterprises.

² Output per unit of combined labor and capital input.

³ Hours of all persons combined with capital service input index, weighted by labor and capital shares.

⁴ Capital services per hour of all persons.

⁵ Changes in capital-labor ratio times capital's share in the value of output.

Table 2. Shares of capital and labor income in the value of output, private business, private nonfarm business, and manufacturing, selected years, 1948-86
[In percent]

Sector	Income shares			
	1948	1973	1979	1986
Private business:				
Capital	36.1	35.7	35.0	36.2
Labor	63.9	64.3	65.0	63.8
Private nonfarm business:				
Capital	35.5	34.2	33.9	35.4
Labor	64.5	65.8	66.1	64.6
Manufacturing:				
Capital	32.2	28.7	26.4	29.4
Labor	67.8	71.3	73.6	70.6

arising from an increase in the capital-labor ratio and changes in capital's share (the share of capital income in the value of output, s_k). Because capital's share was fairly stable over time (table 2), changes in this share had little effect on labor productivity. In manufacturing, multifactor productivity growth accounted for the largest proportion of labor productivity increase, 70 percent. Manufacturing also had the fastest rate of growth of the capital-labor ratio; however, capital's share was generally lower in manufacturing than in the other sectors, and this tended to dampen the influence on labor productivity of growth in the capital-labor ratio. For private business and private nonfarm business, growth in multifactor productivity accounted for about 60 percent of labor productivity increase during the period.

The productivity slowdown

The post-1973 decline in the growth rate of both multifactor and labor productivity has been a source of persistent concern for business leaders, economists, and policymakers. A plethora of books and articles has appeared analyzing the probable causes and consequences of the productivity slowdown.⁶ The following discussion examines the magnitude of the slowdown, using the most current measures.

Between 1948 and 1973, the United States enjoyed a sustained period of strong productivity growth. Multifactor productivity in the nonfarm business sector rose at an annual rate of 1.7 percent during this period (table 3). This, coupled with the increase in the capital-labor ratio, produced an annual rate of growth of labor productivity of 2.5 percent. For the private business sector, the productivity advance was even greater: Extra growth occurred because of a shift of workers out of the farm sector, which had relatively low productivity, to the nonfarm sector, which had higher productivity.⁷

The manufacturing sector also experienced sustained high growth rates of both multifactor and labor productivity in the postwar period. The rapid advance in labor productivity was a reflection of both a high rate of multifactor productivity growth—2.0 percent annually—

and a high rate of growth in the capital-labor ratio—2.6 percent per year.

Between 1973 and 1979, the Nation's rate of productivity growth changed drastically. Output per hour in private business increased only 0.6 percent annually and multifactor productivity rose only 0.1 percent per year. (See table 3 and chart 1.) In private nonfarm business, output per hour increased at an annual rate of 0.5 percent, while multifactor productivity did not grow at all.

Labor productivity continued to show some advance in these two sectors only because of continued, though slower, growth in capital intensity (the capital-labor ratio). In private business, the average annual increase in the capital-labor ratio fell from 2.6 percent in the previous period to 1.5 percent in the 1973-79 period.

Table 3. Average annual growth rates of multifactor productivity and related measures for private business, private nonfarm business, and manufacturing, 1948-73, 1973-79, and 1979-86

Sector and measure	Period		
	1948-73	1973-79	1979-86
Private business¹			
Productivity:			
Multifactor productivity ²	2.0	0.1	0.5
Output per hour of all persons	2.9	.6	1.4
Output per unit of capital services .....	.3	-.9	-1.0
Output	3.6	2.5	2.5
Inputs:			
Labor hours .....	.7	1.9	1.1
Capital services	3.3	3.4	3.6
Combined unit of labor and capital inputs ³	1.6	2.4	1.9
Capital-labor ratio ⁴	2.6	1.5	2.5
Contribution of capital intensity ⁵ .....	.9	.5	.9
Private nonfarm business¹			
Productivity:			
Multifactor productivity ²	1.7	-.1	.3
Output per hour of all persons	2.5	.5	1.2
Output per unit of capital services .....	.3	-1.1	-1.3
Output	3.8	2.5	2.4
Inputs:			
Labor hours	1.3	2.1	1.2
Capital services	3.5	3.7	3.7
Combined unit of labor and capital inputs ³	2.0	2.6	2.1
Capital-labor ratio ⁴	2.2	1.6	2.5
Contribution of capital intensity ⁵ .....	.8	.6	.9
Manufacturing			
Productivity:			
Multifactor productivity ²	2.0	.5	2.6
Output per hour of all persons	2.8	1.4	3.5
Output per unit of capital services .....	.2	-1.8	.1
Output	3.9	1.9	2.2
Inputs:			
Labor hours	1.1	.5	-1.2
Capital services	3.7	3.8	2.3
Combined unit of labor and capital inputs ³	1.8	1.4	-.4
Capital-labor ratio ⁴	2.6	3.3	3.5
Contribution of capital intensity ⁵ .....	.8	.9	.9

¹ Excludes government enterprises.

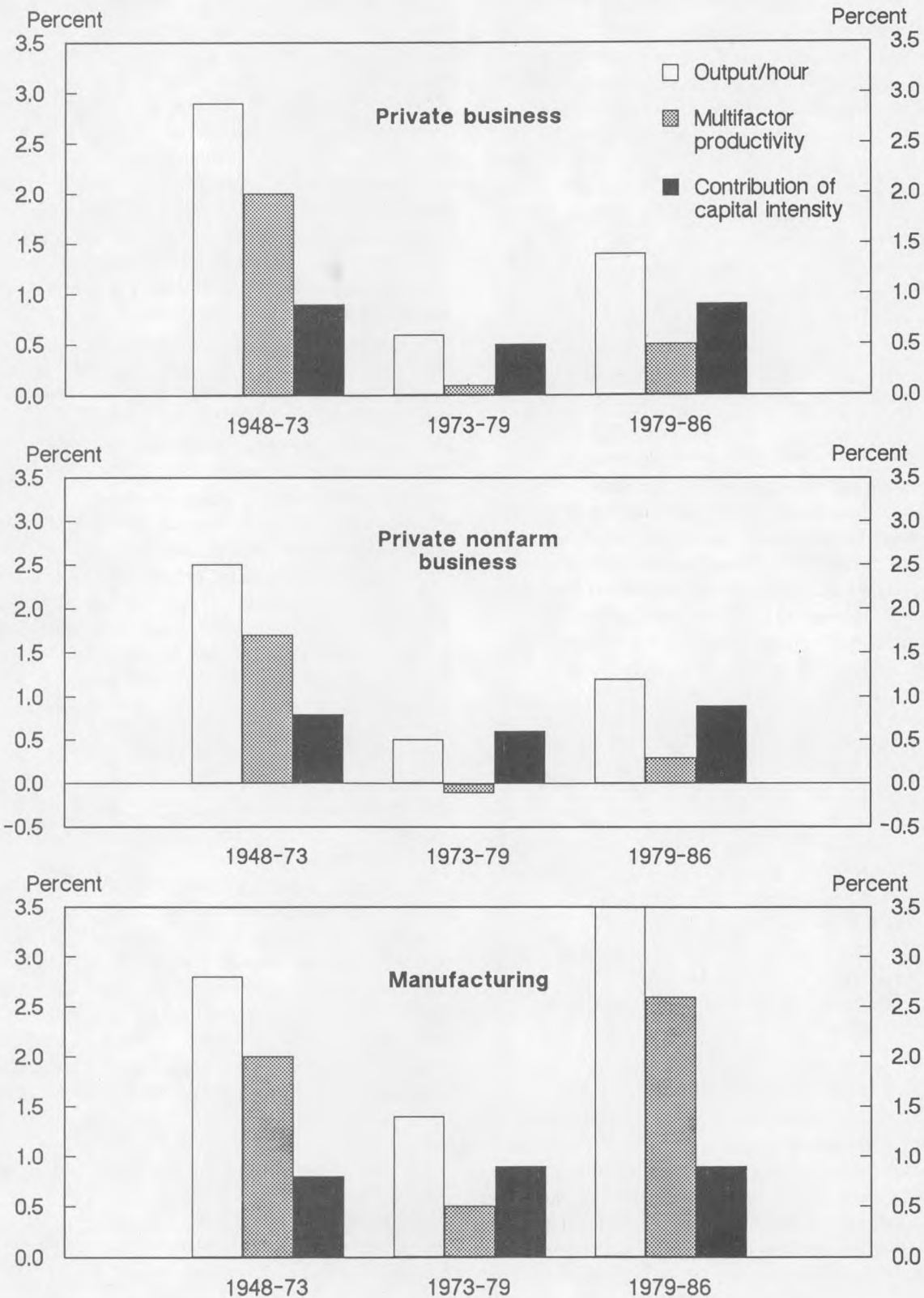
² Output per unit of combined labor and capital input.

³ Hours of all persons combined with capital service input index, weighted by labor and capital shares.

⁴ Capital services per hour of all persons.

⁵ Changes in capital-labor ratio times capital's share in the value of output.

Chart 1. Average annual growth rates of labor productivity, multifactor productivity, and the contribution of capital intensity, selected periods, 1948-86



Similarly, in nonfarm business, the growth rate fell from 2.2 percent annually over the period 1948–73 to 1.6 percent in 1973–79. Only in manufacturing did the capital-labor ratio continue to increase rapidly. In fact, this ratio accelerated to a growth rate of 3.3 percent annually, up from a 2.6-percent rate in the earlier period.

Of the total deceleration in labor productivity growth in private business (2.3 percentage points), over 80 percent (1.9 percentage points) was a result of the deceleration in multifactor productivity growth. Less than 20 percent of the reduction in the rate of labor productivity increase was due to the decline in the growth rate of the capital-labor ratio. The same pattern held in private nonfarm business.

In manufacturing, the deceleration of multifactor productivity growth accounted for more than the full decline in the labor productivity growth rate. Because the rate of increase in the capital-labor ratio actually accelerated during the period, labor productivity growth slowed less than multifactor productivity growth.

The recovery: 1979–86

During the most recent period, 1979 to 1986, there has been a partial recovery in productivity growth. The recovery must be considered incomplete because growth rates for both multifactor and labor productivity in private business and private nonfarm business have risen above the low rates of 1973–79 but have not reached the pre-1973 rates. In manufacturing, however, multifactor and labor productivity growth rates have surpassed the pre-1973 rates.

In private business and private nonfarm business, the rate of increase in labor hours in 1979–86 declined relative to the 1973–79 rate, while capital services grew steadily, resulting in an acceleration of growth in the capital-labor ratio. These developments contributed to the more rapid rise of labor productivity. A modest increase in multifactor productivity growth also assisted the growth of labor productivity. In manufacturing, however, the rise of more than 2 percentage points, from 1.4 percent to 3.5 percent, in labor productivity growth reflected an increase in multifactor productivity growth of 2 percentage points, with no noticeable assistance from the capital-labor ratio.

Elements of multifactor productivity change

It is noted above that the measured growth rates of multifactor productivity reflect changes in technology (the processes used to produce output); economies of scale; organizational or management changes; and the skills workers bring to the job (generally acquired through schooling and experience). In addition, multifactor productivity reflects any errors made in measurement of the inputs (hours and capital services) and the output.

BLS has conducted and continues to conduct research in these areas to gain understanding of the multifactor productivity changes and also to eliminate possible measurement error. The present areas of research include the measurement of the effects of research and development (R&D) expenditures on productivity growth; the measurement of the changing amounts of education and experience that workers possess and the subsequent effects on productivity growth; and a better measure of hours, which reflects the actual number of labor hours spent at the workplace as opposed to the hours (including vacations and other leave time) for which workers are paid.

Increased expenditures on R&D are considered to be a prime factor in the creation of more efficient technologies. Relative expenditures on R&D in nonfarm business slowed substantially in the 1970's. The total stock of R&D,⁸ which had increased 7.8 percent annually between 1948 and 1973, rose 4.0 percent per year between 1973 and 1979. From 1979 to 1985, the growth rate of the R&D stock accelerated moderately to 4.4 percent.⁹ However, results of the empirical work also show that the post-1973 changes in the growth rates of the stock had almost no effect on post-1973 rates of change in multifactor productivity. The research results for manufacturing are quite similar to those for nonfarm business.

Preliminary work on the productivity effects of worker experience and education shows that a small but measurable portion of the slowdown was attributable to changes in the composition of the work force. Increase in workers' education and experience is positively correlated with growth in output and productivity. During the late 1960's and throughout the 1970's, the work force expanded rapidly, resulting in an increased proportion of younger, inexperienced workers. At the same time, more and more workers attained higher levels of education, tending to counter some of the consequences of the influx of inexperienced workers.

Preliminary results indicate that the contribution to multifactor productivity growth of changes in labor composition in private business dropped from an average of 0.2 percent per year in 1948–73 to zero in 1973–79.¹⁰ The rise in the proportion of less experienced workers ceased after 1979, although there continued to be an increase in the average years of schooling of the work force.¹¹ After 1979, labor composition changes contributed about 0.3 percent per year to multifactor productivity growth—about as much as they had before 1973.¹² Similar preliminary results hold for private nonfarm business, while results for manufacturing are not presently available.

Beginning in 1982, BLS began collecting data on the ratio of hours at work to hours paid for production and nonsupervisory workers in nonagricultural establishments. One purpose of this survey is to develop new data

on labor hours for use in productivity measurement. Only 15 percent of total labor hours, as presently measured in the labor productivity and multifactor measures, are based on an "hours at work" concept, the concept most consistent with productivity measurement. This portion of total hours is derived primarily from the Current Population Survey, a survey of households conducted for BLS by the Bureau of the Census. The remaining 85 percent of the hours are based on an "hours paid" concept; this portion of total hours is derived from the Current Employment Statistics survey, a BLS establishment-based program. Hence, the current productivity measures, as presented in tables 1 and 3, reflect predominately an "hours paid" concept.

The growth rates of hours at work and hours paid may, of course, differ over time. If, for example, hours paid increase faster than hours at work, then productivity growth will be underestimated. Old estimates of the historical trend of the hours-at-work/hours-paid ratio show a small divergence in the growth rates of the two measures. Between 1948 and 1973, the ratio decreased 0.1 percent annually, and from 1973 to 1979, it fell 0.2 percent per year. These computations suggest that the slowdown in labor productivity growth is 0.1 percentage point less than recorded in table 3. From 1979 to 1986, the ratio of hours at work to hours paid remained virtually unchanged.¹³ Hence, productivity in nonfarm business has increased as presently reported. The results for manufacturing indicate that changes in the ratio of hours at work to hours paid had effects on productivity, as presently reported, of 0.1 percent or less for the periods under examination.

Summary

BLS measures show that, after a period of strong growth in both multifactor productivity and output per hour from 1948 to 1973, there followed a period of little or no increase from 1973 to 1979. Since 1979, productivity growth has recovered partially in the private business and the private nonfarm business sectors. Only in manufacturing has the recovery been complete.

An analysis of the 1973-79 slowdown in labor productivity shows that the major part of the slowdown cannot be explained by any of the factors examined to date in the BLS research program. This conclusion holds for all three of the sectors examined here—private business, private nonfarm business, and manufacturing. In this regard, the BLS results coincide with the analyses of most private researchers. Three of the four factors discussed in this article—growth in the capital-labor ratio, changes in labor composition, and a decline in the ratio of hours at work to hours paid—contributed in modest ways to the slowdown, while the fourth, the decline in the growth rate of R&D expenditures, did not. The major component of the deceleration in labor productivity was a slowdown in multifactor productivity that was not explained by these four factors.

The partial recovery of labor productivity growth in private business and private nonfarm business after 1979 can be attributed largely to increases in the capital-labor ratio and to changes in the composition of the labor force. The other two factors—R&D expenditures and hours at work—did not contribute to this recovery. For manufacturing, the complete recovery in labor productivity growth after 1979 was due predominately to increased growth in multifactor productivity. □

FOOTNOTES

ACKNOWLEDGMENT: The authors thank Steven Rosenthal, who performed the computer calculations underlying this analysis.

¹*Trends in Multifactor Productivity, 1948-81*, Bulletin 2178 (Bureau of Labor Statistics, 1983); and Jerome A. Mark and William H. Waldorf, "Multifactor productivity: a new BLS measure," *Monthly Labor Review*, December 1983, pp. 3-15.

²Output is defined as real gross product originating in a given sector, which is net of its intermediate inputs. For consistency with this output definition, the inputs include only the primary inputs of labor and capital, that is, they exclude intermediate inputs such as energy, nonenergy materials, and business services.

In measures of multifactor productivity growth for detailed industries, output is more appropriately measured as deflated gross output of the industry, rather than deflated gross product originating. For consistency with this output measure, inputs for detailed industries should include purchased intermediate inputs as well as the primary inputs of labor and capital. For further discussion of these concepts and implementation of the measurement methods, see William Gullickson and Michael Harper, "Multifactor productivity in U.S. manufacturing, 1949-83," *Monthly Labor Review*, October 1987, pp. 18-28; and Mark K. Sherwood, "Performance of multifactor productivity in the steel and motor vehicles industries," *Monthly Labor Review*, August 1987, pp. 22-31.

³The multifactor productivity measurement formula is derived from an assumed production relationship: $Q(t) = A(t) f[K(t), L(t)]$, where $Q(t)$ is real output, $K(t)$ is real capital input, $L(t)$ is real labor input, and $A(t)$ is an index of neutral technological progress or multifactor productivity. The development of this assumed production relationship into a measurement formula is based on the assumptions of perfect competition, Hicks neutral technical change, and constant returns to scale. Equation 1 in the text is an example of the measurement formulae that can be derived from this assumed production relationship. For additional discussion of this model and the assumptions underlying it, see *Trends in Multifactor Productivity, 1948-81*; Mark and Waldorf, "Multifactor productivity: a new BLS measure"; Gullickson and Harper, "Multifactor productivity in U.S. manufacturing, 1949-83"; and Susan Powers, "The role of capital discards in multifactor productivity measurement," *Monthly Labor Review*, forthcoming.

⁴As mentioned in the preceding note, it is assumed that the production function is characterized by Hicks neutral technical change and constant returns to scale, and that there is perfect competition in input and output markets.

⁵The BLS multifactor productivity measures introduced in 1983 were extensively revised in 1986. The recent measures are based on revised basic data as well as a methodological improvement. The data revisions consist of new output data for 1948 to 1984 and new capital input data for the same years. The methodological revision is an improvement in

the technique for measuring capital inputs. These improvements are described in detail in the appendix to this article.

The 1986 revisions were first reflected in the data presented in an October 1986 news release, "Multifactor Productivity Measures, 1985," USDL 86-402 (Bureau of Labor Statistics, Oct. 2, 1986). Further minor revisions were reflected in the October 1987 news release, "Multifactor Productivity Measures, 1986," USDL 87-436 (Bureau of Labor Statistics, Oct. 13, 1987). The measures presented in tables 1, 2, and 3 of this article are consistent with the October 1987 release.

⁶For examples, see the numerous references in Edward Denison, *Trends in American Economic Growth, 1928-1982* (Washington, The Brookings Institution, 1985).

⁷See J.R. Norsworthy and L.J. Fulco, "Productivity and costs in the private economy, 1973," *Monthly Labor Review*, June 1974, pp. 3-9. The authors found an increase in labor productivity growth of 0.3 percentage points in the private economy between 1948 and 1973 due to the shift of employment and hours from the farm to the nonfarm sector. The difference between the private economy and private business is that the former includes nonprofit institutions, households, and government enterprises, which combined represent about 8.5 percent of gross national product.

⁸The stock of R&D is equivalent to accumulated expenditures, depreciated each year at a rate of 10 percent. See Leo Sveikauskas, "The contribution of R&D to productivity growth," *Monthly Labor Review*, March 1986, pp. 16-20.

⁹Sveikauskas, "The contribution of R&D"; and Leo Sveikauskas, "Research and Development and Productivity Growth," paper presented at the annual meetings of the American Economic Association, New Orleans, LA, December 1986.

¹⁰William H. Waldorf, Kent Kunze, Larry Rosenblum, and Michael B. Tannen, "New Measures of the Contribution of Education and Experience to U.S. Productivity Growth," paper presented at the annual meetings of the American Economic Association, New Orleans, LA, December 1986.

¹¹According to data from the Current Population Survey, in 1959, about 12 percent of the work force was between 18 and 24 years old and 50 percent of the total work force had graduated from high school. In 1969, 18- to 24-year-olds were about 17 percent of the work force and 64 percent of the total had a high school education or better. As of 1979, 18- to 24-year-olds were more than 19 percent of the work force and 75 percent of the work force had graduated from high school. By 1986, persons 18 to 24 had dropped to just over 16 percent of the work force, while 80 percent of the work force had graduated from high school.

¹²Waldorf, Kunze, Rosenblum, and Tannen, "New Measures of the Contribution of Education and Experience to U.S. Productivity Growth."

¹³These estimates are based on preliminary BLS research. See Edward Denison, *Trends in American Economic Growth, 1929-1982* (Washington, The Brookings Institution, 1985), and earlier studies by the same author, for use of the older estimates in measures.

APPENDIX: Recent revisions to multifactor productivity measures

This appendix describes two revisions made in the BLS multifactor productivity measures after they were introduced in 1983. One set of revisions involved the introduction of new output and capital input data for 1948 to 1984, developed using revised National Income and Product Accounts data released by the Bureau of Economic Analysis of the U.S. Department of Commerce in December 1985 and January 1986. The second revision is a methodological improvement in the technique for measuring capital inputs.

Revised data

In December 1985 and January 1986, the Bureau of Economic Analysis released revised national accounts data for the years 1929-84, which caused BLS to revise its computations of output and capital input for the entire period covered by its multifactor productivity measures, which begins in 1948. The revisions in the national accounts statistics were of two types, statistical changes and definitional and classification changes. The latter changes mainly affected components of gross national product—for example, output of general government—that BLS excludes from its measures of the output of the private business sector of the economy, and so need not be examined in a discussion of output revisions. Private business sector output is gross national product minus general government, government enterprises, nonprofit institutions, the household sector, owner-occupied housing, the statistical discrepancy, and the rest-of-the-world sector. (For further discussion, see *Trends in Multifactor*

Productivity, Bulletin 2178 (Bureau of Labor Statistics, 1983), appendix F; and Jerome A. Mark, "Measuring single-factor and multifactor productivity," *Monthly Labor Review*, December 1986, pp. 3-11.)

The statistical changes in the national accounts affected the BLS measures of output as well as the measures of capital input. The output measures were most affected by four important statistical changes:

- Data from regularly used sources that appear less often than annually—for example, the 1977 input-output tables—were incorporated into the accounts.
- The Bureau of Economic Analysis made improved adjustments for misreporting on tax returns, sometimes misleadingly referred to as "underground economy adjustments." These adjustments were based on studies of the underreporting of income on tax returns and nonfiling of the returns.
- The base year for computation of the accounts was changed from 1972 to 1982. Hence, constant-dollar output series were computed using 1982, rather than 1972, prices.
- A price index for computers was introduced. Formerly, it had been assumed that computer prices had not changed over time. The new index showed an average annual decline in computer prices, after adjustment for quality change, of 14 percent per year between 1969 and 1984.

The BLS measures of capital services inputs are prepared using, among several data sources, Bureau of

Table A-1. Original and revised measures of multifactor productivity growth and related measures, private business, private nonfarm business, and manufacturing, 1948-84¹

[In percent]

Sector	1948-73			1973-79			1979-84		
	Previous ²	Revised ³	Difference	Previous ²	Revised ³	Difference	Previous ²	Revised ³	Difference
Private business⁴									
Output	3.7	3.6	-0.1	2.7	2.5	-0.2	2.3	2.0	-0.3
Capital services	3.6	3.4	-.2	3.2	3.4	.2	2.9	3.6	.7
Combined inputs ⁵	1.7	1.6	-.1	2.3	2.4	.1	1.5	1.8	.3
Multifactor productivity ⁶	2.0	2.0	-	.4	.1	-.3	.8	.2	-.6
Private nonfarm business⁴									
Output	3.9	3.8	-.1	2.8	2.5	-.3	2.3	2.0	-.3
Capital services	3.6	3.5	-.1	3.3	3.7	.4	3.0	3.7	.7
Combined inputs ⁵	2.1	2.1	-	2.5	2.6	.1	1.6	1.9	.3
Multifactor productivity ⁶	1.7	1.7	-	.3	-.1	-.4	.7	.1	-.6
Manufacturing									
Output	4.0	3.9	-.1	2.0	1.9	-.1	1.3	1.4	.1
Capital services	3.4	3.7	.3	3.5	3.8	.3	2.0	2.5	.5
Combined inputs ⁵	1.8	1.8	-	1.3	1.4	.1	-.5	-.4	.1
Multifactor productivity ⁶	2.2	2.0	-.2	.7	.5	-.2	1.8	1.9	.1

¹ Average annual compound rates.

² Presented in "Multifactor Productivity Measures," USDL 85-405 (Bureau of Labor Statistics, Oct. 3, 1985).

³ Presented in "Multifactor Productivity Measures, 1986," USDL 86-402 (Bureau of Labor Statistics, Oct. 2, 1986).

⁴ Excludes government enterprises.

⁵ Hours of all persons combined with capital services input and weighted with labor and capital shares in the value of output.

⁶ Output per unit of combined labor and capital input.

Economic Analysis data on real gross investment in depreciable assets and inventories. These real investment data also were revised in December 1985 and January 1986, along with other components of the national accounts. The four statistical changes mentioned in the discussion of output revisions, as well as two definitional and classification changes, all affected the series on real gross investment in depreciable assets. The two definitional and classification changes were the capitalization of replacement railroad track and the capitalization of major replacements to residential structures, such as roofs and heating systems.

The BLS measures of capital inputs were also affected by two other changes in procedures: (1) The Bureau of Economic Analysis adopted new—and usually longer—asset lives for several assets. The BLS uses these asset lives in developing measures of capital stocks from real gross investment data, utilizing the perpetual inventory method; and (2) for the first time, the Bureau of Economic Analysis prepared real gross investment data for 61 industries, essentially those industries at the two-digit level of the Standard Industrial Classification (SIC) system maintained by the U.S. Office of Management and Budget, in addition to investment data for major economic sectors. Using these disaggregated investment data, BLS prepared revised total productive capital stocks for each asset type for each major sector. These stocks were combined, using specially prepared weights, to provide measures of capital inputs for each major sector. The methods used in computation of productive capital stocks and in developing weights for each asset type were

the same as those described in *Trends in Multifactor Productivity*, appendix C, with the single exception of the methodological improvement described in the next section of this appendix.

Finally, the Bureau of Economic Analysis revisions of late 1985 and early 1986 included revised data on incomes of capital and labor, and therefore led to changes in the shares of capital and labor in the value of output, the s_k and s_l terms discussed in connection with text equation 1. The revised data on capital income also affected the weights used to aggregate different productive capital stocks to produce a measure of aggregate capital services.

The Bureau of Economic Analysis described its revisions in several articles in its monthly publication, *Survey of Current Business*, in 1984 to 1986. Among these articles were Robert P. Parker, "Improved Adjustments for Misreporting of Tax Return Information Used to Estimate the National Income and Product Accounts, 1977," June 1984, pp. 17-25; John A. Gorman and others, "Fixed Private Capital in the United States," July 1985, pp. 36-57; "Revised Estimates of the National Income and Product Accounts of the United States, 1929-85: An Introduction," December 1985, pp. 1-33; and Roseann Cole and others, "Quality-Adjusted Price Indexes for Computer Processors and Selected Peripheral Equipment," January 1986, pp. 41-50.

A methodological improvement

The methodological improvement in the measurement of capital inputs affected the weights used to aggregate

productive capital stocks. These weights are calculated to reflect the importance of each type of capital stock in producing a flow of capital services. To compute these weights, an implicit rental price is calculated for each capital asset. One of the variables in the equation used to estimate the rental price is a capital appreciation term. In 1983, when the BLS measures were introduced, this capital appreciation term was the annual change in the price of the asset. The 1983 adoption by BLS of this "annual first difference" estimate accorded with the then-dominant view of specialists in productivity measurement.

Since 1983, BLS researchers, in collaboration with academic specialists, have determined that computation of capital appreciation using a 3-year moving average is superior to an annual first difference estimate. This

conclusion follows careful examination of the theory of price expectations as well as empirical tests of the relative performance of alternative ways of measuring capital appreciation. This work is described in Michael J. Harper, Ernst R. Berndt, and David O. Wood, "Rates of Return and Capital Aggregation Using Alternative Rental Prices," Working Paper 170 (Bureau of Labor Statistics, July 1987).

The effects of the revisions and improvements described in this appendix are shown in table A-1. This table compares the BLS measures of output, capital services inputs, combined capital and labor inputs, and multifactor productivity before and after the revisions, as reflected in the data presented in the news releases of October 3, 1985, and October 2, 1986.

Wage adjustments in contracts negotiated in private industry in 1987

Many of the measures were up slightly from the historic lows of last year; time will tell if this merely reflects the mix of industries reaching agreement, or if the declines that began in 1982 are reversing

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Average wage adjustments under major collective bargaining settlements in private industry were somewhat higher in 1987 than the historic lows of 1986. Specified adjustments (the net effect of decisions to increase, decrease, or not change wages) for the 2,049,000 workers under 1987 settlements averaged 2.2 percent the first contract year and 2.1 percent a year over the contract term. (See table 1.) These adjustments were next to the lowest ever registered by the Bureau of Labor Statistics' 20-year-old series on major contract settlements covering 1,000 workers or more in private industry.¹ This was the sixth consecutive year in which settlements provided record or near-record low adjustments. (See table 2.)

The 2.1-percent average annual wage adjustment specified over the term of 1987 settlements was the same as in the contracts they replaced, which typically had been negotiated in 1984 or 1985. This is the first year since this comparison was introduced in 1981 that settlements did not call for lower adjustments than the contracts they replaced. (See table 2.)

The Bureau also measures compensation (wage and benefit costs) adjustments in settlements covering 5,000 workers or more. In 1987, compensation adjustments

averaged 3.0 percent in the first contract year and 2.6 percent annually over the contract term. (See table 3.) These adjustments also were higher than the record low averages in 1986.

Replaced contracts

In 1987, bargainers replaced contracts that had provided total effective wage adjustments (specified adjustments plus cost-of-living adjustments) of 2.6 percent a year. About the same time that most of these contracts were in effect (between December 1983 and December 1986), the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) also rose 2.6 percent a year. Inflation, therefore, was not a prominent concern among bargainers, even though the CPI-W increased 4.5 percent during 1987, compared with 0.7 percent in 1986.

Total wage adjustments were smaller, on average, under contracts that were replaced in 1987 than under those replaced in 1986. This was the fifth consecutive year in which this occurred, reflecting recent declines in both specified wage adjustments and cost-of-living adjustments (COLA's). COLA's declined because of the slowdown in the rate of inflation in the last few years and the drop in the proportion of workers under major agreements with COLA clauses. COLA coverage fell from 57 percent at the end of 1985 to 38 percent at the end of 1987.

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Settlements in 1987

About 2,049,000 workers, or one-third of those covered by major agreements in private industry, were under 1987 settlements. Terms were mixed, reflecting conditions in the various industries. In some industries (for example, steel and automobile manufacturing), negotiations were influenced by competitive pressures from abroad. In others (particularly, construction and food stores), regional conditions, such as the strong economy in New England and the weak economy in the South Central States, played a dominant role.

About 1,490,000 workers had first-year wage increases

averaging 3.5 percent, 474,000 had no wage change, and the remainder suffered wage cuts averaging -8.5 percent. Subsequent increases for 259,000 workers with a first-year wage decrease or freeze will yield a net gain over the contract term. Thus, by the end of their 1987 agreements, 1,749,000 workers will receive average annual wage increases of 2.6 percent, 221,000 will experience no wage change, and the remainder will have an average decrease of -3.7 percent a year. Wage increases and freezes were negotiated in a variety of industries; cuts, however, were concentrated in retail food stores, steel manufacturing, and construction.

Table 1. Wage adjustments in collective bargaining settlements covering 1,000 workers or more in private industry, 1987

Measure	First year		Over life of contract		Measure	First year		Over life of contract	
	Average adjustment (percent)	Workers (thousands)	Average annual adjustment (percent)	Workers (thousands)		Average adjustment (percent)	Workers (thousands)	Average annual adjustment (percent)	Workers (thousands)
All settlements					Continued—Settlements providing wage increases				
All industries	2.2	2,049	2.1	2,049	With COLA, but no lump sums.....	4.0	128	3.2	135
With COLA clauses.....	2.3	920	1.5	920	With neither lump sums nor COLA..	4.2	613	3.9	680
Without COLA clauses.....	2.1	1,129	2.5	1,129	Manufacturing	3.0	721	1.6	779
With lump sums	1.7	1,063	1.2	1,063	With COLA clauses.....	2.8	576	1.1	599
Without lump sums	2.7	986	3.0	986	Without COLA clauses.....	3.8	145	3.4	180
With both lump sums and COLA....	2.1	771	1.2	771	With lump sums	2.7	548	1.1	592
With lump sums or COLA, or both..	1.9	1,212	1.4	1,212	Without lump sums	3.8	173	3.4	187
With lump sums, but no COLA.....	.6	292	1.3	292	With both lump sums and COLA....	2.8	523	1.0	544
With COLA, but no lump sums.....	3.1	149	2.9	149	With lump sums or COLA, or both..	2.8	601	1.1	646
With neither lump sums nor COLA..	2.7	837	3.0	837	With lump sums, but no COLA.....	2.6	25	1.6	47
Manufacturing	2.1	912	1.3	912	With COLA, but no lump sums.....	3.0	54	1.8	55
With COLA clauses.....	2.4	644	1.0	644	With neither lump sums, nor COLA..	4.1	120	4.1	133
Without COLA clauses.....	1.3	268	2.1	268	Nonmanufacturing	4.0	769	3.4	970
With lump sums	1.9	673	.9	673	With COLA clauses.....	3.3	189	3.0	259
Without lump sums	2.5	239	2.6	239	Without COLA clauses.....	4.2	580	3.5	712
With both lump sums and COLA....	2.5	579	.9	579	With lump sums	3.3	201	2.4	342
With lump sums or COLA, or both..	1.9	738	.9	738	Without lump sums	4.2	568	3.9	628
With lump sums, but no COLA.....	-1.3	94	.3	94	With both lump sums and COLA....	2.5	115	2.4	178
With COLA, but no lump sums.....	1.9	65	1.5	65	With lump sums or COLA, or both..	3.6	275	2.7	422
With neither lump sums nor COLA..	2.7	174	3.0	174	With lump sums, but no COLA.....	4.3	86	2.3	164
Nonmanufacturing.....	2.3	1,137	2.7	1,137	With COLA, but no lump sums.....	4.6	75	4.1	81
With COLA clauses.....	1.9	276	2.7	276	With neither lump sums nor COLA..	4.2	494	3.9	548
Without COLA clauses.....	2.4	861	2.7	861	All industries, excluding construction..	3.3	1,195	2.3	1,435
With lump sums	1.2	390	1.9	390	Nonmanufacturing, excluding	3.9	474	3.0	656
Without lump sums	2.8	747	3.1	747	construction	4.2	295	4.2	314
With both lump sums and COLA....	.9	191	2.1	191	Construction	4.2	295	4.2	314
With lump sums or COLA, or both..	1.7	475	2.3	475	Goods producing.....	3.3	1,016	2.3	1,093
With lump sums, but no COLA.....	1.5	199	1.8	199	Service producing.....	3.9	474	3.0	656
With COLA, but no lump sums.....	4.1	85	3.9	85	Settlements providing wage decreases				
With neither lump sums nor COLA..	2.7	662	3.0	662	All industries	-8.5	85	-3.7	79
Nonmanufacturing.....	2.3	1,137	2.7	1,137	With COLA clauses.....	-7.9	20	-2.2	20
With COLA clauses.....	1.9	276	2.7	276	Without COLA clauses.....	-8.7	65	-4.2	59
Without COLA clauses.....	2.4	861	2.7	861	With lump sums	-8.4	45	-2.5	45
With lump sums	1.2	390	1.9	390	Without lump sums	-8.7	41	-5.2	34
Without lump sums	2.8	747	3.1	747	Manufacturing	-8.0	32	-2.1	32
With both lump sums and COLA....	.9	191	2.1	191	Nonmanufacturing.....	-8.8	53	-4.8	47
With lump sums or COLA, or both..	1.7	475	2.3	475	All industries, excluding construction..	-8.2	76	-2.7	70
With lump sums, but no COLA.....	1.5	199	1.8	199	Nonmanufacturing, excluding	-8.4	44	-3.2	38
With COLA, but no lump sums.....	4.1	85	3.9	85	construction	-11.1	9	-11.6	9
With neither lump sums nor COLA..	2.7	662	3.0	662	Construction	-8.7	41	-4.2	41
All industries, excluding construction..	2.0	1,662	1.8	1,662	Service producing.....	-8.4	44	-3.2	38
Nonmanufacturing, excluding					Settlements providing wage increases				
construction	1.9	750	2.5	750	All industries	3.5	1,490	2.6	1,749
Construction	2.9	387	3.1	387	With COLA clauses.....	2.9	766	1.7	858
Goods producing.....	2.3	1,299	1.8	1,299	Without COLA clauses.....	4.1	724	3.5	891
Service producing.....	1.9	750	2.5	750	With lump sums	2.9	748	1.5	934
					Without lump sums	4.1	742	3.8	815
					With both lump sums and COLA....	2.7	637	1.4	722
					With lump sums or COLA, or both..	3.0	876	1.7	1,069
					With lump sums, but no COLA.....	3.9	111	2.1	211

Lump-sum payments

Contracts covering 1,063,000 workers, or 52 percent of the total, provided lump-sum payments. (See table 1.) Such payments are typically made instead of, or to supplement, wage increases, or are used to offset wage cuts. Lump-sum payments are excluded from the adjustment data in the major collective bargaining series. Wage adjustments for workers under settlements providing lump-sum payments averaged 1.2 percent annually over the contract term, compared with 3 percent under settlements without lump sums. About nine-tenths of the workers with the provision in their 1987 settlements also will receive wage increases over the contract term. Lump sums were negotiated in a variety of industries, but were found primarily in automobile manufacturing, retail food stores, and trucking.

COLA clauses

Settlements with COLA clauses covered 920,000 workers, or 45 percent of those under 1987 settlements. COLA's are designed to adjust wages based on changes in consumer prices. The amount of the adjustment depends on the formula used to link price and wage changes, the timing of COLA reviews, and possible limitations on the amount of COLA changes. Generally, COLA's do not recover the full amount of the percentage change in prices.

Almost all of the COLA clauses use the U.S. city average CPI-W to adjust wages; only a few use the CPI for a locality. The most common clause calls for a 1-cent wage increase for each 0.3-point or 0.26-point increase in the index, and for quarterly reviews of price change.

Potential wage changes resulting from COLA clauses that depend on future changes in the CPI, unknown at the time of settlement, are excluded from settlement data. Wage changes from COLA's are included in the "effective wage adjustments" data. "Guaranteed," or minimum, COLA payments specified in the contract are included in settlement data, but such payments are not considered COLA's because they are determined at the time the contract is reached and do not depend on the movement

Table 2. Specified average wage adjustments in private industry settlements reached in 1982-87 and in previous agreements
[In percent]

Year	Settlements reached in year		Previous agreement	
	First year	Over-the-life	First year	Over-the-life
1982	3.8	3.6	8.5	6.6
1983	2.6	2.8	9.3	6.8
1984	2.4	2.4	5.9	4.9
1985	2.3	2.7	3.9	3.7
1986	1.2	1.8	3.5	3.2
1987	2.2	2.1	2.0	2.1

Table 3. Average compensation (wage and benefit costs) adjustments in settlements covering 5,000 workers or more in private industry, 1987

Industry	First year adjustment (percent)	Annual adjustment over life of contract (percent)	Workers (thousands)
All Industries	3.0	2.6	1,316
With COLA clauses	3.2	2.3	778
Without COLA clauses	2.7	2.9	537
Manufacturing	3.1	2.1	705
With COLA clauses	3.4	2.0	546
Without COLA clauses	2.1	2.3	159
Nonmanufacturing	2.9	3.1	611
With COLA clauses	2.7	3.2	232
Without COLA clauses	3.0	3.1	379
All industries, excluding construction	2.8	2.3	1,195
Nonmanufacturing, excluding construction	2.4	2.7	490
Construction	4.9	4.6	121
Goods producing	3.4	2.4	826
Service producing	2.4	2.7	490

of a price index. Payments above the specified amount that are contingent on changes in the CPI, however, are treated as COLA's.

Wage adjustments averaged 1.5 percent annually over the contract term in settlements with COLA clauses, compared with 2.5 percent in settlements without. COLA clauses were found in a variety of industries, but were most prominent in transportation equipment manufacturing.

COLA clauses were dropped or suspended in settlements covering 79,000 workers (57,000 of them were in the steel industry), or 8 percent of the workers under 1987 settlements who had such clauses in their previous agreements. In contrast, only 5,200 workers had COLA clauses established during the year. These developments contributed to lowering the proportion of workers under major private industry bargaining agreements with COLA clauses from 40 percent at the end of 1986 to 38 percent at the end of 1987.

COLA clauses and lump-sum pay provisions applied to substantially larger proportions of manufacturing than of nonmanufacturing workers under 1987 settlements. In manufacturing, seven-tenths of the workers were covered by COLA's and three-fourths by settlements calling for lump-sum payments; in nonmanufacturing, corresponding proportions were one-fourth and one-third. Specified wage adjustments (excluding COLA's and lump sums) over the contract term averaged 1.2 percent annually in manufacturing, compared with 2.7 percent in nonmanufacturing.

Back- and front-loaded contracts

Contracts which call for lower specified wage adjustments in the first year than in subsequent years (back-loaded contracts) covered about 26 percent of the 2,049,000 workers under 1987 settlements. This cost-

curbing practice of delaying wage increases was rare in multiyear settlements reached before 1983.

Back-loaded settlements provided wage adjustments averaging 0.1 percent in the first contract year and 2.3 percent annually over their term. Of the 532,000 workers under back-loaded contracts, 252,000 had wage freezes in the first contract year; 201,000 received smaller increases in the first year than in following years; and the remainder had wage cuts in the first year, but no additional decreases over the term of their multiyear agreements. The largest numbers of workers under back-loaded contracts were in construction and retail food stores.

About 55 percent of the workers under 1987 settlements were covered by front-loaded contracts (those with larger wage adjustments in the first contract year than in later years). Wage adjustments in these contracts averaged 3.6 percent in the first year and 2.3 percent a year over the life of the contract. Nearly one-half of the workers under front-loaded settlements were in transportation equipment manufacturing.

The remaining workers under 1987 settlements were covered either by 1-year agreements or multiyear contracts providing equal wage adjustments each year.

Major negotiations

Following are descriptions of 1987 settlements that covered the largest number of workers.² These were in transportation equipment manufacturing, construction, retail food stores, United Parcel Service, and primary metal manufacturing.

Transportation equipment. Approximately 574,000 workers were covered by 27 settlements reached in 1987 in the transportation equipment manufacturing industry. They accounted for almost two-thirds of the workers under settlements in manufacturing. The United Automobile Workers settled with Ford Motor Co. in late September for 104,000 workers, and with General Motors in early October for 335,000 workers. These two contracts covered more than three-fourths of the workers under 1987 settlements in the industry. Most of the remaining workers were under settlements between the United Automobile Workers and Rockwell International Corp.'s Aerospace Group, McDonnell Douglas Corp., General Dynamics, and other aerospace manufacturing firms; and between the United Steelworkers and Newport News Shipbuilding and Drydock Co.

The 3-year pacts negotiated at General Motors and Ford provided an immediate 3-percent general wage increase, as well as lump-sum "performance bonuses" in 1988 and 1989 equal to 3 percent of the prior year's earnings. The contracts retained the COLA formula, which provided quarterly adjustments of 1 cent for each 0.26-point movement in the CPI.

Overall, wage adjustments in transportation equipment settlements averaged 2.3 percent in the first contract year and 0.9 percent annually over their term. More than nine-tenths of the workers under these settlements are covered by contracts containing either lump-sum provisions or COLA clauses, or both.

Construction. Wage adjustments under settlements in the construction industry (covering nearly one-fifth of the workers under all 1987 settlements), averaged 2.9 percent in the first contract year and 3.1 percent annually over the contract term, and were higher than in all other industries. None of the settlements had lump-sum provisions, and only a few had COLA clauses. Reflecting improved economic conditions in some areas, the average settlement specified larger wage adjustments than the contract it replaced, in which specified adjustments averaged 2.0 percent in the first year and 2.4 percent a year over the term.

The size of settlements reflected the role of local economic conditions in the industry's negotiations. The largest increases were negotiated in New England and the Middle Atlantic States, while wage cuts were negotiated in the economically depressed South Central region. The following tabulation shows the average wage adjustment (in percent) negotiated in the construction industry in 1987, by region:

	First year	Annually, over life of contract
All 1987 construction settlements.....	2.9	3.1
Northeast	5.0	5.3
New England	5.5	5.5
Middle Atlantic	4.8	5.2
Midwest	2.4	2.5
East North Central	2.5	2.6
West North Central	1.4	1.5
South	-1.1	-0.9
South Atlantic	2.3	2.9
South Central	-4.5	-4.7
West	1.4	1.6
Mountain .....	.7	.7
Pacific	1.7	2.0
Interregional .....	.2	.2

The size of settlements also varied by type of construction. Annual wage adjustments over the life of the contract averaged 3.7 percent in general building construction, 3.0 percent in special trades, and 2.2 percent in general construction, other than building.

Retail food stores. The 1987 settlements negotiated in food stores specified lower average wage adjustments than the contracts they replaced. Adjustments averaged 0.5 percent in the first contract year and 1.6 percent annually over the life of the agreement, compared with

corresponding averages of 2.1 percent and 1.3 percent the last time the parties bargained. The 1987 settlements covered 188,000 food store workers, or two-fifths of those under major agreements in the industry.

Almost 50,000 workers had their wages cut or frozen under terms of their 1987 settlements. However, almost three-fourths of these workers will receive lump-sum payments either to offset all or part of the cuts, or instead of wage increases.

Overall, contracts for two-thirds of the workers covered by 1987 settlements provide for lump-sum payments. Contracts with lump-sum provisions call for smaller wage adjustments over their terms (1.1 percent) than those without (2.6 percent).

United Parcel Service. About 110,000 United Parcel Service employees represented by the Teamsters reached a 3-year national accord in 1987. An identical settlement for 4,800 workers in Illinois and Indiana was negotiated separately at the same time.

The United Parcel Service pacts provided wage increases of 30 cents an hour on August 1 of 1987, 1988, and 1989, as well as lump-sum payments of \$1,000 for full-time workers and \$500 for part-time workers on September 1, 1987, and December 1 of 1988 and 1989. A COLA clause was continued unchanged; it provides annual adjustments when the formula yields pay increases that exceed the guaranteed pay hikes plus increased payments for health and welfare benefits.

The settlement also phased out the "two-tier" wage scales established by previous contracts, so that all employees can reach the same maximum job rates. However, the new wage schedule lengthened the period required for new hires to progress through the rate structure.

Primary metals. The 1987 settlements in the primary metals industry (covering almost 60,000 steel and aluminum workers) continued the pattern of wage cuts or freezes that began in 1983. The 1987 settlements provided average wage adjustments of -3.2 percent in the

first year and -0.8 percent a year over the term of the agreements.

Prior to 1986, the largest steel companies bargained with the United Steelworkers of America as a coalition. The last round of talks saw the breakup of the coordinated bargaining practice. The Steelworkers and most of the large steel companies reached agreements in 1986. However, there were 1987 settlements for three large companies—USX Corp. (formerly U.S. Steel) in January, Allegheny Ludlum Industries, Inc., in March, and LTV Steel Corp. in September—and two smaller companies.

After a 6-month work stoppage, USX Corp. and the Steelworkers agreed to wage and benefit cuts. Part, and possibly all, of the cuts, however, could be offset by a new profit-sharing plan.

Negotiations concluded at Allegheny Ludlum yielded no wage changes, but provided quarterly lump-sum payments (based on hours worked) and a \$200 "contract signing" payment.

LTV Steel, after seeking a bankruptcy reorganization under Chapter 11, renegotiated its 1986 agreement with the Steelworkers. The new contract froze wages and benefits for active employees, but restored pension payments which were discontinued after the bankruptcy filing.

Contracts for almost half the workers covered by 1987 settlements in primary metals included provisions for lump-sum payments. Some workers will receive specified amounts. For others, payments will be based on time worked or tied to company profits. Four steel contracts suspended their COLA clauses for the term of the agreement, but kept the contract language intact. The one settlement in aluminum continued the COLA clause, consistent with other contracts in the industry.

Wage adjustments effective in 1987

Wage adjustments put into effect in 1987 averaged 3.1 percent for the 6.3 million workers under major agreements. Although higher than the record low 2.3 percent registered in 1986, this was next to the lowest average effective adjustment in the 20-year history of this series. The increase in the average effective adjustment in 1987 stemmed from higher adjustments in each of its three components: (1) settlements reached during the year, (2) deferred changes made under agreements reached prior to 1987, and (3) COLA provisions. (See table 4.)

Wage changes (increases and decreases) put into effect in 1987 averaged 3.6 percent for the 5.4 million workers who received them. All but 2 percent of those with wage changes had wage increases. The following tabulation shows the number of workers with wage changes effective in 1987 and the source and amount of the change:

Table 4. Average effective wage adjustment in collective bargaining agreements covering 1,000 workers or more, 1979-87

[In percent]

Year	Total adjustment	Source		
		New agreements	Deferred from prior agreements	COLA
1979	9.1	3.0	3.0	3.1
1980	9.9	3.6	3.5	2.8
1981	9.5	2.5	3.8	3.2
1982	6.8	1.7	3.6	1.4
1983	4.0	.8	2.5	.6
1984	3.7	.8	2.0	.9
1985	3.3	.7	1.8	.7
1986	2.3	.5	1.7	.2
1987	3.1	.7	1.8	.5

	<i>Workers (thousands)</i>	<i>Amount of change (percent)</i>
Total	5,376	3.6
Increases	5,281	3.8
From 1987 settlements....	1,535	3.5
Deferred from prior agreements	3,537	3.3
From COLA	1,277	2.6
Decreases	96	- 7.9
From 1987 settlements....	85	- 8.6
Deferred from prior agreements	10	- 4.1
From COLA	0	. . . .

Some workers received pay changes from more than one source; thus, the sum of the number of workers receiving wage changes from each source does not equal the total.

Of the 2,077,000 workers who had cost-of-living reviews in 1987, 1,277,000 received average COLA increases of 2.6 percent. Reviews for the rest of the workers yielded no wage change because the CPI did not change enough to produce one. Wage adjustments stemming from COLA reviews in 1987 averaged 43 percent of the price change during COLA review periods.

Effective wage adjustments in major collective bargaining agreements are reflected in the Bureau's Employment Cost Index, which provides data on changes in

labor costs for both union and nonunion workers and in establishments of all employment sizes. During 1987, wages rose 2.6 percent for union workers, compared with 3.6 percent for nonunion workers, continuing a relationship that began in 1983.

MANY OF THE WAGE ADJUSTMENT STATISTICS for collective bargaining agreements in 1987 show slight increases over historic lows recorded a year earlier. The differences between 1987 and 1986 averages were small, however, and 1987 adjustments were frequently lower than those observed for 1985. Furthermore, the settlement data reflect the changing mix of industries and firms that reach agreements each year. Therefore, more time must pass before it would be appropriate to assess whether the decline in the size of settlements that began in 1982 was reversed or even halted in 1987. □

—FOOTNOTES—

¹The major collective bargaining agreement series for private industry covers 6.3 million workers in bargaining units with at least 1,000 workers. For definition of terms, see "Current Labor Statistics" section of the *Monthly Labor Review*. Additional tabulations from this series are in the March 1988 issue of the Bureau of Labor Statistics periodical *Current Wage Developments*, which also contains data from a similar series for State and local government.

²For more detailed information on 1987 bargaining developments, see George Ruben, "A review of collective bargaining in 1987," *Monthly Labor Review*, January 1988, pp. 24-37.

Have the 1980's changed U.S. industrial relations?

Economic and political policies and demographic and social trends affected labor-management practices, but have caused no fundamental changes

JOHN T. DUNLOP

Where are American industrial relations headed? Is a major transformation at hand, as some observers have urged?¹ Or is our industrial relations system merely reacting to changes in the environment, some of which are reversible and others that reflect longer term secular change.²

At any one time there is both change in our industrial relations system and stability. Moreover, there are various types of change: short-run and long-run, reversible and irreversible, peripheral and structural, small and large, or pervasive. How do we classify the changes of the past decade?

There is a related problem of perspective or bias derived from the fact that change or new elements are said to be newsworthy by the media or current events school of academics, while the unchanged or stable escape the spotlight. We expect our newspapers to tell what is new each day, not that which is old hat. Carried over to industrial relations, this perspective, combined with ignorance of history, often distorts or fails to put into perspective the reporting, analysis, and prescription of the day.

Transitory changes

Several illustrations will underscore the necessity to be clear about what is new and what is continuing, and to distinguish among types of change.

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Two-tier wages. The first half of the 1980's saw an expansion of what we have come to call "two-tier" wage and salary scales that provide lower rates for new hires in the same job classification, compared with incumbents. Although not unknown in earlier years, the growth of two-tier pay in both collectively bargained and nonunion wage settings was one labor market response to severe industry competition, particularly in enterprises with a degree of labor turnover or significant new hires, like food chain stores and airlines. Two-tier compensation systems were established in perhaps 10 percent of collective agreements, on average, over the 1980-85 period.³

There is ready agreement, I believe, that the two-tier wage innovation is a temporary response to economic conditions and is not likely to persist long-term. Lower rates are inherently demoralizing for employees performing the same work, with the same skills. The concern with such adverse consequences led to provisions for the integration or convergence of most two-tier scales in a specified period. It is now clear, moreover, that as economic conditions improve, two-tier systems are being phased out.

Thus, the two-tier wage development is to be characterized as short-run, reversible, and peripheral, rather than fundamental or structural to the industrial relations system. This characterization in no way detracts from its role in some circumstances in having facilitated adjustments and avoided more general wage concessions.

A number of other compensation developments of the first half of the 1980's share, I believe, the same essential characteristics of the two-tier wage systems.

Lump-sum payments. The lump-sum payment, instead of an increase in the wage or salary rate, has been used widely. The rate increase yields a higher base for the next period, while the lump-sum payment constrains overtime earnings and costs, and similarly affects vacation pay, sick pay, and other fringes. As many as a third of recent-year settlements may include such provisions. Incidentally, such payments distort changes in average hourly earnings or wage rate data as a reliable measure of the rate of increase in wages.

Elimination of COLA's. The elimination of cost-of-living adjustment (COLA) clauses, or restricting their impact, has also been a development of the era.⁴ But it is well known that, at least since World War I, periods of inflation have seen the introduction and extension of such automatic wage-rate adjustments to rising living costs, while periods of relative stability have seen the elimination or constriction of such escalator provisions.

Concessions. The general concessionary era in collective bargaining of the first half of the 1980's, which is now largely over, is likewise to be interpreted as a response to the intense product market competition of the era derived from enhanced international competition, exchange rate policies, other macroeconomic policies, and deregulation of airlines, trucking, telephones, and the like. It has always been declining product prices, rather than unemployment, that has put effective and severe downward pressure on wages and benefits.⁵

It is understandable that a current generation may not well appreciate the source of these "concessions" and believe that a new and different industrial relations order is at hand. It may be helpful to put recent events in historical perspective and to remember that average hourly earnings (in current dollars) for all manufacturing fell by 22 percent in the 1929 to 1933 period, while they increased by the same amount (22 percent) from 1981 to 1986. The magnitude of wage concessions, on average, in the current period has been minuscule relative to the Great Depression.

Indeed, the unquestioned tendency to describe wage increases in recent years as "moderate" reflects a simple comparison with earlier absolute amounts without reference to their economic context. Compare, for instance, two years—one with a rise in money wages of 8 percent and a cost-of-living increase of 14 percent, as took place in 1979–80, with another year that had a rise in money wages of 2.2 percent and a cost-of-living increase of 1.9 percent, as took place in 1985–86.⁶ In which year was the wage behavior more moderate? In 1979–80, money wages were more "moderate" relative to the rate of increase of living costs, although they rose almost four times the absolute rate of increase of 1985–86. The standard of moderation for money compensation might be the cost-

of-living, productivity, or profitability, yielding different judgments as to moderation.

A great many of the changes in industrial relations in the first half of the 1980's commonly cited are seen to be transitory, short-run and reversible, or simply different relative to the environment. But are there not more fundamental changes?

Changes in the environment

The dynamic interactions among labor, management, and government in the environment of an industrial relations system, in particular the market and budgetary context, the technological settings, and the power context in the larger society, for me provide the tools to understanding what is happening to industrial relations outcomes. Changes in these features of the environment affect the three parties whose interaction, in turn, influences the environment and the outcomes. Like all theory, for me, this is a way of organizing my thinking about industrial relations analysis and forecasting.⁷

The late 1970's and 1980's have seen some significant changes in the environment, particularly in some sectors. We can expect still further changes, although some of them are reversible. The major changes may be briefly identified as follows:

Macroeconomic policies cut taxes, expanded defense expenditures, and built unprecedented budget deficits. Tight monetary policy and high interest rates brought down inflation, produced a severe recession and an overvalued dollar and unprecedented trade deficits. The United States became the largest debtor nation instead of the largest creditor country in a few short years. No industrial relations system can be expected to adapt in the short term to such wrenching and traumatic experience.

In this macroeconomic setting, the industrial relations parties are more subject than ever before to international product-market competition, and an environment of slow economic growth creates added difficulties for all parties. Only when exchange rates have settled down will we be able to appraise the full consequences of this competition. The period accelerated a development of greater international dependence that was already under way.

Deregulation. The precipitate deregulation, both of entry and rates charged, in airlines and master-freight trucking had significant impact on industrial relations in those sectors. Similar, though lesser, consequences have arisen in railroads and telephones, underlining interdependencies of product and labor markets that the sponsors of deregulation did not anticipate.⁸

Technology. In some sectors, new technology has helped to create new work environments that have come to prominence in the past decade. "Patterns of relations in new high technology firms differ considerably from those

of traditional heavy industries. The differences are consequences of different labor markets, skill levels, and workforce expectations, as well as resulting from management ideology or reactions to the disfunctions of union-management relations."⁹

Demography. There are significant changes in the demography of the work force that are affecting various aspects of industrial relations: the rapid expansion in the proportion of women in the work force, the growth of the Hispanic labor force, the decline in the rate of growth of the work force, the aging of the population, the shift of population to the South and West, and greater formal educational levels.

(An industrial relations system is likely to be able to adapt more readily to such longer term secular changes than to absorb the consequences of rapid and extreme shifts in macroeconomic policies.)

Political climate. Finally, the political climate of the past 7 years has affected industrial relations. The hostility between an Administration and the labor movement has been unmatched in this century. The labor relations agencies have produced reverses in policy and uncertainties that have not encouraged cooperative problem-solving or consultation.¹⁰

All in all, some of the environment of the 1980's will continue, some is likely to be reversed, and some will leave a continuing difficult legacy.

Fundamental features in the U.S. system

To appraise the extent and the depth of changes in the past decade in the industrial relations system of the United States, we must state briefly the major fundamental features of that system as it has evolved over the past. The most distinctive features, compared to the system of other countries, include the following:

Exclusive representation—one union and only one union in a given job territory selected by majority vote. In contrast to continental Europe, with affiliations in the same job territory by religious and ideological attachment, we developed the attribute of exclusive jurisdiction within the American Federation of Labor over 100 years ago and implanted the idea in law with the Railway Labor Act (1926) and the National Labor Relations Act (1935).

Collective agreements that embody a sharp distinction between *interpretation of the agreement and negotiating a new agreement*. The no-strike and no-lockout provision during the term of the agreement, the interpretation of the agreement by private arbitrators or umpire, and legitimate overt conflict confined to a negotiations period all derive from this fundamental distinction alien to the British system (from which we borrowed much histori-

cally) with its open-ended and nonenforceable agreements.¹¹ The fixed duration—often 2 or 3 years—favors stability and concentration on mutual administration, but this feature may inhibit steady attention to structural changes that cannot wait several years.

The decentralized character of collective bargaining, compared to that of most other Western countries. This feature derives in part from the size of the country, the diversity of its economic activity and the historic role of product markets in shaping the contours of collective bargaining. Recent events and the absence of tight labor markets have tended to create even more fractionated bargaining in some sectors, breaking up the basic steel negotiations and creating separate bargaining in the telephone industry, previously a single Bell system negotiations.

Union organizations in the U.S. system are characterized by *relatively high dues and large staffs* necessary (in the absence of significant substantive intervention by government) to negotiate and administer private decentralized agreements, including grievance arbitration, and to organize against massive employer opposition. Lobbying before legislative and administrative tribunals adds to these requirements.

Employer opposition to union organization historically has been intense, compared to other countries and has been only slightly modified in its forms by 50 years of legislation.¹² The opposition among smaller employers to labor organizations and to more social legislation can only be described as particularly intense.

The role of government in our industrial relations system over the years has been relatively passive in dispute resolution, although that varies with administrations, and highly legalistic in both administrative procedures and in the courts treating the most detailed matters and requiring enormous lengths of time. As regulation has expanded over health and safety, pension benefits, and equal employment opportunity, the litigious quality of relations has grown in many relationships.

It is difficult to conclude that the events of the late 1970's or 1980's have altered in any fundamental way these features of the industrial relations arrangements of the United States. I have noted in passing some of the reinforcements, such as more decentralization that might be reversed to some degree with sustained high employment in a sector. But nothing of a systemic breaking or creating new features seems to me to have occurred.

I am, of course, aware of the decline in the private sector labor movement with the growth of public sector labor organizations. But the economic and political environment has been most hostile. Sectors of union strength have declined and sectors devoid of unions have

rapidly expanded. We have had even more severe periods in the past, as in the 1920's. I am aware that workplaces under collective bargaining constitute a minority of all workplaces. But it is well said that "collective bargaining provides leadership to a much larger group in the labor force . . . Unionism still casts a long shadow over the non-union majority."¹³ But attention to the fundamentals of the U.S. industrial relations system does not suggest to me any basic or profound transformation of these fundamental features.

Labor-management cooperation

The recent period has produced a number of widely publicized new instances of labor-management cooperation that have led some commentators to express the view that our industrial relations system is becoming significantly less adversarial and much more cooperative. The percentage of estimated working time lost in large strikes (involving 1,000 workers or more) is at a low level. The exceptional agreements between the United Auto Workers (UAW) and Saturn (General Motors) and the UAW and the joint venture between Toyota and New United Motor Manufacturing, Inc. (General Motors), the worker participation programs at Ford Motor Co., AT&T, Xerox, and a number of major private companies, largely excluding the public sector, have received widespread attention.¹⁴ The expansion of worker participation in stock ownership, the tradeoff of wage and fringe concessions for a share of ownership in some companies in financial difficulty and the election of labor organization candidates to a few board of directors are seen as symbolic of the new era of cooperation.

But cases of labor-management cooperation have a long history in the United States, and in England they have been known under the term "joint consultation." The distinction between collective bargaining and labor-management cooperation, or joint consultation, can be simply stated. Under collective bargaining, there may be arbitration or resort to strike or lockout if there is not agreement, while under joint consultation or cooperation neither is appropriate if there is a failure to agree. Enforced consultation, save as the pressure of events or the environment, is a contradiction in terms. In the United States, the obligation to bargain in good faith under the National Labor Relations Act does not require programs of labor-management cooperation.

There is a long experience with labor-management committees in the United States. The 1920's and 1930's produced such committees on the Baltimore and Ohio and the Canadian National railroads, in the Cleveland women's garment industry, at the Naumkeag Steam Cotton Co., the Amalgamated Clothing Workers and the men's clothing industry, and the Rocky Mountain Fuel Co. There were thousands of production committees

established in World War II. The National Planning Association case studies on the "Causes of Industrial Peace" belong to the late 1940's and early 1950's. Scanlon Plan companies are well known. I served as a member of the Kaiser Steel-Steelworkers Long Range Committee in the 1960's.

Is a new wave of labor-management cooperation changing U.S. industrial relations? My reading of history suggests not.

Labor-management committees have functioned in only a relatively few collective bargaining relationships. As Sumner H. Slichter concluded more than 40 years ago: "In industry as a whole, the number of unions pursuing the policy of systematic cooperation is small . . . The traditional view of unions is that getting out production and keeping down costs is the employer's responsibility . . . Unions had been bitterly opposed by most employers and have had to fight for the right to exist . . . Employers have not desired their help."¹⁵

In general, such labor-management committees appear to arise in response to threats to economic viability and job opportunities provided by the enterprise, locality, or sector, or under circumstances of special challenges and with the leadership of dedicated personalities who have the capacity to command unusual support in their respective organizations. Dramatic technological and market changes, a long work stoppage, the growth of competitive imports, or other threats also have led to joint committees. ". . . The times when labor and management have cooperated over the years have been times when economic difficulties threatened the viability of both parties, as when international tensions necessitated cooperation in the interest of national security. In these periods of crisis, collective bargaining alone had proved to be an inadequate forum for addressing each and every pressing issue."¹⁶ Slichter saw the main field of committees to be "in the high-cost establishments when equipment is semi-obsolete or the management is poor and where the union needs to do something to help its members hold their jobs."¹⁷

Historically, labor-management committees have had limited life spans, much shorter than collective bargaining relationships. The central problem the committee was designed to consider may be resolved or pass; the special leadership may leave; the circumstances may change and a new set of urgent issues emerge; the vital neutral or the government official may disappear; or the willingness of both parties to cooperate may be undermined by internal considerations. The committee may vanish to be reincarnated with new leadership concerned with new problems.

Contrary to much recent writing, labor-management committees are not a recent development. They go back to the early days of collective bargaining in this country and in England. The interstate joint conference in bituminous coal mining,¹⁸ the conciliation arrangements

between the Bricklayers and the Mason Contractors in New York, Chicago, and Boston;¹⁹ and the impartial umpire institution in the clothing industries, going back as far as 70 or a 100 years, resemble joint committees in their attention to the basic problems of a sector and their discussions of cooperative means of meeting these issues, in addition to the function of negotiating collective agreements.

Labor-management committees and their leadership on both sides are often plagued by internal tension in their choice between cooperation and conflict. Labor leaders can readily be undermined in their unions by policies, statements, and appearances that convey that they are too collaborative or too responsive to management; they have sold out to management. Management members of joint committees likewise have inhibitions derived from long-held principles and attitudes relating to sharing confidential data and compromising management prerogatives. The moderation or abandonment of traditional attitudes and procedures may prove to be adverse to the status of leaders of both sides. This problem is most sensitive and delicate.

It may be well also to remember that there are approximately 60,000 enterprises in the United States, excluding those in agriculture, private households, the self-employed and the public sector. About 30 percent of these enterprises have fewer than 25 employees and only 42 percent have more than 500 employees. Stated in terms of employees, 21 percent of employees are in workplaces with less than 20 employees, 20 percent with 20-99 employees, 12 percent with 100-499 employees, and 47 percent in enterprises with more than 500 employees. These numbers indicate how decentralized and diffused are U.S. workplaces, and how unlikely it is for "a new industrial relations system" quietly and without notice to take shape in the country. Moreover, small enterprises are likely to be particularly resistant to participatory management.

What does all of this say about the present state of industrial relations and about the future? I offer these conclusions.

Perspective on the future

There are significant new elements in the economic environment. A period of a bizarre macroeconomic setting is likely to yield to a more settled environment that is much more vulnerable to international pressures. Longer term, new elements in the demography exert influence: aging, women, Hispanics, educational levels, and geographical shifts, with new workplaces and industries. Technology changes skills and stability of employment. Deregulation has afflicted a few sectors. The political climate is not likely to remain in the mold of the first half of the 1980's.

A number of developments of the early 1980's are reversible and are passing, such as two-tier wage and salary schedules, lump-sum payments, and escalator clauses.

The era has seen labor directors in a few enterprises, but this tendency is not likely to expand. There have been new centers of concern such as health care costs, health for retirees, occupational health and safety, quality of output, drug and alcohol abuse, family issues such as day care, and skill training, particularly in large enterprises requiring substantial out-placement of employees. These latter interests are likely to persist.

There has been no massive shift in the methods of management, no wide adoption of worker participation in management nor diminution of management hostility to labor organizations. Instances of labor-management cooperation or joint consultation are significant, but they are relatively rare as they have been historically. The concern over sharing information and the difficulties of participatory management are overcome in circumstances that threaten survival. Union leaders are concerned about being too collaborative as seen by constituents who elect them.

The basic features of U.S. industrial relations arrangements have not been altered, although the output of the system may be expected to change in the new environment.

The labor movement in the United States is here to stay. It is adapting its methods to the new environment; already we have seen the reversal of a number of prominent losses and the penetration of some new fields. □

FOOTNOTES

¹According to the "New Industrial Relations," *Business Week*, May 11, 1981, p. 85: "Quietly, almost without notice, a new industrial relations system with a fundamentally different way of managing people is taking shape in the U.S. Its goal is to end the adversarial relationship that has grown between management and labor and that now threatens the competitiveness of many industries." An academic formulation that in important respects mirrors the same perspective is Thomas A. Kochan, Harry C. Katz, and Robert B. McKersie, *The Transformation of American Industrial Relations* (New York, Basic Books, Inc., Publishers, 1986), p. 227: "We see the current moment as one of those historic periods of transformation in which existing institutional structures have been challenged and opened up to experimentation in ways that allow considerable choice in how to reconstruct and modify

them to best serve the interests of workers, employers, and society in general."

²H.D. Woods and Sylvia Ostry, *Labour Policy and Labour Economics in Canada* (Toronto, Macmillan Company of Canada, Ltd., 1962), p. 497: "In every epoch of history, men are convinced that theirs is an age not merely of transition but of profound transformation."

³Bureau of National Affairs, *Daily Labor Report*, No. 196, Oct. 13, 1987, pp. B1-B2. Also, see "National Mediation Board Report on Two-Tier Wages in Airlines," Bureau of National Affairs, *Daily Labor Report*, No. 116, June 17, 1985, pp. D1-D4; and Sanford M. Jacoby and Daniel J.B. Mitchell, *Management Attitudes Toward Two-Tier Pay Plans: An Analysis*, 1985.

⁴Stuart E. Weiner, "Union Cola's on the Decline," Bureau of National Affairs, *Daily Labor Report*, No. 154, Aug. 11, 1986, pp. E1-E12.

⁵John T. Dunlop, *Wage Determination Under Trade Unions* (New York, Macmillan and Co., 1944), pp. 144-48; John Dunlop, Clark Kerr, Richard Lester, and Lloyd Reynolds, in Bruce E. Kaufman ed., *How Labor Markets Work, Reflections on Theory and Practice*. (Lexington, D.C. Heath and Co., 1988), pp. 69-72.

⁶Wages are gross average hourly earnings in the total private nonagricultural economy. The cost-of-living index used is that for all urban consumers.

⁷John T. Dunlop, *Industrial Relations Systems* (New York, Henry Holt and Co., 1958).

⁸For a discussion of deregulation in trucking, see, D. Daryl Wyckoff, *Truck Drivers in America* (Lexington, Lexington Books, 1979). Safety, hours, wages, use of drugs and alcohol, and so forth, are related to the degree of product market regulation. John T. Dunlop, "Trends and Issues in Labor Relations in the Transportation Sector," *TR News*, May-June 1985 (Washington, Transportation Research Board), pp. 1-8.

⁹Janice McCormick and D. Quinn Mills, "Discussion, Industrial Relations System in Transition," Industrial Relations Research Association, *Proceedings of the Thirty-Seventh Annual Meetings*, December 28-30, 1984, p. 286. Also, see D. Quinn Mills, *Not Like Our Parents: A New Look at How the Baby Boom Generation is Changing America* (New York, William Morrow and Co., Inc., 1987).

¹⁰See John T. Dunlop, "The Legal Framework of Industrial Relations and the Economic Future of the United States," in Charles J. Morris, ed., *American Labor Policy, A Critical Appraisal of the National Labor*

Relations Act (Washington, Bureau of National Affairs, Inc., 1987), pp. 1-15.

¹¹Benjamin Aaron, "No Labour Courts, Little Arbitration; What's Wrong with That?" *Comparative Industrial Relations, A Trans-Atlantic Dialogue* (Washington, Bureau of National Affairs, 1984), pp. 56-70.

¹²Paul Weiler, "Promises to Keep: Securing Workers' Right to Self-Organization Under the NLRA," *Harvard Law Review*, 96:1769, 1983.

¹³Janice McCormick and D. Quinn Mills, "Discussion, Industrial Relations System in Transition," p. 289.

¹⁴See, for instance, *Labor-Management Cooperation*, Nos. 1-10 (July 1984-March 1987, U.S. Department of Labor, Bureau of Labor-Management Relations and Cooperative Programs); Jerome M. Rosow, ed., *Teamwork, Joint Labor-Management Programs in America* (New York, Pergamon Press, 1986); John T. Dunlop, *Dispute Resolution, Negotiation and Consensus Building* (Dover, Auburn House Publishing Co., 1984), pp. 225-78.

¹⁵Sumner H. Slichter, *Union Policies and Industrial Management* (Washington, The Brookings Institution, 1941), pp. 561-62.

¹⁶U.S. Department of Labor, Labor Management Services Administration, *The Operation of Area Labor-Management Committees* (Washington, U.S. Government Printing Office, 1981), p. 25.

¹⁷Slichter, *Union Policies*, p. 567.

¹⁸Arthur E. Suffern, *Conciliation and Arbitration in the Coal Industry of America* (Boston, Houghton Mifflin Co., 1915).

¹⁹Josephine Shaw Lowell, *Industrial Arbitration and Conciliation* (New York, G.P. Putnam's Sons, 1893).

How the 1980's have changed industrial relations

More cost-conscious management—forced to respond to increased foreign competition and deregulation—has shaped fundamental changes in the labor-management relationship

AUDREY FREEDMAN

Union-management relations have undergone profound changes in the 1980's. The changes have been wrought largely by a force external to union-management relations: competition—from abroad, from deregulation, and from nonunion companies. The result is that compensation and employment are both more flexible and adaptive than in the 1960's and 1970's.

In my view, this shift has caused a fundamental change in human resource management practices. This is not a cyclical pattern of alternating ascendancy between labor unions and management.

This article examines the cyclical analysis of union-management relations in the light of evidence that the recent changes are broader and deeper than the traditional union-management dichotomy can encompass.

The cyclical analysis

Those who envision union-management relations as a pendulum, see the present period of industrial relations—a period characterized by lessening union power in bargaining and in organizing—as similar to previous eras. They see current bargaining outcomes as not new—and imply that they will be reversed. Some also assert that there is nothing new about specific techniques or

policies such as gainsharing, “lump sum” wage bonuses, security bargaining, and worker participation. This theory suggests that within the world of union-management relations, the only change is the continual repetition of cycles as one party gains ascendancy over another for a time, and then gradually loses it as the other side regroups and acquires strength. Many union leaders, some third-party professionals such as mediators, and some longstanding management representatives hold this view.

The cyclical point of view treats union-management relations as operating in a world within itself by classic power principles, played out by experienced practitioners of the labor relations arts. If some of these old-line labor relations experts think about human resources management at all, it is as a union-avoidance strategy. Some even interpret every move toward worker participation as motivated by management desires to weaken and supplant unions—everything is part of the closed-system power struggle between the two institutional adversaries.

The change analysis

The other point of view is a great deal more diffuse. It focuses on the pressures external to labor relations. It perceives the management of human resources as driven by incentives arising in the economic choices for the firm, within a larger economic, demographic, and social framework of events and pressures. So management of human

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resources is always being propelled toward adaptation to new business conditions. This approach views the decade of the 1980's as a period of major change, in which the parties have had to adapt to a far more competitive business environment. As external competitive attack forced business to shift rapidly, to cut costs, to innovate, to enter other markets, to cede some product lines to others, to devise a flexible labor force strategy, the need to adapt broke open the formalized world of labor relations. Managers sought to get the most cost-effective use of their human resources, not to play the conventional union relations game.

In my view, these changes are still occurring and will not be reversed by some sort of cyclical return to the 1950's. This is because the external economic and business world will not return to that era when U.S. enterprise dominated the world, when our technology was the most advanced, our capital was the major source for other countries' economic growth, and our businesses had a very firm grip on all of the domestic and most of the world market. Just as the American automobile market will not again be totally dominated by a few domestic producers, so auto wages and working terms will not be set exclusively and "nationwide" by the UAW and one auto company, according to a fixed pattern. By now, domestic nonunion producers are creating a competitive check on labor costs per unit of output. Non-union domestic parts suppliers, foreign auto assemblers, foreign parts and subassembly makers, and a multiplicity of other competitive pressures are disciplining costs and quality in an industry that was once part of the "closed" labor relations system of the 1950's and 1960's.

The power of unions to set industrywide wage levels and to relate these in "patterns" was based on the market power of strong domestic producers, or industries sheltered by regulation. As employers lost their market power in the late 1970's and early 1980's, union wage dominance shrank and fragmented, narrowed down into the newly detailed segments into which competition was slicing markets. One union segment had to compete with another, and with nonunion segments here and abroad. Under these circumstances, it is difficult to imagine a pendulum-like return to the past. Perhaps the only factor that might accomplish this would be a political move toward "industrial policy," or an economic planning system that might once again diminish competition. This may be the reason for union support of industrial policy proposals.

Pressures on management

What are the greatest influences or pressures on management in labor relations and bargaining? It has not been easy to discover, because any analysis of influences on union contracts is looking at outcomes—outcomes

that are themselves an effect of the union's power in bargaining. So, The Conference Board asked managers directly in a late 1983/early 1984 survey. Most of the 499 respondents were labor relations managers. Pressure from competitors was identified as the most powerful influence on employee relations (from domestic competitors, 164 companies; from foreign competitors, 29 companies). An additional 82 identified "changing industry structure," which parallels competition in effect. The only other choice of significance was recessionary conditions, identified as most influential by 109 companies that were still feeling the aftereffects of 1982. From these responses we can conclude that labor-management relations is not a world unto itself, but that it has been deeply influenced by loss of market control, by competition that impinges on the resulting wage arrangements and on the managers' drive for productivity gains.¹

Because long-established conventions like the labor relations "system" are not easily disturbed, it seems reasonable to conclude that the double recessions of 1981 and 1982 sensitized both management and unions to the effect that competition was going to have upon their stable and institutionalized arrangements. At the time, many labor analysts described the situation as temporary, due to recession or individual company survival issues.² Among these were most union spokesmen and academic analysts of collective bargaining, such as John T. Dunlop. But in 1988, with 5 full years of recovery behind us, the changes described as "temporary concessions" in 1983 are still present.

In terms of wage-setting practices, management has shifted from following industry patterns, or imitative wage-setting behavior, toward internal cost concerns. Pressure from lower cost producers of goods and services has forced management bargainers to consider the wage rates, benefit costs, and productivity of specific business units and operations—in comparison to their competitors' costs and productivity. The objective is to get labor costs per unit of output to a point below that of the competition at the product-line level. Out of this approach has come wage-level differentiation, the breakdown of pattern bargaining.³

Economic conditions

What has happened is that wages, even under union bargaining pressures, are now far more responsive to economic conditions at the industry and firm level, and even the product-line level, than they were in the 1970's.

The most direct way to test this is to ask of company labor relations managers: what information or factor most affects the company's wage target in bargaining? The Conference Board asked this question in 1978, and again in 1983, of 197 identical bargaining units with the same line of business and the same union representation.

There was a major shift in their answers. In 1978, the consideration of primary importance was "industry patterns." Just 5 years later, it was "productivity or labor-cost trends in this company." There was also a big drop in concern with (external) industry patterns. Other external factors also declined in importance: inflation rates, the effect of this settlement on other wage settlements or nonunion wages or both, and union settlements in other industries.⁴

When the parties to an arrangement are being shaken by factors outside their control—in this case, by competitors' lower costs of operation—they are experiencing some major upheavals. The American collective bargaining system, fortunately, is practical and flexible enough to allow the parties to adjust. I think it is appropriate to recognize the change that is occurring and analyze its positive results, rather than to insist that "nothing is changing"—that the closed system is calcified and undisturbed by signals from without. Nor do I see parallels in the post World-War I period to the current "state of American unions." The factors causing change today are not at all internal to the "union-management institution." They are, to be quite specific, Toyota, Nissan, Hyundai; Sanyo, NEC, Toshiba; Nucor, Pohang, and third-world steelmakers. They are dozens of new telecommunications industries and companies springing up in a deregulated petri dish; new airlines, new routes, new services that seem constantly to be realigning old and stable business arrangements. One of these stable business arrangements was union-management mutuality of interest (at a certain level of market protection or control). Withdraw that control or protection, and new arrangements must be made. Claim "nothing new is happening" and you miss the drama of adaptation as it is taking place.

So, the first major change has been to force companies to consider their operating costs in terms of competitive pressure from other firms outside the closed circle of the unionized. This causes them to consider those costs at the product-line level, because that is where the competition focuses. Thus, there cannot be a single "industrywide rubber" wage when the tire market can allow one level, but the plants producing hose and belting, or consumer retail products like rubber shoes, are competing with Far Eastern producers paying much lower wages to their laborers. This competitive, product-line pressure ultimately forces diverse new wage practices and other working conditions variations on union bargaining. It also tends to break down the use of automatic wage formulas such as cost-of-living escalators, as well as traditional fixed annual increases (such as the "annual improvement factor" of 3 percent in auto contracts, and its counterparts in steel and trucking). Without automatic increases, the bargaining parties have more freedom to adopt new terms and tailor specific packages to

current conditions. The decline in these traditional/automatic wage formulas has been documented in the Bureau of Labor Statistics periodical *Current Wage Developments*, and in many studies of bargaining outcomes by Daniel J.B. Mitchell of University of California at Los Angeles⁵.

Flexibility tools

In removing automatic formulas and making wages more flexibly responsive, the parties have contrived many new wage techniques. Among them are "two-tier" systems in which incoming new workers are paid a lower wage, presumably closer to the market wage—the level that would be paid in the absence of a union contract. Another device is the "lump sum," which provides a single payment, usually once a year, instead of raising the hourly wage rate. Lump sums are obviously less expensive for management, but their most important quality is the fact that they do not become embedded in the wage rate and are thus infinitely more adjustable than previous formula wage increases. A third class of wage technique, "gainsharing," has received much advocacy attention, but is less frequently found in actual contracts. It too is a flexibility tool, directly linking wages to output or production costs or profit.

These techniques are not necessarily novel; parallels can be found in previous nonunion wage systems. The phenomenon that is new is that bargaining has been forced to seek out all kinds of variations in order to make wages more responsive to competitive pressure at the product-line level.

The fact that wages are being made more flexible and adjustable is clear by now. Another development seems also to be discernible behind the details of events: it appears that management is trying to make employment itself more flexible. That is, management is trying to reduce the fixed aspect of labor costs represented by a core work force that has either implicit employment guarantees or costly downsizing penalties to protect it. Management is trying to contract out work more freely, use subcontracts for business services, use more part-time and free-lance and temporary workers. These techniques of contingent work arrangements are not new; what is new is management's drive to make employment flexible. Management is trying to make employment far more fluid and adjustable, to make labor costs even more variable and work force redeployment even less expensive. It is what has been called "Kanban employment," using the Japanese term for just-in-time delivery and no stockpiling or inventorying of resources.

The use of contingent workers and contracting out has always been an available management tool. In fact, it is essential to have various techniques for buffering a "core" work force in order to provide even a small

amount of security to that core as business conditions fluctuate. Whether the parties cared to admit it or not, the existence of buffers is the tradeoff for granting more employment security to the "primary" work force. So contingent worker techniques are not new. However, using contingent worker and subcontracting techniques to gain more adaptability and flexibility—to gain power for rapid downsizing and cost-cutting—is what is new in the environment of the late 1980's.

Competitive pressure

As long as competitive pressure forces business to adapt quickly, these techniques are going to continue growing. Furthermore, their more extensive use is affecting all employment, making all employment arrangements less secure and more changeable than they have formerly been in "stable," protected industries. Anecdotally, it is said that no longer can a young man count on following his father into a lifetime in the local mill. It is also said that a young man can no longer enter the lower ranks of management and "stay with the firm" for his entire career. It does not require an elaborate longitudinal study to prove that these inferences from real world observation are true. Employment, as well as wages, is being made more flexible.

In the course of all these changes, the driving force has been business conditions in the firm. The labor relations system that evolved during the 1940's through the 1970's was institutionalized around the market power of the firms and those unions that had come to represent large

proportions, if not nearly all, of the industry's domestic work force. Under these closed and controlled circumstances, it is easy to see why the system was so internally directed and expert-dominated. And in time, the experts operated a system relatively isolated from "the business"—and business was willing to delegate the handling of labor relations to such experts.

But now that competition arises from abroad, from domestic nonunion operators, from nonregulated new entities, the management of human resource cost and productivity moves back toward the center of business concerns. It is no longer "left to the experts." It becomes the direct and vital concern of line managers all the way up to the chief executive. The collective bargaining system, with its heavy flavor of formal, legalistic, adversarial maneuvering, is giving way to a more fluid, adaptive, business-dominated behavior. Those old-line labor experts who adjust to the new environment are invaluable in responding wisely to the new forces at work. Those old hands who cannot perceive business needs are having to give way before line managers who may not know all the historical background of union relations, but they do know what has to be done to keep the business prospering.

There are a lot of electrical sparks coming from these "inexperienced" line managers, and the course of bargaining is not as predictable or smooth and familiar as it once was. But changes are being forced. They are not temporary. We are not looking at a segment of a cycle that will reverse itself and return to the 1950's. This change is for good. □

—FOOTNOTES—

¹Audrey Freedman, *The New Look in Wage Policy and Employee Relations* (New York, The Conference Board, 1985), pp. 3-4.

²Audrey Freedman, "A Fundamental Change in Wage Bargaining," *Challenge*, July-August 1982, pp. 14-17. This article discusses some of the reasons why collective bargaining's academic analysts of longstanding reputation had difficulty in seeing the changes that were developing. It may also be that those with a lifetime of work invested in careful analysis of an elaborate system were unwilling to perceive that system fragmenting, and also losing its centrality in U.S. wage-setting models.

³For a full discussion of these anticipated changes, see A. Freedman

and W.E. Fulmer, "Last Rites for Pattern Bargaining," *Harvard Business Review*, March-April, 1982, pp. 30-48.

⁴For more detail, see Freedman, *The New Look*, pp. 7-11.

⁵See, for example, Daniel J.B. Mitchell, "Wage Trends and Wage Concessions: Implications for Medium-Term Economic Expansion," Department of Economics, University of Michigan; and *The Economic Outlook for 1987, Proceedings* of Nov. 20-21 1986 meeting of RSQE, pp. 266-335. Also, Daniel J.B. Mitchell, "Alternative Explanations of Union Wage Concessions," *California Management Review*, Fall 1986, pp. 95-108.

Retail hardware stores register productivity gain

Output per hour of all persons grew at an above-average annual rate of 1.3 percent over the 1972-86 period, reflecting strong demand and improvements in store operations

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Productivity, or output per hour of all persons, in the retail hardware store industry¹ rose at an average annual rate of 1.3 percent from 1972 to 1986. This increase was well above the 0.8 percent annual gain in productivity registered by the nonfarm business sector of the economy. The growth in productivity reflects an increase in output of 2.2 percent per year, and a rise in hours of 0.9 percent annually. Contributing to the growth in productivity were strong demand, an increased use of computers in store operations, and benefits derived from affiliation with dealer-owned cooperatives. The productivity trend for the 14-year period examined here was marked by much volatility. From 1972, annual increases in productivity occurred in 7 years, ranging from 0.2 percent to 14.5 percent. Declines in productivity also occurred in 7 years, the largest in 1981, when output per hour fell 3.7 percent. (See table 1.)

The retail hardware store industry is strongly affected by cyclical changes in the economy. Expansions and contractions in output, and the associated changes in productivity are closely linked to changes in the housing market. While increases or decreases in sales of new homes affect industry output, sales of previously occupied homes have an even greater impact. In the sale of existing homes, hardware store purchases are boosted,

both when the dwelling is prepared for sale and when it is redecorated by its new owner.²

During periods of economic expansion, hardware items are purchased to prepare homes for resale, to remodel older homes, and to maintain new and existing homes. These factors contribute to output and productivity gains in the retail hardware store industry.

When the economy contracts and the housing market is weak, output in the retail hardware store industry slows or declines, and productivity tends to fall off. During an economic downturn, industry output may grow because of expenditures on improvements, maintenance, and repairs of existing homes, but be offset by declines in disposable income and new construction. This would slow the rate of growth in industry output, or even lead to a decline in output. Evidence of the cyclical influences on the retail hardware store industry can be seen in the four subperiods examined here.

Subperiod trends

In the early years of the period studied, productivity in the retail hardware store industry fell 1.2 percent annually from 1972 to 1976, as output grew at a slow rate of 1.2 percent, and hours rose 2.4 percent per year. The influence of the 1974-75 recession on the industry was mixed. The industry felt the effect of a sharp decline in housing starts, but this was offset by an increase in expenditures on improvements, maintenance, and repairs of residential properties.³

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The retail hardware store industry benefited from the economic recovery of the late 1970's. Strong activity in the housing market was an impetus to growth in sales of hardware products. Between 1976 and 1979, housing starts rose 4 percent annually, and sales of existing one-family homes advanced nearly 8 percent per year.⁴ Output of the retail hardware store industry grew at an average annual rate of 6.6 percent. With hours rising only 1.0 percent annually, productivity advanced 5.5 percent per year.

The recessionary periods of 1980 and 1981-82 had a more negative impact on the industry than the earlier recession. From 1979 to 1983, sales of both older and new homes declined. Expenditures on improvements, maintenance, and repairs fell 4 percent annually. With output dropping at an average annual rate of 2.6 percent and hours falling 1.0 percent per year, productivity in the retail hardware store industry decreased 1.6 percent annually.

The retail hardware store industry shared in the economic recovery at the end of 1982. Productivity advanced 2.9 percent per year during the subperiod 1983-86, as output rebounded at a 4.0-percent rate of growth, while hours increased at an average annual rate of 1.0 percent. Rapidly rising expenditures on improvements, maintenance, and repairs of almost 24 percent annually, and a strong resale home market were largely responsible for the business recovery of the retail hardware store industry.

(Average annual rates, in percent)

	<i>Output</i>	<i>Output per hour of all persons</i>
1972-86	2.2	1.3
1972-76	1.2	-1.2
1976-79	6.6	5.5
1979-83	-2.6	-1.6
1983-86	4.0	2.9

Industry structure and employment

The industry is characterized by small, single-unit firms designed to serve individual local markets. Retail hardware stores have relatively few employees per store. In 1972, the industry consisted of 18,530 establishments with an average work force of about five employees per store. By 1982, there were 19,870 establishments with an average of about six employees. In recent years, single-unit firms have declined slightly in relative importance.

While single unit firms still account for the majority of the stores in the industry, there has been an increase in the number of multiunit operations during the period studied. In 1972, multiunit operations accounted for 8 percent of total stores and generated 20 percent of industry sales. By 1982, the number of multiunit firms increased to 10 percent while the proportion of industry

Table 1. Productivity and related indexes for the retail hardware store industry, 1972-86

Year	Output per hour of all persons	Output	Hours of all persons	All persons
1972	101.1	90.8	89.8	88.3
1973	98.9	90.0	91.0	90.1
1974	95.3	88.9	93.3	92.9
1975	97.9	92.4	94.4	94.1
1976	95.9	95.0	99.1	95.5
1977	100.0	100.0	100.0	100.0
1978	100.2	104.0	103.8	102.8
1979	114.7	116.1	101.2	103.8
1980	111.4	112.4	100.9	104.6
1981	107.3	106.2	99.0	102.9
1982	108.9	103.6	95.1	98.8
1983	107.0	105.8	98.9	102.6
1984	112.8	118.4	105.0	109.1
1985	111.4	117.0	105.0	110.1
1986	118.1	120.9	102.4	107.8
Average annual rates of change (in percent)				
1972-86	1.3	2.2	0.9	1.4
1981-86	1.7	3.3	1.5	1.8

sales had risen to 25 percent. Employment in multiunit firms increased during this period, from 20 to 22 percent of the industry's work force.

The work force of the retail hardware store industry consists of self-employed, nonsupervisory workers, supervisory workers, and unpaid family workers. The number of persons employed in the industry rose 22.1 percent, or 1.4 percent annually, from 143,820 in 1972 to 175,600 in 1986. Hours of all persons increased at a slower 0.9-percent average annual rate, showing a rise in part-time workers, and a decline in the average weekly hours of nonsupervisory workers. Between 1972 and 1986, average weekly hours of nonsupervisory employees fell 9.1 percent, from 36.1 to 32.8.

Employment of nonsupervisory workers, the largest component of the industry work force, increased 26.2 percent—from 105,000 in 1972 to 132,500 in 1986. Supervisory workers grew 64.1 percent, from 15,300 to 25,100. From 1972 to 1986, the number of self-employed persons fell 10.7 percent, from 19,040 to 17,000; unpaid family workers declined nearly 80 percent, from 4,480 to 1,000.

The industry's work force is dominated by persons in marketing and sales occupations.⁵ In 1986, nearly two-thirds of the industry's work force was employed in marketing and sales. Within this occupational group, salespersons represented the largest group and accounted for 39 percent of the total. Cashiers made up nearly 12 percent of the industry's work force. Stock clerks represented 9 percent of employment in the industry.

Factors affecting productivity

The major technological change within the retail hardware store industry has been the increased use of computers for retail operations. However, because most

retail hardware stores are small, the use of computers varies greatly throughout the industry.

Recent productivity growth has benefited from the spread of computer technology. In the larger establishments, computers are often used in conjunction with point-of-sales terminals (cash registers), and electronic scanning devices. Information coded on merchandise is fed into the computer using these scanning devices. This results in accurate inventory records and reduces employee time required for monitoring shelf stocks. In addition, the computer provides the location of each item in the stockroom, and where it belongs on the sales floor. Purchase orders are automatically printed when stockroom quantities are too low. Computers are used to perform recordkeeping and administrative functions formerly performed manually. By using computerized information provided on sales activity, store managers can schedule staff hours more efficiently.⁶

Although not all retail hardware stores have fully computerized their operations, most have replaced mechanical cash registers with electronic cash registers (ECR's). Memory capacity of ECR's has also reduced employee hours in accounting and inventory control.

Most hardware stores had some degree of self-service operations prior to 1972. However, the continuing shift to self service operations has helped to reduce the work load of store personnel by allowing customers to browse for their choice of merchandise. More recently, changes in packaging of some hardware items—from bulk merchandise to carded merchandise—have enhanced the self-service feature of hardware stores.⁷

Some retail hardware stores have sought to improve their productivity by the use of employee training programs.⁸ Retaining experienced personnel is a major problem for all retail stores. Some studies have shown that retail employee turnover is about 60 percent per year.⁹ High turnover rates can hinder gains in productivity because new employees must undergo training and are not as productive during training periods. Because most stores are relatively labor intensive and place a great deal of emphasis on knowledgeable personal service, retaining experienced personnel is important to improving productivity in the industry.

Another factor underlying productivity change has been independent hardware stores joining dealer-owned wholesale cooperatives.¹⁰ Tighter competition among hardware stores, home centers, and lumber yards led to a growth in the cooperatives during the 1970's.¹¹ Through the cooperatives, the independent hardware stores have been able to compete with integrated, mass merchandisers. The independent retailers can take advantage of volume purchasing discounts and the economies of scale associated with large wholesale distribution. Most of the independent hardware stores are currently members of cooperatives.¹²

Productivity in independent retail hardware stores has been fostered by their affiliation with the dealer-owned cooperatives. Improvements in ordering and distribution which have occurred in the cooperatives have aided productivity growth by reducing labor and inventory requirements in the retail hardware store industry.¹³ Purchase orders are built around electronic communications and centralized distribution operations. Through the use of central computers, gravity flow racks, and automated conveyer systems, errors in purchase orders have been reduced and order fill rates have been increased. Cooperatives have contributed to lower inventory requirements by providing dependable delivery of merchandise from the warehouse to the retailer.

In some stores, the retailer is directly linked to the cooperative's central computer and regional distribution center. The computerized stock number is punched into a hand-held order entry terminal. The resulting ticket specifies the stock number, quantity, location, and suggested retail price. Along with the merchandise, the retailer receives preprinted price stickers and reorder information. This ordering system reduces labor requirements for the retailer because these ordering functions and pricing of items were previously done manually by the retailer.

The dealer-owned cooperatives provide hardware retailers with advertising aids such as direct mail catalogs, national media campaigns, low-cost phone directory advertising, and instore product promotion kits. These advertising aids have helped to increase store traffic for the retailer by building a strong brand identity among consumers.¹⁴

Outlook

Industry productivity growth should benefit from the continuing diffusion of electronic data processing equipment. The availability of more affordable personal computers has put computer technology within the reach of many more small store owners. Point-of-sales technology may become more widely used in hardware stores, boosting productivity. Accounting and inventory control is expected to be greatly enhanced by the diffusion of electronic scanning equipment. However, most efforts of hardware retailers to increase productivity will probably center on raising sales per square foot in stores.

The "do-it-yourself" home improvement market is a post-World War II phenomenon, created when inflation pushed the costs of plumbers, electricians, and other skilled workers beyond the reach of many homeowners. With the baby-boomers reaching their prime home buying and remodeling years, the home improvement market is expected to remain strong.

The skill composition of the work force of the retail hardware store industry is not expected to change much

over the next decade. Based on projections by the Bureau of Labor Statistics, the proportion of marketing and sales personnel is expected to rise from 63 percent of wage and salary worker employment in 1986 to 66 percent in the year 2000. Within this broad occupational group, cashiers are expected to remain about the same, nearly 12 percent of industry employment in 1986 and also in 2000.

The share of employment held by salespersons is expected to rise slightly. Administrative support occupations, including clerical, are projected to decline from 13 percent of industry employment in 1986 to 11 percent in 2000. This could reflect the diffusion of computer technology in the retail hardware store industry in the future. □

—FOOTNOTES—

¹The retail hardware store industry is designated by the Office of Management and Budget as SIC 525 in the *Standard Industrial Classification Manual*, 1972. The industry is comprised of establishments primarily engaged in the retail sale of a number of basic hardware lines, such as tools, builders' hardware, paint and glass, housewares and household appliances, and cutlery.

Average annual rates shown in the text and tables are based on the linear least squares trend of the logarithms of the index numbers. The indexes for productivity and related variables will be updated annually, and published in the annual Bureau of Labor Statistics bulletin, *Productivity Measures for Selected Industries and Government Services*.

²"Do-It-Yourself Stock Plays," *Fortune*, June 11, 1984, pp. 213-16; and industry sources.

³U.S. Department of Commerce, Bureau of the Census, *Construction Reports*, Series C50, C20.

⁴U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1986, p. 727; and the National Association of Realtors.

⁵Figures cited in this section are based on data developed by the Bureau of Labor Statistics in the 1986-2000 National Industry-Occupational Matrix.

⁶"In-Store Computer Systems: Wholesalers Lead the Way," *Hardware Age*, April 1987, pp. 39-42; and industry sources.

⁷"A Tough Line That's Easy to Sell," *Hardware Age*, January 1987, pp. 38-41; and industry sources.

⁸"Employees: Finding, Training, and Keeping Them," *Hardware Age*, June 1985, pp. 31-35. In a recent survey of *Hardware Age* retail panelists, 64 percent of the respondents prefer to hire new workers through the recommendations of their existing staff. Hardware retailers prefer to hire through employees because it saves the time used to screen out applicants who are obviously not suited for the job, and provides the best background knowledge of the job applicant. More than two-thirds of the retailers surveyed conduct product and sales training programs for employees. These programs usually cover the areas of universally accepted sales methods, product knowledge, and individual store policies. Retaining employees is accomplished through the offering of benefits, incentives, and rewards. According to the survey, more than half of the hardware retailers offer bonuses and raises for time employed. More than two-thirds offer raises for merit. Paid medical benefits are offered by 75 percent of employers and paid vacations, 89 percent.

⁹Brian Friedman, "Apparel stores display above-average productivity," *Monthly Labor Review*, October 1984, pp. 37-42.

¹⁰Industry sources.

¹¹"Screws, Bolts . . . and Tighter Competition," *Forbes*, May 24, 1982, pp. 146-49.

¹²"Hardware Wars: the Big Boys Might Lose This One," *Business Week*, Oct. 14, 1985, pp. 84-90.

¹³"John Cotter and Low Cost Distribution," *Do-It-Yourself Retailing*, November 1986, pp. C5-C32; and industry sources.

¹⁴*Ibid.*

APPENDIX: Measurement techniques and limitations

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

The preferred output index for retail trade industries would be obtained from data on quantities of the various goods sold by the industry, each weighted (that is, multiplied) by the employee hours required to sell one unit of each good in some specified base period. This concept also embodies the services associated with moving the goods from the retail establishment to the consumer. Thus, those goods which require more retail labor are given more importance in the index.

Data on the quantities of goods sold usually are not available for trade industries, including retail hardware stores. Therefore, real output was measured by removing the effects of changing price levels from the current-

dollar value of sales. Because an adjustment for changing price levels usually lowers the dollar value, such a series is usually referred to as a deflated value measure.

Output measures based on deflated value have two major characteristics. First, they can reflect shifts in sales among products of different value which have the same unit labor requirements. (For example, if customers begin to purchase more unadvertised brands instead of "nationally advertised" brands, dollar sales will decrease if the unadvertised brand is priced lower.) Thus, a change can occur in the output per hour index even if the labor required to sell the merchandise does not change. Based on data from the National Retail Hardware Association, average transaction size (deflated by the CPI) has not changed during the period studied.

Second, the sales level, both in current and constant dollars, reflects differences in unit values for identical products sold in different types of establishments. For

example, the unit value associated with a product sold in a self-service "discount" store may be lower than the unit value associated with the same product sold in a store that provides many sales clerks and delivery service. The output measure, therefore, reflects changes in the level of service provided to customers, insofar as differences in unit values reflect the difference in service among the various types of establishments.

In addition to the deflated value technique, weights relating to labor importance were used to combine segments of the output index into a total output measure. The weights used were gross margin weights. These weights, calculated for each merchandise line category, represent the percentage markup provided by the retail hardware store industry. Gross margins are used in place of labor importance weights which are unavailable for this industry. These procedures result in a final output index that is closer, conceptually, to the preferred output measure.

The index of hours for the retail hardware store industry is for all persons, that is, hours for paid employees, self-employed, and unpaid family workers. As in all of the output per hour measures published by the Bureau of Labor Statistics, hours and employment are each considered homogeneous and additive. Adequate information does not exist to weight the various types of labor separately.

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

No explicit adjustments were made to the measures to take into account increases or decreases in some services provided to the consumer. There has been some shift to self-service operations. This has shifted some of the hours in retailing from the employee to the consumer. However, data are not available to measure the effect of this change.

The basic sources for the output series for this measure consist of the total sales data and sales by merchandise line reported by the U.S. Department of Commerce. The deflators were developed using various Consumer Price Indexes published by the Bureau of Labor Statistics. The gross margin weights were developed from data reported by the U.S. Department of Commerce.

The basic sources for the all person hour series consist of data on employment and hours published by the Bureau of Labor Statistics and the Bureau of the Census, supplemented by data from special tabulations compiled for the Bureau of Labor Statistics by the Bureau of the Census.

Foreign Labor Developments



International differences in employers' compensation costs

PATRICIA CAPDEVIELLE

In 1987, hourly compensation costs for manufacturing production workers in Germany, Norway, and Switzerland were 25 percent to 30 percent higher than the U.S. cost level, and in Belgium, Denmark, the Netherlands, and Sweden, 8 to 12 percent higher, according to studies conducted by the Bureau of Labor Statistics. Compensation costs in France, Italy, Austria, and Finland rose to more than 90 percent of the U.S. level in 1987; Japanese costs rose to 84 percent and Canadian costs, to about 90 percent; while relative compensation costs rose to more than 60 percent in the United Kingdom and Australia, and to about 60 percent in Spain. (See table 1.)

For Japan and all the European countries, 1987 compensation costs were up sharply from their 1985 relative levels—which ranged from about 40 to 80 percent of average U.S. costs. Japan's level was a new high; France, Italy, Austria, Finland, Norway, and Switzerland surpassed their peaks reached in 1979 or 1980; and Germany matched its previous peak levels of 1979 and 1980.

Hourly compensation costs in the newly industrializing Asian and Latin American countries or areas remained less than 20 percent of U.S. costs, although costs in Hong Kong, Korea, Taiwan, and Brazil were up 20 to 50 percent from 1985. Compensation costs in U.S. dollars for Singapore and Mexico actually declined, however—for Singapore, because of a wage freeze and cuts in employer social benefit contributions and for Mexico, because of the devaluation of the peso. Mexico's relative compensation costs in 1987 were 10 percent of the U.S. level, compared with a peak of 34 percent of U.S. costs in 1981.

For most of the European countries and Japan, exchange rate changes accounted for more than 80 percent of the narrowing in cost differentials with the United States since 1985. Between 1985 and 1987, the

Table 1. Indexes of hourly compensation costs for production workers in manufacturing, 30 countries or areas, 1975-87

[United States = 100]

Country or area	1975	1980	1985	1987
United States.....	100	100	100	100
Canada.....	92	86	84	89
Brazil.....	14	14	9	11
Mexico.....	31	30	16	10
Australia.....	84	82	61	64
Hong Kong.....	12	15	14	16
Israel.....	35	39	31	-
Japan.....	48	57	50	84
Korea.....	5	10	10	13
New Zealand.....	50	54	34	-
Singapore.....	13	15	19	18
Sri Lanka.....	4	2	2	-
Taiwan.....	6	10	11	17
Austria.....	68	87	56	95
Belgium.....	101	134	69	112
Denmark.....	99	111	63	108
Finland.....	72	84	62	97
France.....	71	91	58	92
Germany.....	100	125	74	125
Greece.....	27	38	28	-
Ireland.....	47	60	45	-
Italy.....	73	81	57	92
Luxembourg.....	100	122	59	-
Netherlands.....	103	123	67	112
Norway.....	107	119	82	131
Portugal.....	25	21	12	-
Spain.....	41	61	37	58
Sweden.....	113	127	75	112
Switzerland.....	96	113	75	127
United Kingdom.....	52	76	48	67

NOTE: Dash indicates data not available.

value of the Japanese yen relative to the U.S. dollar rose 65 percent, and gains in the relative values of the currencies of the European industrial countries ranged from 26 to 64 percent.

Measured in national currency, hourly compensation costs rose 6 percent in Japan and from 6 to 18 percent in industrial Europe (except Norway, where hourly costs rose 30 percent, of which 7 percent resulted from a 2½-hour cut in the standard workweek), compared with 4 percent in the United States. Measured in U.S. dollars, costs rose 75 percent in Japan, 46 percent in the United Kingdom, and about 60 to 80 percent in the other European countries.

Recent exchange rate trends. The value of the U.S. dollar has continued to fall relative to the currencies of every country studied, except Brazil, Mexico, Hong Kong,

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Israel, and Sri Lanka. As of January 1988, the value of the yen was 13 percent higher than its 1987 average, and the currencies of most European countries were 6 to 10 percent higher. Unless their underlying compensation changes are significantly less than those in the United States, these changes should raise hourly compensation costs further above the U.S. level for Germany and many other European countries; bring Japan's cost level to about 95 percent of the U.S. level; bring the levels for France and Italy almost on par with the United States; and narrow the cost differences for other countries.

Compensation structure. Compensation costs include pay for time worked, other direct pay, employer expenditures for legally required insurance programs and contractual and private benefit plans, and for some countries, other labor taxes.

Pay for time worked accounted for about 75 to 80 percent of total compensation costs in the United States, Canada, the United Kingdom, and several other countries in 1987, but accounted for less than 60 percent of total compensation in Japan and many European countries. Other direct pay accounted for more than 25 percent of total compensation in Japan and for 15 to 20 percent in several European countries. (Other direct pay is the difference between total direct pay and pay for time worked, consisting primarily of vacation and holiday pay and seasonal bonuses.) In France, Italy, and Sweden, employer social insurance expenditures and other labor taxes (the difference between total direct pay and total compensation costs) accounted for 30 percent of compensation, whereas in some other countries with extensive social benefits, they accounted for 15 percent or less.

The differences in compensation structures among countries reflect differences in holiday and vacation entitlements, the prevalence of yearend and other seasonal bonuses, and the relative cost and methods of financing social insurance benefits.

International Comparisons of Hourly Compensation Costs for Production Workers in Manufacturing, 1975-86, Report 745 (September 1987), and *Preliminary Measures for 1987*, Report 750 (February 1988), are available from the Bureau of Labor Statistics, Washington, DC 20212. The reports present comparative levels and trends in compensation costs in 30 countries or areas. These comparative measures have been developed to provide a basis for assessing international differences in employer labor costs. Definitions, methods, and data limitations are summarized in the reports. □

Part-time employment in Great Britain: establishment survey data

Part-time employment has been the major feature of employment change in Great Britain, according to a recent study.

The study uses data from the 1980 Workplace Industrial Relations Survey, which was sponsored by the Department of Employment Policy Studies Institute and the (then) Social Science Research Council. The data set included 2,040 observations of establishments, or "places of employment at a single address or site" throughout England, Scotland, and Wales. Establishments were limited to those with 25 employees or more who worked both full time and part time. The survey involved interviews with senior managers and worker representatives (who were nominated by management respondents). Part-time workers were defined as persons who work fewer than 30 hours per week.

According to Great Britain's 1981 Census of Employment data (which are directly comparable with the data in the report), 4.5 million persons worked part-time in a work force of 21.3 million employees. The proportion of men who worked part time was 5.9 percent and women, 41.6 percent. Over the 1971-81 period, part-time employment among women increased 37.1 percent. For men, however, a 22.9-percent increase in part-time employment was offset by a 10.4-percent decline in full-time employment.

According to the Workplace Industrial Relations Survey, part-time workers accounted for 13.8 percent of total employment—87.2 percent of whom were women.

The study looks at the distribution of part-time workers by industrial sector, the characteristics of establishments that employ significant proportions of part-time workers, and distinct industrial relations patterns where part-time workers are prevalent.

Industries. Most of the part-time workers were concentrated in the nonmanufacturing sector—18 percent of the total labor force, compared with less than 7 percent in the manufacturing sector. A higher proportion of the labor force worked part time in the public sector than in the private sector. Of the 40 industries surveyed, 12 accounted for 76 percent of part-time employees: food; other textiles and leather; clothing and footwear; retail food; other retail distribution; other business services; education; medical services; hotels and pubs; miscellaneous services; insurance; and other services.

Characteristics. To closely examine the characteristics of part-time establishments, the study describes "part-time

using establishments" as those that employed at least 25 part-timers who constituted at least 50 percent of the labor force in establishments with fewer than 50 employees. These characteristics were found in 445 establishments, which accounted for three-fourths of all part-time employment, and about 85 percent of these establishments were among the 12 industries which employed mostly part-timers.

Industrial relations. A higher share of the labor force tended to work part time in nonunion establishments than in unionized establishments. Compared with full-time workers, a smaller proportion of part-timers were employed in establishments where unions were recog-

nized. The study also found that the pay bargaining level was less important for part-time workers than for full-timers. The pay for higher proportions of part-timers was determined by wage councils awards. In other instances, head offices determined pay levels. Moreover, part-time workers were most likely to be found in establishments with informal procedures for dealing with pay, conditions, dismissals, or individual grievances.

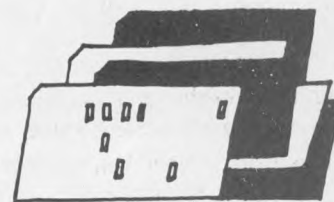
THE FULL REPORT is entitled, *Part-time employment in Great Britain: An analysis using establishment data*, research paper no. 57, by David Blanchflower and Bernard Corry (London, Research Administration, Department of Employment, 1986). □

Commissioner Neill studies *The Jungle*

Early in 1906, Upton Sinclair published *The Jungle*, which exposed the unsanitary practices of the Chicago packers and stirred public indignation. [President Theodore] Roosevelt called for action. The Bureau of Animal Industry of the Department of Agriculture, which maintained a staff of inspectors at the stockyards, immediately launched an investigation. The President directed [BLS Commissioner Charles P.] Neill to make an independent inquiry: "I want to get at the bottom of this matter and be absolutely certain of our facts when the investigation is through." Neill, along with James Bronson Reynolds, a reformer from New York City, spent 2½ weeks gathering information and then submitted a report to Roosevelt, who praised him for his work. In addition, not satisfied with the report of the Animal Industry Bureau, Roosevelt asked Neill to revise it.

Based on these reports, Roosevelt ordered the Department of Agriculture to prepare a bill establishing more stringent meat inspection procedures. On June 19, [1906,] Congress agreed to a meat inspection bill, and the President signed it on June 30, the same day he signed the Pure Food Law.

—JOSEPH P. GOLDBERG AND WILLIAM T. MOYE
The First Hundred Years of the
Bureau of Labor Statistics,
Bulletin 2235 (Bureau of Labor
Statistics, 1985).



Occupational pay in structural clay products industries

BRUCE J. BERGMAN

According to a Bureau of Labor Statistics wage survey, hourly earnings of production workers in structural clay products industries averaged \$7.41 in October 1986, up from \$5.86 in September 1980.¹ This represents an increase of 4.0 percent, on an annual average basis, and compares with an increase of 5.2 percent a year in the Bureau's Employment Cost Index for durable goods manufacturing industries.

Average hourly earnings in October 1986 varied considerably among the seven regions for which separate data are available, ranging from \$6.24 in the Southwest to \$9.43 in the Middle West. In the Southeast, where three-fourths of the industries' work force were employed, hourly earnings averaged \$6.64. Averages in the other four regions were \$7.16 in the Border States; \$7.94 in the Pacific States; \$8.21 in the Middle Atlantic; and \$8.35 in the Great Lakes.

Among the major product branches studied separately, nationwide hourly averages were \$9.80 in clay refractories, \$7.20 in ceramic wall and floor tile, and \$6.78 in brick and structural clay tile. Although clay refractories maintained its lead in earnings, the pay difference between it and the relatively low-paying brick and structural clay tile branch narrowed between 1980 and 1986—from 57 to 45 percent.

Pay levels were influenced by regional location and industrial concentration. For example, one-half of the workers in the Southwest and three-fifths of those in the Southeast, the two lowest paying regions in the Nation, were in brick and structural clay tile plants. However, slightly less than three-fifths of the Middle West work force—the highest paid among the regions—worked in clay refractory plants.

Employment change. Overall, production employment in structural clay products manufacturing fell by 10 percent between September 1980 and October 1986—from 26,288

to 23,535 workers. Work force changes at the branch level varied considerably. For example, employment declined by 50 percent in clay refractories (from 6,340 to 3,414 workers). But the number of workers in brick and structural clay tile plants changed relatively little (from 11,687 in 1980 to 11,593 in 1986).

The employment decline in clay refractories was accompanied by a 13-percent drop in shipments of refractories between 1981 and 1985.² These declines are attributable, in part, to a drop in orders from the steel industry, a major purchaser of refractories. However, shipments for brick and structural clay products rose by 83 percent over the same period because of the construction industry's strong demand for brick and tile.

Occupational averages. Of the 31 occupations studied separately, industrywide averages were lowest for janitors (\$6.60 hourly) and off-bearers (\$6.62) and highest for electricians (\$10.31) and machinists (\$10.32). Power-truck operators, the largest job group studied separately, averaged \$7.28.

Occupational averages were usually highest in clay refractory plants and lowest in brick and structural clay tile plants (table 1). Clay refractory workers usually earned between 25 and 45 percent more than workers in the same occupation in brick and clay tile plants.

Nationwide, about four-fifths of the workers were paid on a time-rated basis, typically under formal plans providing single rates for specific jobs. Workers paid incentive wages typically averaged between 20 and 40 percent more than their time-rated counterparts. Jobs predominantly paid on this basis included unloaders of tunnel kilns, brick sorters, die pressers, and kiln setters and drawers.

Virtually all workers were in establishments providing paid holidays and vacations. Workers typically received between 6 and 10 holidays per year. Nationwide, typical vacation provisions included 1 week after 1 year of service, 2 weeks after 3 years, 3 weeks or more after 10 years, and at least 4 weeks after 20 years.

Almost all clay workers were in establishments providing at least part of the cost of life, hospitalization, surgical, medical, and major medical insurance. Also, most received accidental death and dismemberment insurance and protection against temporary loss of income due to illness or accident. Retirement plans were provided to the majority of the workers.

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Table 1. Average hourly earnings¹ in structural clay products manufacturing, selected occupations, October 1986

Occupation	All establishments	Clay re- factory plants	Brick and structural clay tile plants	Ceramic wall and floor tile plants
All production workers ²	\$7.41	\$9.80	\$6.78	\$7.20
Crushing, grinding, and mixing:				
Clay grinders	7.11	10.08	6.57	7.47
Clay makers	7.95	10.25	6.12	7.05
Dry pan operators	7.83	9.05	6.61	8.32
Forming and cutting:				
Die pressers	9.18	10.41	8.25	7.23
Press operators	7.24	8.62	7.07	6.77
Pugmill operators	7.31	9.98	6.86	8.05
Burning:				
Firers, tunnel kiln	7.38	9.57	6.88	7.87
Kiln setters and drawers	8.17	7.67	8.66	6.46
Placers, tunnel kiln	6.82	9.64	7.19	6.18
Unloaders, tunnel kiln	6.70	10.97	6.43	6.54
Finishing (drawing):				
Finishers	7.14	7.83	6.85	6.94
Off-bearers	6.63	8.11	6.60	6.51
Maintenance:				
Electricians	10.31	11.62	8.95	10.64
Machinists	10.32	11.37	8.22	9.76
Mechanics (machinery)	9.16	11.03	8.03	8.90
Motor vehicle mechanics	8.70	11.48	8.17	7.90
General maintenance workers	7.87	10.09	7.23	8.03
Custodial and material movement:				
Janitors	6.60	9.11	5.94	6.40
Packaging-machine operators	7.83	9.28	7.43	7.63
Shipping packers	7.20	8.46	7.09	6.79
Power-truck operators	7.28	10.17	6.54	7.35
Truckdrivers	7.43	10.04	7.07	7.51

¹ Excludes premium pay for overtime and for work on weekends, holidays, and late shifts. Incentive payments, such as those resulting from piecework or production bonus systems, and cost-of-living increases (but not bonuses) were included as part of the workers' regular pay. Excluded were performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries, as well as profit-sharing payments, attendance bonuses, Christmas or yearend bonuses, and other nonproduction bonuses.

² Includes data for workers in occupations in addition to those shown separately.

Just more than one-half of the work force were employed in plants operating under labor-management contracts covering a majority of production workers. The Middle Atlantic and Middle West regions recorded the highest proportion (75 percent) of workers in union plants, while the Southwest recorded the smallest proportion (25 percent). The Aluminum, Brick, and Glass Workers International Union and the United Steelworkers of America (both AFL-CIO affiliates) were the major unions in the clay products industries.

Also studied in the current survey was the use of temporary help and the extent to which services were contracted out. One-eighth of the production workers were in structural clay products plants regularly using temporary help. Plants employing nearly 60 percent of the clay industries' production force commonly contracted trucking services.

A comprehensive report, *Industry Wage Survey: Structural Clay Products, October 1986* (Bulletin 2288), may be purchased from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, or from the Bureau of Labor Statistics, Publications Sales Center, P.O. Box 2145, Chicago, IL 60690. The bulletin provides additional information on occupational pay and employee benefits by region and size of establishment. □

—FOOTNOTES—

¹Earnings data exclude premium pay for overtime and for work on weekends, holidays, and late shifts. Incentive payments, such as those resulting from piecework or production bonus systems, and cost-of-living pay increases (but not bonuses) were included as part of the workers' regular pay. Excluded were performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries, as well as profit-sharing payments, attendance bonuses, Christmas or yearend bonuses, and other nonproduction bonuses.

For a report on the previous study, see *Industry Wage Survey: Structural Clay Products, September 1980*, Bulletin 2139 (Bureau of Labor Statistics, 1982).

²See *Annual Survey of Manufacturers, 1985, Value of Product Shipments* (U.S. Department of Commerce, Bureau of the Census). Data for 1986 will be available in February.

Occupational pay levels in footwear manufacturing

According to a Bureau of Labor Statistics survey of footwear manufacturing, hourly pay levels of production and related workers averaged \$5.72 in men's shoe plants and \$5.14 in women's, in October 1986.¹ This represents a 31-percent increase in earnings for men's footwear plants, and a 24-percent rise for women's footwear since a similar survey was conducted in April 1980.² By comparison, the Bureau's Employment Cost Index for nondurable goods manufacturing industries rose 41 percent over the same period.

Average hourly earnings in October 1986 varied considerably among the six regions studied separately for men's footwear, from \$4.96 in the Border States to \$6.55 in the Great Lakes. In New England, where nearly one-fourth of the workers in men's plants were employed, hourly earnings averaged \$5.77. In women's footwear, hourly pay levels in the three regions studied separately were \$5.14 (Middle West), \$5.36 (Middle Atlantic), and \$5.45 (New England).

Among 67 jobs studied separately, hourly averages in men's footwear ranged from \$4.76 (foam cutters) to \$7.21 (edge trimmers); in women's footwear, the range was \$4.55 (sock-lining stitchers) to \$7.69 (platform-cover lasters). Fancy stitchers, the largest occupational group

in both industries, averaged \$5.52 in men's shoe plants and \$5.20 in women's footwear.

The departments in a footwear manufacturing plant typically reflect the sequence and the unique activities in shoemaking. (See table 1.) For example, workers in cutting rooms cut out shoe uppers or linings commonly using a clicking machine. Vamp and whole shoe cutters were the most numerous of six jobs studied in this department. They averaged \$6.77 an hour in men's footwear, and \$5.96 in women's. Within each cutting-room occupation, pay may vary according to the type of machine used (conventional or numerically controlled) and the type of material cut (leather, synthetic, or both).

Among the other departments, prefitting and fitting operations involve assembling or stitching the shoe components to form the upper. Employed here are fancy stitchers, who sew decorative designs on shoe uppers, and skivers, who taper the leather edges to ensure thinner seams. Occupational averages in these two departments were typically in the \$5 to \$6 range.

Lasting operations include drawing the completed upper over the last (a foot-like form) and attaching the insole. The two most numerous job groups, and their average hourly pay, were toe and forepart lasters (\$6.40 in men's shoe plants and \$5.59 in women's) and side lasters (\$6.50 in men's and \$6.07 in women's).

The bottoming department is responsible for attaching the sole to the upper, combining all footwear components. The choice of three basic construction methods—cementing, stitching, and molding—is determined, in part, by the type of last and the means for attaching the upper to the insole and midsole. In men's plants, occupational averages were usually between \$5.50 and \$6.50 an hour; in women's footwear, the typical range was \$4.75 to \$6.25.

Finishing occupations, which prepare the shoe for sale and distribution, include making minor repairs, cleaning, and polishing. The seven finishing jobs studied showed a wide range of earnings. In men's footwear, averages ranged from \$5.28 (repairers) to \$6.56 (edge setters); in women's footwear, the spread was \$4.73 (repairers and sprayers) to \$6.62 (edge setters).

Nationwide, about three-fourths of the workers were employed under incentive pay systems, typically individual piece rates. A majority of the workers in nearly all of the occupations surveyed were paid incentive rates. Among the occupations usually paid time rates were repairers, floor workers, and inspectors. Virtually all workers were in establishments with weekly work schedules of 40 hours.

Nearly all production workers were in establishments providing paid holidays and paid vacations. The most prevalent holiday provisions, covering about three-fourths of the workers in men's footwear and more than eight-tenths of the workers in women's footwear, spanned 8 to

Table 1. Number of workers and average hourly earnings in footwear manufacturing plants, selected occupations, October 1986

Department and occupation	Men's footwear		Women's footwear	
	Number of workers	Average hourly earnings ¹	Number of workers	Average hourly earnings ¹
All production workers ²	26,612	\$5.72	21,863	\$5.14
Men	10,052	6.01	6,131	5.45
Women	15,993	5.50	15,732	5.01
Cutting				
Cutters, foam	18	4.76	16	5.65
Cutters, lining	342	5.96	174	6.01
Cutters, vamp and whole shoe	948	6.77	695	5.96
Prefitting				
Markers, stitch	189	5.55	220	4.96
Skivers, uppers or linings ..	391	5.41	279	5.08
Fitting				
Fancy stitchers	1,336	5.52	1,099	5.20
Sock-lining stitchers (slip-lasted shoes)	10	5.63	229	4.55
Top stitchers	530	5.80	789	4.93
Lasting				
Platform-cover lasters (slip-lasted shoes)	-	-	17	7.69
Side lasters	230	6.50	363	6.07
Staple or tack lasting	173	6.50	211	6.17
Cement lasting	57	6.50	152	5.95
Toe and forepart lasters	293	6.40	339	5.59
Bottoming				
Bottom roughers	100	6.21	220	5.35
Edge trimmers	327	7.21	95	5.22
Sole attachers, cement process	219	6.38	469	5.17
Finishing				
Edge setters	96	6.56	8	6.62
Repairers	401	5.28	322	4.73
Sprayers, uppers	139	5.63	98	4.73
Miscellaneous				
Floor workers	445	5.48	648	5.08
Inspectors	736	5.31	372	5.08

¹Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

²Includes data for occupations in addition to those shown separately. Some data were collected for workers whose sex was not available from payroll records.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria.

10 days per year. Typical vacation provisions included 1 week of vacation pay after 1 year of service, 2 weeks after 3 or 4 years, 3 weeks after 10 years, and 4 weeks after 20 years.

Nine-tenths or more of the footwear workers were in establishments providing at least part of the cost of life, hospitalization, surgical, and basic medical insurance. Footwear establishments providing insurance protection against accidental death and dismemberment or lost income due to short-term illness or accident covered about three-fourths of the work force. Dental plans covered nearly three-tenths of the workers in men's footwear and about one-tenth in women's; and vision care insurance plans were provided to about one-tenth of the workers in men's plants, but were not reported in visits to women's plants. Most life and health insurance plans were financed jointly by employers and employees.

Retirement plans, usually financed entirely by employers, applied to eight-tenths of the workers in men's shoe plants and to three-fourths in women's.

A comprehensive report on the survey, *Industry Wage Survey: Men's and Women's Footwear, October 1986* (Bulletin 2291) may be purchased from the Superinten-

dent of Documents, Washington, DC 20402, or from the Bureau of Labor Statistics, Publications Sales Center, P.O. Box 2145, Chicago, IL 60690. The bulletin provides additional information on occupational pay, and on the incidence of employee benefits. □

—FOOTNOTES—

¹Wage data are straight-time hourly earnings, excluding premium pay for overtime and for work on weekends, holidays, and late shifts. Cost-of-living increases (but not bonuses) were included as part of the workers' regular pay. Excluded were performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries, as well as profit-sharing payments, attendance bonuses, Christmas or yearend bonuses, and other nonproduction bonuses.

The survey included establishments primarily manufacturing men's or women's leather footwear, except athletic, that were designed for dress, street, or work use. Footwear plants making shoes whose uppers

were not leather or a leather-like substitute, such as vinyl, were excluded.

²For a discussion of the earlier survey, see *Industry Wage Survey: Men's and Women's Footwear, April 1980*, Bulletin 2118 (Bureau of Labor Statistics, March 1982). The October 1986 study is not strictly comparable to the April 1980 survey, because the current one has a lower minimum establishment size—50 workers instead of 100. However, establishments with less than 100 workers accounted for less than 5 percent of the 1986 survey work force and had little or no effect on industry pay levels.

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.

Major Agreements Expiring Next Month



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

Industry or activity	Employer and location	Labor organization ¹	Number of workers	
Private				
Construction	Associated General Contractors, Labor Relations Division, Michigan Chapter and one other (Southwestern Michigan)	Carpenters.....	2,000	
	Associated General Contractors of California and others (Southern California)	Carpenters.....	40,000	
	Associated General Contractors and others, 11 counties (Southern California)	Laborers	17,500	
	Associated General Contractors and others (Southern California and Nevada)	Operating Engineers	10,500	
	Associated General Contractors (Arizona)	Laborers	4,000	
	Associated General Contractors (Alaska)	Operating Engineers	5,500	
	Residential Contractors Association and others (Southern California)	Carpenters.....	5,000	
	Residential Contractors Employers Council (Chicago, IL)	Carpenters.....	12,000	
	Highway Contractors, Inc. (Kentucky).....	Laborers	3,500	
	Highway Contractors, Inc. (Kentucky).....	Operating Engineers	1,500	
	Association of Contracting Plumbers of the City of New York (New York)	Plumbers	3,000	
	Painting and Decorating Contractors Association (Los Angeles, CA)	Painters	5,200	
	Associated General Contractors, pipefitters (Los Angeles, CA)	Plumbers	3,800	
	Plumbing and Pipefitting Industry Council and independent companies (Los Angeles, CA)	Plumbers	10,000	
	Mechanical Contractors of Central California (California)	Plumbers	1,450	
	Food products.....	California Processors, Inc., and others (California)	Teamsters	20,000
	Apparel	Belt Association, Inc. (New York, NY).....	Ladies' Garment Workers	3,200
Pleaters, Stitchers and Embroiderers Association, Inc. (New York, NY)		Ladies' Garment Workers	3,300	
Furniture	Millwork Manufacturers Association, Inc. (New York, NY)	Carpenters.....	4,500	
Paper	Georgia-Pacific Corp. (Crossett, AR)	Paperworkers	1,100	
Rubber	Plastics and Metal Products Manufacturers Association (New York, NY)	Ladies' Garment Workers	4,500	
Machinery.....	Copeland Corp. (Sidney, OH)	Electrical Workers (IUE).....	1,400	
	Electrical products	General Electric Co. (Interstate)	Various unions	80,000
		Zenith Electronics Corp. (Evansville, IN)	Electrical Workers (IUE).....	1,100
Transportation equipment.....	General Dynamics Corp., Electric Boat Division (Groton, CT).....	Metal Trades Council	12,000	
	General Dynamics Corp., Land Systems Division (Interstate)	Auto Workers	5,000	
	General Dynamics Corp. (Pomona, CA).....	Machinists	3,000	
	AM General Corp. (South Bend, IN)	Auto Workers	1,000	
	Howmet Corp. (Whitehall, MI)	Auto Workers	2,000	
	Vought Corp. (Dallas, TX)	Auto Workers	3,600	
	New United Motors Manufacturing Inc. (Fremont, CA).....	Auto Workers	1,200	
		Various unions	348,350	
Railroads	Railroads including Amtrak and Conrail (Interstate)	Communications Workers	1,400	
Communication	General Telephone Co. of Kentucky (Kentucky).....	Electrical Workers (IBEW)	3,000	
Utilities	Arkansas Power and Light Co. (Arkansas)	Electrical Workers (IBEW).....	2,500	
	Gulf States Utilities Co. (Louisiana and Texas)	Electrical Workers (IBEW).....	3,300	
	Potomac Electric Power Co. (Washington, DC).....	Service Employees	1,900	
	East Ohio Gas Co. (Ohio)			

See footnote at end of table.

Continued—Major Agreements Expiring Next Month

Industry or activity	Employer and location	Labor organization ¹	Number of workers
Retail trade	Chain and independent food stores (St. Louis, MO)	Food and Commercial Workers	7,500
	Chain and independent food stores (New York, NY)	Food and Commercial Workers	12,000
	Food Mart/Waldbaums (Massachusetts and Connecticut)	Food and Commercial Workers	3,100
	Women's Apparel Chain Store Association (New York, NY)	Ladies' Garment Workers	2,500
Hotels	Greater Milwaukee Hotel-Motel Association (Wisconsin)	Hotel Employees and Restaurant Employees	1,100
Public			
General government	Arizona: Phoenix clerical unit	State, County and Municipal Employees	1,800
	Phoenix blue collar	State, County and Municipal Employees	2,400
Law enforcement	Phoenix Police Department	Police Associations	1,400
Education	Phoenix Board of Education, teachers	Education Association (Ind.)	1,100
	Tucson Board of Education, teacher aides and clerical	State, County and Municipal Employees	1,200
	California: Los Angeles Board of Education, teachers	United Teachers of Los Angeles (Ind.)	32,200
General government	Los Angeles equipment operators and laborers	Los Angeles City Employees (Ind.)	3,400
	Los Angeles clerical	State, County and Municipal Employees	3,000
Education	Oakland teachers and related professionals	Education Association (Ind.)	3,200
General government	San Diego white collar	State, County and Municipal Employees	3,500
	San Diego blue collar	State, County and Municipal Employees	1,700
Education	San Diego Unified School District, paraprofessionals	Education Association (Ind.)	1,400
Health services	San Diego County social workers	Service Employees	1,500
Transportation	Southern California Rapid Transit Authority	Transit Union; Transportation Union	6,200
General government	State administration and staff	Service Employees	19,450
	State custodians	Service Employees	5,000
	State office and allied employees	Service Employees	28,100
Fire protection	State forest fire fighters	Fire Fighters	2,800
Health services	State health and social services, professional	State, County and Municipal Employees	2,650
	State medical and social services	Service Employees	1,200
	State registered nurses	Service Employees	2,000
General government	State professional engineers	Professional Engineers (Ind.)	3,100
Law enforcement	State protective services and public safety	Safety Employees (Ind.)	4,400
	State correctional peace officers	Correctional Peace Officers	13,000
Education	State University clerical and support units	California State Employees Association	12,100
General government	Connecticut: State blue collar	State, County and Municipal Employees	7,500
	State clerical	State, County and Municipal Employees	6,500
	State general unit	State, County and Municipal Employees	1,000
Law enforcement	State corrections unit	State, County and Municipal Employees	1,300
Education	Waterbury Board of Education	Education Association (Ind.)	1,100
General government	Florida: Broward County Board of Education, maintenance and crafts	Federation of Public Employees (MEBA)	2,200
Education	Dade County Board of Education, teachers	Teachers	16,000
	Dade County Board of Education, blue collar	State, County and Municipal Employees	6,650
	Duval County School District, teachers	Teachers	6,100
	Duval County School District, blue collar	Various unions	3,500
	Hillsborough County Board of Education, teachers	Hillsborough County Teachers Association (Ind.)	7,000
	Palm Beach County Board of Education, teachers	Palm Beach Classroom Teachers Association (Ind.)	4,600
	Pinellas County Board of Education, teachers	Education Association (Ind.)	6,200
	Polk County Board of Education, teachers	Teachers	3,600

See footnote at end of table.

Continued—Major Agreements Expiring Next Month

Industry or activity	Employer and location	Labor organization ¹	Number of workers
	State University faculty	Education Association (Ind.)	6,800
	Illinois: Rockford teachers	Education Association (Ind.)	1,900
	Indiana: State University maintenance	State, County and Municipal Employees	1,500
	Iowa: Davenport teachers	Education Association (Ind.)	1,300
	Kansas: Kansas City teachers	Education Association (Ind.)	1,650
	Wichita teachers	Education Association (Ind.)	2,900
	Kentucky: Jefferson County teachers	Education Association (Ind.)	5,200
	Maryland: Anne Arundel County Board of Education, teachers	Education Association (Ind.)	4,000
General government	Baltimore white collar	Classified Municipal Employees	5,000
	Baltimore blue collar	State, County and Municipal Employees	7,200
Law enforcement	Baltimore police	Police (Ind.)	2,600
Education	Baltimore County Board of Education, maintenance	State, County and Municipal Employees	1,500
	Massachusetts: Springfield School Board, teachers	Education Association (Ind.)	1,750
	Worcester municipal employees	Service Employees	1,400
General government	Michigan: Detroit municipal employees	State, County and Municipal Employees	7,000
Education	University of Michigan service and maintenance	State, County and Municipal Employees	2,100
	Nevada: Washoe County teachers	Washoe County Teachers Association (Ind.)	1,800
General Government	Clark County public employees	Clark County Public Employees Association (Ind.)	2,100
Education	New Jersey: Paterson Board of Education, teachers	Education Association (Ind.)	1,800
	Newark Board of Education, teachers	Teachers	5,700
General government	New Mexico: Albuquerque multidepartment	State, County and Municipal Employees	1,300
Fire protection	New York: State Troopers	Police Associations	2,400
Law enforcement	State University professionals	University Professors (Ind.)	18,600
	Buffalo fire fighters	Fire Fighters	1,000
	Buffalo police	New York State Police Conference (Ind.)	1,100
Education	Ohio: Akron Board of Education, teachers	Education Association (Ind.)	1,900
	Oklahoma: Tulsa Board of Education, teachers	Classroom Teachers Association (Ind.)	2,000
	Oklahoma City Board of Education, teachers	Teachers	2,300
General government	Oregon: Portland clerical and maintenance	Various unions	1,700
	Pennsylvania: Philadelphia City employees	State, County and Municipal Employees	13,400
Law enforcement	Philadelphia Police Department	Police (Ind.)	7,000
Fire protection	Philadelphia Fire Department	Fire Fighters	2,700
General government	State administrative, clerical, fiscal	State, County and Municipal Employees	16,650
	State maintenance and trades	State, County and Municipal Employees	10,900
Health services	State human services	State, County and Municipal Employees	15,400
Education	Tennessee: Memphis Board of Education, professional employees	Education Association (Ind.)	6,000
	Nashville teachers	Education Association (Ind.)	4,200
Education	Utah: Jordan teachers	Education Association (Ind.)	2,700
General government	Vermont: State nonmanagement unit	Vermont State Employees Association	6,000
Education	Wisconsin: Milwaukee Board of Education, teachers	Education Association (Ind.)	5,700

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

Developments in Industrial Relations



Auto industry update

There were several major occurrences in the automobile industry in the early months of 1988, led by clashes between Chrysler Corp. and the United Automobile Workers (UAW) over cuts in operations that did not bode well for their contract bargaining later in the year. In contrast, the bargaining relationship between the UAW and Ford Motor Co. was enhanced when the employees received a sizable profit-sharing distribution.

The controversy at Chrysler erupted when the company announced plans to close its assembly and stamping operations in Kenosha, WI, and later announced plans to sell its Acustar, Inc. parts-making subsidiary. Chrysler claimed that closing of the Kenosha operations was mandated by overcapacity in the industry resulting from "a shrinking U.S. automotive market," and by the fact that plants in the manufacturing complex—some dating back to 1902—were the least efficient in its chain because of their outmoded layout.

Reactions to the closing were bitter. Wisconsin Governor Tommy G. Thompson, voicing the contention of the UAW and local government officials, said Chrysler had made a contractual commitment to continue building vehicles in Kenosha for at least 5 years. The Governor claimed the commitment had been made after Chrysler acquired the complex as part of its August 1987 purchase of American Motors Corp.

The dispute eased somewhat when Chrysler announced that it would divert all of its profits from 1988 vehicle sales in Wisconsin into a fund to aid the 5,500 workers affected by the closing. The allocation was expected to total \$20 million. Company chairman Lee Iacocca said that "time and the marketplace just caught up with an 86-year-old plant," and that Chrysler had not made a legal commitment to keep the plants open.

Despite Chrysler's action, some of the employees to be affected by the closing filed a suit in the Federal courts to block the use of Federal money for the company's new Jefferson Avenue Plant in Detroit, MI. In the suit, the plaintiffs charged that Chrysler was not eligible for a \$15

million Federal grant because it was shifting jobs from Kenosha to the detriment of the Kenosha workers. According to the plaintiffs, Federal law prohibits financial aid to companies engaging in such detrimental shifts of operations.

The Acustar controversy turned out better for the UAW, as Chrysler modified its plan to sell all of the 11 parts manufacturing plants, which employ 11,000 members of the union. Under the new plan, only four plants will be sold, or closed, within 18 months. The four targeted facilities are Amplex Van Wert in Ohio and Trenton Chemical, Detroit Forge, and Detroit Trim in Michigan. About 2,000 employees are involved. The displaced employees will be put in a job bank and paid until they are placed in another plant.

When Chrysler first announced that it would close the parts plants, the company said it wanted to get out of parts production and focus on production of "new products and powertrains, rather than components." The UAW's immediate contention was that Chrysler wanted to divest the operations because of a cash-flow problem and because one of the union's major demands in national bargaining later in 1988 will be adoption of stronger successorship contract clauses similar to those negotiated with Ford and General Motors in 1987. Under such clauses, companies acquiring operations from Ford and General Motors are required to retain all contract provisions as a condition of sale. In recent years, the domestic manufacturers—particularly General Motors—have claimed that parts produced internally are more costly than those purchased from outside suppliers. In the 1987 negotiations, General Motors was unsuccessful in efforts to overcome the claimed cost disparity by adopting pay rates in the parts plants lower than those in engine, transmission, and assembly plants.

Chrysler's decision to continue parts production was apparently influenced by the tactics adopted by the UAW. Immediately after the initial sale announcement, members of local unions began authorizing their leaders to initiate strikes, ostensibly over excessive backlogs of unresolved grievances. The union also indicated that it would delay implementation of six "modern operating agreements" already negotiated at the plant level and refuse to enter into any more such agreements. The agreements are designed to improve quality and effi-

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

ciency through increased cooperation in revising work rules, the scope of jobs, and other provisions.

In the wake of all the controversy, Chrysler moved to increase the possibility of a peaceful national settlement on wages and benefits by asking the UAW to start the talks "promptly." Based on past practice, negotiations would have started in July on a contract to succeed the current agreement, scheduled to expire on September 14. After considering the proposal, the union agreed to begin the talks in mid-April.

In the talks, the attitude of Chrysler employees was presumably also influenced by the contrast between the flat \$500 lump-sum payments they received in March and the average \$3,700 profit-sharing distributions Ford workers received. In 1982, Chrysler and the union had replaced a profit-sharing plan with specified wage increases to partly restore the wage cuts the employees had accepted earlier to improve the company's financial condition. In the 1985 settlement, the parties agreed to the \$500 payment in March of 1987, 1988, and 1989, in lieu of profit-sharing distributions. They also agreed to re-establish a profit-sharing plan in the contract to be negotiated in 1988, with the \$500 payment in March 1989 serving as a guaranteed minimum for the first distribution under the new plan.

The \$3,700 distribution to Ford employees was a company record, reflecting Ford's net income of \$4.6 billion for 1987. Distributions averaged \$2,100 for 1986 and \$1,800 for 1985.

General Motors employees did not receive a distribution in March 1988, although their 1987 settlement revised the profit-sharing formula—which had been less liberal than the Ford formula—to make it identical to the improved formula adopted in 1987 at Ford. General Motors employees received an average distribution of \$1,800 for 1985 and nothing for 1986.

The UAW's efforts to organize foreign-owned vehicle and vehicle parts plants in the United States were boosted when the union and Mazda Motor Manufacturing Corp. settled for 2,000 workers in Flat Rock, MI. The developments leading to the settlement began in 1984, when Mazda announced plans to begin producing vehicles in the United States, in cooperation with Ford, which owns 25 percent of the operation.

At that time, the company and the UAW agreed that when the plant opened, workers would be paid at 85 percent of the average of the "Big Three" domestic manufacturers, increasing to full parity after 3 years of production. The union agreed to give Mazda "operating flexibility" by allowing a limited number of job classifications.

When the plant opened in September 1987, employees participated in an election conducted by the American Arbitration Association in which they officially decided to be represented by new UAW Local 3000. Subsequent

negotiations led to the settlement for the unit of 2,000 workers, which is expected to grow to more than 3,000.

The UAW reported that the 3-year agreement provides for:

- Movement from the current 85-percent wage parity with Ford employees to full parity by the end of the contract. On the March 3, 1991, contract termination date, the Mazda workers will also receive an increase equal to any first-contract-year specified wage increase resulting from the 1990 settlement at Ford.
- A \$750 immediate "settlement bonus" (\$250 for probationary employees), followed by payments in April 1989, December 1989, and April 1990, equal to 3 percent of the employee's earnings during the preceding 52 weeks.
- Automatic quarterly cost-of-living adjustments using the same formula as Ford (and General Motors).
- An improved vacation schedule, ranging up to 17 paid days off after 10 years' service.
- A total of 42 paid holidays over the contract term.
- An improved pension plan different from that at Ford and General Motors, but designed to provide equivalent benefit levels at age 65. The benefit levels at Mazda are based on career earnings, subject to increases (no decreases) during working years based on the interest rate paid by a 30-year U.S. Treasury Bill.
- Extensive improvements in health insurance benefits.
- Establishment of a profit-sharing plan during the contract term, or, if that is not possible, during the succeeding contract.
- Employee discounts on purchases of Mazda vehicles.
- Prohibition of outsourcing (subcontracting) work traditionally performed by members of the bargaining unit.
- A ban on layoffs, except when the company's viability is at stake, and then only after various efforts to avert the layoffs.

Elsewhere in the industry, the UAW was in the midst of an organizing campaign at Nissan Motor Co.'s vehicle plant in Smyrna, TN. The plant, which employs 2,000 hourly workers, opened in 1985. Success at Nissan could lead to renewal of the union's campaign at Honda Motor Co.'s Marysville, OH, plant, the first of the Japanese-owned automobile plants to open in the United States. In 1986, the UAW terminated an organizing drive at the plant but promised to return.

By a vote of 1,915 to 1,668, UAW members at General Motors' Van Nuys, CA, plant approved a work-sharing plan under which workers of each on the two shifts will alternately work 2 weeks while the other shift goes on temporary layoff.

The approval came after an intensive campaign by proponents and opponents of the approach. The plan was earlier rejected by an eight vote margin, apparently

because senior employees were concerned that they would suffer a loss of income while on layoff because General Motors' national Supplemental Unemployment Benefit fund was partly depleted. Normally, the company benefit combined with the State unemployment benefit would total nearly 95 percent of job take-home pay.

The unhappy employees also argued that the approach violated one of organized labor's basic tenets: the last employees hired should be the first employees fired.

If the workers had rejected the work-sharing plan, the second shift would have been ended indefinitely. Rejection also would have disrupted the Japanese-type team approach to production that had been adopted in May 1987. This would have occurred because some team members would have been laid off, while others were shifted about under contract seniority provisions permitting senior workers to avoid layoff by "bumping" those with less seniority.

General Motors ended the work sharing 1 month earlier than the expected 2-month duration, saying that a sales increase permitted a resumption of two-shift production. Some workers contended that the resumption was hastened by company concern over alleged morale problems, despite General Motors announcement that it would probably use work sharing again if sales decline. Such a plan has already been used at a General Motors plant in Lansing, MI.

Rubber Workers agree on contract provisions

Uniroyal Goodrich Tire Co. and the United Rubber Workers agreed on a new contract to replace the contract scheduled to expire in April. A company official said resolution of key issues would aid new management in dealing with problems resulting from a corporate restructuring. Rubber Workers President Milan Stone said the agreement demonstrated the union's willingness to insure companies' "continuing viability." However, union officials also said that the terms at Uniroyal Goodrich would not set a pattern for Firestone Tire and Rubber Co. and Goodyear Tire and Rubber Co. where contracts also were to expire in April. On the contrary, Uniroyal Goodrich and the union agreed to negotiate on or after April 12, 1990, to determine what portion of the "industry pattern" wage and benefit terms at Goodyear and Firestone will be incorporated into their contract.

Tire companies' attempts to adapt to the growing "internationalization" of production and sales has resulted in corporate acquisitions and mergers and revamping of operations, including plant closings. At Uniroyal Goodrich (which resulted from the 1986 merger of Uniroyal, Inc. and B.F. Goodrich Co.), recent changes in management occurred because of the December 1987 acquisition of Goodrich stock shares by Clayton &

Dubilier, an investment firm that already owned a substantial portion of Uniroyal shares.

Under the contract, employees will not receive specified wage increases during the 39-month contract period which ends in April 1991. During the first year, the provision for quarterly cost-of-living adjustments will operate at the existing rate of 1 cent an hour for each 0.26-point movement in the Bureau of Labor Statistics' Consumer Price Index for Urban Wage Earners and Clerical Workers (1967=100), but only to the extent that the increase in the index exceeds 4.5 percent. Adjustments in the second and third contract years will not be subject to similar limits.

In return for the wage restraint, employees will receive "equity units" of the company described as "a stake in the company's success," according to a corporate official. The units will be held in trust by the Rubber Workers and will be redeemable in cash if the company is sold, assumes the status of a publicly-owned corporation, or on the fifth anniversary of the agreement, whichever occurs first.

From the employees' view, the most important provision was a guarantee that the company will not close its plants in Fort Wayne, IN, and Opelika and Tuscaloosa, AL. The fate of the fourth plant, in Eau Claire, WI, will be considered by a joint committee.

Another provision calls for a joint effort to contain rising health care costs. In another change, pension rates for future retirees will be raised by \$2 in the third year, to \$22 for the former Goodrich employees and to \$20.50 for the former Uniroyal employees. Equalization of these rates and other provisions will be negotiated during the agreement period.

Safeway sells stores, new contract negotiated

Safeway Stores' efforts to reduce debt resulting from a successful fend-off of a hostile takeover bid in 1986 continued, as the grocery chain completed the sale of its Kansas City division. The final condition of the sale was met when the new owners negotiated an initial labor contract with the United Food and Commercial Workers, the incumbent union. The new owners are a group of former Safeway division managers and a New York City investment firm, Morgan, Lewis, Githens and Ahn. The 66 stores will be operated under the name Food Barn Stores, Inc.

The 3-year accord included some employee "give backs." But, according to the president of the largest of the three local unions, it was "the best possible contract we could have gotten under the circumstances." One area of cost reduction was premium pay for work on Sundays, which was reduced to the employee's regular hourly pay rate plus \$1, from time-and-one-half. All employees will be paid at time-and-one-quarter for working on holidays,

down from double-time for meatcutters and time-and-one-half for clerks.

Wage rates were frozen for all employees except wrappers, whose rate was cut 74 cents, to \$9.50 an hour, and clerks at the top of the pay scale, whose rate was cut 68 cents, to \$9 an hour. A union official estimated that the 68-cent cut would affect 500 employees, but 1,500 clerks would benefit by moving up to the new \$9 rate. These employees had been receiving less than \$9 because they were at the lower end of a two-tier pay system that was abolished under the settlement. Also, the starting rate for clerks was increased to \$4.50 from \$4.19.

Other provisions included:

- Elimination of paid personal leave, which had totaled 3 or 4 days per year.
- Shortening of the time intervals between steps in the pay progression schedule.
- Equalization of the employer's pension financing at 52 cents for all hours worked by all employees. Previously, the rate ranged from 22 cents to 52 cents.
- Requirements that at least 50 percent of all work hours be given to full-time workers and that part-time workers must be assured of a least 20 hours a week.
- Elimination of credits for service with Safeway in determining the duration of paid vacations. However, all employees will receive 1 week of paid vacation beginning in the first year.
- Retention of credits for service with Safeway in setting work schedules, job bumping, and transfers.

At the time of the settlement, Safeway was also proceeding with plans to sell its Little Rock, AR, division, comprising 51 stores. Earlier, Safeway had sold its Dallas, TX, division, which led the company and the Food and Commercial Workers to adopt a national severance plan providing for benefits to employees losing their jobs as a result of the sale of an entire division. (See *Monthly Labor Review*, January 1988, p. 35.)

Contract terms vary among sugar producers

A 3-year contract between 13 Hawaiian sugar producers and the International Longshoremen's and Warehousemen's Union provided for variations in wage terms among the producers, reflecting their financial condition. At Hawaiian Commercial and Sugar, the most profitable of the companies, employees received an immediate 3-

percent wage increase, to be followed by 1.5-percent increases in the second and third contract years. Workers at 10 plantations will receive 1.5-percent increases in each of the 3 years. At Hamakua and Hilo Coast Processing, the two plantations that are in serious financial difficulty, workers will not receive a wage increase in the first year, but will receive lump-sum payments equal to a 1.5-percent wage increase in the second and third years if the plantations attain at least a financial breakeven after the first year. The two plantations employ more than 1,400 of the 6,000 workers covered by the overall settlement.

The new contract, which runs to January 1, 1991, also eliminated a 35-year limit on employee accrual of service for pension calculations.

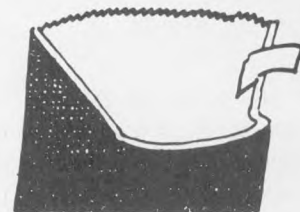
Early retirement offered at power company

In Upstate New York, 8,100 employees of Niagara Mohawk Power Co. agreed to extend their current contract for 1 year, to May 31, 1990, and to defer a scheduled 4.7-percent wage increase for 1 year, to June 1989. In return, the company agreed not to subcontract janitorial work, which would have eliminated 120 jobs in the bargaining unit, according to the International Brotherhood of Electrical Workers, which represents the workers.

In 1987, the employees had rejected a company proposal to defer for 1 year a 4.5-percent wage increase scheduled for June 1987. The utility then announced plans to cut 389 jobs from the bargaining unit as part of an ongoing program to cut costs. However, only 44 employees were cut because some workers were shifted to other jobs. According to a union official, the 1988 proposal was accepted by the employees because it was initiated by the union and because it contained more "guarantees" for the employees. According to both parties, the settlement signaled an improvement in their bargaining relationship.

The new contract also extended an early retirement option to employees in the bargaining unit. Under the option (which was offered to nonunion employees in 1987), union members who were on the payroll on April 29, 1987 and who attained age 58 and 10 years of service any time in 1987 could retire at unreduced pension rates. In addition, the retirees would receive a \$700 a month supplement until they reach age 62. □

Book Reviews



From laborlords to landlords

Old South, New South: Revolutions in the Southern Economy Since the Civil War. By Gavin Wright. New York, Basic Books, 1986. \$9.95, paper.

"The preeminent distinctiveness of the Southern context was the labor market," writes Gavin Wright. The regional labor market of the South provides the axis upon which this well-argued, well-written work turns. As a prism refracts light, so for Wright the changing southern labor market refracts the forces that have underlain the development of the southern economy. Wright deals essentially with two questions—why did the southern labor market retain its regional distinctiveness for some 80 years after emancipation; and what caused it eventually to become integrated into the national labor market?

The core of Wright's answer is that (1) the southern labor market's isolation resulted from the need to maintain a cheap agricultural work force; industrial wages in the South were linked to the farm wage; and the dominant planter interests resisted the wage competition which industrial development, with its attendant investment in education, would have involved; and (2) that with the introduction of farm (including cotton) price supports by the New Deal legislation, the mechanization of cotton harvesting became economically feasible, displacing farm labor even as job opportunities in the North opened up during World War II. The system upon which the economy of the post bellum South had been based thus disintegrated. The interest in keeping the southern labor market isolated disappeared, giving the forces that sought to promote industrial development the upper hand, and tending to integrate the southern labor market into the national one.

The separateness of the South's labor market was evident from the low average wages paid there; low investment in education; and low average value added in manufacturing per worker—nonfarm labor being concentrated in low-wage, low-skill sectors. It was a burden inherited from the slave economy. Slavery had retarded southern economic development—but how so? Wright strikingly conceptualizes the behavioral response of slave owners to the incentives available in a system of slave labor: they were laborlords rather than landlords, he argues. Their concern was with raising the value of their labor (which constituted an estimated two-thirds of their

wealth), rather than of their land. Hence, in contrast to landed interests in the North, they exerted little pressure for "internal improvements." Population per square mile remained low, canal mileage and railroad mileage per 1,000 square miles was much less than elsewhere in the United States, and also the social groups seeking capital gains as the major benefit from owning land were virtually absent. The slaveholders, small as well as large, were footloose; unlike northern wealthholders, they frequently changed domicile. They lacked the interest in developing land—the banks generally would lend only with slaves, not with land, as security—as indicated by the neglect in using fertilizer, by soil exhaustion, and by failure to invest in the rich deposits of potash and coal found in the South.

The Civil War, however, turned laborlords into landlords, writes Wright. The planters had not been the great landowning class before the war that has often been written about; they became one after the war. Their new interest in land is documented by the campaigns they led in many States for fence laws, strict trespass laws, and enforcement—laws that were bitterly fought by smaller farmers who had earlier used the land freely for grazing, fishing, and hunting. Railroad building increased, and there was a population shift to smaller urban centers. But the dominance of cotton persisted and cotton planting expanded. It remained by far the most profitable crop in the agricultural South. "Cotton was not the totality of southern agriculture, but for most of the region it defined the opportunities and dictated the pace of economic life."

While per capita income rose, the rise remained linked to the fortunes of the world market demand for cotton: real hourly wages and farm labor rates were linked to one another (although the link began to weaken after World War I). The South could not compete for the immigrant labor that came to staff the northern industries, being "a low-wage region in a high-wage country." The kinship networks that immigrant labor built, and which were major channels of labor market information, remained confined in the South for southern workers, and this factor hindered their migration to the North. The southern textile mill village epitomized this kinship-based labor market system. While fostered by employers, and despite its vaunted exploitative character, it was accepted by textile worker families who had often to leave the land because of the decline in the size of their farms, the spread of tenancy, and other factors that marginalized

their existence. Employers had little trouble in staffing the mills, despite the decline in the southern textile mill wage to one-half the New England level by 1900. Kinship was the vital ingredient in hiring and holding this work force. As Wright states, "Rather than thinking of kinship, ethnic, and linguistic loyalties as market 'imperfections,' it is more appropriate to consider these forces as part of the way the market functions and expands."

The isolation of the southern labor market was perpetuated by low educational attainment, and the smallness or absence of a technical base in such fields as machine building, metallurgy, and so forth. Low educational attainment stemmed largely from inadequate funding of schools. As late as 1940, expenditures per pupil in such States as Virginia ran to only 54 percent of the national average; in Texas, 73 percent; in North Carolina, 49 percent. Wright does not believe such low spending is explainable by relative income. It resulted from the South's economic structure: ". . . as a low-wage region in a high-wage country, the South had no expectation that it could capture the return on investment in its own people." Wright cites the experience of Birmingham, AL, where, under the pressure of the steel industry located there and of interested local business circles, schools were better funded than rural schools, and schools attended by blacks were, as an exception, not underfunded. But no sooner than World War I stopped the flow of immigrants to the United States, "experienced miners and steelworkers of the Birmingham district were among the first ones to leave for the better paying jobs of the North." Employers in mining, sawmills, and lumber camps "could not block the mobility of workers to leave but they did not have to spend their money on an educational process likely to raise the probability of departure."

The South's industrial start came late; the latecomer may derive an advantage from his ability to adopt more up-to-date production equipment than that of competitors who started earlier. The preconditions to take such advantage were lacking in the post bellum South. The experience of southern labor built slowly, turnover and absenteeism remained high for a long period. No widely diffused community of technical experts existed—"the basic lack of an indigenous technology is observable in many . . . areas"—not only in steel and mining, but also in paper and textile machinery (although in time the textile machinery industry increasingly located in the South, and generated a group of innovative engineers). Moreover, the diffusion of technology was hampered by the failure to upgrade labor whose schooling, as noted, remained below the national norm.

Among the more important theses which Wright argues in this book is that market pressures were *not* hostile to racial segregation, that, on the contrary, they accommodated to it. Hence, segregation did not in itself impede southern progress. Competitive pressures indeed

tended to equalize wages between whites and blacks, especially in unskilled work. But occupational advancement in industrial settings, being far more dependent upon personal relationships in the work environment than upon the impersonal market, perpetuated segregation by excluding blacks from promotional opportunities in nearly all those industries in which they did not constitute the great majority of workers in the lower job rungs (as in sawmills). There was, then, no "law of industrialization" in evidence which, as some economists have held, would in time eliminate racist criteria in occupational advancement. Racial segregation, Wright shows, led not only to occupational but to experiential segregation as well. That is, blacks came to be identified with certain industries, such as tobacco and lumbering, and also to some extent with steelmaking—but they were unable to compete for the better jobs, for example, in textile mills because of the white milieu that stamped the work environment there.

Despite the long tradition of segregation, racial wage differentials did not fully emerge until the 1920's. Construction jobs came to be more distinctly associated with "white jobs" (being high wage), and "black jobs" (being low wage), in part from deliberate trade union policies. A comparable evolution occurred in other industries. A dualism developed, with both black and white workers often holding not merely different but noncompeting jobs with different base pay rates. Market pressures and industrialization thus did not lead to "convergence and equalization but to the opposite." The specific reasons for the emerging dual-wage structure are not clear; Wright traces this and other developments unfavorable to black workers to "the larger historical process of creating a segregated society."

We now turn to the second question which Wright poses. What were the forces that spelled the end of the South's low-wage economy? There were essentially two such forces, both receiving their impetus from the changing political constellations of the 1930's and 1940's, both rooted in New Deal policies. One was the upward pressure on wages first channeled through the National Recovery Act, and later institutionalized by the Fair Labor Standards Act. Both the NRA and the FLSA in part represented responses to the fears of northern labor of the low-wage competition of the South. The other force was the farm price support program, which stabilized the price of cotton, and eventually resulted in the elimination of tenantry in the South, and a shift to wage labor on cotton plantations. In addition, the economics of cotton planting began to favor mechanization. The need for cheap farm labor abated, and massive out-migration, particularly of blacks, ensued.

What Wright calls "The Assault on the Low-Wage Economy" proved indubitably effective. The impact of NRA, even during the brief period of its existence in the

1930's, was such as to sizably reduce North-South wage differentials in key southern industries—reductions that “were never really reversed.” The reduced differentials, together with federally mandated minimum wages, had long been a goal of northern labor fearing its gains being undermined by the South. NRA and FLSA also found support among a majority of southerners. However, these wage policies *eliminated* many jobs, and the first to be laid off were blacks (with an estimated 500,000 of them being on relief in 1934 as a result of the minimum wage provisions of the NRA, by one official estimate). (Black newspapers dubbed the NRA as the Negro Removal Act.) The proportion of black workers in such industries as tobacco, where they had been the majority in 1930 (68 percent), dropped precipitately (to 37 percent by 1950). “A 1941 survey found that 95 percent of new job openings in Georgia were reserved for whites.”

In cotton farming, displacement occurred by a more circuitous route. Under the Agricultural Adjustment Act (AAA), payments were made to owners for reducing cotton acreage. The payments were structured and administered so as to reduce tenant acreage rather than wage-labor acreage. The percentage of farm families (mostly blacks) who were tenants shrank drastically; the proportion of wage labor increased. The real daily wage of the farm wage laborer dropped, and, in 1940, ran below the level of the 1920's. As noted, the expansion of wage-labor acreage, combined with the later shortage of farm labor from outmigration, made farm mechanization economically feasible. While the 1930's echoed with the protests of liberals seeking in vain a betterment in the conditions of southern tenants, the economic interests of the planters had turned against tenantry. “(It) was not the northern liberals but the southern planters who were perpetrating revolutionary changes in southern institutions,” Wright writes in taking issue with the frequent complaints of southern farming interests, voiced during the 1930's, that lawyers in the U.S. Department of Agriculture were fomenting unrest in their region.

In consequence of these developments, interest on the part of dominant groups in the South in regionally isolated labor and capital markets waned. Wright distances himself from certain interpretations of the evolution of the “new” South after 1940—among them, the stimulation from military outlays; the importance of climate in the residential choice of professional and

managerial personnel; the small membership of trade unions; and the absence of bureaucratic impediments to business development often encountered in northern States. These interpretations, Wright believes, are not wrong so much as they fail to answer the question as to why the South's transformation into an integrated region of the national economy did not occur earlier. His answer is essentially what his book is about.

Wright has much to say concerning the human suffering caused by the “speed and heartlessness” with which farm mechanization was undertaken and to which the “all-out research effort by public agencies . . .” contributed. He quotes Gunnar Myrdal's remark that the AAA represented an American enclosure movement, although he also points to some of the progressive results it had in terms of the eventually better lives for those who were displaced.

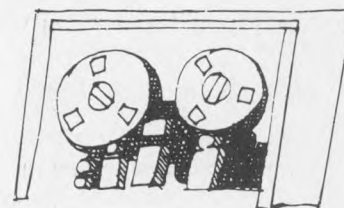
Moreover, that “enclosure movement,” doing away as it did with the low-wage regional system, helped lay the social and economic bases of the civil rights movement of the 1960's. The movement did away with the dualistic wage structure, compelled the expansion of job opportunities for blacks, and lent urgency to the promotion of business and industrial development in the South. Again, Wright rejects the notion that this evolution arose from the “rationality” of industrial society. Here, as elsewhere in his book, his orientation is that of the political economist who views political and social forces as central to understanding economic events.

The book is rich and instructive as an economic history. There remains the question, however, how successful Wright's focus upon the southern labor market is. The labor market here constitutes a conditioning factor of the history he has written, not truly an agent. The greatest revolution in the history of the South was abolition. While labor was generally free to move after abolition, it did so within the ambit of the cotton economy: cotton remained king for decades still, and cotton planters imposed a low-wage labor market system that conformed to their interest. The demise of the system, again, was the work of agents or forces that cannot be subsumed within the analytical terms of the labor market. Wright's skill as a writer conceals the limitations of his approach. Yet, this is a minor criticism. It cannot detract from the quality of his work.

—HORST BRAND

Office of Productivity and Technology
Bureau of Labor Statistics

Current Labor Statistics



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Consumer Price Index	May 20	April	June 21	May	July 22	June	2; 30-32
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Employment Cost Index	July 26	2nd quarter	1-3; 22-24
U.S. Import and Export Price Indexes	July 28	2nd quarter	36-41

NOTES ON CURRENT LABOR STATISTICS

This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force, employment, unemployment, collective bargaining settlements, consumer, producer, and international prices, productivity, international comparisons, and injury and illness statistics. In the notes that follow, the data in each group of tables are briefly described, key definitions are given, notes on the data are set forth, and sources of additional information are cited.

General notes

The following notes apply to several tables in this section:

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not seasonally adjusted.) Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years. (Seasonally adjusted data appear in tables 1-3, 4-10, 13, 14, 17, and 18.) Beginning in January 1980, the BLS introduced two major modifications in the seasonal adjustment methodology for labor force data. First, the data are seasonally adjusted with a procedure called $X-11$ ARIMA, which was developed at Statistics Canada as an extension of the standard $X-11$ method previously used by BLS. A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method* by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, February 1980). The second change is that seasonal factors are calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at midyear for the July-December period. However, revisions of historical data continue to be made only at the end of each calendar year.

Seasonally adjusted labor force data in tables 1 and 4-10 were revised in the February 1988 issue of the *Review*, to reflect experience through 1987.

Annual revisions of the seasonally adjusted payroll data shown in tables 13, 14, and 18 were made in the July 1987 *Review* using the $X-11$ ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in table 42 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month to month and from quarter to quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data—such as the Hourly Earnings Index in table 17—are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of \$3 and a current price index number of 150, where 1977 = 100, the hourly rate expressed in 1977 dollars is \$2 ($\$3/150 \times 100 = \2). The \$2 (or any other resulting values) are described as "real," "constant," or "1977" dollars.

Additional information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule preceding these general notes. More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in *Employment and Earnings*, a monthly publication of the Bureau. More data from the household survey are published in the two-volume data book—*Labor Force Statistics Derived From the Current Population Survey*, Bulletin 2096. 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 annual 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 Prices and Price Indexes*. Detailed data on all of the series in this section are provided in the *Handbook of Labor Statistics*, which is published biennially by the Bureau. BLS bulletins are issued covering productivity, injury and illness, and other data in this section. Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

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

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

n.e.c. = not elsewhere classified.

n.e.s. = not elsewhere specified.

COMPARATIVE INDICATORS

(Tables 1-3)

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

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

bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation, prices, and productivity** are presented in table 2. Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in: consumer prices for all urban consumers; producer prices by stage of processing; and the overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

Notes on the data

Definitions of each series and notes on the data are contained in later

sections of these notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Volumes I and II, Bulletins 2134-1 and 2134-2 (Bureau of Labor Statistics, 1982 and 1984, respectively), as well as the additional bulletins, articles, and other publications noted in the separate sections of the *Review's* "Current Labor Statistics Notes." Historical data for many series are provided in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985). Users may also wish to consult *Major Programs, Bureau of Labor Statistics*, Report 718 (Bureau of Labor Statistics, 1985).

EMPLOYMENT AND UNEMPLOYMENT DATA

(Tables 1; 4-21)

Household survey data

Description of the series

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 59,500 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

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

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

The **labor force** consists of all employed or unemployed civilians plus members of the Armed Forces stationed in the United States. Persons **not in the labor force** are those not classified as employed or unemployed; this group includes persons who are retired, those engaged in their own housework, those not working while attending school, those unable to work because of long-term illness, those discouraged from seeking work because of personal or job-market factors, and those who are voluntarily idle. The **noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy, and members of the Armed Forces stationed in the United States. The **labor force participation rate** is the proportion of the noninstitutional population that is in the labor force. The **employment-population ratio** is total employment (including the resident Armed Forces) as a percent of the noninstitutional population.

Notes on the data

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

the various data series appear in the Explanatory Notes of *Employment and Earnings*.

Data in tables 4-10 are seasonally adjusted, based on the seasonal experience through December 1987.

Additional sources of information

For detailed explanations of the data, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 1, and for additional data, *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985). A detailed description of the Current Population Survey as well as additional data are available in the monthly Bureau of Labor Statistics periodical, *Employment and Earnings*. Historical data from 1948 to 1981 are available in *Labor Force Statistics Derived from the Current Population Survey: A Databook*, Vols. I and II, Bulletin 2096 (Bureau of Labor Statistics, 1982).

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 290,000 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 all nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 12-17 include production workers in manufacturing and mining; construction workers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and

services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The **Hourly Earnings Index** is calculated from average hourly earnings data adjusted to exclude the effects of two types of changes that are unrelated to underlying wage-rate developments: fluctuations in overtime premiums in manufacturing (the only sector for which overtime data are available) and the effects of changes and seasonal factors in the proportion of workers in high-wage and low-wage industries.

Hours represent the average weekly hours of production or nonsupervisory workers for which pay was received and are different from standard or scheduled hours. **Overtime hours** represent the portion of average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The **Diffusion Index**, introduced in the May 1983 *Review*, represents the percent of 185 nonagricultural industries in which employment was rising over the indicated period. One-half of the industries with unchanged employment are counted as rising. In line with Bureau practice, data for the 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are unadjusted. The diffusion index is useful for measuring the dispersion of economic gains or losses and is also an economic indicator.

Notes on the data

Establishment data collected by the Bureau of Labor Statistics are periodically adjusted to comprehensive counts of employment (called "benchmarks"). The latest complete adjustment was made with the release of May 1987 data, published in the July 1987 issue of the *Review*. Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Unadjusted data have been revised back to April 1985; seasonally adjusted data have been revised back to January 1982. These revisions were published in the *Supplement to Employment and Earnings* (Bureau of Labor Statistics, 1987). Unadjusted data from April 1986 forward, and seasonally adjusted data from January 1983 forward are subject to revision in future benchmarks.

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

COMPENSATION AND WAGE DATA

(Tables 1-3; 22-29)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

Employment Cost Index

Description of the series

The **Employment Cost Index** (ECI) is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of

Additional sources of information

Detailed national data from the establishment survey are published monthly in the BLS periodical, *Employment and Earnings*. Earlier comparable unadjusted and seasonally adjusted data are published in *Employment, Hours, and Earnings, United States, 1909-84*, Bulletin 1312-12 (Bureau of Labor Statistics, 1985) and its annual supplement. For a detailed discussion of the methodology of the survey, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 2. For additional data, see *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

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 2134-1 (Bureau of Labor Statistics, 1982), chapter 4.

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 and on wages and salaries are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. Both 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 2,200 private nonfarm establishments providing about 12,000 occupational observations and 700 State and local government establishments providing

3,500 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the indexes for civilian, private, and State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensation, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1980 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

Definitions

Total compensation costs include wages, salaries, and the employer's costs for employee benefits.

Wages and salaries consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

Benefits include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as Social Security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

Notes on the data

The Employment Cost Index data series began in the fourth quarter of 1975, with the quarterly percent change in wages and salaries in the private nonfarm sector. Data on employer costs for employee benefits were included in 1980 to produce, when combined with the wages and salaries series, a measure of the percent change in employer costs for employee total compensation. State and local government units were added to the ECI coverage in 1981, providing a measure of total compensation change in the civilian nonfarm economy (excluding Federal employees). Historical indexes (June 1981=100) of the quarterly rates of change are presented in the May issue of the BLS monthly periodical, *Current Wage Developments*.

Additional sources of information

For a more detailed discussion of the Employment Cost Index, see the *Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 11, and the following *Monthly Labor Review* articles: "Employment Cost Index: a measure of change in the 'price of labor'," July 1975; "How benefits will be incorporated into the Employment Cost Index," January 1978; "Estimation procedures for the Employment Cost Index," May 1982; and "Introducing new weights for the Employment Cost Index," June 1985.

Data on the ECI are also available in BLS quarterly press releases issued in the month following the reference months of March, June, September, and December; and from the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

Collective bargaining settlements

Description of the series

Collective bargaining settlements data provide statistical measures of negotiated adjustments (increases, decreases, and freezes) in compensation

(wage and benefit costs) and wages alone, quarterly for private industry and semiannually for State and local government. Compensation measures cover all collective bargaining situations involving 5,000 workers or more and wage measures cover all situations involving 1,000 workers or more. These data, covering private nonagricultural industries and State and local governments, are calculated using information obtained from bargaining agreements on file with the Bureau, parties to the agreements, and secondary sources, such as newspaper accounts. The data are not seasonally adjusted.

Settlement data are measured in terms of future specified adjustments: those that will occur within 12 months after contract ratification—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 hourly earnings, excluding overtime, 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

Care should be exercised in comparing the size and nature of the settlements in State and local government with those in the private sector because of differences in bargaining practices and settlement characteristics. A principal difference is the incidence of cost-of-living adjustment (COLA) clauses which cover only about 2 percent of workers under a few local government settlements, but cover 50 percent of workers under private sector settlements. Agreements without COLA's tend to provide larger specified wage increases than those with COLA's. Another difference is that State and local government bargaining frequently excludes pension benefits which are often prescribed by law. In the private sector, in contrast, pensions are typically a bargaining issue.

Additional sources of information

For a more detailed discussion on the series, see the *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 10. Comprehensive data are published in press releases issued quarterly (in January, April, July, and October) for private industry, and semi-

annually (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 monthly 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 data appear in the BLS

monthly periodical, *Current Wage Developments*. Historical data appear in the *BLS Handbook of Labor Statistics*.

Other compensation data

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

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

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

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

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

PRICE DATA

(Tables 2; 30-41)

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period (1982 = 100 or 1982-84 = 100, unless otherwise noted).

Consumer Price Indexes

Description of the series

The **Consumer Price Index (CPI)** is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all urban consumer index (CPI-U), introduced in 1978, is representative of the 1982-84 buying habits of about 80 percent of the noninstitutional population of the United States at that time, compared with 32 percent represented in the CPI-W. In addition to wage earners

and clerical workers, the CPI-U covers professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items are kept essentially unchanged between major revisions so that only price changes will be measured. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 21,000 retail establishments and 60,000 housing units in 91 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 27 major urban centers are presented in table 31. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which 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, Volume II, The Consumer Price Index*, Bulletin 2134-2 (Bureau of Labor Statistics, 1984). The recent change in the measurement of homeownership costs is discussed in Robert Gillingham and Walter Lane, "Changing the treatment of shelter costs for homeowners in the CPI," *Monthly Labor Review*, July 1982, pp. 9-14. An overview of the recently introduced revised CPI, reflecting 1982-84 expenditure patterns, is contained in *The Consumer Price Index: 1987 Revision*, Report 736 (Bureau of Labor Statistics, 1987).

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

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received in primary markets of the United States by producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,100 commodities and about 75,000 quotations per month selected to represent the movement of prices of all commodities produced in the manufacturing, agriculture, forestry, fishing, mining, gas and electricity, and public utilities sectors. The stage of processing structure of Producer Price Indexes organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

Since January 1987, price changes for the various commodities have been averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1982. The detailed data are aggregated to obtain indexes for stage-of-processing groupings, commodity groupings, durability-of-product groupings, and a number of special composite groups. All Producer Price Index data are subject to revision 4 months after original publication.

Notes on the data

Beginning with the January 1986 issue, the *Review* is no longer presenting tables of Producer Price Indexes for commodity groupings, special composite groups, or SIC industries. However, these data will continue to be presented in the Bureau's monthly publication *Producer Price Indexes*.

The Bureau has completed the first major stage of its comprehensive overhaul of the theory, methods, and procedures used to construct the Producer Price Indexes. Changes include the replacement of judgment sampling with probability sampling techniques; expansion to systematic

coverage of the net output of virtually all industries in the mining and manufacturing sectors; a shift from a commodity to an industry orientation; the exclusion of imports from, and the inclusion of exports in, the survey universe; and the respecification of commodities priced to conform to Bureau of the Census definitions. These and other changes have been phased in gradually since 1978. The result is a system of indexes that is easier to use in conjunction with data on wages, productivity, and employment and other series that are organized in terms of the Standard Industrial Classification and the Census product class designations.

Additional sources of information

For a discussion of the methodology for computing Producer Price Indexes, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 7.

Additional detailed data and analyses of price changes are provided monthly in *Producer Price Indexes*. Selected historical data may be found in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

International Price Indexes

Description of the series

The BLS **International Price Program** produces quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts: it includes corporations, businesses, and individuals but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents. With publication of an all-import index in February 1983 and an all-export index in February 1984, all U.S. merchandise imports and exports now are represented in these indexes. The reference period for the indexes is 1977 = 100, unless otherwise indicated.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected quarterly by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered refer to prices at the U.S. border for exports and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first 2 weeks of the third month of each calendar quarter—March, June, September, and December. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined by the 4- and 5-digit level of detail of the Standard Industrial Trade Classification System (SITC). The calculation of indexes by SITC category facilitates the comparison of U.S. price trends and sector production with similar data for other countries. Detailed indexes are also computed and published on a Standard Industrial Classification (SIC-based) basis, as well as by end-use class.

Notes on the data

The export and import price indexes are weighted indexes of the Laspeyres type. Price relatives are assigned equal importance within each weight category and are then aggregated to the SITC level. The values assigned to each weight category are based on trade value figures compiled

by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1980.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's quarterly questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing basis is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation.

PRODUCTIVITY DATA (Tables 2; 42-47)

U. S. productivity and related data

Description of the series

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

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

Definitions

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

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

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

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

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.

Additional sources of information

For a discussion of the general method of computing International Price Indexes, see *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 8.

Additional detailed data and analyses of international price developments are presented in the Bureau's quarterly publication *U.S. Import and Export Price Indexes* and in occasional *Monthly Labor Review* articles prepared by BLS analysts. Selected historical data may be found in the *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985).

Unit profits include corporate profits and the value of inventory adjustments per unit of output.

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

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

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

Notes on the data

Output measures for the business sector and the nonfarm business sector exclude the constant dollar value of owner-occupied housing, rest of world, households and institutions, and general government output from the constant dollar value of gross national product. 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 output (gross product originating) from the Bureau of Economic Analysis. Compensation and hours data are developed from data of the Bureau of Labor Statistics and the Bureau of Economic Analysis.

The productivity and associated cost measures in tables 42-44 describe the relationship between output in real terms and the labor time and capital services involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input. Although these measures relate output to hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and materials; the organization of production; managerial skill; and the characteristics and efforts of the work force.

Additional sources of information

Descriptions of methodology underlying the measurement of output per hour and multifactor productivity are found in the *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 13. Historical data for selected industries are provided in the Bureau's *Handbook of Labor Statistics*, 1985, Bulletin 2217.

INTERNATIONAL COMPARISONS (Tables 45–47)

Labor force and unemployment

Description of the series

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

Definitions

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

Notes on the data

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

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

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

Additional sources of information

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

Manufacturing productivity and labor costs

Description of the series

Table 47 presents comparative measures of manufacturing labor productivity, hourly compensation costs, and unit labor costs for the United

States, Canada, Japan, and nine European countries. These measures are limited to trend comparisons—that is, intercountry series of changes over time—rather than level comparisons because reliable international comparisons of the levels of manufacturing output are unavailable.

Definitions

Output is constant value output (value added), generally taken from the national accounts of each country. While the national accounting methods for measuring real output differ considerably among the 12 countries, the use of different procedures does not, in itself, connote lack of comparability—rather, it reflects differences among countries in the availability and reliability of underlying data series.

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

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

Notes on the data

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

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

Additional sources of information

For additional information, see the *BLS Handbook of Methods*, Bulletin 2134-1 (Bureau of Labor Statistics, 1982), chapter 16 and periodic *Monthly Labor Review* articles. Historical data are provided in the Bureau's *Handbook of Labor Statistics*, Bulletin 2217, 1985. The statistics are issued twice per year—in a news release (generally in May) and in a *Monthly Labor Review* article (generally in December).

OCCUPATIONAL INJURY AND ILLNESS DATA

(Table 48)

Description of the series

The Annual Survey of Occupational Injuries and Illnesses is designed to collect data on injuries and illnesses based on records which employers in the following industries maintain under the Occupational Safety and Health Act of 1970: agriculture, forestry, and fishing; oil and gas extraction; construction; manufacturing; transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. Excluded from the survey are self-employed individuals, farmers with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies.

Because the survey is a Federal-State cooperative program and the data must meet the needs of participating State agencies, an independent sample is selected for each State. The sample is selected to represent all private industries in the States and territories. The sample size for the survey is dependent upon (1) the characteristics for which estimates are needed; (2) the industries for which estimates are desired; (3) the characteristics of the population being sampled; (4) the target reliability of the estimates; and (5) the survey design employed.

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

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

Definitions

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

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

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

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

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

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

Lost workdays—restricted work activity are the number of workdays (consecutive or not) on which, because of injury or illness: (1) the employee was assigned to another job on a temporary basis; or (2) the em-

ployee worked at a permanent job less than full time; or (3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

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

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

Notes on the data

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

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

Comparable data for individual States are available from the BLS Office of Occupational Safety and Health Statistics.

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 Occupational Safety and Health Statistics.

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 2134-1 (Bureau of Labor Statistics, 1982), chapter 17; *Handbook of Labor Statistics*, Bulletin 2217 (Bureau of Labor Statistics, 1985), pp. 411-14; annual reports in the *Monthly Labor Review*; and annual U.S. Department of Labor press releases.

1. Labor market indicators

Selected indicators	1986	1987	1986				1987			
			I	II	III	IV	I	II	III	IV
Employment data										
Employment status of the civilian noninstitutionalized population (household survey) ¹										
Labor force participation rate	65.3	65.6	65.0	65.2	65.4	65.4	65.5	65.5	65.6	65.7
Employment-population ratio	60.7	61.5	60.5	60.6	60.8	60.9	61.1	61.4	61.7	61.9
Unemployment rate	7.0	6.2	7.0	7.2	7.0	6.8	6.6	6.3	6.0	5.9
Men	6.9	6.2	6.8	7.0	7.0	6.9	6.6	6.3	5.9	5.8
16 to 24 years	13.7	12.6	13.4	14.1	13.9	13.4	13.3	12.9	12.2	11.9
25 years and over	5.4	4.8	5.3	5.4	5.4	5.4	5.1	4.9	4.6	4.4
Women	7.1	6.2	7.2	7.3	7.0	6.8	6.6	6.2	6.1	6.0
16 to 24 years	12.8	11.7	13.1	13.1	12.7	12.5	12.5	11.8	11.4	11.1
25 years and over	5.5	4.8	5.6	5.7	5.4	5.3	5.0	4.7	4.7	4.7
Unemployment rate, 15 weeks and over	1.9	1.7	1.9	1.9	1.9	1.9	1.8	1.7	1.6	1.5
Employment, nonagricultural (payroll data), in thousands: ¹										
Total	99,610	102,112	98,901	99,321	99,804	100,397	101,133	101,708	102,278	103,293
Private sector	82,900	85,049	82,299	82,670	83,119	83,498	84,183	84,675	85,240	86,069
Goods-producing	24,681	24,884	24,767	24,702	24,629	24,624	24,733	24,757	24,884	25,164
Manufacturing	18,994	19,112	19,086	19,003	18,939	18,953	18,979	19,015	19,134	19,322
Service-producing	74,930	77,228	74,134	74,619	75,175	75,773	76,399	76,951	77,394	78,129
Average hours:										
Private sector	34.8	34.8	34.9	34.8	34.7	34.7	34.8	34.8	34.8	34.8
Manufacturing	40.7	41.0	40.7	40.7	40.7	40.8	41.0	40.9	40.9	41.2
Overtime	3.4	3.7	3.4	3.4	3.5	3.5	3.6	3.7	3.7	3.9
Employment Cost Index										
Percent change in the ECI, compensation:										
All workers (excluding farm, household, and Federal workers)	3.6	3.6	1.1	.7	1.1	.6	.9	.7	1.2	.8
Private industry workers	3.2	3.3	1.1	.8	.7	.6	1.0	.7	1.0	.7
Goods-producing ²	3.1	3.1	1.1	.9	.6	.5	.5	.7	.8	1.0
Service-producing ²	3.2	3.7	1.1	.6	.8	.6	1.3	.7	1.0	.5
State and local government workers	5.2	4.4	1.0	.6	2.8	.8	.8	.3	2.3	.9
Workers by bargaining status (private industry):										
Union	2.1	2.8	1.0	.2	.5	.3	.5	.5	.6	1.1
Nonunion	3.6	3.6	1.2	.9	.8	.7	1.1	.7	1.1	.6

¹ Quarterly data seasonally adjusted.

producing industries include all other private sector industries.

² Goods-producing industries include mining, construction, and manufacturing. Service-

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

Selected measures	1986	1987	1986				1987			
			I	II	III	IV	I	II	III	IV
Compensation data^{1, 2}										
Employment Cost Index--compensation (wages, salaries, benefits):										
Civilian nonfarm	3.6	3.6	1.1	0.7	1.1	0.6	0.9	0.7	1.2	0.8
Private nonfarm	3.2	3.3	1.1	.8	.7	.6	1.0	.7	1.0	.7
Employment Cost Index--wages and salaries										
Civilian nonfarm	3.5	3.5	1.0	.8	1.1	.6	1.0	.5	1.3	.7
Private nonfarm	3.1	3.3	1.0	.9	.7	.5	1.0	.7	1.0	.6
Price data¹										
Consumer Price Index (All urban consumers): All items	1.1	4.4	-5	.6	.6	.3	1.4	1.2	1.3	.3
Producer Price Index:										
Finished goods	-2.3	2.1	-3.1	.5	-.7	1.1	.8	1.2	.2	.0
Finished consumer goods	-3.5	2.5	-4.0	.4	-.7	.8	.9	1.6	.3	-.3
Capital equipment	2.1	1.3	.2	.6	-.8	2.1	.1	.3	-.2	1.1
Intermediate materials, supplies, components	-4.4	5.5	-3.0	-.9	-.2	-.3	1.3	1.9	1.2	1.0
Crude materials	-8.9	8.8	-7.6	-1.5	-.6	.6	4.2	5.3	.6	-1.5
Productivity data³										
Output per hour of all persons:										
Business sector	1.9	.9	5.8	0.6	-0.3	-0.1	0.5	1.4	4.7	-1.5
Nonfarm business sector	1.6	.8	6.6	.1	-.6	.0	.4	1.4	4.2	-1.0
Nonfinancial corporations ⁴	1.6	0.3	3.3	-.2	.9	2.1	-2.9	.7	3.3	-1.0

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

² Excludes Federal and private household workers.

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

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

⁴ Output per hour of all employees.

- Data not available.

3. Alternative measures of wage and compensation changes

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

¹ Seasonally adjusted.

² Excludes Federal and household workers.

³ Limited to major collective bargaining units of 1,000 workers or more. The most recent data are preliminary.

⁴ Data round to zero.

⁵ Limited to major collective bargaining units of 5,000 workers or more. The most recent data are preliminary.

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

(Numbers in thousands)

Employment status	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
TOTAL															
Noninstitutional population ^{1, 2}	182,293	184,490	183,915	184,079	184,259	184,421	184,605	184,738	184,904	185,052	185,225	185,370	185,571	185,705	185,847
Labor force ²	119,540	121,602	120,982	121,098	121,633	121,326	121,610	122,042	121,706	122,128	122,349	122,472	122,924	123,084	122,639
Participation rate ³	65.6	65.9	65.8	65.8	66.0	65.8	65.9	66.1	65.8	66.0	66.1	66.1	66.2	66.3	66.0
Total employed ²	111,303	114,177	113,191	113,541	114,060	114,018	114,359	114,786	114,615	114,951	115,259	115,494	115,878	116,145	115,839
Employment-population ratio ⁴	61.1	61.9	61.5	61.7	61.9	61.8	61.9	62.1	62.0	62.1	62.2	62.3	62.4	62.5	62.3
Resident Armed Forces ¹	1,706	1,737	1,736	1,735	1,726	1,718	1,720	1,736	1,743	1,741	1,755	1,750	1,749	1,736	1,736
Civilian employed	109,597	112,440	111,455	111,806	112,334	112,300	112,639	113,050	112,872	113,210	113,504	113,744	114,129	114,409	114,103
Agriculture	3,163	3,208	3,237	3,250	3,269	3,192	3,212	3,143	3,184	3,249	3,172	3,215	3,293	3,228	3,204
Nonagricultural industries	106,434	109,232	108,218	108,556	109,065	109,108	109,427	109,907	109,688	109,961	110,332	110,529	110,836	111,182	110,899
Unemployed	8,237	7,425	7,791	7,557	7,573	7,308	7,251	7,256	7,091	7,177	7,090	6,978	7,046	6,938	6,801
Unemployment rate ⁵	6.9	6.1	6.4	6.2	6.2	6.0	6.0	5.9	5.8	5.9	5.8	5.7	5.7	5.6	5.5
Not in labor force	62,752	62,888	62,933	62,981	62,626	63,095	62,995	62,696	63,198	62,924	62,876	62,898	62,647	62,621	63,208
Men, 16 years and over															
Noninstitutional population ^{1, 2}	87,349	88,476	88,186	88,271	88,361	88,442	88,534	88,598	88,683	88,756	88,849	88,924	89,033	89,099	89,168
Labor force ²	66,973	67,784	67,590	67,604	67,802	67,623	67,671	67,937	67,776	67,947	68,019	68,030	68,243	68,343	68,148
Participation rate ³	76.7	76.6	76.6	76.6	76.7	76.5	76.4	76.7	76.4	76.6	76.6	76.5	76.6	76.7	76.4
Total employed ²	62,443	63,684	63,263	63,390	63,543	63,543	63,711	63,916	63,949	64,048	64,174	64,245	64,396	64,636	64,332
Employment-population ratio ⁴	71.5	72.0	71.7	71.8	71.9	71.8	72.0	72.1	72.1	72.2	72.2	72.2	72.3	72.5	72.1
Resident Armed Forces ¹	1,551	1,577	1,575	1,575	1,566	1,559	1,561	1,575	1,581	1,580	1,593	1,589	1,588	1,577	1,573
Civilian employed	60,892	62,107	61,688	61,815	61,977	61,984	62,150	62,341	62,368	62,468	62,581	62,656	62,808	63,059	62,759
Unemployed	4,530	4,101	4,327	4,214	4,259	4,080	3,960	4,021	3,827	3,899	3,845	3,785	3,847	3,707	3,816
Unemployment rate ⁵	6.8	6.1	6.4	6.2	6.3	6.0	5.9	5.9	5.6	5.7	5.7	5.6	5.6	5.4	5.6
Women, 16 years and over															
Noninstitutional population ^{1, 2}	94,944	96,013	95,729	95,808	95,898	95,979	96,071	96,140	96,221	96,295	96,376	96,446	96,538	96,606	96,679
Labor force ²	52,568	53,818	53,392	53,494	53,831	53,703	53,939	54,105	53,930	54,181	54,330	54,442	54,681	54,740	54,491
Participation rate ³	55.4	56.1	55.8	55.8	56.1	56.0	56.1	56.3	56.0	56.3	56.4	56.4	56.6	56.7	56.4
Total employed ²	48,861	50,494	49,928	50,151	50,517	50,475	50,648	50,870	50,666	50,903	51,085	51,249	51,482	51,509	51,507
Employment-population ratio ⁴	51.5	52.6	52.2	52.3	52.7	52.6	52.7	52.9	52.7	52.9	53.0	53.1	53.3	53.3	53.3
Resident Armed Forces ¹	155	160	161	160	160	159	159	161	162	161	162	161	161	159	163
Civilian employed	48,706	50,334	49,767	49,991	50,357	50,316	50,489	50,709	50,504	50,742	50,923	51,088	51,321	51,350	51,344
Unemployed	3,707	3,324	3,464	3,343	3,314	3,228	3,291	3,235	3,264	3,278	3,245	3,193	3,200	3,231	2,985
Unemployment rate ⁵	7.1	6.2	6.5	6.2	6.2	6.0	6.1	6.0	6.1	6.1	6.0	5.9	5.9	5.9	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		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
TOTAL															
Civilian noninstitutional population ¹	180,587	182,753	182,179	182,344	182,533	182,703	182,885	183,002	183,161	183,311	183,470	183,620	183,822	183,969	184,111
Civilian labor force	117,834	119,865	119,246	119,363	119,907	119,608	119,890	120,306	119,963	120,387	120,594	120,722	121,175	121,348	120,903
Participation rate	65.3	65.6	65.5	65.5	65.7	65.5	65.6	65.7	65.5	65.7	65.7	65.7	65.9	66.0	65.7
Employed	109,597	112,440	111,455	111,806	112,334	112,300	112,639	113,050	112,872	113,210	113,504	113,744	114,129	114,409	114,103
Employment-population ratio ²	60.7	61.5	61.2	61.3	61.5	61.5	61.6	61.8	61.6	61.8	61.9	61.9	62.1	62.2	62.0
Unemployed	8,237	7,425	7,791	7,557	7,573	7,308	7,251	7,256	7,091	7,177	7,090	6,978	7,046	6,938	6,801
Unemployment rate	7.0	6.2	6.5	6.3	6.3	6.1	6.0	6.0	5.9	6.0	5.9	5.8	5.8	5.7	5.6
Not in labor force	62,752	62,888	62,933	62,981	62,626	63,095	62,995	62,696	63,198	62,924	62,876	62,898	62,647	62,621	63,208
Men, 20 years and over															
Civilian noninstitutional population ¹	78,523	79,565	79,303	79,387	79,474	79,536	79,625	79,668	79,740	79,807	79,885	80,002	80,120	80,203	80,260
Civilian labor force	61,320	62,095	61,933	61,970	62,129	62,054	62,106	62,083	62,085	62,211	62,299	62,248	62,440	62,696	62,497
Participation rate	78.1	78.0	78.1	78.1	78.2	78.0	78.0	77.9	77.9	78.0	78.0	77.8	77.9	78.2	77.9
Employed	57,569	58,726	58,380	58,516	58,673	58,632	58,783	58,825	58,967	59,037	59,164	59,185	59,287	59,625	59,407
Employment-population ratio ²	73.3	73.8	73.6	73.7	73.8	73.7	73.8	73.8	73.9	74.0	74.1	74.0	74.0	74.3	74.0
Agriculture	2,292	2,329	2,361	2,378	2,383	2,316	2,333	2,289	2,345	2,343	2,297	2,298	2,323	2,280	2,253
Nonagricultural industries	55,277	56,397	56,019	56,138	56,290	56,316	56,450	56,536	56,622	56,694	56,867	56,887	56,964	57,344	57,154
Unemployed	3,751	3,369	3,553	3,454	3,456	3,422	3,323	3,258	3,118	3,174	3,135	3,063	3,154	3,071	3,089
Unemployment rate	6.1	5.4	5.7	5.6	5.6	5.5	5.4	5.2	5.0	5.1	5.0	4.9	5.1	4.9	4.9
Women, 20 years and over															
Civilian noninstitutional population ¹	87,567	88,583	88,321	88,395	88,464	88,546	88,632	88,685	88,785	88,843	88,923	89,010	89,110	89,178	89,261
Civilian labor force	48,589	49,783	49,414	49,494	49,728	49,722	49,886	49,969	49,922	50,095	50,254	50,361	50,558	50,640	50,542
Participation rate	55.5	56.2	55.9	56.0	56.2	56.2	56.3	56.3	56.2	56.4	56.5	56.6	56.7	56.8	56.6
Employed	45,556	47,074	46,582	46,761	47,028	47,088	47,206	47,308	47,251	47,480	47,634	47,750	47,977	48,005	48,132
Employment-population ratio ²	52.0	53.1	52.7	52.9	53.2	53.2	53.3	53.3	53.2	53.4	53.6	53.6	53.8	53.8	53.9
Agriculture	614	622	602	603	629	619	620	609	600	636	636	643	646	654	656
Nonagricultural industries	44,943	46,453	45,980	46,158	46,399	46,469	46,586	46,699	46,651	46,844	46,998	47,107	47,331	47,351	47,476
Unemployed	3,032	2,709	2,832	2,733	2,700	2,634	2,680	2,661	2,671	2,615	2,620	2,611	2,581	2,635	2,411
Unemployment rate	6.2	5.4	5.7	5.5	5.4	5.3	5.4	5.3	5.4	5.2	5.2	5.2	5.1	5.2	4.8
Both sexes, 16 to 19 years															
Civilian noninstitutional population ¹	14,496	14,606	14,555	14,562	14,595	14,621	14,628	14,649	14,637	14,661	14,663	14,609	14,592	14,588	14,591
Civilian labor force	7,926	7,988	7,899	7,899	8,050	7,832	7,898	8,254	7,956	8,081	8,041	8,113	8,177	8,011	7,865
Participation rate	54.7	54.7	54.3	54.2	55.2	53.6	54.0	56.3	54.4	55.1	54.8	55.5	56.0	54.9	53.9
Employed	6,472	6,640	6,493	6,529	6,633	6,580	6,650	6,917	6,654	6,693	6,706	6,809	6,865	6,779	6,564
Employment-population ratio ²	44.6	45.5	44.6	44.8	45.4	45.0	45.5	47.2	45.5	45.7	45.7	46.6	47.0	46.5	45.0
Agriculture	258	258	274	269	257	257	259	245	239	270	239	274	323	293	295
Nonagricultural industries	6,215	6,382	6,219	6,260	6,376	6,323	6,391	6,672	6,415	6,423	6,467	6,535	6,542	6,486	6,269
Unemployed	1,454	1,347	1,406	1,370	1,417	1,252	1,248	1,337	1,302	1,388	1,335	1,304	1,312	1,232	1,301
Unemployment rate	18.3	16.9	17.8	17.3	17.6	16.0	15.8	16.2	16.4	17.2	16.6	16.1	16.0	15.4	16.5
White															
Civilian noninstitutional population ¹	155,432	156,958	156,561	156,676	156,811	156,930	157,058	157,134	157,242	157,342	157,449	157,552	157,676	157,773	157,868
Civilian labor force	101,801	103,290	102,836	102,972	103,416	103,150	103,248	103,516	103,357	103,669	103,731	103,907	104,252	104,530	104,171
Participation rate	65.5	65.8	65.7	65.7	65.9	65.7	65.7	65.9	65.7	65.9	65.9	66.0	66.1	66.3	66.0
Employed	95,660	97,789	97,074	97,338	97,829	97,698	97,917	98,181	98,069	98,317	98,492	98,779	99,044	99,474	99,274
Employment-population ratio ²	61.5	62.3	62.0	62.1	62.4	62.3	62.3	62.5	62.4	62.5	62.6	62.7	62.8	63.0	62.9
Unemployed	6,140	5,501	5,762	5,634	5,587	5,452	5,331	5,335	5,288	5,352	5,239	5,128	5,208	5,056	4,897
Unemployment rate	6.0	5.3	5.6	5.5	5.4	5.3	5.2	5.2	5.1	5.2	5.1	4.9	5.0	4.8	4.7
Black															
Civilian noninstitutional population ¹	19,989	20,352	20,249	20,279	20,312	20,341	20,373	20,396	20,426	20,453	20,482	20,508	20,539	20,569	20,596
Civilian labor force	12,654	12,993	12,853	12,778	12,889	12,892	13,039	13,150	13,028	13,152	13,193	13,215	13,222	13,168	13,098
Participation rate	63.3	63.8	63.5	63.0	63.5	63.4	64.0	64.5	63.8	64.3	64.4	64.4	64.4	64.0	63.6
Employed	10,814	11,309	11,072	11,114	11,129	11,238	11,381	11,513	11,421	11,556	11,589	11,605	11,608	11,504	11,420
Employment-population ratio ²	54.1	55.6	54.7	54.8	54.8	55.2	55.9	56.4	55.9	56.5	56.6	56.6	56.5	55.9	55.4
Unemployed	1,840	1,684	1,781	1,664	1,760	1,654	1,658	1,637	1,607	1,596	1,604	1,610	1,614	1,663	1,678
Unemployment rate	14.5	13.0	13.9	13.0	13.7	12.8	12.7	12.4	12.3	12.1	12.2	12.2	12.2	12.6	12.8

See footnotes at end of table.

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

(Numbers in thousands)

Employment status	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Hispanic origin															
Civilian noninstitutional population ¹	12,344	12,867	12,732	12,770	12,809	12,848	12,887	12,925	12,965	13,003	13,043	13,082	13,115	13,153	13,192
Civilian labor force	8,076	8,541	8,395	8,468	8,549	8,468	8,447	8,549	8,581	8,654	8,763	8,772	8,879	9,017	8,803
Participation rate	65.4	66.4	65.9	66.3	66.7	65.9	65.5	66.1	66.2	66.6	67.2	67.1	67.7	68.6	66.7
Employed	7,219	7,790	7,632	7,686	7,797	7,738	7,762	7,856	7,877	7,935	7,978	8,058	8,238	8,268	8,079
Employment-population ratio ²	58.5	60.5	59.9	60.2	60.9	60.2	60.2	60.8	60.8	61.0	61.2	61.6	62.8	62.9	61.2
Unemployed	857	751	763	782	752	730	685	693	704	719	785	714	642	749	724
Unemployment rate	10.6	8.8	9.1	9.2	8.8	8.6	8.1	8.1	8.2	8.3	9.0	8.1	7.2	8.3	8.2

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		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
CHARACTERISTIC															
Civilian employed, 16 years and over	109,597	112,440	111,455	111,806	112,334	112,300	112,639	113,050	112,872	113,210	113,504	113,744	114,129	114,409	114,103
Men	60,892	62,107	61,688	61,815	61,977	61,984	62,150	62,341	62,368	62,468	62,581	62,656	62,808	63,059	62,759
Women	48,706	50,334	49,767	49,991	50,357	50,316	50,489	50,709	50,504	50,742	50,923	51,088	51,321	51,350	51,344
Married men, spouse present ..	39,658	40,265	40,054	40,021	40,075	40,120	40,262	40,308	40,404	40,556	40,645	40,711	40,404	40,475	40,481
Married women, spouse present	27,144	28,107	27,966	28,130	28,314	28,282	28,283	28,189	28,069	28,099	28,175	28,249	28,441	28,707	28,805
Women who maintain families ..	5,837	6,060	5,946	5,971	5,963	6,011	6,033	6,107	6,151	6,178	6,237	6,227	6,168	6,157	6,160
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,547	1,632	1,689	1,599	1,672	1,622	1,625	1,591	1,624	1,705	1,595	1,599	1,666	1,677	1,648
Self-employed workers	1,447	1,423	1,416	1,488	1,429	1,403	1,424	1,393	1,415	1,430	1,407	1,450	1,454	1,414	1,423
Unpaid family workers	169	153	152	170	165	162	153	155	139	140	155	156	138	114	142
Nonagricultural industries:															
Wage and salary workers	98,299	100,771	99,863	100,106	100,634	100,510	100,825	101,241	101,282	101,522	101,943	101,997	102,507	102,683	102,279
Government	16,342	16,800	16,594	16,518	16,708	16,920	16,876	16,794	16,928	17,033	17,118	17,064	17,197	16,948	16,908
Private industries	81,957	83,970	83,269	83,588	83,926	83,590	83,949	84,447	84,354	84,489	84,825	84,933	85,310	85,735	85,371
Private households	1,235	1,208	1,227	1,234	1,240	1,163	1,212	1,175	1,100	1,222	1,286	1,200	1,147	1,170	1,175
Other	80,722	82,762	82,042	82,354	82,686	82,427	82,737	83,272	83,254	83,267	83,539	83,733	84,163	84,565	84,196
Self-employed workers	7,881	8,201	8,082	8,139	8,157	8,293	8,216	8,214	8,204	8,274	8,222	8,280	8,150	8,312	8,366
Unpaid family workers	255	260	270	268	276	274	266	248	297	242	235	248	237	228	248
PERSONS AT WORK PART TIME¹															
All industries:															
Part time for economic reasons ..	5,588	5,401	5,459	5,394	5,333	5,254	5,428	5,283	5,261	5,353	5,534	5,262	5,367	5,566	5,343
Slack work	2,456	2,385	2,438	2,345	2,292	2,345	2,429	2,468	2,213	2,377	2,408	2,284	2,396	2,478	2,520
Could only find part-time work ..	2,800	2,672	2,707	2,725	2,677	2,623	2,683	2,526	2,683	2,655	2,696	2,638	2,640	2,598	2,535
Voluntary part time	13,935	14,395	14,201	13,940	14,498	14,836	14,437	14,573	14,415	14,488	14,523	14,711	14,571	14,572	14,603
Nonagricultural industries:															
Part time for economic reasons ..	5,345	5,122	5,180	5,104	5,058	4,979	5,154	5,016	4,986	5,067	5,241	5,004	5,145	5,254	5,106
Slack work	2,305	2,201	2,234	2,163	2,126	2,176	2,261	2,265	2,034	2,196	2,209	2,111	2,260	2,327	2,325
Could only find part-time work ..	2,719	2,587	2,612	2,648	2,603	2,530	2,599	2,463	2,603	2,557	2,597	2,552	2,566	2,457	2,475
Voluntary part time	13,502	13,928	13,717	13,544	13,995	14,334	13,953	14,099	13,987	14,011	14,064	14,222	14,096	14,123	14,141

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

7. Selected unemployment indicators, monthly data seasonally adjusted

(Unemployment rates)

Selected categories	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
CHARACTERISTIC															
Total, all civilian workers	7.0	6.2	6.5	6.3	6.3	6.1	6.0	6.0	5.9	6.0	5.9	5.8	5.8	5.7	5.6
Both sexes, 16 to 19 years	18.3	16.9	17.8	17.3	17.6	16.0	15.8	16.2	16.4	17.2	16.6	16.1	16.0	15.4	16.5
Men, 20 years and over	6.1	5.4	5.7	5.6	5.6	5.5	5.4	5.2	5.0	5.1	5.0	4.9	5.1	4.9	4.9
Women, 20 years and over	6.2	5.4	5.7	5.5	5.4	5.3	5.4	5.3	5.4	5.2	5.2	5.2	5.1	5.2	4.8
White, total	6.0	5.3	5.6	5.5	5.4	5.3	5.2	5.2	5.1	5.2	5.1	4.9	5.0	4.8	4.7
Both sexes, 16 to 19 years	15.6	14.4	15.3	14.8	15.2	13.9	13.3	14.1	14.3	14.5	14.1	13.6	14.0	12.4	14.1
Men, 16 to 19 years	16.3	15.5	16.8	16.3	17.0	14.8	13.5	15.2	15.1	15.1	14.8	14.9	14.4	12.2	15.7
Women, 16 to 19 years	14.9	13.4	13.7	13.3	13.3	13.0	13.1	12.9	13.4	13.8	13.3	12.3	13.6	12.7	12.4
Men, 20 years and over	5.3	4.8	5.0	4.9	4.8	4.9	4.7	4.6	4.4	4.6	4.4	4.3	4.4	4.1	4.2
Women, 20 years and over	5.4	4.6	4.7	4.6	4.5	4.4	4.5	4.4	4.5	4.3	4.4	4.4	4.2	4.5	3.9
Black, total	14.5	13.0	13.9	13.0	13.7	12.8	12.7	12.4	12.3	12.1	12.2	12.2	12.2	12.6	12.8
Both sexes, 16 to 19 years	39.3	34.7	37.0	37.1	37.5	33.4	32.7	30.6	30.8	33.8	33.9	33.4	35.0	38.3	36.9
Men, 16 to 19 years	39.3	34.4	36.1	37.8	38.3	31.4	32.4	33.7	31.5	32.5	32.2	33.5	35.1	42.0	39.0
Women, 16 to 19 years	39.2	34.9	38.0	36.3	36.6	35.4	33.1	27.1	30.0	35.2	35.8	33.4	34.9	34.7	35.0
Men, 20 years and over	12.9	11.1	11.6	11.0	12.3	11.4	11.2	10.7	10.1	9.8	10.2	10.1	10.1	11.3	11.4
Women, 20 years and over	12.4	11.6	12.7	11.6	11.6	11.3	11.4	11.3	11.7	11.0	10.8	10.9	11.1	10.4	10.9
Hispanic origin, total	10.6	8.8	9.1	9.2	8.8	8.6	8.1	8.1	8.2	8.3	9.0	8.1	7.2	8.3	8.2
Married men, spouse present	4.4	3.9	4.1	4.1	4.0	4.0	3.8	3.7	3.7	3.7	3.5	3.4	3.6	3.4	3.4
Married women, spouse present	5.2	4.3	4.5	4.4	4.2	4.0	4.2	4.3	4.2	4.2	4.2	4.3	4.2	4.1	4.0
Women who maintain families	9.8	9.2	9.7	9.4	9.5	9.5	9.3	9.0	8.8	8.9	8.5	8.4	8.9	8.3	7.5
Full-time workers	6.6	5.8	6.1	5.9	5.9	5.9	5.7	5.6	5.5	5.6	5.5	5.4	5.4	5.3	5.3
Part-time workers	9.1	8.4	9.1	8.6	8.7	7.3	8.1	8.2	8.4	8.3	8.2	8.0	8.3	7.9	7.7
Unemployed 15 weeks and over	1.9	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4
Labor force time lost ¹	7.9	7.1	7.4	7.3	7.2	7.1	6.9	6.9	6.8	6.8	6.8	6.6	6.6	6.6	6.5
INDUSTRY															
Nonagricultural private wage and salary workers	7.0	6.2	6.5	6.3	6.3	6.1	6.1	6.0	5.9	5.9	5.8	5.7	5.8	5.7	5.6
Mining	13.5	10.0	9.5	11.2	13.0	9.5	7.9	8.6	7.4	8.3	7.0	8.0	7.7	7.8	7.9
Construction	13.1	11.6	12.4	12.0	12.1	11.7	10.8	11.3	11.9	11.2	10.6	10.6	12.2	11.0	10.7
Manufacturing	7.1	6.0	6.7	6.3	6.3	5.7	6.0	5.6	5.6	5.7	5.3	5.1	5.6	5.6	5.2
Durable goods	6.9	5.8	6.6	6.2	6.2	5.4	6.0	5.5	5.4	5.2	4.8	4.8	5.5	5.9	5.2
Nondurable goods	7.4	6.3	7.0	6.4	6.5	6.1	5.9	5.8	5.9	6.5	5.9	5.6	5.8	5.3	5.3
Transportation and public utilities	5.1	4.5	4.5	4.7	4.4	4.8	4.4	4.4	4.1	4.4	4.5	4.6	3.6	3.6	4.2
Wholesale and retail trade	7.6	6.9	7.3	7.1	7.0	7.1	6.8	7.0	6.4	6.5	6.8	6.2	6.1	6.4	6.8
Finance and service industries	5.5	4.9	4.9	4.8	4.9	4.9	5.1	4.7	4.8	4.7	4.8	4.8	4.9	4.5	4.2
Government workers	3.6	3.5	3.5	3.5	3.4	3.4	3.4	3.7	3.4	3.3	3.4	3.2	3.0	2.8	2.8
Agricultural wage and salary workers	12.5	10.5	10.8	9.5	9.4	9.3	10.9	10.6	8.6	10.6	11.1	10.9	11.5	10.2	11.0

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

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

(Civilian workers)

Sex and age	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
	Total, 16 years and over	7.0	6.2	6.5	6.3	6.3	6.1	6.0	6.0	5.9	6.0	5.9	5.8	5.8	5.7	5.6
16 to 24 years	13.3	12.2	12.8	12.6	12.5	12.1	11.8	11.8	11.8	11.8	11.6	11.2	11.6	11.1	11.7
16 to 19 years	18.3	16.9	17.8	17.3	17.6	16.0	15.8	16.2	16.4	17.2	16.6	16.1	16.0	15.4	16.5
16 to 17 years	20.2	19.1	19.9	18.9	21.0	18.8	17.5	18.3	18.3	20.4	19.2	17.8	18.7	17.4	17.6
18 to 19 years	17.0	15.2	16.2	15.9	15.2	14.5	13.9	14.7	15.2	14.7	14.8	14.7	14.5	13.9	15.8
20 to 24 years	10.7	9.7	10.2	10.1	9.8	10.0	9.7	9.4	9.4	8.8	8.9	8.5	9.1	8.7	9.1
25 years and over	5.4	4.8	5.0	4.8	4.8	4.7	4.7	4.7	4.6	4.6	4.5	4.5	4.5	4.5	4.2
25 to 54 years	5.7	5.0	5.3	5.1	5.1	4.9	5.0	4.9	4.8	4.8	4.7	4.8	4.7	4.7	4.5
55 years and over	3.9	3.3	3.4	3.4	3.6	3.2	3.1	3.2	3.3	3.1	3.4	3.2	3.5	3.3	2.9
Men, 16 years and over	6.9	6.2	6.6	6.4	6.4	6.2	6.0	6.1	5.8	5.9	5.8	5.7	5.8	5.6	5.7
16 to 24 years	13.7	12.6	13.2	13.1	13.2	12.4	11.9	12.5	12.1	12.1	12.0	11.7	12.2	11.3	12.1
16 to 19 years	19.0	17.8	19.0	18.7	19.6	16.4	15.9	17.8	17.3	17.4	17.2	17.2	16.4	15.6	17.8
16 to 17 years	20.8	20.2	20.3	21.0	22.7	19.1	17.1	20.5	19.7	20.9	20.4	19.3	19.4	16.9	18.5
18 to 19 years	17.7	16.0	17.9	17.1	17.2	15.4	13.7	15.9	15.9	14.8	14.8	15.3	14.9	14.7	17.3
20 to 24 years	11.0	9.9	10.2	10.3	9.9	10.4	9.9	9.6	9.3	9.2	9.2	8.7	9.9	9.0	9.1
25 years and over	5.4	4.8	5.1	4.9	4.9	4.8	4.7	4.7	4.5	4.5	4.4	4.4	4.4	4.3	4.3
25 to 54 years	5.6	5.0	5.3	5.1	5.1	5.0	4.9	4.9	4.7	4.8	4.6	4.6	4.5	4.5	4.5
55 years and over	4.1	3.5	3.6	3.7	3.9	3.4	3.4	3.4	3.2	3.1	3.5	3.2	4.0	3.4	3.4
Women, 16 years and over	7.1	6.2	6.5	6.3	6.2	6.0	6.1	6.0	6.1	6.1	6.0	5.9	5.9	5.9	5.5
16 to 24 years	12.8	11.7	12.4	12.0	11.8	11.7	11.7	11.0	11.5	11.5	11.2	10.7	10.9	10.8	11.3
16 to 19 years	17.6	15.9	16.6	15.9	15.6	15.5	15.7	14.4	15.4	16.9	16.0	14.8	15.6	15.1	15.2
16 to 17 years	19.6	18.0	19.6	16.6	19.1	18.4	18.0	16.0	16.9	19.9	17.9	16.2	17.9	18.0	16.6
18 to 19 years	16.3	14.3	14.3	14.7	13.1	13.6	14.1	13.4	14.4	14.6	14.7	14.1	14.1	13.1	14.2
20 to 24 years	10.3	9.4	10.1	10.0	9.7	9.6	9.5	9.0	9.4	8.5	8.6	8.4	8.2	8.4	9.1
25 years and over	5.5	4.8	5.0	4.8	4.7	4.5	4.7	4.7	4.7	4.7	4.7	4.7	4.6	4.7	4.1
25 to 54 years	5.9	5.1	5.3	5.1	5.0	4.9	5.0	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.4
55 years and over	3.6	3.0	3.0	2.9	3.0	2.8	2.6	2.9	3.5	3.1	3.2	3.3	2.8	3.1	2.3

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

(Numbers in thousands)

Reason for unemployment	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Job losers	4,033	3,566	3,791	3,705	3,612	3,554	3,529	3,389	3,313	3,388	3,307	3,200	3,209	3,207	3,139
On layoff	1,090	943	1,003	963	924	919	874	820	944	878	856	888	884	899	899
Other job losers	2,943	2,623	2,788	2,742	2,688	2,635	2,613	2,515	2,443	2,444	2,429	2,344	2,323	2,240	2,240
Job leavers	1,015	965	996	955	931	959	989	992	981	960	926	946	1,082	961	1,075
Reentrants	2,160	1,974	2,078	1,965	1,995	1,980	1,930	1,969	1,908	1,845	1,974	1,945	1,917	1,951	1,756
New entrants	1,029	920	952	918	999	854	844	855	882	914	855	909	885	864	887
PERCENT OF UNEMPLOYED															
Job losers	48.9	48.0	48.5	49.1	47.9	48.4	48.4	47.0	46.8	47.7	46.8	45.7	45.2	45.9	45.8
On layoff	13.2	12.7	12.8	12.8	12.3	12.5	12.6	12.1	11.6	13.3	12.4	12.2	12.5	12.7	13.1
Other job losers	35.7	35.3	35.7	36.4	35.7	35.9	35.8	34.9	35.2	34.4	34.4	33.5	32.7	33.3	32.7
Job leavers	12.3	13.0	12.7	12.7	12.4	13.1	13.6	13.8	13.8	13.5	13.1	13.5	15.3	13.8	15.7
Reentrants	26.2	26.6	26.6	26.1	26.5	26.9	26.5	27.3	26.9	26.0	28.0	27.8	27.0	27.9	25.6
New entrants	12.5	12.4	12.2	12.2	13.3	11.6	11.6	11.9	12.5	12.9	12.1	13.0	12.5	12.4	12.9
PERCENT OF CIVILIAN LABOR FORCE															
Job losers	3.4	3.0	3.2	3.1	3.0	3.0	2.9	2.8	2.8	2.8	2.7	2.7	2.6	2.6	2.6
Job leavers	.9	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.9	.8	.9
Reentrants	1.8	1.6	1.7	1.6	1.7	1.7	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.5
New entrants	.9	.8	.8	.8	.8	.7	.7	.7	.7	.8	.7	.8	.7	.7	.7

10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

Weeks of unemployment	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Less than 5 weeks	3,448	3,246	3,352	3,195	3,308	3,138	3,186	3,203	3,220	3,223	3,218	3,229	3,089	3,084	3,009
5 to 14 weeks	2,557	2,196	2,411	2,256	2,165	2,151	2,144	2,142	1,949	2,093	2,029	1,968	2,263	2,145	2,101
15 weeks and over	2,232	1,983	2,055	2,060	2,067	2,029	1,920	1,896	1,904	1,801	1,834	1,791	1,733	1,740	1,722
15 to 26 weeks	1,045	943	944	984	974	973	945	834	917	844	899	892	839	841	887
27 weeks and over	1,187	1,040	1,111	1,076	1,093	1,056	975	1,062	987	957	935	899	894	899	835
Mean duration in weeks	15.0	14.5	14.9	14.8	14.8	14.7	14.2	14.3	14.2	14.1	14.0	14.2	14.4	14.4	13.7
Median duration in weeks	6.9	6.5	6.7	6.9	6.6	6.6	6.6	6.4	5.8	6.2	6.1	6.0	6.4	6.4	6.6

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

State	Feb. 1987	Feb. 1988	State	Feb. 1987	Feb. 1988
Alabama	10.0	7.7	Montana	9.7	9.1
Alaska	12.0	11.1	Nebraska	5.9	4.9
Arizona	7.8	5.7	Nevada	6.4	6.6
Arkansas	9.3	8.8	New Hampshire	2.7	3.1
California	6.7	5.8	New Jersey	4.8	4.0
Colorado	9.6	8.1	New Mexico	9.6	8.6
Connecticut	4.0	3.6	New York	5.6	4.4
Delaware	3.6	4.8	North Carolina	5.6	4.2
District of Columbia	8.1	5.8	North Dakota	6.3	6.4
Florida	5.2	5.0	Ohio	9.1	7.1
Georgia	6.0	6.0	Oklahoma	8.7	6.7
Hawaii	4.2	3.3	Oregon	7.4	7.2
Idaho	10.9	9.1	Pennsylvania	6.4	5.9
Illinois	8.3	8.2	Rhode Island	4.7	4.3
Indiana	7.5	6.4	South Carolina	6.3	5.6
Iowa	6.4	6.5	South Dakota	4.7	4.2
Kansas	6.0	5.5	Tennessee	8.1	6.6
Kentucky	11.5	9.7	Texas	9.2	8.7
Louisiana	14.4	12.1	Utah	7.6	6.3
Maine	5.9	5.2	Vermont	5.1	4.0
Maryland	5.4	5.1	Virginia	5.4	4.1
Massachusetts	3.9	3.8	Washington	9.5	7.8
Michigan	8.9	8.9	West Virginia	12.6	13.2
Minnesota	6.4	5.5	Wisconsin	8.0	6.8
Mississippi	12.2	9.7	Wyoming	11.0	8.6
Missouri	6.8	6.1			

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

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

(In thousands)

State	Feb. 1987	Jan. 1988	Feb. 1988 ^P	State	Feb. 1987	Jan. 1988	Feb. 1988 ^P
Alabama	1,467.9	1,507.1	1,510.8	Nebraska	645.5	656.6	658.9
Alaska	199.3	196.5	198.2	Nevada	478.1	508.2	511.0
Arizona	1,369.8	1,402.9	1,417.8	New Hampshire	494.5	520.3	516.3
Arkansas	808.9	833.1	844.0	New Jersey	3,481.0	3,573.9	3,575.9
California	11,417.1	11,819.9	11,875.0	New Mexico	519.1	525.8	528.2
Colorado	1,395.9	1,392.6	1,393.0	New York	7,875.1	8,024.2	8,055.6
Connecticut	1,597.0	1,644.5	1,642.5	North Carolina	2,783.5	2,882.6	2,902.2
Delaware	304.4	321.0	323.0	North Dakota	244.0	248.7	249.0
District of Columbia	636.8	652.6	656.7	Ohio	4,457.9	4,566.8	4,570.2
Florida	4,771.9	5,020.0	5,056.0	Oklahoma	1,095.9	1,077.8	1,086.2
Georgia	2,708.2	2,764.6	2,778.3	Oregon	1,057.8	1,094.6	1,105.1
Hawaii	451.6	463.3	466.2	Pennsylvania	4,774.5	4,906.5	4,905.9
Idaho	320.4	331.3	332.5	Rhode Island	438.3	446.7	445.6
Illinois	4,817.3	4,900.2	4,914.3	South Carolina	1,352.0	1,394.2	1,406.5
Indiana	2,216.4	2,314.0	2,312.7	South Dakota	247.1	250.3	250.4
Iowa	1,071.9	1,108.3	1,117.4	Tennessee	1,944.6	2,019.8	2,027.7
Kansas	978.7	996.4	1,003.3	Texas	6,442.0	6,493.1	6,519.2
Kentucky	1,276.9	1,327.9	1,331.8	Utah	627.6	635.7	636.8
Louisiana	1,459.4	1,486.1	1,490.6	Vermont	238.6	250.1	250.4
Maine	476.4	503.6	507.1	Virginia	2,588.0	2,706.2	2,707.2
Maryland	1,952.6	2,007.1	2,011.3	Washington	1,773.3	1,848.9	1,857.1
Massachusetts	2,976.7	3,025.8	3,038.0	West Virginia	580.4	591.6	591.5
Michigan	3,668.1	3,686.8	3,682.0	Wisconsin	2,012.6	2,073.3	2,080.2
Minnesota	1,893.0	1,951.0	1,955.1	Wyoming	174.9	173.6	173.3
Mississippi	844.1	875.2	877.4	Puerto Rico	739.4	764.2	766.6
Missouri	2,132.3	2,164.4	2,173.1	Virgin Islands	39.3	39.6	40.6
Montana	265.7	268.7	268.3				

^P = preliminary

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

because of the continual updating of the database.

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

(In thousands)

Industry	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	Mar. ^P
TOTAL	99,610	102,112	101,329	101,598	101,708	101,818	102,126	102,275	102,434	102,983	103,285	103,612	103,827	104,344	104,606
PRIVATE SECTOR	82,900	85,049	84,352	84,560	84,677	84,787	85,106	85,229	85,386	85,795	86,072	86,341	86,560	87,040	87,253
GOODS-PRODUCING	24,681	24,884	24,749	24,759	24,752	24,761	24,850	24,886	24,917	25,064	25,169	25,259	25,205	25,342	25,426
Mining	783	741	722	729	735	738	744	751	759	764	759	756	746	749	755
Oil and gas extraction	457	425	408	416	420	425	430	434	439	443	439	436	430	432	437
Construction	4,904	5,031	5,032	5,019	4,999	5,008	5,002	5,006	4,989	5,053	5,074	5,121	5,058	5,175	5,254
General building contractors	1,293	1,278	1,291	1,272	1,267	1,266	1,261	1,262	1,260	1,279	1,280	1,290	1,303	1,322	1,321
Manufacturing	18,994	19,112	18,995	19,011	19,018	19,015	19,104	19,129	19,169	19,247	19,336	19,382	19,401	19,418	19,417
Production workers	12,895	13,021	12,925	12,939	12,946	12,958	13,020	13,038	13,072	13,129	13,197	13,241	13,250	13,277	13,272
Durable goods	11,244	11,237	11,176	11,175	11,175	11,176	11,195	11,248	11,268	11,319	11,367	11,403	11,403	11,412	11,414
Production workers	7,432	7,457	7,399	7,406	7,409	7,421	7,425	7,475	7,494	7,530	7,568	7,597	7,588	7,606	7,606
Lumber and wood products	711	739	734	736	738	735	740	736	740	741	750	753	753	753	748
Furniture and fixtures	497	514	502	504	509	510	518	518	520	524	526	530	533	531	530
Stone, clay, and glass products	586	585	586	586	584	582	582	582	581	583	588	590	585	588	587
Primary metal industries	753	751	739	743	742	746	750	754	764	768	771	771	768	770	769
Blast furnaces and basic steel products	275	275	266	272	272	275	277	278	283	286	287	285	284	285	283
Fabricated metal products	1,431	1,428	1,419	1,423	1,420	1,424	1,424	1,425	1,429	1,438	1,446	1,451	1,452	1,455	1,456
Machinery, except electrical	2,060	2,039	2,015	2,022	2,025	2,028	2,033	2,044	2,053	2,064	2,074	2,085	2,097	2,102	2,112
Electrical and electronic equipment	2,123	2,101	2,099	2,092	2,087	2,080	2,088	2,095	2,096	2,111	2,118	2,128	2,130	2,128	2,131
Transportation equipment	2,015	2,015	2,022	2,011	2,011	2,010	1,995	2,028	2,018	2,019	2,016	2,018	2,005	2,001	2,000
Motor vehicles and equipment	865	842	854	847	843	842	814	848	837	838	835	832	820	818	822
Instruments and related products	707	696	694	694	693	693	695	695	695	697	701	701	702	704	703
Miscellaneous manufacturing industries	362	369	366	364	366	368	370	371	372	374	377	376	378	380	378
Nondurable goods	7,750	7,875	7,819	7,836	7,843	7,839	7,909	7,881	7,901	7,928	7,969	7,979	7,998	8,006	8,003
Production workers	5,463	5,564	5,526	5,533	5,537	5,537	5,595	5,563	5,578	5,599	5,629	5,644	5,662	5,671	5,666
Food and kindred products	1,617	1,636	1,635	1,642	1,633	1,634	1,644	1,632	1,631	1,635	1,645	1,645	1,661	1,660	1,653
Tobacco manufactures	59	57	57	56	57	57	57	56	55	55	56	56	57	56	55
Textile mill products	705	730	725	724	727	729	736	732	735	736	738	739	736	738	736
Apparel and other textile products	1,106	1,113	1,103	1,104	1,107	1,108	1,130	1,110	1,117	1,123	1,128	1,121	1,117	1,115	1,115
Paper and allied products	674	678	678	677	677	676	678	677	681	678	680	681	681	682	681
Printing and publishing	1,457	1,501	1,485	1,493	1,497	1,498	1,504	1,508	1,509	1,514	1,522	1,525	1,530	1,538	1,543
Chemicals and allied products	1,023	1,027	1,017	1,018	1,022	1,014	1,026	1,031	1,031	1,035	1,041	1,047	1,048	1,050	1,052
Petroleum and coal products	169	165	164	164	164	164	164	164	166	167	167	167	167	166	166
Rubber and misc. plastics products	790	818	807	809	809	810	815	819	824	833	840	845	847	847	848
Leather and leather products	151	151	148	149	150	149	155	152	152	152	152	153	154	154	154
SERVICE-PRODUCING	74,930	77,228	76,580	76,839	76,956	77,057	77,276	77,389	77,517	77,919	78,116	78,353	78,622	79,002	79,180
Transportation and public utilities	5,244	5,378	5,333	5,348	5,344	5,350	5,363	5,377	5,416	5,436	5,459	5,473	5,485	5,504	5,522
Transportation	3,041	3,150	3,112	3,124	3,120	3,128	3,133	3,147	3,183	3,198	3,218	3,233	3,244	3,261	3,276
Communication and public utilities	2,203	2,228	2,221	2,224	2,224	2,222	2,230	2,230	2,233	2,238	2,241	2,240	2,241	2,243	2,246
Wholesale trade	5,735	5,797	5,766	5,772	5,775	5,781	5,797	5,807	5,815	5,831	5,851	5,871	5,884	5,903	5,920
Durable goods	3,383	3,419	3,397	3,397	3,401	3,405	3,418	3,422	3,431	3,444	3,456	3,473	3,481	3,494	3,510
Nondurable goods	2,351	2,379	2,369	2,375	2,374	2,376	2,379	2,385	2,384	2,387	2,395	2,398	2,403	2,409	2,410
Retail trade	17,845	18,264	18,136	18,197	18,205	18,226	18,274	18,256	18,314	18,408	18,443	18,458	18,619	18,720	18,724
General merchandise stores	2,363	2,406	2,380	2,385	2,390	2,387	2,407	2,411	2,415	2,459	2,454	2,453	2,490	2,533	2,503
Food stores	2,873	2,959	2,944	2,953	2,956	2,960	2,959	2,962	2,958	2,969	2,982	2,996	3,019	3,032	3,045
Automotive dealers and service stations	1,943	1,987	1,979	1,978	1,978	1,983	1,985	1,985	1,988	2,000	2,003	2,013	2,023	2,040	2,055
Eating and drinking places	5,879	5,994	5,964	5,962	5,976	5,982	5,985	5,992	6,018	6,032	6,047	6,064	6,083	6,097	6,115
Finance, insurance, and real estate	6,297	6,589	6,526	6,558	6,576	6,586	6,608	6,624	6,629	6,650	6,657	6,668	6,684	6,687	6,694
Finance	3,152	3,278	3,256	3,272	3,276	3,280	3,291	3,293	3,292	3,296	3,301	3,301	3,309	3,301	3,295
Insurance	1,945	2,044	2,022	2,032	2,037	2,037	2,043	2,050	2,054	2,068	2,069	2,082	2,086	2,093	2,096
Real estate	1,200	1,267	1,248	1,254	1,263	1,269	1,274	1,281	1,283	1,286	1,287	1,285	1,289	1,293	1,303
Services	23,099	24,137	23,842	23,926	24,025	24,083	24,214	24,279	24,295	24,406	24,493	24,612	24,683	24,884	24,967
Business services	4,781	5,097	5,020	5,044	5,083	5,086	5,105	5,133	5,152	5,194	5,195	5,217	5,228	5,296	5,310
Health services	6,551	6,879	6,773	6,800	6,822	6,853	6,887	6,923	6,943	6,987	7,023	7,063	7,085	7,131	7,157
Government	16,711	17,063	16,977	17,038	17,031	17,031	17,020	17,046	17,048	17,188	17,213	17,271	17,267	17,304	17,353
Federal	2,899	2,943	2,922	2,933	2,935	2,935	2,936	2,940	2,962	2,965	2,977	2,981	2,977	2,979	2,972
State	3,888	3,952	3,930	3,943	3,947	3,932	3,952	3,964	3,957	3,973	3,978	3,996	3,996	4,004	4,019
Local	9,923	10,167	10,125	10,162	10,149	10,164	10,132	10,142	10,129	10,250	10,258	10,294	10,294	10,321	10,362

^P = preliminary

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

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

Industry	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	Mar. ^P
	PRIVATE SECTOR	34.8	34.8	34.8	34.7	34.9	34.8	34.8	34.9	34.6	34.9	34.9	34.6	34.8	34.8	34.6
MANUFACTURING	40.7	41.0	40.9	40.6	41.0	41.0	41.0	41.0	40.6	41.3	41.2	41.0	41.2	41.0	40.9
Overtime hours	3.4	3.7	3.6	3.5	3.8	3.7	3.8	3.8	3.6	4.0	3.9	3.8	3.9	3.7	3.7
Durable goods	41.3	41.5	41.5	41.2	41.6	41.5	41.6	41.6	41.0	41.9	41.9	41.5	41.7	41.5	41.5
Overtime hours	3.5	3.8	3.7	3.6	3.9	3.8	3.8	4.0	3.7	4.1	4.0	3.9	4.0	3.8	3.8
Lumber and wood products	40.3	40.6	40.9	40.6	41.0	40.6	40.6	40.4	39.4	40.4	40.8	40.4	40.1	40.4	40.0
Furniture and fixtures	39.8	39.9	40.0	39.1	39.9	40.0	40.0	40.1	39.3	40.0	40.0	39.8	39.4	39.5	39.0
Stone, clay, and glass products	42.2	42.3	42.5	41.9	42.3	42.0	42.2	42.1	41.9	42.6	42.5	42.5	42.0	42.3	42.6
Primary metal industries	41.9	43.1	42.6	42.3	43.1	43.1	43.4	43.5	43.4	43.7	43.7	43.6	43.5	43.2	43.3
Blast furnaces and basic steel products	41.7	43.6	42.3	42.4	43.3	43.5	44.1	44.0	45.2	44.3	44.0	44.3	44.0	44.0	43.8
Fabricated metal products	41.3	41.5	41.5	41.2	41.6	41.5	41.4	41.5	40.8	42.0	42.1	41.7	41.9	41.4	41.5
Machinery except electrical	41.6	42.2	42.0	41.8	42.2	42.2	42.4	42.2	41.6	42.6	42.7	42.5	42.8	42.6	42.4
Electrical and electronic equipment	41.0	40.9	40.9	40.6	40.8	41.1	41.1	41.0	40.4	41.1	41.0	40.9	41.2	40.9	41.1
Transportation equipment	42.3	42.1	42.3	41.9	42.2	41.9	41.7	41.9	41.3	42.5	42.4	41.4	42.3	42.0	42.0
Motor vehicles and equipment	42.6	42.3	42.9	42.1	42.5	42.0	41.9	41.9	41.3	43.0	43.1	41.4	42.4	42.5	42.6
Instruments and related products	41.0	41.4	41.3	41.0	41.5	41.5	41.6	41.7	41.1	42.1	41.7	41.3	41.9	41.3	41.2
Nondurable goods	39.9	40.2	40.1	39.7	40.2	40.2	40.3	40.3	40.1	40.5	40.4	40.3	40.4	40.2	40.1
Overtime hours	3.3	3.6	3.5	3.3	3.7	3.6	3.7	3.7	3.6	3.8	3.8	3.7	3.8	3.6	3.5
Food and kindred products	40.0	40.2	40.0	39.8	40.1	40.1	39.9	40.3	40.2	40.5	40.6	40.6	40.8	40.4	40.2
Textile mill products	41.1	41.9	42.1	41.4	42.0	42.1	42.4	42.1	41.3	41.9	41.8	41.7	41.7	41.7	41.3
Apparel and other textile products	36.7	37.1	37.0	36.1	37.2	37.1	37.3	37.4	36.3	37.4	37.1	37.2	36.9	37.0	37.0
Paper and allied products	43.2	43.4	43.0	43.0	43.5	43.3	43.5	43.4	43.8	43.7	43.5	43.2	43.6	43.3	43.3
Printing and publishing	38.0	38.0	37.9	37.7	37.9	38.1	38.1	37.9	38.2	38.0	38.0	37.9	38.0	38.0	38.1
Chemicals and allied products	41.9	42.3	42.0	42.2	42.1	42.0	42.2	42.4	42.8	42.7	42.7	42.7	42.7	42.5	42.5
Petroleum and coal products	43.8	43.9	44.1	43.9	44.3	43.3	44.4	43.3	43.2	43.5	43.6	44.3	44.2	43.4	43.5
TRANSPORTATION AND PUBLIC UTILITIES	39.2	39.1	39.0	39.0	39.2	38.8	39.2	39.3	39.1	39.3	39.1	39.0	39.4	39.0	38.6
WHOLESALE TRADE	37.7	37.5	38.1	38.2	38.3	38.2	38.1	38.3	38.0	38.4	38.3	38.1	38.2	38.3	38.0
RETAIL TRADE	29.2	29.3	29.3	29.5	29.4	29.2	29.3	29.6	29.6	29.3	29.2	28.8	29.0	29.1	28.9
SERVICES	32.5	32.5	32.5	32.4	32.5	32.5	32.5	32.5	32.5	32.5	32.6	32.4	32.6	32.8	32.4

^P = preliminary

benchmark adjustment.

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

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

Industry	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	Mar. ^P
PRIVATE SECTOR	\$8.76	\$8.98	\$8.92	\$8.91	\$8.93	\$8.92	\$8.91	\$8.94	\$9.06	\$9.09	\$9.14	\$9.13	\$9.18	\$9.18	\$9.20
Seasonally adjusted	-	-	8.91	8.91	8.95	8.94	8.96	9.02	9.02	9.08	9.12	9.11	9.15	9.13	9.19
MINING	12.44	12.45	12.51	12.43	12.42	12.44	12.31	12.32	12.43	12.34	12.47	12.50	12.69	12.62	12.58
CONSTRUCTION	12.47	12.66	12.59	12.55	12.60	12.61	12.57	12.67	12.77	12.79	12.80	12.78	12.93	12.76	12.82
MANUFACTURING	9.73	9.91	9.85	9.87	9.87	9.87	9.87	9.86	10.00	9.95	10.01	10.08	10.07	10.06	10.08
Durable goods	10.29	10.45	10.39	10.39	10.40	10.42	10.40	10.42	10.53	10.51	10.57	10.63	10.62	10.61	10.63
Lumber and wood products	8.33	8.40	8.28	8.34	8.37	8.44	8.46	8.49	8.48	8.44	8.49	8.45	8.52	8.53	8.47
Furniture and fixtures	7.46	7.67	7.58	7.58	7.64	7.66	7.67	7.74	7.75	7.73	7.73	7.79	7.82	7.76	7.80
Stone, clay, and glass products	10.05	10.27	10.13	10.23	10.26	10.29	10.33	10.31	10.40	10.31	10.34	10.33	10.37	10.35	10.36
Primary metal industries	11.86	11.98	11.82	11.96	11.96	11.97	11.97	11.98	12.24	12.05	12.08	12.15	12.10	12.08	12.12
Blast furnaces and basic steel products	13.73	13.84	13.66	13.84	13.80	13.83	13.70	13.81	14.17	13.97	13.97	14.03	13.92	13.98	13.99
Fabricated metal products	9.89	10.03	9.99	9.98	9.97	10.00	9.95	9.97	10.04	10.11	10.15	10.24	10.17	10.17	10.19
Machinery, except electrical	10.59	10.77	10.72	10.70	10.70	10.76	10.74	10.76	10.81	10.86	10.89	10.96	10.92	10.88	10.91
Electrical and electronic equipment	9.65	9.90	9.84	9.82	9.83	9.84	9.89	9.90	9.98	9.95	10.00	10.05	10.03	10.04	10.09
Transportation equipment	12.81	12.96	12.86	12.80	12.85	12.88	12.83	12.90	13.07	13.09	13.18	13.26	13.19	13.20	13.25
Motor vehicles and equipment	13.45	13.57	13.49	13.40	13.42	13.47	13.36	13.43	13.69	13.73	13.82	13.90	13.90	13.92	14.03
Instruments and related products	9.47	9.74	9.67	9.67	9.69	9.70	9.74	9.78	9.80	9.81	9.87	9.88	9.97	9.98	9.93
Miscellaneous manufacturing	7.54	7.74	7.66	7.67	7.72	7.74	7.72	7.70	7.76	7.77	7.81	7.91	7.97	7.90	7.92
Nondurable goods	8.94	9.16	9.09	9.14	9.13	9.11	9.16	9.12	9.28	9.18	9.24	9.30	9.30	9.29	9.31
Food and kindred products	8.74	8.92	8.93	8.95	8.96	8.91	8.88	8.80	8.92	8.86	8.96	9.05	9.05	9.05	9.06
Tobacco manufactures	12.85	13.81	13.80	14.28	14.53	15.57	14.85	14.20	12.89	12.77	13.44	13.56	13.70	13.89	14.15
Textile mill products	6.93	7.18	7.12	7.12	7.13	7.15	7.14	7.16	7.23	7.24	7.31	7.33	7.36	7.32	7.34
Apparel and other textile products	5.84	5.95	5.93	5.94	5.89	5.91	5.89	5.90	6.01	5.99	6.00	6.01	6.04	6.02	6.04
Paper and allied products	11.18	11.42	11.27	11.37	11.40	11.41	11.48	11.41	11.67	11.48	11.50	11.54	11.52	11.49	11.49
Printing and publishing	9.99	10.28	10.17	10.14	10.19	10.19	10.25	10.31	10.48	10.42	10.39	10.44	10.39	10.41	10.42
Chemicals and allied products	11.98	12.37	12.24	12.30	12.31	12.27	12.37	12.34	12.56	12.52	12.56	12.62	12.56	12.54	12.52
Petroleum and coal products	14.18	14.57	14.50	14.50	14.52	14.43	14.48	14.52	14.71	14.66	14.75	14.72	14.83	14.94	15.03
Rubber and miscellaneous plastics products	8.73	8.88	8.80	8.82	8.84	8.87	8.93	8.90	8.98	8.91	8.93	9.00	8.97	8.97	8.98
Leather and leather products	5.92	6.06	6.06	6.12	6.05	6.04	5.98	6.01	6.09	6.09	6.11	6.11	6.10	6.14	6.16
TRANSPORTATION AND PUBLIC UTILITIES	11.70	12.01	11.90	11.94	11.95	11.91	12.00	12.04	12.09	12.09	12.17	12.17	12.11	12.17	12.16
WHOLESALE TRADE	9.35	9.61	9.53	9.53	9.57	9.57	9.57	9.62	9.67	9.67	9.74	9.74	9.79	9.80	9.82
RETAIL TRADE	6.03	6.12	6.08	6.09	6.09	6.08	6.07	6.06	6.20	6.16	6.19	6.19	6.25	6.24	6.25
FINANCE, INSURANCE, AND REAL ESTATE	8.35	8.76	8.72	8.71	8.72	8.68	8.69	8.81	8.79	8.81	8.94	8.87	9.00	9.07	9.04
SERVICES	8.16	8.47	8.41	8.40	8.38	8.35	8.33	8.40	8.55	8.61	8.71	8.73	8.79	8.79	8.80

- Data not available.
P = preliminary

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

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

Industry	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	Mar. ^P
PRIVATE SECTOR															
Current dollars	\$304.85	\$312.50	\$308.63	\$308.29	\$310.76	\$312.20	\$312.74	\$315.58	\$314.38	\$317.24	\$318.07	\$318.64	\$315.79	\$316.71	\$316.48
Seasonally adjusted	-	-	310.07	309.18	312.36	311.11	311.81	314.80	312.09	316.89	318.29	315.21	318.42	317.72	317.97
Constant (1977) dollars	171.07	169.28	169.48	168.28	169.17	169.21	169.14	169.76	168.30	169.38	169.64	170.03	167.97	168.19	-
MINING	524.97	526.64	522.92	519.57	526.61	527.46	518.25	522.37	523.30	526.92	527.48	535.00	531.71	523.73	517.04
CONSTRUCTION	466.38	477.28	470.87	469.37	485.10	480.44	485.20	489.06	464.83	496.25	474.88	480.53	465.48	461.91	482.03
MANUFACTURING															
Current dollars	396.01	406.31	402.87	398.75	403.68	405.66	400.72	403.27	408.00	410.94	414.41	421.34	412.87	409.44	412.27
Constant (1977) dollars	222.23	220.10	221.24	217.78	219.75	219.87	216.72	216.93	218.42	219.40	221.02	224.83	219.61	217.44	-
Durable goods	424.98	433.68	432.22	427.03	431.60	434.51	426.40	430.35	432.78	439.32	443.94	450.71	441.79	438.19	442.21
Lumber and wood products	335.70	341.04	337.00	338.60	345.68	348.57	341.78	345.54	338.35	342.66	343.00	341.38	336.54	339.49	337.11
Furniture and fixtures	296.91	306.03	301.68	294.10	301.78	306.40	300.66	311.92	308.45	313.84	312.29	319.39	304.98	301.09	302.64
Stone, clay, and glass products	424.11	434.42	425.46	430.68	439.13	437.33	439.03	439.21	442.00	443.33	438.42	435.93	424.13	426.42	436.16
Primary metal industries	496.93	516.34	505.90	508.30	514.28	517.10	514.71	515.14	531.22	522.97	529.10	537.03	526.35	523.06	527.22
Blast furnaces and basic steel products	572.54	603.42	581.92	593.74	598.92	605.75	602.80	600.74	639.07	610.49	613.28	625.74	609.70	617.92	615.56
Fabricated metal products	408.46	416.25	414.59	408.18	412.76	417.00	405.96	411.76	410.64	424.62	429.35	437.25	425.11	419.00	422.89
Machinery, except electrical	440.54	454.49	452.38	445.12	449.40	455.15	447.86	449.77	449.70	460.46	467.18	477.86	467.38	462.40	464.77
Electrical and electronic equipment	395.65	404.91	402.46	395.75	399.10	404.42	399.56	403.92	404.19	408.95	414.00	422.10	414.24	408.63	414.70
Transportation equipment	541.86	545.62	547.84	536.32	542.27	539.67	526.03	530.19	538.48	553.71	561.47	566.20	560.58	553.08	560.48
Motor vehicles and equipment	572.97	574.01	582.77	566.82	571.69	567.09	549.10	547.94	562.66	588.27	594.26	596.31	593.53	588.82	601.89
Instruments and related products	388.27	403.24	401.31	394.54	399.23	402.55	398.37	403.91	402.78	410.06	414.54	418.91	417.74	412.17	412.10
Miscellaneous manufacturing	298.58	304.18	301.04	297.60	302.62	304.18	299.54	303.38	302.64	310.80	309.28	314.82	310.03	306.52	308.09
Nondurable goods	356.71	368.23	363.60	361.03	366.11	367.13	366.40	368.45	374.91	371.79	375.14	380.37	373.86	370.67	372.40
Food and kindred products	349.60	358.58	352.74	351.74	359.30	357.29	354.31	358.16	363.94	360.60	365.57	371.96	367.43	359.29	359.68
Tobacco manufactures	480.59	531.69	525.78	536.93	571.03	624.36	527.18	512.62	501.42	526.12	551.04	549.18	537.04	531.99	522.14
Textile mill products	284.82	300.84	299.04	291.21	298.75	303.16	297.02	302.87	301.49	305.53	308.48	310.06	305.44	302.32	301.67
Apparel and other textile products	214.33	220.75	219.41	212.65	219.11	221.03	217.93	220.66	218.16	224.63	224.40	225.98	221.67	220.93	223.48
Paper and allied products	482.98	495.63	483.48	486.64	493.62	494.05	495.94	492.91	514.65	501.68	502.55	508.91	502.27	494.07	496.37
Printing and publishing	379.62	390.64	386.46	381.26	384.16	384.16	387.45	392.81	403.48	397.00	397.94	404.03	391.70	392.46	398.04
Chemicals and allied products	501.96	523.25	515.30	519.06	518.25	516.57	518.30	519.51	537.57	530.85	537.57	545.18	536.31	531.70	533.35
Petroleum and coal products	621.08	639.62	636.55	635.10	637.43	624.82	645.81	631.62	644.30	642.11	646.05	652.10	651.04	639.43	652.30
Rubber and miscellaneous plastics products	360.55	369.41	365.20	360.74	366.86	370.77	366.13	368.46	371.77	373.33	375.95	382.50	374.95	371.36	374.47
Leather and leather products	218.45	230.89	227.25	224.60	233.53	237.37	230.83	233.79	229.59	235.68	234.01	235.24	229.97	226.57	231.62
TRANSPORTATION AND PUBLIC UTILITIES	458.64	469.59	462.91	463.27	466.05	465.68	472.80	476.78	473.93	475.14	477.06	477.06	471.08	472.20	469.38
WHOLESALE TRADE	359.04	367.10	361.19	363.09	366.53	367.49	366.53	369.41	368.43	371.33	373.04	373.04	372.02	372.40	371.20
RETAIL TRADE	176.08	179.32	175.71	177.83	178.44	179.97	182.10	183.62	183.52	179.87	179.51	181.37	177.50	177.84	178.75
FINANCE, INSURANCE, AND REAL ESTATE	303.94	317.11	316.54	316.17	316.54	315.95	314.58	320.68	316.44	318.92	324.52	319.32	326.70	330.15	322.73
SERVICES	265.20	275.28	272.48	271.32	271.51	272.21	273.22	276.36	277.02	279.83	283.08	282.85	284.80	286.55	284.24

- Data not available.
P = preliminary

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

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

Industry	Not seasonally adjusted				Seasonally adjusted					
	Mar. 1987	Jan. 1988	Feb. 1988 ^P	Mar. 1988 ^P	Mar. 1987	Nov. 1987	Dec. 1987	Jan. 1988	Feb. 1988 ^P	Mar. 1988 ^P
PRIVATE SECTOR (in current dollars)	172.3	176.8	177.0	177.3	172.2	175.8	175.7	176.4	176.5	177.1
Mining ¹	181.4	185.0	184.9	184.8	-	-	-	-	-	-
Construction	153.0	156.9	155.2	156.0	153.8	156.6	154.4	157.1	155.8	156.8
Manufacturing	174.6	177.5	177.8	178.1	174.3	176.6	176.9	176.9	177.5	177.8
Transportation and public utilities	174.4	177.2	178.4	178.3	174.6	177.1	177.4	176.9	177.7	178.4
Wholesale trade ¹	175.8	180.3	180.5	181.0	-	-	-	-	-	-
Retail trade	159.4	163.1	163.3	163.8	159.0	162.3	162.7	163.1	162.8	163.3
Finance, insurance, and real estate ¹	187.0	193.8	195.2	194.8	-	-	-	-	-	-
Services	179.3	187.3	187.3	187.6	179.0	185.2	185.1	186.4	186.0	187.3
PRIVATE SECTOR [in constant (1977) dollars]	94.6	94.1	94.0	-	94.4	93.8	93.6	93.7	93.6	-

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

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

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

(In percent)

Time span and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Over 1-month span:												
1986	53.2	48.1	48.1	53.5	52.4	46.8	52.4	56.2	55.1	53.2	59.7	59.7
1987	53.5	56.8	58.6	58.4	58.6	55.7	68.6	54.6	65.4	65.4	71.9	63.2
1988	60.0	62.2	55.7	-	-	-	-	-	-	-	-	-
Over 3-month span:												
1986	49.7	44.9	45.7	48.4	47.6	45.4	48.4	55.1	55.9	58.1	58.6	60.3
1987	58.6	59.5	61.1	61.6	61.4	67.3	66.2	75.1	69.7	77.8	75.9	70.5
1988	67.6	64.1	-	-	-	-	-	-	-	-	-	-
Over 6-month span:												
1986	47.6	47.6	43.0	43.2	45.4	48.4	47.3	53.0	59.2	58.9	57.8	58.9
1987	61.9	62.7	58.9	67.3	67.6	71.1	76.2	78.6	80.3	75.7	77.6	74.3
1988	-	-	-	-	-	-	-	-	-	-	-	-
Over 12-month span:												
1986	43.2	44.1	46.2	45.7	47.8	49.5	49.5	51.6	54.9	52.2	55.1	56.5
1987	62.2	63.5	67.3	68.9	73.8	72.4	76.2	77.3	77.3	-	-	-
1988	-	-	-	-	-	-	-	-	-	-	-	-

- Data not available.

NOTE: Figures are the percent of industries with employment rising. (Half of the unchanged components are counted as rising.) Data are centered within the

spans. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

19. Annual data: Employment status of the noninstitutional population

(Numbers in thousands)

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

20. Annual data: Employment levels by industry

(Numbers in thousands)

Industry	1979	1980	1981	1982	1983	1984	1985	1986	1987
Total employment	89,823	90,406	91,156	89,566	90,200	94,496	97,519	99,610	102,112
Private sector	73,876	74,166	75,126	73,729	74,330	78,472	81,125	82,900	85,049
Goods-producing	26,461	25,658	25,497	23,813	23,334	24,727	24,859	24,681	24,884
Mining	958	1,027	1,139	1,128	952	966	927	783	741
Construction	4,463	4,346	4,188	3,905	3,948	4,383	4,673	4,904	5,031
Manufacturing	21,040	20,285	20,170	18,781	18,434	19,378	19,260	18,994	19,112
Service-producing	63,363	64,748	65,659	65,753	66,866	69,769	72,660	74,930	77,228
Transportation and public utilities	5,136	5,146	5,165	5,082	4,954	5,159	5,298	5,244	5,378
Wholesale trade	5,204	5,275	5,358	5,278	5,268	5,555	5,717	5,735	5,797
Retail trade	14,989	15,035	15,189	15,179	15,613	16,545	17,356	17,845	18,264
Finance, insurance, and real estate	4,975	5,160	5,298	5,341	5,468	5,689	5,955	6,297	6,589
Services	17,112	17,890	18,619	19,036	19,694	20,797	22,000	23,099	24,137
Government	15,947	16,241	16,031	15,837	15,869	16,024	16,394	16,711	17,063
Federal	2,773	2,866	2,772	2,739	2,774	2,807	2,875	2,899	2,943
State	3,541	3,610	3,640	3,640	3,662	3,734	3,832	3,888	3,952
Local	9,633	9,765	9,619	9,458	9,434	9,482	9,687	9,923	10,167

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

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

Industry	1979	1980	1981	1982	1983	1984	1985	1986	1987
Private sector									
Average weekly hours	35.7	35.3	35.2	34.8	35.0	35.2	34.9	34.8	34.8
Average hourly earnings (in dollars)	6.16	6.66	7.25	7.68	8.02	8.32	8.57	8.76	8.98
Average weekly earnings (in dollars)	219.91	235.10	255.20	267.26	280.70	292.86	299.09	304.85	312.50
Mining									
Average weekly hours	43.0	43.3	43.7	42.7	42.5	43.3	43.4	42.2	42.3
Average hourly earnings (in dollars)	8.49	9.17	10.04	10.77	11.28	11.63	11.98	12.44	12.45
Average weekly earnings (in dollars)	365.07	397.06	438.75	459.88	479.40	503.58	519.93	524.97	526.64
Construction									
Average weekly hours	37.0	37.0	36.9	36.7	37.1	37.8	37.7	37.4	37.7
Average hourly earnings (in dollars)	9.27	9.94	10.82	11.63	11.94	12.13	12.32	12.47	12.66
Average weekly earnings (in dollars)	342.99	367.78	399.26	426.82	442.97	458.51	464.46	466.38	477.28
Manufacturing									
Average weekly hours	40.2	39.7	39.8	38.9	40.1	40.7	40.5	40.7	41.0
Average hourly earnings (in dollars)	6.70	7.27	7.99	8.49	8.83	9.19	9.54	9.73	9.91
Average weekly earnings (in dollars)	269.34	288.62	318.00	330.26	354.08	374.03	386.37	396.01	406.31
Transportation and public utilities									
Average weekly hours	39.9	39.6	39.4	39.0	39.0	39.4	39.5	39.2	39.1
Average hourly earnings (in dollars)	8.16	8.87	9.70	10.32	10.79	11.12	11.40	11.70	12.01
Average weekly earnings (in dollars)	325.58	351.25	382.18	402.48	420.81	438.13	450.30	458.64	469.59
Wholesale trade									
Average weekly hours	38.8	38.5	38.5	38.3	38.5	38.5	38.4	38.4	38.2
Average hourly earnings (in dollars)	6.39	6.96	7.56	8.09	8.55	8.89	9.16	9.35	9.61
Average weekly earnings (in dollars)	247.93	267.96	291.06	309.85	329.18	342.27	351.74	359.04	367.10
Retail trade									
Average weekly hours	30.6	30.2	30.1	29.9	29.8	29.8	29.4	29.2	29.3
Average hourly earnings (in dollars)	4.53	4.88	5.25	5.48	5.74	5.85	5.94	6.03	6.12
Average weekly earnings (in dollars)	138.62	147.38	158.03	163.85	171.05	174.33	174.64	176.08	179.32
Finance, insurance, and real estate									
Average weekly hours	36.2	36.2	36.3	36.2	36.2	36.5	36.4	36.4	36.2
Average hourly earnings (in dollars)	5.27	5.79	6.31	6.78	7.29	7.63	7.94	8.35	8.76
Average weekly earnings (in dollars)	190.77	209.60	229.05	245.44	263.90	278.50	289.02	303.94	317.11
Services									
Average weekly hours	32.7	32.6	32.6	32.6	32.7	32.6	32.5	32.5	32.5
Average hourly earnings (in dollars)	5.36	5.85	6.41	6.92	7.31	7.59	7.90	8.16	8.47
Average weekly earnings (in dollars)	175.27	190.71	208.97	225.59	239.04	247.43	256.75	265.20	275.28

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

(June 1981 = 100)

Series	1985		1986				1987				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended	
										Dec. 1987		
Civilian workers ²	129.2	130.6	131.5	133.0	133.8	135.0	135.9	137.5	138.6	0.8	3.6	
Workers, by occupational group:												
White-collar workers	131.6	133.1	134.2	136.0	136.9	138.5	139.3	141.2	142.2	.7	3.9	
Blue-collar workers	124.9	126.2	126.8	127.8	128.4	129.1	130.1	131.3	132.5	.9	3.2	
Service occupations	131.8	133.1	133.7	135.4	136.6	138.0	138.5	139.9	140.8	.6	3.1	
Workers, by industry division:												
Goods-producing	125.5	126.9	128.1	128.8	129.5	130.2	131.1	132.2	133.5	1.0	3.1	
Manufacturing	126.0	127.7	128.7	129.3	130.1	130.7	131.5	132.7	134.1	1.1	3.1	
Service-producing	131.5	132.9	133.7	135.6	136.5	138.1	138.9	140.8	141.7	.6	3.8	
Services	137.1	138.8	139.4	142.4	143.6	145.2	145.8	149.2	150.6	.9	4.9	
Health services	-	-	-	-	-	-	-	-	-	1.2	4.4	
Hospitals	-	-	-	-	-	-	-	-	-	1.2	4.8	
Public administration ³	134.8	136.8	138.0	140.6	141.6	144.1	144.7	146.4	148.1	1.2	4.6	
Nonmanufacturing	130.6	131.9	132.8	134.6	135.4	136.9	137.8	139.6	140.5	.6	3.8	
Private industry workers	127.5	128.9	129.9	130.8	131.6	132.9	133.8	135.1	136.0	.7	3.3	
Workers, by occupational group:												
White-collar workers	129.8	131.3	132.5	133.5	134.3	136.1	137.0	138.5	139.3	.6	3.7	
Professional specialty and technical occupations	-	-	-	-	-	-	-	-	-	.9	4.1	
Executive, administrative, and managerial occupations	-	-	-	-	-	-	-	-	-	.5	4.4	
Sales occupations	-	-	-	-	-	-	-	-	-	-3	1.2	
Administrative support occupations, including clerical	-	-	-	-	-	-	-	-	-	.9	4.1	
Blue-collar workers	124.4	125.7	126.3	127.2	127.8	128.4	129.5	130.6	131.8	.9	3.1	
Precision production, craft, and repair occupation	-	-	-	-	-	-	-	-	-	.8	3.1	
Machine operators, assemblers, and inspectors	-	-	-	-	-	-	-	-	-	1.3	3.4	
Transportation and material moving occupations	-	-	-	-	-	-	-	-	-	.6	2.9	
Handlers, equipment cleaners, helpers, and laborers	-	-	-	-	-	-	-	-	-	1.1	2.8	
Service occupations	129.5	130.9	131.1	132.3	133.5	134.7	135.2	135.9	136.7	.6	2.4	
Workers, by industry division:												
Goods-producing	125.3	126.7	127.8	128.6	129.2	129.9	130.8	131.9	133.2	1.0	3.1	
Construction	-	-	-	-	-	-	-	-	-	.7	3.7	
Manufacturing	126.0	127.7	128.7	129.3	130.1	130.7	131.5	132.7	134.1	1.1	3.1	
Durables	-	-	-	-	-	-	-	-	-	1.0	2.7	
Nondurables	-	-	-	-	-	-	-	-	-	1.2	3.8	
Service-producing	129.4	130.8	131.6	132.7	133.5	135.3	136.3	137.7	138.4	.5	3.7	
Transportation and public utilities	-	-	-	-	-	-	-	-	-	.4	3.0	
Transportation	-	-	-	-	-	-	-	-	-	.2	2.7	
Public utilities	-	-	-	-	-	-	-	-	-	.6	3.3	
Wholesale and retail trade	-	-	-	-	-	-	-	-	-	.2	3.0	
Wholesale trade	-	-	-	-	-	-	-	-	-	.7	4.0	
Retail trade	-	-	-	-	-	-	-	-	-	.1	2.5	
Finance, insurance, and real estate	-	-	-	-	-	-	-	-	-	.1	2.0	
Service	-	-	-	-	-	-	-	-	-	1.0	5.2	
Health services	-	-	-	-	-	-	-	-	-	1.2	4.3	
Hospitals	-	-	-	-	-	-	-	-	-	1.3	4.9	
Nonmanufacturing	128.4	129.7	130.6	131.7	132.4	134.1	135.1	136.4	137.1	.5	3.5	
State and local government workers	137.5	138.9	139.7	143.6	144.7	145.9	146.3	149.7	151.1	.9	4.4	
Workers, by occupational group:												
White-collar workers	138.6	140.0	140.5	145.0	146.0	147.2	147.5	151.2	152.7	1.0	4.6	
Blue-collar workers	132.7	134.7	136.3	138.5	139.5	140.8	141.3	143.3	144.3	.7	3.4	
Workers, by industry division:												
Services	139.1	140.4	140.8	145.5	146.6	147.3	147.6	151.8	153.1	.9	4.4	
Hospitals and other services ⁴	135.2	136.8	137.9	139.4	141.1	142.5	143.3	145.1	146.3	.8	3.7	
Health services	-	-	-	-	-	-	-	-	-	1.1	4.7	
Schools	140.3	141.5	141.7	147.6	148.4	148.9	149.1	154.1	155.5	.9	4.8	
Elementary and secondary	142.0	143.0	143.2	149.4	150.3	150.5	150.7	156.5	157.8	.8	5.0	
Public administration ³	134.8	136.8	138.0	140.6	141.6	144.1	144.7	146.4	148.1	1.2	4.6	

¹ Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.

² Consist of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

³ Consist of legislative, judicial, administrative, and regulatory activities.

⁴ Includes, for example, library, social, and health services.

- Data not available.

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

(June 1981 = 100)

Series	1985		1986				1987				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	* Mar.	June	Sept.	Dec.	3 months ended	12 months ended	
										Dec. 1987		
COMPENSATION												
Workers, by bargaining status¹												
Union	127.1	128.4	128.7	129.4	129.8	130.5	131.2	132.0	133.4	1.1	2.8	
Goods-producing	125.2	126.4	126.7	127.3	127.5	128.0	128.7	129.5	131.3	1.4	3.0	
Service-producing	130.2	131.6	131.9	132.8	133.4	134.4	135.2	135.9	136.7	.6	2.5	
Manufacturing	125.5	127.0	126.9	127.5	127.9	128.0	128.7	129.5	131.5	1.5	2.8	
Nonmanufacturing	128.6	129.7	130.4	131.2	131.5	132.6	133.5	134.3	135.1	.6	2.7	
Nonunion	127.5	129.0	130.2	131.2	132.1	133.6	134.6	136.1	136.9	.6	3.6	
Goods-producing	125.1	126.7	128.2	129.1	130.0	130.8	131.8	133.1	134.1	.8	3.2	
Service-producing	129.0	130.4	131.4	132.5	133.4	135.3	136.4	137.9	138.6	.5	3.9	
Manufacturing	126.3	128.1	129.7	130.4	131.4	132.2	133.2	134.6	135.6	.7	3.2	
Nonmanufacturing	128.1	129.5	130.4	131.6	132.5	134.3	135.3	136.8	137.5	.5	3.8	
Workers, by region¹												
Northeast	129.9	131.6	133.3	134.2	135.2	137.4	138.6	140.3	141.9	1.1	5.0	
South	127.2	128.7	129.6	130.7	131.4	132.1	133.2	134.2	135.4	.9	3.0	
Midwest (formerly North Central)	124.6	125.9	126.2	127.3	128.1	129.1	130.2	131.2	131.7	.4	2.8	
West	129.8	130.8	131.6	132.1	132.8	134.1	134.2	135.8	136.3	.4	2.6	
Workers, by area size¹												
Metropolitan areas	128.1	129.5	130.5	131.4	132.2	133.5	134.4	135.8	136.7	.7	3.4	
Other areas	123.9	125.5	126.4	127.2	127.9	129.0	130.2	131.3	132.0	.5	3.2	
WAGES AND SALARIES												
Workers, by bargaining status¹												
Union	124.7	125.6	126.1	126.9	127.2	127.7	128.3	129.1	130.5	1.1	2.6	
Goods-producing	122.7	123.4	124.1	124.5	124.8	125.0	125.8	126.5	128.5	1.6	3.0	
Service-producing	127.8	129.0	129.3	130.5	130.9	131.7	132.2	132.9	133.6	.5	2.1	
Manufacturing	123.3	124.2	124.6	125.0	125.5	125.6	126.2	127.0	129.3	1.8	3.0	
Nonmanufacturing	125.9	126.9	127.4	128.5	128.7	129.5	130.1	130.8	131.5	.5	2.2	
Nonunion	125.9	127.3	128.5	129.4	130.3	131.8	132.8	134.3	135.0	.5	3.6	
Goods-producing	123.0	124.5	126.1	127.0	127.8	128.8	129.6	131.1	132.1	.8	3.4	
Service-producing	127.7	128.9	129.9	130.8	131.7	133.6	134.6	136.2	136.7	.4	3.8	
Manufacturing	124.4	126.1	127.7	128.5	129.5	130.6	131.5	133.0	133.9	.7	3.4	
Nonmanufacturing	126.6	127.8	128.9	129.8	130.6	132.4	133.4	134.9	135.4	.4	3.7	
Workers, by region¹												
Northeast	128.1	129.2	131.3	132.3	133.1	135.4	136.6	138.3	139.7	1.0	5.0	
South	125.4	126.8	127.8	128.8	129.4	130.1	131.1	132.1	133.0	.7	2.8	
Midwest (formerly North Central)	122.9	124.2	124.4	125.3	126.2	127.4	128.5	129.6	129.9	.2	2.9	
West	127.1	128.1	128.9	129.3	130.1	131.2	131.1	133.1	133.5	.3	2.6	
Workers, by area size¹												
Metropolitan areas	126.3	127.4	128.5	129.4	130.2	131.6	132.4	133.7	134.6	.7	3.4	
Other areas	122.0	123.6	124.5	125.0	125.6	126.6	127.8	129.1	129.8	.5	3.3	

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.

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

(June 1981 = 100)

Series	1985		1986				1987				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended	
										Dec. 1987		
Civilian workers ¹	127.0	128.3	129.3	130.7	131.5	132.8	133.5	135.2	136.1	0.7	3.5	
Workers, by occupational group:												
White-collar workers	129.8	131.2	132.4	134.1	135.0	136.6	137.3	139.4	140.2	.6	3.9	
Blue-collar workers	122.3	123.4	124.1	125.0	125.6	126.2	127.1	128.3	129.4	.9	3.0	
Service occupations	128.6	129.8	130.0	131.7	132.8	134.2	134.7	136.0	136.6	.4	2.9	
Workers, by industry division												
Goods-producing	123.1	124.4	125.6	126.3	127.0	127.8	128.5	129.8	131.0	.9	3.1	
Manufacturing	123.8	125.3	126.5	127.2	127.9	128.7	129.5	130.8	132.2	1.1	3.4	
Service-producing	129.4	130.7	131.5	133.4	134.2	135.8	136.5	138.5	139.2	.5	3.7	
Services	134.8	136.4	137.0	139.9	141.1	142.7	143.4	146.8	148.2	1.0	5.0	
Health services	-	-	-	-	-	-	-	-	-	1.1	4.6	
Hospitals	-	-	-	-	-	-	-	-	-	1.2	5.0	
Public administration ²	132.0	133.8	134.6	137.5	138.1	140.5	141.0	142.6	143.8	.8	4.1	
Nonmanufacturing	128.4	129.6	130.4	132.2	133.0	134.5	135.2	137.1	137.8	.5	3.6	
Private industry workers	125.6	126.8	127.9	128.8	129.5	130.8	131.7	133.0	133.8	.6	3.3	
Workers, by occupational group:												
White-collar workers	128.3	129.6	131.1	132.0	132.7	134.6	135.4	137.0	137.6	.4	3.7	
Professional specialty and technical occupations	131.5	132.7	134.0	135.4	136.4	138.4	139.1	141.2	142.6	1.0	4.5	
Executive, administrative, and managerial occupations	128.4	130.5	132.1	132.4	133.5	135.6	136.4	138.6	139.2	.4	4.3	
Sales occupations	122.5	122.4	124.3	125.2	124.9	126.7	127.1	127.0	126.1	-.7	1.0	
Administrative support occupations, including clerical	127.9	129.6	130.8	131.7	132.7	134.3	135.5	137.1	138.1	.7	4.1	
Blue-collar workers	122.0	123.1	123.7	124.5	125.1	125.6	126.6	127.7	128.9	.9	3.0	
Precision production, craft, and repair occupations	123.8	125.3	125.7	126.7	127.4	127.9	128.8	130.2	131.1	.7	2.9	
Machine operators, assemblers, and inspectors	121.6	122.6	123.6	124.1	124.9	125.5	126.7	127.5	129.2	1.3	3.4	
Transportation and material moving occupations	117.8	118.0	118.9	119.8	120.1	120.5	121.5	122.3	122.9	.5	2.3	
Handlers, equipment cleaners, helpers, and laborers	119.8	120.0	120.3	120.9	121.4	121.9	122.6	123.7	125.0	1.1	3.0	
Service occupations	126.6	128.0	128.0	128.9	130.1	131.4	131.9	132.6	133.2	.5	2.4	
Workers, by industry division:												
Goods-producing	122.9	124.2	125.4	126.1	126.8	127.5	128.3	129.6	130.8	.9	3.2	
Construction	117.9	118.3	119.8	120.5	120.8	121.7	122.7	123.8	124.7	.7	3.2	
Manufacturing	123.8	125.3	126.5	127.2	127.9	128.7	129.5	130.8	132.2	1.1	3.4	
Durable	123.4	124.8	125.8	126.4	127.2	127.7	128.7	129.7	131.1	1.1	3.1	
Nondurable	124.6	126.1	127.9	128.5	129.3	130.5	131.0	132.8	134.1	1.0	3.7	
Service-producing	127.8	129.0	129.9	130.9	131.6	133.4	134.3	135.7	136.2	.4	3.5	
Transportation and public utilities	125.2	126.3	126.6	127.3	127.5	128.1	129.3	130.0	130.2	.2	2.1	
Transportation	-	-	-	-	-	-	-	-	-	-2	1.7	
Public utilities	-	-	-	-	-	-	-	-	-	-6	2.6	
Wholesale and retail trade	123.7	124.5	125.8	126.5	126.9	127.9	129.9	130.6	130.7	.1	3.0	
Wholesale trade	128.3	129.7	131.2	131.8	133.1	134.8	137.2	137.8	138.5	.5	4.1	
Retail trade	121.9	122.5	123.7	124.4	124.5	125.2	127.1	127.8	127.7	-.1	2.6	
Finance, insurance, and real estate	126.5	126.6	128.0	129.0	130.0	133.5	131.5	131.8	131.6	-.2	1.2	
Services	134.1	136.2	136.9	138.2	139.5	141.8	142.8	145.9	147.1	.8	5.4	
Health services	-	-	-	-	-	-	-	-	-	1.1	4.6	
Hospitals	-	-	-	-	-	-	-	-	-	1.2	5.1	
Nonmanufacturing	126.6	127.7	128.7	129.7	130.4	131.9	132.8	134.2	134.8	.4	3.4	
State and local government workers	134.2	135.5	136.0	140.4	141.4	142.5	142.8	146.1	147.4	.9	4.2	
Workers, by occupational group												
White-collar workers	135.3	136.6	137.0	141.8	142.8	143.9	144.1	147.7	149.3	1.1	4.6	
Blue-collar workers	128.4	130.4	131.9	134.5	135.1	136.3	136.9	139.0	139.6	.4	3.3	
Workers, by industry division												
Services	135.6	136.8	137.1	142.1	143.3	143.9	144.2	148.2	149.5	.9	4.3	
Hospitals and other services ³	130.9	132.4	133.3	135.8	137.3	138.6	139.4	141.2	142.2	.7	3.6	
Health services	-	-	-	-	-	-	-	-	-	1.0	4.4	
Schools	137.0	138.0	138.2	144.1	145.1	145.5	145.6	150.3	151.8	1.0	4.6	
Elementary and secondary	138.5	139.4	139.4	145.7	146.4	146.5	146.6	152.0	153.4	.9	4.8	
Public administration ²	132.0	133.8	134.6	137.5	138.1	140.5	141.0	142.6	143.8	.8	4.1	

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

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

³ Includes, for example, library, social and health services.

- Data not available.

25. Specified compensation and wage adjustments from contract settlements, and effective wage adjustments, private industry collective bargaining situations covering 1,000 workers or more (in percent)

Measure	Annual average		Quarterly average							
	1985	1986	1986				1987			
			I	II	III	IV	I	II ^P	III ^P	IV ^P
Specified adjustments:										
Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:										
First year of contract	2.6	1.1	0.6	0.7	0.7	2.7	1.7	4.1	2.5	3.4
Annual rate over life of contract	2.7	1.6	1.2	1.6	1.2	2.4	2.4	3.9	2.1	2.4
Wage adjustments, settlements covering 1,000 workers or more:										
First year of contract	2.3	1.2	.8	1.3	.8	2.0	1.2	2.6	2.1	2.4
Annual rate over life of contract	2.7	1.8	1.5	2.0	1.5	2.1	1.8	2.9	2.0	1.8
Effective adjustments:										
Total effective wage adjustment ³	3.3	2.3	.6	.7	.5	.5	.4	1.0	.9	.8
From settlements reached in period .....	.7	.5	(⁴)	.2	.1	.2	(⁴)	.2	.2	.3
Deferred from settlements reached in earlier periods	1.8	1.7	.4	.6	.5	.2	.3	.7	.6	.3
From cost-of-living-adjustments clauses .....	.7	.2	.2	(⁴)	(⁴)	.1	.1	.2	.1	.2

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

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

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

⁴ Between -0.05 and 0.05 percent.

^P = preliminary.

26. Average specified compensation and wage adjustments, major collective bargaining settlements in private industry situations covering 1,000 workers or more during 4-quarter periods (in percent)

Measure	Average for four quarters ending--							
	1986				1987			
	I	II	III	IV	I	II ^P	III ^P	IV ^P
Specified total compensation adjustments, settlements covering 5,000 workers or more, all industries:								
First year of contract	2.3	1.4	0.9	1.1	1.2	1.9	2.8	3.1
Annual rate over life of contract	2.5	2.0	1.4	1.6	1.7	2.1	2.6	2.6
Specified wage adjustments, settlements covering 1,000 workers or more:								
All industries								
First year of contract	2.0	1.6	1.2	1.2	1.2	1.5	2.1	2.2
Contracts with COLA clauses	1.6	1.8	2.2	1.9	2.0	1.8	2.1	2.3
Contracts without COLA clauses	2.2	1.5	.8	.9	.9	1.4	2.1	2.2
Annual rate over life of contract	2.5	2.2	1.7	1.8	1.8	2.0	2.2	2.1
Contracts with COLA clauses	2.5	2.5	2.0	1.7	1.8	1.7	1.7	1.5
Contracts without COLA clauses	2.5	2.1	1.6	1.8	1.8	2.2	2.6	2.6
Manufacturing								
First year of contract .....	.8	.1	-1.0	-1.2	-1.5	-.8	1.1	2.1
Contracts with COLA clauses .....	.8	.7	1.1	1.3	1.3	1.3	2.1	2.4
Contracts without COLA clauses .....	.9	-.4	-2.0	-2.8	-3.5	-2.7	-.1	1.3
Annual rate over life of contract	1.8	1.4	.3	.2	(²)	.3	1.0	1.3
Contracts with COLA clauses	2.1	2.0	1.1	.9	.8	.8	1.0	1.0
Contracts without COLA clauses	1.5	.9	-.1	-.2	-.6	-.2	1.2	2.1
Nonmanufacturing								
First year of contract	2.8	2.6	2.1	2.0	2.2	2.3	2.5	2.4
Contracts with COLA clauses	3.5	3.4	2.7	2.1	2.2	2.1	2.1	1.9
Contracts without COLA clauses	2.7	2.4	1.9	2.0	2.2	2.4	2.7	2.5
Annual rate over life of contract	3.0	2.8	2.3	2.3	2.4	2.6	2.8	2.7
Contracts with COLA clauses	3.6	3.3	2.5	2.1	2.2	2.2	2.4	2.7
Contracts without COLA clauses	2.8	2.6	2.2	2.4	2.6	2.8	3.0	2.8
Construction								
First year of contract	1.6	2.3	2.3	2.2	2.4	2.7	3.0	2.9
Contracts with COLA clauses	(¹)	1.1	1.4	1.4	1.6	3.7	(¹)	(¹)
Contracts without COLA clauses	(¹)	2.4	2.4	2.3	2.4	2.7	(¹)	(¹)
Annual rate over life of contract	2.2	2.5	2.6	2.5	2.5	2.9	3.2	3.1
Contracts with COLA clauses	(¹)	1.2	1.6	1.6	1.4	3.8	(¹)	(¹)
Contracts without COLA clauses	(¹)	2.6	2.6	2.5	2.6	2.9	(¹)	(¹)

¹ Data do not meet publication standards.

² Between -0.05 and 0.05 percent.

^P = preliminary.

27. Average effective wage adjustments, private industry collective bargaining situations covering 1,000 workers or more during 4-quarter periods (in percent)

Effective wage adjustment	Average for four quarters ending--						
	1986			1987			
	II	III	IV	I	II ^P	III ^P	IV ^P
For all workers:¹							
Total	2.9	2.3	2.3	2.0	2.2	2.6	3.1
From settlements reached in period .....	.5	.5	.5	.4	.3	.5	.7
Deferred from settlements reached in earlier period	1.8	1.6	1.7	1.5	1.6	1.7	1.8
From cost-of-living-adjustments clauses .....	.7	.2	.2	.1	.3	.4	.5
For workers receiving changes:							
Total	3.8	3.1	2.8	2.5	2.8	3.2	3.6
From settlements reached in period	2.5	1.7	1.6	1.2	1.0	1.9	2.9
Deferred from settlements reached in earlier period	3.4	3.8	3.9	3.7	3.5	3.3	3.3
From cost-of-living-adjustments clauses	2.0	1.0	1.0	.6	1.8	2.3	2.6

¹ Because of rounding, total may not equal sum of parts.

^P = preliminary.

28. Specified compensation and wage adjustments from contract settlements, and effective wage adjustments, State and local government collective bargaining situations covering 1,000 workers or more (in percent)

Measure	Annual average		
	1985	1986	1987
Specified adjustments:			
Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:			
First year of contract	4.2	6.2	4.9
Annual rate over life of contract	5.1	6.0	4.8
Wage adjustments, settlements covering 1,000 workers or more:			
First year of contract	4.6	5.7	4.9
Annual rate over life of contract	5.4	5.7	5.1
Effective adjustments:			
Total effective wage adjustment ³	5.7	5.5	4.9
From settlements reached in period	4.1	2.4	2.6
Deferred from settlements reached in earlier periods	1.6	3.0	2.2
From cost-of-living-adjustment clauses	(⁴)	(⁴)	(⁴)

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

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

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

⁴ Less than 0.05 percent.

29. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. ^P	Feb. ^P	Mar. ^P
Number of stoppages:															
Beginning in period	69	46	3	2	3	8	6	3	7	1	6	0	3	5	1
In effect during period	72	51	5	5	7	12	14	11	15	12	11	5	6	8	6
Workers involved:															
Beginning in period (in thousands)	533.0	174.4	12.2	2.7	7.0	16.1	14.1	18.4	45.9	1.3	11.8	.0	7.2	17.5	6.7
In effect during period (in thousands)	899.5	377.7	16.2	8.9	13.9	25.8	31.1	36.0	71.9	53.7	22.2	8.9	10.8	21.1	24.2
Days idle:															
Number (in thousands)	1,186.1	4,480.7	104.4	151.3	201.2	278.0	471.0	361.4	1,155.1	353.3	222.9	159.4	36.6	337.0	203.6
Percent of estimated working time ¹ .....	.05	.02	.01	.01	.01	.01	.02	.02	.05	.02	.01	.01	.02	.02	.02

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

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

(1982-84=100, unless otherwise indicated)

Series	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
	CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS:														
All items	109.6	113.6	112.1	112.7	113.1	113.5	113.8	114.4	115.0	115.3	115.4	115.4	115.7	116.0	116.5
All items (1967=100)	328.4	340.4	335.9	337.7	338.7	340.1	340.8	342.7	344.4	345.3	345.8	345.7	346.7	347.4	349.0
Food and beverages	109.1	113.5	112.5	112.8	113.3	113.8	113.7	113.8	114.2	114.3	114.3	114.8	115.7	115.8	116.0
Food	109.0	113.5	112.5	112.8	113.3	113.8	113.7	113.8	114.1	114.3	114.2	114.7	115.7	115.7	115.9
Food at home	107.3	111.9	110.9	111.3	112.0	112.6	112.1	112.1	112.4	112.4	112.1	112.8	114.1	113.9	113.9
Cereals and bakery products	110.9	114.8	113.4	114.3	114.6	114.7	115.2	115.3	115.4	115.6	116.2	116.8	118.1	118.7	118.9
Meats, poultry, fish, and eggs	104.5	110.5	108.9	108.6	109.6	110.4	111.4	111.9	112.7	112.0	111.2	110.3	111.0	110.6	111.2
Dairy products	103.3	105.9	105.4	105.3	105.7	105.5	105.3	105.7	106.4	106.9	106.9	106.7	107.4	107.3	107.2
Fruits and vegetables	109.4	119.1	117.4	120.1	121.8	124.1	119.6	117.4	117.4	117.8	117.4	123.4	126.4	124.7	123.0
Other foods at home	109.4	110.5	110.8	110.6	110.5	110.2	110.0	110.4	110.3	110.6	110.2	110.0	111.3	111.8	112.0
Sugar and sweets	109.0	111.0	110.7	110.7	110.8	111.2	111.1	111.3	111.6	111.6	111.4	111.0	112.2	112.2	112.6
Fats and oils	106.5	108.1	109.0	108.0	108.5	107.8	108.4	108.3	107.8	107.4	108.0	107.7	108.5	109.5	110.3
Nonalcoholic beverages	110.4	107.5	109.8	108.5	108.0	106.8	105.9	105.8	106.7	106.9	105.0	104.8	106.9	107.7	107.7
Other prepared foods	109.2	113.8	112.6	113.3	113.4	113.7	114.1	114.8	114.6	114.7	115.1	115.0	115.9	116.1	116.3
Food away from home	112.5	117.0	115.9	116.1	116.4	116.8	117.2	117.5	118.0	118.3	118.6	118.9	119.3	119.7	120.2
Alcoholic beverages	111.1	114.1	112.9	113.3	113.6	114.0	114.4	114.7	114.9	115.2	115.4	115.4	115.8	116.8	117.4
Housing	110.9	114.2	112.8	113.2	113.6	114.3	114.7	115.4	115.6	115.5	115.5	115.6	116.2	116.6	117.0
Shelter	115.8	121.3	119.6	120.2	120.5	120.8	121.3	122.2	122.5	123.2	123.4	123.7	124.6	125.0	125.6
Renters' costs (12/82=100)	121.9	128.1	126.4	127.1	127.3	127.9	129.3	130.1	129.8	129.4	129.2	129.1	130.8	131.3	132.9
Rent, residential	118.3	121.1	121.8	122.0	122.3	122.3	123.0	123.8	124.4	124.8	124.8	125.6	126.0	126.3	126.4
Other renters' costs	118.6	127.4	125.0	127.1	127.1	129.1	132.8	133.3	130.5	127.7	126.7	124.1	129.4	130.4	136.6
Homeowners' costs (12/82=100)	119.4	124.8	123.0	123.6	124.0	124.2	124.4	125.4	126.0	127.1	127.4	128.0	128.5	129.0	129.2
Owners' equivalent rent (12/82=100)	119.4	124.8	123.0	123.6	124.1	124.2	124.4	125.4	126.0	127.2	127.5	128.0	128.6	129.0	129.2
Household insurance (12/82=100)	119.2	124.0	122.2	122.4	123.0	123.6	124.5	125.1	125.5	125.8	125.9	126.2	126.9	127.1	127.8
Maintenance and repairs	107.9	111.8	110.7	110.3	110.2	111.1	113.2	112.9	112.7	112.8	113.5	113.3	113.7	114.3	113.3
Maintenance and repair services	111.2	114.8	113.4	112.8	112.3	113.7	116.8	116.5	116.3	116.4	116.9	116.6	117.4	117.9	116.4
Maintenance and repair commodities	103.7	107.8	107.1	107.2	107.5	107.8	108.4	108.2	107.8	108.1	108.9	109.1	108.7	109.5	109.2
Fuel and other utilities	104.1	103.0	101.5	101.3	102.2	104.9	105.0	105.9	105.5	103.2	102.4	102.0	102.4	102.8	102.7
Fuels	99.2	97.3	95.2	94.7	96.1	100.8	100.4	101.4	101.0	96.9	95.5	95.1	95.6	96.0	95.8
Fuel oil, coal, and bottled gas	77.6	77.9	77.5	77.5	77.1	77.2	77.1	77.8	77.6	78.5	80.3	80.5	80.8	80.9	80.5
Gas (piped) and electricity	105.7	103.8	101.5	100.8	102.5	108.1	107.6	108.7	108.2	103.3	101.4	100.9	101.5	101.9	101.7
Other utilities and public services	117.9	120.1	119.3	119.7	119.8	119.4	120.5	121.1	120.8	121.2	121.3	120.9	121.3	121.8	121.7
Household furnishings and operations	105.2	107.1	106.8	107.2	107.1	107.1	107.2	107.3	107.5	107.4	107.4	107.3	107.5	107.7	108.3
Housefurnishings	102.2	103.6	103.6	104.0	103.5	103.5	103.6	103.8	103.9	103.6	103.6	103.3	103.5	103.7	104.7
Housekeeping supplies	108.2	111.5	110.9	111.1	111.7	111.9	111.7	111.5	111.8	112.3	112.4	112.5	113.1	113.2	112.9
Housekeeping services	108.5	110.6	109.9	110.3	110.6	110.5	110.8	110.9	111.0	111.2	111.2	111.4	111.5	111.6	111.7
Apparel and upkeep	105.9	110.6	109.7	111.5	111.1	109.3	107.3	109.4	113.3	115.4	115.4	112.7	110.4	110.2	114.3
Apparel commodities	104.2	108.9	108.1	110.0	109.5	107.6	105.3	107.6	111.8	114.0	114.0	111.0	108.6	108.3	112.7
Men's and boys' apparel	106.2	109.1	108.0	109.2	109.9	109.0	107.8	108.3	110.6	112.0	112.5	110.7	109.0	109.1	111.6
Women's and girls' apparel	104.0	110.4	109.6	112.8	111.2	107.6	104.2	108.4	115.3	118.3	117.7	112.6	108.2	107.8	115.3
Infants' and toddlers' apparel	111.8	112.1	114.3	114.1	113.1	110.1	107.7	109.0	112.1	116.2	116.7	114.5	113.6	111.4	114.0
Footwear	101.9	105.1	104.5	105.8	106.5	105.6	103.4	104.2	105.7	107.3	108.0	107.2	106.1	105.8	107.3
Other apparel commodities	101.7	108.0	106.1	105.9	105.8	107.6	108.2	109.3	110.3	110.7	110.7	111.3	112.9	113.1	113.6
Apparel services	115.1	119.6	118.6	118.6	119.3	119.5	120.0	119.8	119.9	120.8	121.1	121.4	121.6	122.0	122.2
Transportation	102.3	105.4	103.3	104.2	104.7	105.4	106.0	106.5	106.6	107.1	107.8	107.6	107.1	106.8	106.5
Private transportation	101.2	104.2	102.0	103.0	103.5	104.3	104.9	105.4	105.4	106.0	106.8	106.5	106.0	105.7	105.4
New vehicles	110.6	114.4	113.1	113.5	113.8	114.1	114.4	114.0	113.8	115.0	116.3	116.4	116.1	116.0	115.7
New cars	110.6	114.6	113.1	113.6	114.0	114.3	114.7	114.4	114.1	115.2	116.6	116.6	116.2	116.2	116.0
Used cars	108.8	113.1	108.7	111.3	113.4	114.7	115.4	115.5	116.0	116.2	116.5	116.3	116.0	116.0	116.1
Motor fuel	77.1	80.2	76.6	78.5	79.1	80.8	82.2	84.3	84.0	83.2	83.2	82.0	79.7	78.3	77.5
Gasoline	77.0	80.1	76.4	78.4	79.0	80.7	82.1	84.3	84.0	83.1	83.1	81.8	79.5	78.1	77.3
Maintenance and repair	110.3	114.8	113.3	114.3	114.3	114.4	114.5	115.1	115.7	116.1	116.5	116.9	117.2	117.7	118.5
Other private transportation	115.1	120.8	119.1	119.4	119.7	120.3	120.8	120.7	121.1	122.8	123.8	123.8	124.7	125.0	124.9
Other private transportation commodities	96.3	96.9	96.7	96.0	96.7	96.7	96.3	96.8	97.6	98.0	97.6	97.5	98.2	98.1	98.3
Other private transportation services	118.8	125.6	123.5	124.0	124.2	125.0	125.7	125.5	125.8	127.8	129.2	129.2	130.1	130.6	130.3
Public transportation	117.0	121.1	121.1	120.9	120.6	120.2	120.2	121.5	122.1	121.2	122.0	122.1	121.8	120.8	121.4
Medical care	122.0	130.1	128.1	128.7	129.2	129.9	130.7	131.2	131.7	132.3	132.8	133.1	134.4	135.5	136.3
Medical care commodities	122.8	131.0	128.5	129.0	129.9	130.8	131.6	132.2	132.7	133.5	134.2	134.9	135.4	136.1	137.0
Medical care services	121.9	130.0	128.0	128.7	129.0	129.6	130.4	131.0	131.5	132.0	132.5	132.7	134.1	135.3	136.1
Professional services	120.8	128.8	126.6	127.5	127.9	128.8	129.5	130.0	130.7	131.2	131.5	131.8	133.2	134.5	135.4
Hospital and related services	123.1	131.6	129.1	129.7	130.1	130.6	132.0	133.0	133.3	134.2	135.4	135.9	137.6	139.0	140.0
Entertainment	111.6	115.3	113.9	114.5	114.8	114.9	115.4	115.6	116.1	116.9	117.3	117.4	118.1	118.3	119.0
Entertainment commodities	107.9	110.5	109.6	109.9	110.3	110.3	110.7	110.6	110.7	111.2	112.2	112.6	112.9	112.9	113.4
Entertainment services	116.8	122.0	120.1	121.0	121.2	121.4	122.0	122.5	123.5	124.5	124.3	124.3	125		

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

(1982-84=100, unless otherwise indicated)

Series	Annual average		1987										1988		
	1986	1987	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
All items	109.6	113.6	112.1	112.7	113.1	113.5	113.8	114.4	115.0	115.3	115.4	115.4	115.7	116.0	116.5
Commodities	104.4	107.7	106.4	107.2	107.5	107.7	107.6	108.2	108.9	109.3	109.5	109.3	109.2	109.1	109.8
Food and beverages	109.1	113.5	112.5	112.8	113.3	113.8	113.7	113.8	114.2	114.3	114.3	114.8	115.7	115.8	116.0
Commodities less food and beverages	101.4	104.0	102.6	103.6	103.7	103.8	103.8	104.6	105.5	106.1	106.5	105.7	105.1	105.0	105.9
Nondurables less food and beverages	97.8	101.1	99.4	100.7	100.9	100.7	100.6	102.0	103.5	104.2	104.3	103.1	102.1	101.9	103.4
Apparel commodities	104.2	108.9	108.1	110.0	109.5	107.6	105.3	107.6	111.8	114.0	114.0	111.0	108.6	108.3	112.7
Nondurables less food, beverages, and apparel	95.9	99.5	97.3	98.3	98.7	99.6	100.5	101.5	101.6	101.5	101.8	101.5	101.2	101.0	101.0
Durables	106.6	108.2	107.0	107.7	107.9	108.2	108.4	108.3	108.3	108.8	109.6	109.5	109.4	109.4	109.5
Services	115.4	120.2	118.5	118.9	119.3	120.1	120.5	121.2	121.7	121.9	122.0	122.2	122.9	123.4	123.8
Rent of shelter (12/82=100)	120.2	125.9	124.1	124.8	125.1	125.4	126.0	126.9	127.2	128.0	128.1	128.5	129.4	129.8	130.4
Household services less rent of shelter (12/82=100)	112.8	113.1	111.5	111.4	112.3	114.8	115.1	115.8	115.5	113.5	112.6	112.3	112.7	113.1	113.0
Transportation services	116.3	121.9	120.4	120.9	120.9	121.3	121.7	122.0	122.5	123.4	124.5	124.6	125.1	125.2	125.4
Medical care services	121.9	130.0	128.0	128.7	129.0	129.6	130.4	131.0	131.5	132.0	132.5	132.7	134.1	135.3	136.1
Other services	119.4	125.7	123.7	124.1	124.4	124.7	125.1	125.6	127.9	128.7	128.8	129.0	129.6	130.2	130.7
Special indexes:															
All items less food	109.8	113.6	112.0	112.7	113.0	113.5	113.8	114.5	115.1	115.5	115.7	115.5	115.7	116.0	116.6
All items less shelter	108.0	111.6	110.2	110.8	111.1	111.7	111.8	112.3	113.0	113.2	113.3	113.2	113.3	113.5	114.0
All items less homeowners' costs (12/82=100)	111.2	115.1	113.6	114.2	114.6	115.1	115.3	115.9	116.5	116.6	116.8	116.6	116.9	117.1	117.7
All items less medical care	108.8	112.6	111.1	111.7	112.1	112.5	112.7	113.3	113.9	114.2	114.4	114.3	114.6	114.8	115.3
Commodities less food	101.7	104.3	102.9	103.9	104.0	104.1	104.9	105.7	106.3	106.7	106.0	105.5	105.4	106.3	
Nondurables less food	98.5	101.8	100.1	101.3	101.4	101.4	101.3	102.6	104.0	104.6	104.8	103.7	102.8	102.7	104.1
Nondurables less food and apparel	96.9	100.3	98.2	99.1	99.5	100.3	101.1	102.0	102.2	102.1	102.4	102.1	101.9	101.9	
Nondurables	103.5	107.5	106.1	106.9	107.2	107.4	107.3	108.1	109.0	109.4	109.5	109.1	109.1	109.0	109.8
Services less rent of shelter (12/82=100)	118.7	123.1	121.3	121.6	122.1	123.2	123.7	124.2	124.9	124.6	124.6	124.6	125.3	125.8	126.0
Services less medical care	114.6	119.1	117.4	117.8	118.2	119.0	119.4	120.1	120.6	120.8	120.8	121.0	121.7	122.1	122.4
Energy	88.2	88.6	85.8	86.4	87.4	90.7	91.1	92.7	92.3	89.8	89.0	88.3	87.4	87.0	86.5
All items less energy	112.6	117.2	115.8	116.4	116.7	116.9	117.1	117.6	118.3	118.9	119.2	119.2	119.7	120.0	120.6
All items less food and energy	113.5	118.2	116.8	117.4	117.6	117.7	118.0	118.6	119.4	120.1	120.5	120.4	120.8	121.1	121.9
Commodities less food and energy	108.6	111.8	110.7	111.5	111.7	111.4	111.2	111.8	112.9	113.7	114.1	113.5	113.2	113.3	114.6
Energy commodities	77.2	80.2	76.9	78.5	79.1	80.6	81.8	83.8	83.5	82.9	83.1	82.0	80.0	78.8	78.0
Services less energy	116.5	122.0	120.3	120.9	121.2	121.4	122.0	122.7	123.2	123.9	124.2	124.4	125.2	125.7	126.1
Purchasing power of the consumer dollar:															
1982-84=\$1.00	91.3	88.0	89.1	88.6	88.4	88.0	87.8	87.3	86.9	86.7	86.5	86.6	86.4	86.2	85.8
1967=\$1.00	30.5	29.4	29.8	29.6	29.5	29.4	29.3	29.2	29.0	29.0	28.9	28.9	28.8	28.8	28.7
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS:															
All items	108.6	112.5	111.0	111.6	111.9	112.4	112.7	113.3	113.8	114.1	114.3	114.2	114.5	114.7	115.1
All items (1967=100)	323.4	335.0	330.5	332.3	333.4	334.9	335.6	337.4	339.1	340.0	340.4	340.2	341.0	341.6	343.0
Food and beverages	108.9	113.3	112.3	112.6	113.1	113.6	113.5	113.6	114.0	114.1	114.1	114.5	115.4	115.5	115.7
Food	108.8	113.3	112.3	112.5	113.1	113.6	113.5	113.6	114.0	114.1	114.0	114.5	115.4	115.4	115.6
Food at home	107.1	111.7	110.7	111.0	111.7	112.3	111.9	111.9	112.2	112.2	111.9	112.5	113.7	113.5	113.5
Cereals and bakery products	110.9	114.8	113.4	114.3	114.5	114.8	115.2	115.3	115.4	115.7	116.2	116.9	118.1	118.8	118.9
Meats, poultry, fish, and eggs	104.4	110.4	108.7	108.5	109.5	110.4	111.3	111.8	112.7	112.0	111.2	110.1	110.8	110.5	111.1
Dairy products	103.2	105.7	105.3	105.1	105.6	105.3	105.1	105.5	106.2	106.7	106.7	106.4	107.1	107.0	106.9
Fruits and vegetables	109.4	118.8	116.9	119.5	121.1	123.9	119.6	117.3	117.1	117.5	117.4	123.0	125.7	124.0	122.2
Other foods at home	109.1	110.4	110.7	110.4	110.4	110.1	109.9	110.3	110.2	110.5	110.1	109.8	111.3	111.7	111.9
Sugar and sweets	109.0	110.9	110.5	110.5	110.7	111.1	111.0	111.3	111.5	111.6	111.2	110.9	112.1	112.1	112.4
Fats and oils	106.4	107.9	108.8	107.9	108.3	107.6	108.2	108.1	107.6	107.3	107.9	107.6	108.4	109.5	110.3
Nonalcoholic beverages	110.0	107.5	109.7	108.4	108.1	106.8	105.9	106.0	106.0	106.9	105.2	104.9	107.2	107.9	108.0
Other prepared foods	109.0	113.6	112.4	113.1	113.2	113.5	113.9	114.6	114.4	114.5	114.9	114.8	115.7	115.8	116.0
Food away from home	112.5	116.9	115.8	116.0	116.2	116.7	117.0	117.4	117.9	118.2	118.5	118.8	119.1	119.6	120.0
Alcoholic beverages	111.1	113.9	112.9	113.2	113.5	113.9	114.2	114.4	114.6	114.9	115.2	115.1	115.6	116.6	117.3
Housing	109.7	112.8	111.4	111.8	112.2	112.9	113.2	114.0	114.1	114.0	113.9	114.1	114.6	115.0	115.4
Shelter	113.5	118.8	117.1	117.7	118.1	118.2	118.8	119.6	120.0	120.7	120.9	121.2	121.9	122.4	122.9
Renters' costs (12/84=100)	109.5	114.6	113.3	113.8	114.0	114.2	115.3	116.0	116.2	116.0	115.9	115.9	116.9	117.3	118.4
Rent, residential	118.2	122.9	121.7	121.9	122.1	122.2	122.8	123.6	124.2	124.5	124.6	125.3	125.7	126.1	126.2
Other renters' costs	119.1	128.2	125.6	128.3	128.6	129.7	133.6	134.2	132.2	129.3	128.1	124.5	129.2	130.0	136.9
Homeowners' costs (12/84=100)	108.8	113.8	112.1	112.7	113.1	113.2	113.4	114.3	114.8	115.9	116.2	116.6	117.1	117.6	117.8
Owners' equivalent rent (12/84=100)	108.8	113.7	112.1	112.7	113.1	113.2	113.4	114.3	114.8	115.9	116.2	116.6	117.1	117.6	117.8
Household insurance (12/84=100)	109.4	114.1	112.4	112.5	113.1	113.8	114.6	115.1	115.5	115.8	115.9	116.1	116.7	116.7	117.2
Maintenance and repairs	107.7	111.3	110.3	110.2	110.2	111.0	112.6	112.4	112.1	112.2	112.7	112.5	113.0	113.6	112.8
Maintenance and repair services	110.5	114.7	113.5	113.2	112.5	113.9	116.9	116.6	116.4	116.0	116.5	115.9	117.1	117.6	116.6
Maintenance and repair commodities	103.1	106.0	105.2	105.2	106.0	106.3	106.3	106.2	105.8	106.3	106.9	107.1	106.9	107.5	107.1
Fuel and other utilities	103.9	102.7	101.2	101.0	101.8	104.6	104.7	105.6	105.2	102.8	102.0	101.7	102.0	102.5	102.3
Fuels	99.2	97.1	95.0	94.4	95.8	100.7	100.2	101.3	100.8	96.5	95.1	94.8	95.2	95.6	95.4
Fuel oil, coal, and bottled gas	77.8	77.6	77.3	77.3	76.8	77.0	76.9	77.5	77.3	78.2	80.1	80.2	80.4	80.6	80.2
Gas (piped) and electricity	105.7	103.6	101.3	100.6	102.2	108.0	107.4	108.6	108.1	103.0	101.1	100.7	101.2	101.6	101.4
Other utilities and public services	117.7	120.1	119.3	119.6	119.7	119.4	120.4	121.0	120.7	121.1	121.2	120.9	121.2	121.8	12

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

(1982-84=100, unless otherwise indicated)

Area ¹	Pricing schedule ²	Other index base	All Urban Consumers						Urban Wage Earners							
			1987				1988		1987				1988			
			Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.	Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.
U.S. city average	M	-	112.1	112.7	115.4	115.4	115.7	116.0	116.5	111.0	111.6	114.3	114.2	114.5	114.7	115.1
Region and area size³																
Northeast urban	M	-	114.2	115.0	118.3	118.3	118.9	119.2	119.6	113.3	114.1	117.4	117.4	117.9	118.1	118.4
Size A - More than 1,200,000	M	-	114.9	115.7	119.3	119.4	120.0	119.9	120.4	113.2	114.1	117.7	117.8	118.1	118.0	118.5
Size B - 500,000 to 1,200,000	M	-	112.4	113.3	116.1	115.6	116.2	117.0	117.5	111.4	112.3	115.0	114.5	115.1	116.0	116.4
Size C - 50,000 to 500,000	M	-	113.7	113.8	116.0	116.2	117.1	117.2	117.2	116.1	116.1	118.6	118.8	119.6	119.8	119.8
North Central urban	M	-	110.3	110.9	113.5	113.3	113.4	113.7	114.3	108.4	109.0	111.7	111.4	111.5	111.8	112.3
Size A - More than 1,200,000	M	-	111.0	111.5	114.4	113.9	114.1	114.7	115.1	108.5	109.1	111.8	111.4	111.6	112.1	112.5
Size B - 360,000 to 1,200,000	M	-	110.0	111.1	113.0	113.0	113.3	113.5	114.2	107.5	108.4	110.7	110.7	110.9	111.1	111.8
Size C - 50,000 to 360,000	M	-	110.1	110.6	113.9	113.6	113.4	113.4	114.6	109.1	109.5	112.8	112.6	112.4	112.3	113.4
Size D - Nonmetropolitan (less than 50,000)	M	-	108.5	108.9	110.5	110.9	110.6	110.5	111.1	108.0	108.5	110.5	110.7	110.4	110.2	110.6
South urban	M	-	111.1	111.5	114.1	114.0	114.1	114.4	114.8	110.5	110.9	113.6	113.5	113.6	113.8	114.2
Size A - More than 1,200,000	M	-	111.8	112.4	115.2	114.9	114.9	115.2	115.5	110.9	111.6	114.4	114.2	114.1	114.4	114.7
Size B - 450,000 to 1,200,000	M	-	111.7	112.1	114.5	114.5	114.8	115.1	115.8	109.9	110.3	112.7	112.7	112.9	113.0	113.6
Size C - 50,000 to 450,000	M	-	110.5	110.7	113.1	112.8	113.3	113.4	114.0	110.8	111.1	113.5	113.3	113.6	113.8	114.3
Size D - Nonmetropolitan (less than 50,000)	M	-	109.5	109.6	112.6	112.6	112.8	112.7	112.7	110.2	110.3	113.4	113.3	113.5	113.4	113.4
West urban	M	-	113.0	113.7	116.0	116.2	116.7	116.9	117.5	111.9	112.6	114.8	115.0	115.5	115.6	116.2
Size A - More than 1,250,000	M	-	114.1	114.8	117.0	117.2	117.9	118.2	118.9	111.8	112.5	114.5	114.8	115.3	115.6	116.2
Size B - 330,000 to 1,250,000	M	-	111.5	112.3	114.8	115.0	115.8	115.6	115.9	111.7	112.5	115.0	115.2	116.0	115.7	116.0
Size C - 50,000 to 330,000	M	-	112.9	113.3	115.9	116.0	116.0	115.9	116.2	112.3	112.7	115.3	115.4	115.3	115.3	115.6
Size classes:																
A	M	12/86	101.6	102.2	104.8	104.7	105.0	105.3	105.7	111.0	111.6	114.3	114.2	114.5	114.7	115.1
B	M	-	111.5	112.2	114.6	114.5	115.0	115.2	115.8	110.1	110.8	113.3	113.2	113.6	113.8	114.3
C	M	-	111.4	111.7	114.3	114.2	114.5	114.6	115.1	111.7	112.0	114.7	114.6	114.8	114.9	115.4
D	M	-	109.7	110.0	112.6	112.7	112.9	113.1	113.5	109.9	110.2	113.0	113.1	113.2	113.4	113.7
Selected local areas																
Chicago, IL-																
Northwestern IN	M	-	112.3	112.8	115.7	115.7	115.3	116.6	116.9	109.0	109.5	112.2	112.2	111.9	112.9	113.2
Los Angeles-Long Beach, Anaheim, CA	M	-	115.5	116.0	118.2	118.5	118.9	119.7	120.6	112.8	113.3	115.4	115.7	115.9	116.6	117.5
New York, NY-																
Northeastern NJ	M	-	115.8	116.6	120.5	120.6	121.3	121.1	121.5	114.4	115.3	119.1	119.1	119.6	119.3	119.7
Philadelphia, PA-NJ	M	-	114.0	115.5	118.6	118.9	119.3	119.6	119.6	113.8	115.3	118.6	119.0	119.3	119.0	119.5
San Francisco-																
Oakland, CA	M	-	113.7	114.8	117.3	117.4	118.4	117.9	119.1	112.8	113.9	116.2	116.4	117.5	117.0	117.9
Baltimore, MD	1	-	112.3	-	115.7	-	116.8	-	117.7	111.8	-	115.3	-	116.2	-	117.3
Boston, MA	1	-	115.9	-	119.9	-	120.1	-	122.1	115.8	-	119.9	-	120.2	-	121.8
Cleveland, OH	1	-	111.4	-	114.5	-	113.9	-	115.1	106.7	-	109.9	-	109.3	-	110.2
Miami, FL	1	-	110.7	-	113.8	-	114.5	-	115.1	109.9	-	113.1	-	113.8	-	114.3
St. Louis, MO-IL	1	-	110.7	-	113.1	-	113.4	-	114.2	110.2	-	112.7	-	113.0	-	113.8
Washington, DC-MD-VA	1	-	114.5	-	118.5	-	118.3	-	119.2	113.6	-	117.9	-	117.6	-	118.5
Dallas-Ft. Worth, TX	2	-	-	112.2	-	113.9	-	114.0	-	-	-	111.7	-	113.8	-	-
Detroit, MI	2	-	-	111.2	-	112.6	-	113.7	-	-	-	108.6	-	109.8	-	110.9
Houston, TX	2	-	-	106.4	-	107.3	-	108.0	-	-	-	106.1	-	107.4	-	108.1
Pittsburgh, PA	2	-	-	110.8	-	113.0	-	113.3	-	-	-	106.4	-	108.6	-	108.9

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

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

M - Every month.

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

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

³ Regions are defined as the four Census regions.

- Data not available.

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

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

(1982-84 = 100)

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

†

33. Producer Price Indexes, by stage of processing

(1982=100)

Grouping	Annual average		1987									1988		
	1986	1987	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Finished goods	103.2	105.4	105.1	105.4	105.5	106.0	105.9	105.7	106.2	106.3	105.7	106.2	105.9	106.2
Finished consumer goods	101.4	103.6	103.2	103.7	103.9	104.4	104.3	104.2	104.4	104.5	103.9	104.3	104.0	104.3
Finished consumer foods	107.3	109.5	109.2	110.6	110.6	110.9	109.5	110.5	109.7	109.8	108.8	110.6	109.4	110.0
Finished consumer goods excluding foods	98.5	100.7	100.3	100.3	100.6	101.2	101.8	101.1	101.9	101.9	101.4	101.3	101.3	101.4
Nondurable goods less food	93.3	94.8	94.3	94.4	94.8	95.7	96.6	96.1	95.8	95.9	95.6	95.3	95.4	95.4
Durable goods	108.9	111.5	111.4	111.2	111.2	111.3	110.9	110.0	113.4	113.0	112.2	112.5	112.5	112.7
Capital equipment	109.7	111.7	111.6	111.6	111.4	111.6	111.7	111.2	112.5	112.5	112.4	112.7	112.9	113.2
Intermediate materials, supplies, and components	99.1	101.5	100.2	100.9	101.5	102.1	102.5	102.7	103.1	103.4	103.7	104.2	104.1	104.6
Materials and components for manufacturing	102.2	105.3	104.0	104.6	105.1	105.5	105.8	106.3	107.2	107.5	108.2	109.3	109.5	110.4
Materials for food manufacturing	98.4	100.8	100.1	102.7	102.3	102.7	101.5	102.8	101.9	100.6	99.8	102.0	101.9	101.7
Materials for nondurable manufacturing	98.1	102.3	100.9	101.3	102.5	102.6	102.9	103.4	104.5	104.9	105.4	107.0	107.6	109.5
Materials for durable manufacturing	101.2	106.2	103.3	104.5	104.9	106.2	107.1	108.1	110.2	111.1	112.9	114.4	113.9	114.5
Components for manufacturing	107.5	108.8	108.4	108.5	108.5	108.7	108.8	109.0	109.3	109.5	109.8	110.3	110.7	111.1
Materials and components for construction	108.1	109.8	108.7	108.9	109.3	109.8	110.2	110.7	111.2	111.9	112.5	113.5	113.7	114.2
Processed fuels and lubricants	72.7	73.3	71.2	72.5	74.5	76.0	77.3	75.9	74.6	74.4	73.3	71.2	70.2	69.7
Containers	110.3	114.5	114.0	114.0	114.2	114.2	114.4	115.4	116.1	116.5	116.1	116.7	116.9	117.5
Supplies	105.6	107.7	106.7	107.3	107.6	107.8	107.8	108.2	108.8	109.5	110.1	110.6	110.5	111.1
Crude materials for further processing ...	87.7	93.7	92.4	94.8	95.1	96.0	96.5	95.7	95.3	94.7	94.3	93.4	94.6	94.1
Foodstuffs and feedstuffs	93.2	96.2	96.9	101.6	99.7	98.4	97.1	96.6	96.1	95.3	95.8	96.9	99.6	99.7
Crude nonfood materials	81.6	87.9	85.5	86.4	88.0	90.3	91.8	90.8	90.5	90.1	89.1	87.1	87.3	86.4
Special groupings														
Finished goods, excluding foods	101.9	104.0	103.7	103.7	103.9	104.3	104.7	104.2	105.1	105.1	104.7	104.7	104.8	105.0
Finished energy goods	63.0	61.8	61.7	61.6	62.5	63.4	64.9	63.4	62.4	62.5	60.9	59.0	58.4	58.1
Finished goods less energy	109.7	112.3	112.0	112.4	112.3	112.7	112.3	112.4	113.1	113.2	112.9	113.8	113.6	114.0
Finished consumer goods less energy	109.7	112.5	112.1	112.6	112.7	113.1	112.6	112.8	113.4	113.4	113.1	114.2	113.9	114.3
Finished goods less food and energy	110.6	113.3	112.9	113.0	112.9	113.3	113.4	113.1	114.5	114.5	114.5	115.0	115.3	115.6
Finished consumer goods less food and energy	111.1	114.2	113.7	113.7	113.7	114.2	114.3	114.1	115.6	115.6	115.6	116.3	116.7	117.0
Consumer nondurable goods less food and energy	113.1	116.3	115.5	115.6	115.7	116.5	116.9	117.3	117.4	117.6	118.3	119.2	119.8	120.2
Intermediate materials less foods and feeds	99.3	101.7	100.4	100.9	101.6	102.2	102.7	102.8	103.2	103.6	103.8	104.2	104.2	104.8
Intermediate foods and feeds	96.2	99.2	96.9	100.4	100.7	100.7	99.6	101.0	100.6	101.4	101.9	103.1	101.7	102.0
Intermediate energy goods	72.6	73.1	71.0	72.2	74.1	75.7	77.0	75.6	74.4	74.1	73.0	70.9	70.0	69.4
Intermediate goods less energy	104.5	107.3	106.1	106.7	107.1	107.4	107.7	108.3	109.1	109.5	110.0	110.9	111.1	111.8
Intermediate materials less foods and energy	104.9	107.8	106.6	107.0	107.5	107.9	108.2	108.7	109.6	110.1	110.7	111.7	111.9	112.8
Crude energy materials	71.8	75.0	74.1	74.5	75.6	77.8	78.9	76.7	75.4	74.7	73.5	70.7	70.5	68.8
Crude materials less energy	95.4	100.8	99.4	103.5	102.8	102.4	102.3	103.0	103.6	103.1	103.5	104.8	107.2	107.9
Crude nonfood materials less energy	103.1	115.6	108.1	110.5	113.5	115.7	118.7	122.9	126.4	127.1	127.0	128.6	130.6	132.8

34. Producer Price indexes, by durability of product

(1982 = 100)

Grouping	Annual average		1987									1988		
	1986	1987	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Total durable goods	107.5	109.9	109.1	109.2	109.3	109.7	110.0	110.2	111.4	111.7	112.0	112.6	112.8	113.2
Total nondurable goods	94.8	97.5	96.5	97.6	98.2	98.8	99.0	98.8	98.5	98.6	98.3	98.5	98.5	98.7
Total manufactures	101.7	104.4	103.5	104.0	104.3	104.8	105.1	105.1	105.8	106.0	105.9	106.5	106.5	107.0
Durable	107.5	109.6	109.0	109.1	109.1	109.4	109.7	109.7	110.9	111.1	111.5	112.0	112.1	112.5
Nondurable	96.0	99.2	98.1	98.9	99.5	100.1	100.5	100.4	100.7	100.9	100.5	101.0	101.0	101.6
Total raw or slightly processed goods	92.3	94.2	93.1	94.8	95.4	96.2	96.2	95.9	94.9	94.7	94.5	94.1	94.2	93.8
Durable	107.8	122.5	112.1	114.6	118.6	121.8	125.7	130.9	137.3	138.0	137.8	139.5	143.4	145.7
Nondurable	91.5	92.9	92.2	93.8	94.2	95.0	94.7	94.3	92.9	92.6	92.4	92.0	91.9	91.4

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

(1982 = 100)

Index	1978	1979	1980	1981	1982	1983	1984	1985	1986
Finished goods:									
Total	69.8	77.6	88.0	96.1	100.0	101.6	103.7	104.7	103.2
Consumer goods	69.4	77.5	88.6	96.6	100.0	101.3	103.3	103.8	101.4
Capital equipment	71.3	77.5	85.8	94.6	100.0	102.8	105.2	107.5	109.7
Intermediate materials, supplies, and components:									
Total	69.5	78.4	90.3	98.6	100.0	100.6	103.1	102.7	99.1
Materials and components for manufacturing	72.0	80.9	91.7	98.7	100.0	101.2	104.1	103.3	102.2
Materials and components for construction	76.5	84.2	91.3	97.9	100.0	102.8	105.6	107.3	108.1
Processed fuels and lubricants	49.9	61.6	85.0	100.6	100.0	95.4	95.7	92.8	72.7
Containers	71.0	79.4	89.1	96.7	100.0	100.4	105.9	109.0	110.3
Supplies	72.9	80.2	89.9	96.9	100.0	101.8	104.1	104.4	105.6
Crude materials for further processing:									
Total	73.4	85.9	95.3	103.0	100.0	101.3	103.5	95.8	87.7
Foodstuffs and feedstuffs	87.3	100.0	104.6	103.9	100.0	101.8	104.7	94.8	93.2
Nonfood materials except fuel	57.5	69.6	84.6	101.8	100.0	100.7	102.2	96.9	81.6
Fuel	48.2	57.3	69.4	84.8	100.0	105.1	105.1	102.7	92.2

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

(June 1977=100, unless otherwise indicated)

Category	1974 SITC	1985			1986				1987			
		June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
ALL COMMODITIES (9/83=100)		97.5	96.5	96.7	97.0	96.7	95.1	96.2	97.2	99.9	100.2	102.8
Food (3/83=100)	0	94.0	90.2	93.6	90.5	89.5	77.2	81.2	79.8	83.4	79.6	88.5
Meat (3/83=100)	01	104.7	106.1	112.2	111.5	114.7	122.0	122.6	123.4	129.0	127.9	117.8
Fish (3/83=100)	03	103.6	102.6	101.8	102.2	106.2	111.2	116.9	118.5	122.9	126.3	135.4
Grain and grain preparations (3/80=100)	04	90.3	82.6	87.1	82.1	79.1	59.0	64.8	62.9	66.5	62.1	72.3
Vegetables and fruit (3/83=100)	05	120.2	126.9	118.9	115.3	125.8	131.4	131.9	130.8	130.8	124.4	125.4
Feedstuffs for animals (3/83=100)	08	68.6	75.7	83.4	88.5	85.5	90.2	87.4	85.7	93.7	92.4	111.5
Misc. food products (3/83=100)	09	109.2	108.1	107.7	106.0	104.7	106.6	108.2	108.6	110.0	109.4	109.3
Beverages and tobacco (6/83=100)	1	100.1	99.7	98.6	95.6	96.5	96.3	101.6	101.7	104.0	104.4	105.7
Beverages (9/83=100)	11	105.3	101.8	100.9	101.9	103.0	102.2	102.9	104.7	104.8	104.4	105.6
Tobacco and tobacco products (6/83=100)	12	99.6	99.5	98.4	95.1	95.9	95.8	101.4	101.4	104.0	104.5	105.7
Crude materials (6/83=100)	2	96.8	93.3	92.5	95.8	95.6	92.3	94.8	97.1	106.3	109.1	114.4
Raw hides and skins (6/80=100)	21	126.2	129.0	139.9	138.9	148.9	138.0	148.3	168.8	191.2	189.1	200.3
Oilseeds and oleaginous fruit (9/77=100)	22	71.2	64.2	63.9	66.9	65.8	64.5	62.9	60.4	68.6	64.3	73.6
Crude rubber (including synthetic and reclaimed) (9/83=100)	23	106.3	107.1	106.0	106.0	106.1	105.3	104.4	106.2	107.5	109.0	112.9
Wood	24	125.7	124.5	128.1	128.7	128.7	129.7	135.5	139.0	146.2	174.0	179.9
Pulp and waste paper (6/83=100)	25	96.1	93.8	92.7	98.8	109.7	119.8	121.2	133.0	138.7	142.6	146.6
Textile fibers	26	105.8	103.6	97.7	101.6	98.6	74.7	92.2	99.7	115.0	119.2	114.4
Crude fertilizers and minerals	27	167.9	169.4	165.5	168.0	166.1	164.3	162.8	155.6	155.1	149.8	149.8
Metalliferous ores and metal scrap	28	82.0	80.1	78.7	83.4	80.5	84.6	80.7	82.2	90.7	99.7	103.8
Mineral fuels	3	99.2	97.6	96.6	91.9	86.7	85.7	84.7	85.6	84.4	85.6	84.7
Animal and vegetable oils, fats, and waxes	4	144.5	114.5	101.4	90.8	84.4	76.5	86.8	88.9	94.5	94.1	98.4
Fixed vegetable oils and fats (6/83=100)	42	164.8	128.8	108.7	95.4	95.3	80.8	87.0	89.1	94.7	94.3	100.4
Chemicals (3/83=100)	5	96.8	97.1	96.6	96.5	95.4	93.1	92.2	96.6	103.1	104.1	108.6
Organic chemicals (12/83=100)	51	96.5	97.1	95.4	93.5	89.3	88.0	89.4	99.5	114.3	111.1	115.8
Fertilizers, manufactured (3/83=100)	56	87.9	89.8	90.0	88.6	84.0	77.4	68.7	75.4	80.4	88.0	93.9
Intermediate manufactured products (9/81=100)	6	99.2	99.2	99.1	100.3	101.2	102.2	102.7	104.4	106.8	108.5	109.6
Leather and furskins (9/79=100)	61	79.2	75.9	78.5	77.8	82.5	84.2	88.0	96.3	101.1	99.7	97.2
Rubber manufactures	62	149.0	148.3	148.7	151.0	150.0	150.4	151.3	152.1	153.9	155.2	155.6
Paper and paperboard products (6/78=100)	64	151.6	149.6	148.2	152.2	158.7	165.3	167.9	174.4	177.7	182.3	184.6
Iron and steel (3/82=100)	67	95.3	95.9	98.2	98.4	99.4	100.2	100.1	101.5	101.5	102.4	104.5
Nonferrous metals (9/81=100)	68	79.6	79.8	78.2	80.2	79.1	79.4	78.8	80.3	90.1	94.6	95.3
Metal manufactures, n.e.s. (3/82=100)	69	105.2	105.4	104.4	105.3	105.5	105.6	105.7	105.7	105.6	106.2	106.7
Machinery and transport equipment, excluding military and commercial aircraft (12/78=100)	7	142.9	143.1	143.3	144.0	144.2	144.6	145.5	146.2	146.7	147.2	148.0
Power generating machinery and equipment (12/78=100)	71	167.4	167.1	167.5	169.1	169.2	169.5	171.4	173.0	171.7	173.4	174.3
Machinery specialized for particular industries (9/78=100)	72	155.7	156.0	156.2	155.5	154.7	155.0	155.7	154.7	155.9	156.5	157.1
Metalworking machinery (6/78=100)	73	155.1	156.3	158.4	159.0	158.9	160.4	161.8	165.0	165.8	167.8	168.3
General industrial machines and parts n.e.s. 9/78=100)	74	152.0	152.4	152.2	152.3	153.3	154.4	155.3	157.7	157.8	157.9	159.3
Office machines and automatic data processing equipment	75	100.0	99.9	99.4	99.9	99.2	98.9	98.1	96.1	96.0	95.5	95.4
Telecommunications, sound recording and reproducing equipment	76	133.3	134.1	134.5	136.5	137.0	137.8	139.7	141.3	140.8	141.2	142.1
Electrical machinery and equipment	77	116.1	115.3	113.8	115.1	114.2	114.4	114.9	117.0	117.4	117.6	119.1
Road vehicles and parts (3/80=100)	78	133.9	133.8	135.0	135.5	136.4	136.5	137.9	138.0	138.5	138.9	139.1
Other transport equipment, excl. military and commercial aviation	79	196.6	199.3	200.7	203.3	206.8	207.4	209.7	211.4	214.7	215.7	218.7
Other manufactured articles	8	100.4	100.3	100.3	102.6	103.4	104.1	104.3	105.3	107.3	107.7	108.4
Apparel (9/83=100)	84	104.7	105.0	105.3	-	-	-	110.0	-	-	-	-
Professional, scientific, and controlling instruments and apparatus	87	178.3	178.7	178.8	182.1	183.8	183.8	184.8	186.4	188.5	190.2	191.9
Photographic apparatus and supplies, optical goods, watches and clocks (12/77=100)	88	129.1	127.5	128.5	131.6	132.9	132.7	132.0	133.4	133.1	129.5	128.2
Miscellaneous manufactured articles, n.e.s.	89	93.1	93.1	92.4	95.6	95.6	97.6	97.7	98.1	102.1	103.0	103.8
Gold, non-monetary (6/83=100)	971	75.4	77.4	77.5	81.8	82.2	97.5	94.5	98.2	108.4	110.0	117.1

- Data not available.

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

(June 1977=100, unless otherwise indicated)

Category	1974 SITC	1985				1986				1987			
		Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.			
ALL COMMODITIES (9/82=100)		94.2	88.5	83.2	83.9	86.0	91.6	95.3	96.8	98.7			
Food (9/77=100)	0	102.8	113.4	104.7	109.1	105.3	100.2	102.0	102.8	105.5			
Meat	01	131.2	122.7	118.5	126.9	134.4	132.1	135.9	142.9	142.0			
Dairy products and eggs (6/81=100)	02	100.5	106.7	107.1	108.4	111.5	116.8	119.6	118.9	122.3			
Fish	03	132.7	139.3	144.8	149.6	157.1	161.6	167.4	174.4	175.2			
Bakery goods, pasta products, grain and grain preparations (9/77=100)	04	141.9	146.9	149.2	154.0	155.3	161.0	165.2	161.2	168.3			
Fruits and vegetables	05	131.3	119.4	119.4	127.1	125.5	120.5	125.4	124.5	131.2			
Sugar, sugar preparations, and honey (3/82=100)	06	111.9	124.6	121.6	123.9	124.3	126.0	128.6	128.0	125.3			
Coffee, tea, cocoa	07	64.6	85.9	69.2	71.8	61.0	50.9	49.3	48.3	51.5			
Beverages and tobacco	1	162.1	163.2	165.5	165.8	168.0	170.8	174.1	174.4	175.9			
Beverages	11	159.1	161.8	163.9	165.5	168.2	171.5	174.6	175.6	177.8			
Crude materials	2	91.2	94.2	95.3	98.1	98.5	103.1	105.6	108.6	112.7			
Crude rubber (inc. synthetic & reclaimed) (3/84=100)	23	73.2	78.8	75.5	76.9	78.5	79.1	84.5	89.4	97.8			
Wood (9/81=100)	24	99.4	104.3	106.3	109.4	107.2	115.0	112.0	119.2	111.2			
Pulp and waste paper (12/81=100)	25	75.8	74.9	79.9	86.0	92.8	100.5	104.6	105.9	111.9			
Crude fertilizers and crude minerals (12/83=100)	27	102.1	101.5	100.0	100.4	100.2	99.5	98.5	97.3	98.7			
Metalliferous ores and metal scrap (3/84=100)	28	90.1	94.5	95.6	98.2	95.4	98.0	100.0	102.9	113.3			
Crude vegetable and animal materials, n.e.s.	29	102.5	103.6	104.4	104.8	104.7	113.4	120.3	113.6	116.5			
Fuels and related products (6/82=100)	3	79.1	55.3	37.5	33.6	38.4	49.7	54.8	56.4	55.2			
Petroleum and petroleum products (6/82=100)	33	80.1	54.7	36.1	32.1	37.9	49.9	55.2	57.3	56.2			
Fats and oils (9/83=100)	4	50.6	41.4	39.3	35.5	51.6	50.8	54.5	61.3	64.5			
Vegetable oils (9/83=100)	42	48.9	39.3	37.4	33.5	50.0	49.2	52.6	59.4	62.5			
Chemicals (9/82=100)	5	94.2	94.6	93.3	93.4	93.2	95.9	98.7	99.5	104.4			
Medicinal and pharmaceutical products (3/84=100)	54	96.7	102.9	104.9	110.0	110.1	116.2	120.3	118.8	123.3			
Manufactured fertilizers (3/84=100)	56	78.5	79.2	79.7	77.4	79.7	81.8	83.6	98.8	124.2			
Chemical materials and products, n.e.s. (9/84=100)	59	97.8	99.9	100.3	101.0	102.8	104.3	105.0	108.2	110.1			
Intermediate manufactured products (12/77=100)	6	133.4	134.0	135.6	138.8	139.4	142.2	147.4	152.8	157.9			
Leather and furskins	61	141.3	141.6	143.0	147.4	143.3	149.5	156.6	159.6	167.5			
Rubber manufactures, n.e.s.	62	138.1	136.5	137.7	138.1	138.1	140.8	140.5	138.0	139.8			
Cork and wood manufactures	63	124.0	130.8	134.3	137.4	142.7	144.3	151.6	156.3	157.6			
Paper and paperboard products	64	156.5	157.1	157.1	157.5	164.8	165.2	165.0	174.6	177.7			
Textiles	65	128.1	131.2	132.9	135.1	135.3	138.8	140.4	142.8	147.6			
Nonmetallic mineral manufactures, n.e.s.	66	162.2	164.2	169.6	178.2	180.2	183.1	190.3	195.1	199.3			
Iron and steel (9/78=100)	67	118.3	117.3	118.1	119.0	118.5	122.3	127.1	132.1	138.9			
Nonferrous metals (12/81=100)	68	80.4	79.4	78.9	83.5	81.6	82.4	90.9	97.5	101.9			
Metal manufactures, n.e.s.	69	121.6	124.4	127.8	129.1	129.1	133.4	134.5	136.0	139.4			
Machinery and transport equipment (6/81=100)	7	107.2	111.5	115.3	118.1	120.2	123.9	126.1	126.4	129.4			
Machinery specialized for particular industries (9/78=100)	72	104.9	112.1	115.4	120.1	121.0	127.5	130.0	130.0	136.9			
Metalworking machinery (3/80=100)	73	98.1	105.0	107.7	110.7	115.7	122.4	126.1	129.8	135.0			
General industrial machinery and parts, n.e.s. (6/81=100)	74	98.0	103.8	109.0	112.8	113.9	120.5	123.3	122.4	128.7			
Office machines and automatic data processing equipment (3/80=100)	75	93.7	96.9	101.3	102.5	102.4	103.2	106.4	106.8	109.1			
Telecommunications, sound recording and reproducing apparatus (3/80=100)	76	88.6	89.4	91.6	93.7	93.9	94.6	95.5	95.9	97.3			
Electrical machinery and equipment (12/81=100)	77	83.1	84.5	87.5	89.5	91.7	93.6	94.8	94.2	96.5			
Road vehicles and parts (6/81=100)	78	117.8	123.4	127.1	129.8	133.2	137.0	139.2	139.6	141.7			
Misc. manufactured articles (3/80=100)	8	100.8	103.3	104.8	109.5	109.6	114.3	118.1	119.8	123.8			
Plumbing, heating, and lighting fixtures (6/80=100)	81	115.0	120.1	123.5	125.5	125.5	130.6	131.1	131.1	137.5			
Furniture and parts (6/80=100)	82	142.7	147.0	142.2	145.8	146.9	148.9	153.3	156.1	161.2			
Clothing (9/77=100)	84	134.5	133.4	135.3	137.8	139.1	145.5	150.9	153.8	154.5			
Footwear	85	142.7	147.0	142.2	145.8	146.9	148.9	153.3	156.1	161.2			
Professional, scientific, and controlling instruments and apparatus (12/79=100)	87	102.4	106.4	112.5	118.3	118.0	125.6	129.5	127.0	132.4			
Photographic apparatus and supplies, optical goods, watches, and clocks (3/80=100)	88	94.5	99.3	103.2	106.9	107.6	111.8	114.4	113.2	118.9			
Misc. manufactured articles, n.e.s. (6/82=100)	89	97.9	102.1	103.4	112.3	111.0	116.9	121.8	124.6	132.2			
Gold, non-monetary (6/82=100)	971	101.0	106.7	107.3	126.9	123.3	128.0	141.5	143.5	152.8			

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

(September 1983 = 100 unless otherwise indicated)

Category	Per-centage of 1980 trade value	1985	1986				1987			
		Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Foods, feeds, and beverages	16.294	77.5	75.5	74.7	66.0	68.4	67.1	71.3	68.0	75.6
Raw materials	30.696	95.9	96.0	94.9	93.3	94.8	98.2	103.1	105.9	108.1
Raw materials, nondurable	21.327	97.9	97.5	96.1	93.7	95.4	99.4	104.7	106.1	108.4
Raw materials, durable	9.368	91.0	92.5	91.9	92.5	93.2	95.1	99.2	105.3	107.3
Capital goods (12/82=100)	30.186	106.6	107.4	107.5	107.7	108.3	108.9	109.4	109.8	110.7
Automotive vehicles, parts and engines (12/82=100)	7.483	109.2	109.5	110.4	110.8	111.8	111.9	112.1	112.5	112.6
Consumer goods	7.467	101.4	103.7	104.5	104.5	105.7	106.9	107.1	107.5	108.1
Durables	3.965	99.5	101.8	101.8	102.1	102.7	103.9	103.6	104.3	105.3
Nondurables	3.501	103.3	105.5	107.2	106.9	108.5	109.8	110.5	110.5	110.9

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

(December 1982=100)

Category	Per-centage of 1980 trade value	1985	1986				1987			
		Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Foods, feeds, and beverages	7.477	106.0	115.8	108.2	112.3	109.2	104.7	106.6	107.5	109.9
Petroleum and petroleum products, excl. natural gas	31.108	80.5	55.4	36.8	32.6	38.3	50.5	55.8	57.9	56.8
Raw materials, excluding petroleum	19.205	93.9	94.5	94.0	95.3	94.9	96.9	100.5	103.5	106.7
Raw materials, nondurable	9.391	91.8	91.1	89.7	89.5	89.7	91.8	94.5	95.4	97.9
Raw materials, durable	9.814	96.2	98.1	98.7	101.4	100.3	102.3	106.8	112.0	116.1
Capital goods	13.164	100.0	102.8	106.7	109.4	110.7	115.3	117.9	118.2	122.3
Automotive vehicles, parts and engines	11.750	111.4	115.6	119.0	121.0	123.9	126.2	128.0	127.9	129.7
Consumer goods	14.250	102.4	104.5	106.5	110.1	110.6	114.3	117.5	119.1	122.1
Durable	5.507	100.7	103.4	106.5	111.2	111.6	114.8	117.5	119.0	122.2
Nondurable	8.743	104.7	106.0	106.6	108.6	109.2	113.7	117.6	119.3	121.9

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

Industry group	1985	1986				1987			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Manufacturing:									
Food and kindred products (6/83=100)	98.1	97.0	95.0	95.2	97.6	99.0	104.1	103.6	113.4
Lumber and wood products, except furniture (6/83=100)	101.2	101.5	101.2	102.1	105.7	109.8	113.0	133.1	137.2
Furniture and fixtures (9/83=100)	108.4	109.2	109.7	110.1	110.4	113.4	114.0	114.1	116.9
Paper and allied products (3/81=100)	92.1	95.7	101.5	106.1	108.7	113.7	116.7	120.3	123.2
Chemicals and allied products (12/84=100)	99.2	98.9	98.3	96.2	95.9	100.1	106.3	107.6	112.6
Petroleum and coal products (12/83=100)	99.1	93.5	83.1	83.1	82.2	83.5	86.8	87.1	85.8
Primary metal products (3/82=100)	87.9	89.8	89.8	90.7	89.9	91.7	97.4	100.1	101.0
Machinery, except electrical (9/78=100)	140.5	140.6	140.3	140.5	140.7	141.0	141.2	141.4	142.0
Electrical machinery (12/80=100)	111.2	112.6	112.3	112.6	113.6	115.2	115.3	115.8	116.8
Transportation equipment (12/78=100)	164.1	165.1	167.1	167.4	169.4	170.0	171.2	172.3	173.9
Scientific instruments; optical goods; clocks (6/77=100)	156.7	159.7	161.2	161.5	162.3	163.3	164.6	164.7	165.4

¹ SIC - based classification.

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

Industry group	1985		1986				1987			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	
Manufacturing:										
Food and kindred products (6/77=100)	115.1	117.7	115.6	118.0	122.4	122.7	125.9	128.5	129.8	
Textile mill products (9/82=100)	101.8	104.7	106.4	107.1	108.0	111.7	113.6	116.2	120.8	
Apparel and related products (6/77=100)	134.4	133.4	135.1	137.8	139.3	146.0	150.9	153.9	154.5	
Lumber and wood products, except furniture (6/77=100)	115.8	122.1	124.8	127.9	127.9	134.5	135.0	141.3	136.3	
Furniture and fixtures (6/80=100)	98.2	101.2	103.5	105.4	105.6	109.6	110.2	111.5	113.1	
Paper and allied products (6/77=100)	137.4	137.6	139.4	142.2	150.3	154.0	155.7	162.9	167.6	
Chemicals and allied products (9/82=100)	95.8	98.6	102.1	103.8	102.4	104.7	105.7	106.1	110.8	
Rubber and miscellaneous plastic products (12/80=100)	97.5	100.9	100.6	101.9	102.1	104.4	105.8	104.9	108.8	
Leather and leather products	144.0	145.8	144.6	147.7	148.7	151.8	156.2	159.8	164.0	
Primary metal products (6/81=100)	82.6	82.0	82.4	84.9	84.0	85.4	91.3	96.0	100.3	
Fabricated metal products (12/84=100)	102.6	104.9	108.5	110.3	111.1	115.5	116.2	118.1	119.9	
Machinery, except electrical (3/80=100)	100.0	105.5	109.0	112.5	114.2	119.1	122.2	122.6	128.1	
Electrical machinery (9/84=100)	95.8	97.0	100.2	102.6	104.0	105.7	106.9	106.6	108.7	
Transportation equipment (6/81=100)	119.6	123.9	128.0	130.4	133.2	136.5	138.4	138.7	141.2	
Scientific instruments; optical goods; clocks (12/79=100)	98.8	103.9	109.1	113.7	113.7	119.1	122.1	120.4	124.6	
Miscellaneous manufactured commodities (9/82=100)	98.7	99.9	101.7	106.9	108.1	110.3	113.8	116.4	118.8	

¹ SIC - based classification.

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

(1977=100)

Item	Quarterly Indexes											
	1985			1986				1987				
	II	III	IV	I	II	III	IV	I	II	III	IV	
Business:												
Output per hour of all persons	107.2	108.2	107.9	109.5	109.7	109.6	109.6	109.7	110.1	111.3	111.1	
Compensation per hour	174.6	177.0	179.3	180.7	182.2	183.6	185.2	185.8	187.3	189.1	190.5	
Real compensation per hour	98.6	99.4	99.7	100.1	101.3	101.4	101.6	100.7	100.3	100.3	100.2	
Unit labor costs	162.8	163.6	166.1	165.0	166.2	167.5	169.0	169.4	170.2	169.8	171.4	
Unit nonlabor payments	160.4	161.8	160.2	163.1	163.9	165.7	162.4	166.0	168.6	172.2	171.2	
Implicit price deflator	162.0	163.0	164.0	164.3	165.4	166.9	166.7	168.2	169.6	170.7	171.3	
Nonfarm business:												
Output per hour of all persons	105.7	106.4	105.9	107.7	107.7	107.5	107.5	107.6	108.0	109.1	109.0	
Compensation per hour	174.1	176.2	178.3	180.0	181.3	182.6	184.4	184.9	186.3	187.9	189.5	
Real compensation per hour	98.3	98.9	99.2	99.7	100.8	100.9	101.2	100.2	99.7	99.6	99.6	
Unit labor costs	164.7	165.7	168.3	167.2	168.4	169.8	171.5	171.8	172.5	172.2	173.8	
Unit nonlabor payments	161.5	163.4	160.8	164.7	165.2	167.0	163.9	167.4	169.2	173.0	171.9	
Implicit price deflator	163.6	164.9	165.7	166.4	167.3	168.8	168.8	170.3	171.4	172.5	173.1	
Nonfinancial corporations:												
Output per hour of all employees	107.7	109.2	108.9	109.8	109.7	109.9	110.5	109.7	109.9	110.8	-	
Compensation per hour	171.8	173.8	175.7	177.2	178.4	179.5	181.0	180.8	182.0	183.3	-	
Real compensation per hour	97.0	97.6	97.7	98.2	99.1	99.2	99.3	98.0	97.4	97.2	-	
Total unit costs	164.3	163.7	166.0	166.3	167.2	168.5	168.7	169.7	170.9	171.0	-	
Unit labor costs	159.5	159.1	161.4	161.5	162.6	163.2	163.8	164.8	165.6	165.5	-	
Unit nonlabor costs	178.7	177.5	179.4	180.7	180.6	184.2	183.2	184.1	186.6	187.3	-	
Unit profits	132.2	142.5	128.7	129.7	129.5	130.6	127.7	132.2	132.9	142.1	-	
Unit nonlabor payments	162.5	165.2	161.6	162.8	162.7	165.4	163.7	165.9	167.8	171.4	-	
Implicit price deflator	160.5	161.2	161.5	161.9	162.7	164.0	163.8	165.2	166.3	167.5	-	
Manufacturing:												
Output per hour of all persons	124.1	125.3	126.1	127.6	128.4	129.3	129.8	130.8	132.9	134.1	134.1	
Compensation per hour	176.1	178.0	180.2	181.0	182.1	183.1	184.3	183.9	184.8	185.4	186.3	
Real compensation per hour	99.5	99.9	100.2	100.3	101.2	101.2	101.2	99.6	98.9	98.3	97.9	
Unit labor costs	142.0	142.1	142.9	141.9	141.8	141.7	142.0	140.5	139.0	138.2	138.9	

- Data not available.

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

(1977 = 100)

Item	1960	1970	1973	1976	1978	1980	1981	1982	1983	1984	1985	1986
Private business												
Productivity:												
Output per hour of all persons	67.3	88.4	95.9	98.4	100.8	99.2	100.6	100.3	103.1	105.7	107.6	109.7
Output per unit of capital services	102.1	101.9	105.3	97.2	102.0	94.2	92.4	86.7	88.4	92.8	92.8	92.8
Multifactor productivity	78.1	92.9	99.1	98.0	101.2	97.4	97.7	95.3	97.7	101.0	102.2	103.4
Output	55.3	80.2	93.0	94.5	105.8	106.6	108.9	105.4	109.9	119.2	124.0	128.1
Inputs:												
Hours of all persons	82.2	90.8	96.9	96.1	105.0	107.5	108.2	105.2	106.7	112.8	115.2	116.8
Capital services	54.2	78.7	88.3	97.2	103.8	113.1	117.8	121.7	124.4	128.5	133.6	138.0
Combined units of labor and capital input	70.8	86.3	93.8	96.5	104.5	109.4	111.5	110.7	112.6	118.1	121.3	123.8
Capital per hour of all persons	65.9	86.7	91.1	101.2	98.8	105.3	108.8	115.7	116.6	113.9	116.0	118.2
Private nonfarm business												
Productivity:												
Output per hour of all persons	70.7	89.2	96.4	98.5	100.8	98.7	99.6	99.1	102.5	104.7	105.9	107.6
Output per unit of capital services	103.6	102.8	106.0	97.3	101.9	93.4	91.1	85.1	87.3	91.3	90.8	90.5
Multifactor productivity	80.9	93.7	99.6	98.1	101.2	96.9	96.7	94.1	97.0	99.9	100.5	101.4
Output	54.4	79.9	92.9	94.4	106.0	106.6	108.4	104.8	110.1	119.3	123.7	127.6
Inputs:												
Hours of all persons	77.0	89.6	96.3	95.8	105.1	108.0	108.8	105.7	107.4	114.0	116.8	118.5
Capital services	52.5	77.8	87.6	97.0	104.0	114.1	119.0	123.2	126.1	130.6	136.3	141.0
Combined units of labor and capital input	67.3	85.3	93.3	96.2	104.7	110.0	112.2	111.4	113.5	119.4	123.1	125.8
Capital per hour of all persons	68.2	86.8	91.0	101.3	98.9	105.6	109.4	116.5	117.4	114.6	116.7	119.0
Manufacturing												
Productivity:												
Output per hour of all persons	62.2	80.8	93.4	97.1	101.5	101.4	103.6	105.9	112.0	118.1	124.2	128.8
Output per unit of capital services	102.5	98.6	111.4	96.2	102.1	91.2	89.2	81.8	86.9	95.7	97.8	99.3
Multifactor productivity	71.9	85.2	97.9	96.8	101.7	98.7	99.8	99.2	105.1	112.2	117.0	120.6
Output	52.5	78.6	96.3	93.1	106.0	103.2	104.8	98.4	104.7	117.5	122.5	125.9
Inputs:												
Hours of all persons	84.4	97.3	103.1	95.9	104.4	101.7	101.1	92.9	93.5	99.5	98.7	97.8
Capital services	51.2	79.7	86.4	96.7	103.7	113.1	117.5	120.3	120.6	122.8	125.3	126.8
Combined units of labor and capital inputs	73.0	92.2	98.4	96.1	104.2	104.5	105.0	99.2	99.7	104.7	104.8	104.4
Capital per hour of all persons	60.7	82.0	83.8	100.9	99.4	111.2	116.2	129.4	129.0	123.5	127.0	129.7

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

(1977 = 100)

Item	1960	1970	1973	1976	1978	1980	1981	1982	1983	1984	1985	1986	1987
Business:													
Output per hour of all persons	67.6	88.4	95.9	98.3	100.8	99.3	100.7	100.3	103.0	105.6	107.5	109.5	110.5
Compensation per hour	33.6	57.8	70.9	92.8	108.5	131.5	143.7	154.9	161.5	168.0	175.9	182.8	188.2
Real compensation per hour	68.9	90.2	96.7	98.7	100.8	96.7	95.7	97.3	98.2	98.0	99.1	101.0	100.3
Unit labor costs	49.7	65.4	73.9	94.3	107.6	132.5	142.7	154.5	156.7	159.1	163.6	166.9	170.2
Unit nonlabor payments	46.4	59.4	72.5	93.3	106.7	118.7	134.6	136.6	146.4	156.5	160.3	163.8	169.5
Implicit price deflator	48.5	63.2	73.4	94.0	107.3	127.6	139.8	148.1	153.0	158.2	162.4	165.8	170.0
Nonfarm business:													
Output per hour of all persons	71.0	89.3	96.4	98.5	100.8	98.8	99.8	99.2	102.5	104.6	105.8	107.5	108.4
Compensation per hour	35.3	58.2	71.2	92.8	108.6	131.3	143.6	154.8	161.5	167.8	175.2	182.0	187.1
Real compensation per hour	72.3	90.8	97.1	98.8	100.9	96.6	95.7	97.2	98.2	97.9	98.7	100.6	99.8
Unit labor costs	49.7	65.2	73.9	94.3	107.7	132.9	144.0	156.0	157.6	160.4	165.6	169.3	172.6
Unit nonlabor payments	46.3	60.0	69.3	93.0	105.6	118.5	133.5	136.5	148.3	156.4	161.3	165.2	170.4
Implicit price deflator	48.5	63.4	72.3	93.8	107.0	127.8	140.3	149.2	154.3	159.0	164.1	167.8	171.8
Nonfinancial corporations:													
Output per hour of all employees	73.4	91.1	97.5	98.4	100.6	99.1	99.6	100.4	103.5	106.0	108.2	109.9	-
Compensation per hour	36.9	59.2	71.6	92.9	108.4	131.1	143.3	154.3	159.9	165.8	172.8	178.9	-
Real compensation per hour	75.5	92.4	97.6	98.9	100.7	96.4	95.5	96.9	97.3	96.7	97.4	98.9	-
Total unit costs	49.4	64.8	72.7	94.8	107.3	133.4	147.7	159.5	159.5	160.8	164.4	167.7	-
Unit labor costs	50.2	65.0	73.4	94.3	107.8	132.3	143.8	153.8	154.5	156.5	159.7	162.8	-
Unit nonlabor costs	47.0	64.2	70.7	96.2	105.7	136.7	159.1	176.4	174.3	173.6	178.3	182.2	-
Unit profits	59.8	52.3	65.6	89.4	102.0	85.2	98.1	78.5	110.9	136.5	133.9	129.3	-
Unit nonlabor payments	51.5	60.1	68.9	93.8	104.4	118.6	137.8	142.1	152.1	160.6	162.7	163.7	-
Implicit price deflator	50.7	63.3	71.9	94.2	106.6	127.6	141.7	149.8	153.7	157.9	160.7	163.1	-
Manufacturing:													
Output per hour of all persons	62.2	80.8	93.4	97.1	101.5	101.4	103.6	105.9	112.0	118.1	124.2	128.8	133.0
Compensation per hour	36.5	57.4	68.8	92.1	108.2	132.4	145.2	157.5	162.4	168.0	176.9	182.7	185.1
Real compensation per hour	74.8	89.5	93.8	98.1	100.5	97.4	96.7	98.9	98.8	98.0	99.6	100.9	98.7
Unit labor costs	58.7	71.0	73.7	94.9	106.6	130.6	140.1	148.7	145.0	142.2	142.4	141.8	139.1
Unit nonlabor payments	60.0	64.1	70.7	93.5	101.9	97.8	111.8	114.0	128.5	138.6	134.7	137.9	-
Implicit price deflator	59.1	69.0	72.8	94.5	105.2	121.0	131.8	138.6	140.2	141.2	140.2	140.7	-

- Data not available.

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

Country	Annual average		1986			1987			
	1986	1987	II	III	IV	I	II	III	IV
Total labor force basis									
United States	6.9	6.1	7.1	6.9	6.8	6.5	6.2	5.9	5.8
Canada	9.5	-	9.5	9.6	9.4	9.6	9.0	8.8	8.0
Australia	8.0	-	7.7	8.2	8.3	8.3	8.1	8.0	7.9
Japan	2.8	-	2.8	2.9	2.9	3.0	3.1	2.8	2.7
France	10.4	-	10.4	10.6	10.6	10.9	11.0	10.8	10.6
Germany	7.1	-	7.2	7.0	6.9	7.0	7.0	7.1	7.1
Italy ^{1, 2}	6.2	-	6.2	5.9	6.5	6.6	6.6	6.6	6.9
Sweden	2.6	-	2.6	2.6	2.6	2.0	1.9	1.9	1.7
United Kingdom	11.2	-	11.2	11.2	11.1	10.9	10.5	10.0	9.4
Civilian labor force basis									
United States	7.0	6.2	7.2	7.0	6.8	6.6	6.3	6.0	5.9
Canada	9.6	-	9.6	9.7	9.4	9.6	9.1	8.8	8.1
Australia	8.1	-	7.8	8.3	8.4	8.3	8.2	8.0	8.0
Japan	2.8	-	2.8	2.9	2.9	3.0	3.1	2.8	2.8
France	10.7	-	10.7	10.8	10.8	11.2	11.2	11.1	10.8
Germany	7.2	-	7.3	7.2	7.0	7.1	7.2	7.2	7.3
Italy ^{1, 2}	6.3	-	6.3	6.0	6.6	6.7	6.7	6.8	7.0
Sweden	2.7	-	2.6	2.6	2.6	2.0	1.9	1.9	1.7
United Kingdom	11.2	-	11.2	11.3	11.2	11.0	10.6	10.0	9.5

¹ Quarterly rates are for the first month of the quarter.

² Major changes in the Italian labor force survey, introduced in 1977, resulted in a large increase in persons enumerated as unemployed. However, many persons reported that they had not actively sought work in the past 30 days, and they have been provisionally excluded for comparability with U.S. concepts. Inclusion of such persons would about

double the Italian unemployment rate shown.

- Data not available.

NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjustment factors to current published data and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures.

46. Annual data: Employment status of the civilian working-age population, approximating U.S. concepts, 10 countries

(Numbers in thousands)

Employment status and country	1978	1979	1980	1981	1982	1983	1984	1985	1986
Labor force									
United States	102,251	104,962	106,940	108,670	110,204	111,550	113,544	115,461	117,834
Canada	10,895	11,231	11,573	11,904	11,958	12,183	12,399	12,639	12,870
Australia	6,443	6,519	6,693	6,810	6,910	6,997	7,133	7,272	7,562
Japan	54,610	55,210	55,740	56,320	56,980	58,110	58,480	58,820	59,410
France	22,460	22,670	22,800	22,930	23,160	23,130	23,290	23,340	23,480
Germany	26,000	26,250	26,520	26,650	26,700	26,650	26,760	26,980	27,180
Italy	20,570	20,850	21,120	21,320	21,410	21,590	21,670	21,800	21,990
Netherlands	5,010	5,100	5,310	5,520	5,570	5,600	5,620	5,710	5,790
Sweden	4,203	4,262	4,312	4,327	4,350	4,369	4,385	4,418	4,437
United Kingdom	26,260	26,350	26,520	26,590	26,740	26,790	27,180	27,370	27,540
Participation rate¹									
United States	63.2	63.7	63.8	63.9	64.0	64.0	64.4	64.8	65.3
Canada	62.7	63.4	64.1	64.8	64.1	64.4	64.8	65.2	65.7
Australia	61.9	61.6	62.1	61.9	61.7	61.4	61.5	61.8	63.0
Japan	62.8	62.7	62.6	62.6	62.7	63.1	62.7	62.3	62.1
France	57.5	57.5	57.2	57.1	57.1	56.6	56.6	56.2	56.2
Germany	53.3	53.3	53.2	52.9	52.6	52.3	52.4	52.6	53.0
Italy	47.8	48.0	48.2	48.3	47.7	47.5	47.3	47.2	47.5
Netherlands	48.8	49.0	50.2	51.4	51.2	50.9	50.5	50.7	50.8
Sweden	66.1	66.6	66.9	66.8	66.8	66.7	66.6	66.9	67.2
United Kingdom	62.8	62.6	62.5	62.2	62.3	62.1	62.6	62.7	62.7
Employed									
United States	96,048	98,824	99,303	100,397	99,526	100,834	105,005	107,150	109,597
Canada	9,987	10,395	10,708	11,006	10,644	10,734	11,000	11,311	11,634
Australia	6,038	6,111	6,284	6,416	6,415	6,300	6,490	6,670	6,952
Japan	53,370	54,040	54,600	55,060	55,620	56,550	56,870	57,260	57,740
France	21,250	21,300	21,330	21,200	21,240	21,170	20,980	20,900	20,970
Germany	25,130	25,470	25,750	25,560	25,140	24,750	24,790	24,950	25,210
Italy	19,720	19,930	20,200	20,280	20,250	20,320	20,390	20,490	20,610
Netherlands	4,750	4,830	4,980	5,010	4,980	4,890	4,930	5,110	5,200
Sweden	4,109	4,174	4,226	4,219	4,213	4,218	4,249	4,293	4,319
United Kingdom	24,610	24,940	24,670	23,800	23,710	23,600	24,000	24,310	24,450
Employment-population ratio²									
United States	59.3	59.9	59.2	59.0	57.8	57.9	59.5	60.1	60.7
Canada	57.5	58.7	59.3	59.9	57.0	56.7	57.4	58.4	59.4
Australia	58.0	57.8	58.3	58.4	57.3	55.3	56.0	56.6	57.9
Japan	61.3	61.4	61.3	61.2	61.2	61.4	61.0	60.6	60.4
France	54.4	54.0	53.5	52.8	52.3	51.8	51.0	50.4	50.2
Germany	51.5	51.7	51.7	50.8	49.6	48.6	48.5	48.7	49.1
Italy	45.9	45.9	46.1	45.9	45.2	44.7	44.5	44.4	44.6
Netherlands	46.3	46.4	47.0	46.6	45.8	44.5	44.3	45.4	45.9
Sweden	64.6	65.3	65.6	65.1	64.7	64.4	64.5	65.0	65.4
United Kingdom	58.8	59.2	58.1	55.7	55.3	54.7	55.3	55.7	55.7
Unemployed									
United States	6,202	6,137	7,637	8,273	10,678	10,717	8,539	8,312	8,237
Canada	908	836	865	898	1,314	1,448	1,399	1,328	1,236
Australia	405	408	409	394	495	697	642	602	610
Japan	1,240	1,170	1,140	1,260	1,360	1,560	1,610	1,560	1,670
France	1,210	1,370	1,470	1,730	1,920	1,960	2,310	2,440	2,510
Germany	870	780	770	1,090	1,560	1,900	1,970	2,030	1,970
Italy	850	920	920	1,040	1,160	1,270	1,280	1,310	1,380
Netherlands	260	270	330	510	590	710	690	600	560
Sweden	94	88	86	108	137	151	136	125	118
United Kingdom	1,650	1,420	1,850	2,790	3,030	3,190	3,180	3,060	3,090
Unemployment rate									
United States	6.1	5.8	7.1	7.6	9.7	9.6	7.5	7.2	7.0
Canada	8.3	7.4	7.5	7.5	11.0	11.9	11.3	10.5	9.6
Australia	6.3	6.3	6.1	5.8	7.2	10.0	9.0	8.3	8.1
Japan	2.3	2.1	2.0	2.2	2.4	2.7	2.8	2.6	2.8
France	5.4	6.0	6.4	7.5	8.3	8.5	9.9	10.4	10.7
Germany	3.3	3.0	2.9	4.1	5.8	7.1	7.4	7.5	7.2
Italy	4.1	4.4	4.4	4.9	5.4	5.9	5.9	6.0	6.3
Netherlands	5.2	5.3	6.2	9.2	10.6	12.7	12.3	10.5	9.7
Sweden	2.2	2.1	2.0	2.5	3.1	3.5	3.1	2.8	2.7
United Kingdom	6.3	5.4	7.0	10.5	11.3	11.9	11.7	11.2	11.2

¹ Labor force as a percent of the civilian working-age population.

² Employment as a percent of the civilian working-age population.

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

(1977 = 100)

Item and country	1960	1970	1973	1975	1976	1977	1979	1980	1981	1982	1983	1984	1985	1986
Output per hour														
United States	62.2	80.8	93.4	92.9	97.1	100.0	101.4	101.4	103.6	105.9	112.0	118.1	124.2	128.8
Canada	50.7	75.6	90.3	88.6	94.8	100.0	102.0	98.2	102.9	98.3	105.4	116.8	119.7	119.4
Japan	23.2	64.8	83.1	87.7	94.3	100.0	114.8	122.7	127.2	135.0	142.3	152.5	163.7	168.2
Belgium	33.0	60.4	78.8	86.5	95.3	100.0	111.9	119.2	127.6	135.2	148.2	154.4	159.0	163.1
Denmark	37.2	65.6	83.3	94.6	98.2	100.0	106.5	112.3	114.2	114.6	120.2	118.6	118.3	119.9
France	36.4	69.6	82.3	88.5	95.1	100.0	109.7	110.6	114.0	122.0	125.2	129.0	133.0	135.6
Germany	40.3	71.2	84.0	90.1	96.5	100.0	108.2	108.6	111.0	112.6	119.2	123.6	128.7	130.6
Italy	35.4	72.7	90.9	91.1	98.9	100.0	110.5	116.9	124.8	129.6	135.7	144.4	146.6	148.3
Netherlands	32.4	64.3	81.5	86.2	95.8	100.0	112.3	113.9	116.9	119.4	127.5	140.5	145.1	144.7
Norway	54.6	81.7	94.6	96.8	99.7	100.0	107.1	106.7	107.0	109.8	117.2	123.9	125.2	124.4
Sweden	42.3	80.7	94.8	100.2	101.7	100.0	110.9	112.7	113.2	116.5	125.5	131.0	136.1	136.4
United Kingdom	55.9	80.4	95.5	94.9	99.1	100.0	102.5	101.8	107.0	113.5	123.2	129.8	134.7	139.5
Output														
United States	52.5	78.6	96.3	84.9	93.1	100.0	108.1	103.2	104.8	98.4	104.7	117.5	122.5	125.9
Canada	41.3	73.5	93.5	89.9	96.5	100.0	108.5	103.6	107.4	93.6	99.6	114.9	121.2	123.9
Japan	19.2	69.9	91.9	86.2	94.8	100.0	113.9	124.1	129.8	137.3	148.2	165.4	179.3	182.1
Belgium	41.9	78.6	96.4	92.7	99.7	100.0	104.1	106.8	105.7	110.1	114.8	117.5	119.9	122.0
Denmark	49.2	82.0	95.9	95.0	99.6	100.0	105.4	110.1	106.6	108.3	115.6	119.7	123.4	126.7
France	35.4	73.3	88.6	90.0	96.1	100.0	105.3	104.6	102.9	104.0	103.8	104.0	103.3	103.0
Germany	50.0	86.6	96.1	91.0	98.0	100.0	106.6	106.6	104.9	102.4	103.6	106.4	110.1	112.8
Italy	36.4	78.0	90.5	86.9	97.9	100.0	108.6	115.4	115.1	113.4	111.5	116.2	118.0	121.9
Netherlands	44.8	84.4	95.8	92.7	99.0	100.0	106.1	106.6	106.7	105.0	107.0	113.3	116.0	117.3
Norway	55.1	86.9	99.5	101.0	101.4	100.0	100.3	98.8	97.7	97.4	97.2	102.6	105.2	107.0
Sweden	52.6	92.5	100.3	106.1	106.1	100.0	103.6	104.0	100.6	100.1	105.2	111.5	115.3	115.2
United Kingdom	71.2	95.0	104.8	96.3	98.2	100.0	100.5	91.7	86.2	86.4	88.9	92.5	95.2	96.2
Total hours														
United States	84.4	97.3	103.1	91.4	95.9	100.0	106.5	101.7	101.1	92.9	93.5	99.5	98.7	97.8
Canada	81.4	97.2	103.6	101.5	101.8	100.0	106.3	105.5	104.3	95.2	94.5	98.3	101.2	103.8
Japan	82.7	107.9	110.7	98.2	100.6	100.0	99.3	101.2	102.0	101.7	104.2	108.5	109.6	108.3
Belgium	127.1	130.2	122.3	107.1	104.6	100.0	93.0	89.6	82.8	81.4	77.5	76.1	75.4	74.8
Denmark	132.4	125.1	115.2	100.4	101.4	100.0	99.0	98.0	93.4	94.5	96.2	100.9	104.3	105.7
France	97.2	105.3	107.7	101.7	101.2	100.0	95.9	94.6	90.3	85.2	82.9	80.6	77.7	75.9
Germany	123.8	121.7	114.4	101.0	101.6	100.0	98.5	98.1	94.6	91.0	86.9	86.1	85.6	86.4
Italy	102.8	107.4	99.6	95.4	99.0	100.0	98.2	98.7	92.2	87.5	82.2	80.5	80.5	82.2
Netherlands	138.4	131.2	117.6	107.6	103.3	100.0	94.4	93.6	91.2	88.0	83.9	80.6	79.9	81.1
Norway	101.0	106.4	105.1	104.3	101.7	100.0	93.6	92.6	91.3	88.6	82.9	82.8	84.0	86.0
Sweden	124.4	114.6	105.7	105.9	104.3	100.0	93.4	92.3	88.9	85.9	83.9	85.1	84.7	84.5
United Kingdom	127.3	118.1	109.8	101.5	99.0	100.0	98.0	90.1	80.6	76.2	72.2	71.2	70.7	69.0
Compensation per hour														
United States	36.5	57.4	68.8	85.1	92.1	100.0	118.6	132.4	145.2	157.5	162.4	168.0	176.9	182.7
Canada	27.5	47.9	60.0	78.9	90.3	100.0	118.6	131.3	151.1	167.0	177.2	185.5	194.7	202.3
Japan	8.9	33.9	55.1	84.2	90.7	100.0	113.4	120.7	129.8	136.6	140.7	144.9	152.0	157.3
Belgium	13.8	34.9	53.5	79.0	89.5	100.0	117.5	130.4	144.5	150.7	159.7	173.0	184.9	191.8
Denmark	12.6	36.3	56.1	81.0	90.4	100.0	123.1	135.9	149.7	162.9	174.2	184.0	196.1	207.7
France	15.1	36.5	52.1	76.5	88.7	100.0	128.4	148.5	172.0	203.9	225.2	247.3	267.3	279.2
Germany	18.8	48.0	67.5	84.5	91.3	100.0	116.1	125.6	134.5	141.0	148.3	155.5	164.9	172.5
Italy	8.4	26.1	43.7	70.2	84.2	100.0	134.7	160.2	198.4	238.3	282.8	314.5	347.3	362.1
Netherlands	12.5	39.0	60.5	82.2	91.9	100.0	117.0	123.6	129.1	137.5	144.0	150.0	157.7	161.5
Norway	15.8	37.9	54.5	77.2	88.8	100.0	116.0	128.0	142.8	156.0	173.5	188.3	204.8	224.6
Sweden	14.7	38.5	54.2	77.3	91.5	100.0	120.1	133.6	148.1	158.9	173.3	189.7	212.4	228.1
United Kingdom	15.1	31.3	47.5	76.0	88.3	100.0	137.4	167.4	193.9	209.3	224.4	238.8	254.6	273.5
Unit labor costs: National currency basis														
United States	58.7	71.0	73.7	91.7	94.9	100.0	117.0	130.6	140.1	148.7	145.0	142.2	142.4	141.8
Canada	54.2	63.4	66.5	89.1	95.3	100.0	116.2	133.7	146.7	170.0	168.1	158.8	162.6	169.4
Japan	38.4	52.3	66.4	96.0	96.2	100.0	98.8	98.4	102.0	101.2	98.9	95.0	92.9	93.5
Belgium	41.7	57.8	67.9	91.2	93.9	100.0	105.0	109.4	113.2	111.4	107.8	112.1	116.3	117.6
Denmark	33.8	55.4	67.4	85.6	92.1	100.0	115.7	121.0	131.1	142.2	144.9	155.4	165.7	173.2
France	41.5	52.5	63.4	86.5	93.3	100.0	117.0	134.3	151.0	167.2	179.9	191.6	200.9	205.9
Germany	46.6	67.4	80.3	93.8	94.6	100.0	107.3	115.7	121.2	125.2	124.4	125.8	128.1	132.1
Italy	23.7	36.0	48.1	77.1	85.1	100.0	121.9	137.0	158.9	184.0	208.4	217.8	236.9	244.1
Netherlands	38.5	60.7	74.3	95.4	96.0	100.0	104.1	108.5	110.4	115.2	113.0	106.8	108.7	111.6
Norway	29.0	46.4	57.6	79.7	89.1	100.0	108.2	120.0	133.4	142.1	148.0	152.0	163.5	180.5
Sweden	34.8	47.7	57.2	77.1	90.0	100.0	108.3	118.6	130.9	136.3	138.1	144.8	156.1	167.3
United Kingdom	27.1	38.9	49.8	80.2	89.1	100.0	134.1	164.5	181.2	184.4	182.2	183.9	189.0	196.1
Unit labor costs: U.S. dollar basis														
United States	58.7	71.0	73.7	91.7	94.9	100.0	117.0	130.6	140.1	148.7	145.0	142.2	142.4	141.8
Canada	59.4	64.5	70.6	93.1	102.7	100.0	105.4	121.5	130.0	146.3	144.9	130.3	126.5	129.5
Japan	28.5	39.1	65.6	86.7	86.9	100.0	121.3	116.8	123.8	108.8	111.5	107.2	104.3	148.7
Belgium	30.0	41.7	62.7	89.1	87.2	100.0	128.3	134.3	109.6	87.2	75.5	69.5	70.2	94.3
Denmark	29.5	44.4	67.2	89.6	91.5	100.0	132.0	129.0	110.3	102.3	95.1	90.1	93.9	128.4
France	41.6	46.7	70.2	99.3	96.1	100.0	135.2	156.4	136.4	124.9	116.1	107.8	110.0	146.2
Germany	25.9	42.9	70.4	88.7	87.3	100.0	135.9	147.9	124.9	119.7	113.1	102.6	101.1	141.3
Italy	33.7	50.6	73.1	104.3	90.5	100.0	129.5	141.4	123.2	119.9	121.1	109.5	109.6	144.5
Netherlands	25.1	41.2	65.6	92.8	89.1	100.0	127.4	134.1	108.9	105.8	97.1	81.6	80.4	111.9
Norway	21.7	34.5	53.4	81.4	86.9	100.0	113.8	129.3	123.6	117.1	107.9	99.1	101.3	129.8
Sweden	30.1	41.1	58.7	83.2	92.3	100.0	112.9	125.3	115.4	96.9	80.4	78.2	81.1	104.9
United Kingdom	43.6	53.5	70.0	102.0	92.1	100.0	163.1	219.2	210.2	184.8	158.3	140.9	140.5	164.9

48. Occupational injury and illness incidence rates by industry, United States

Industry and type of case ¹	Incidence rates per 100 full-time workers ²								
	1978	1979	1980	1981	1982	1983	1984	1985	1986
PRIVATE SECTOR³									
Total cases	9.4	9.5	8.7	8.3	7.7	7.6	8.0	7.9	7.9
Lost workday cases	4.1	4.3	4.0	3.8	3.5	3.4	3.7	3.6	3.6
Lost workdays	63.5	67.7	65.2	61.7	58.7	58.5	63.4	64.9	65.8
Agriculture, forestry, and fishing³									
Total cases	11.6	11.7	11.9	12.3	11.8	11.9	12.0	11.4	11.2
Lost workday cases	5.4	5.7	5.8	5.9	5.9	6.1	6.1	5.7	5.6
Lost workdays	80.7	83.7	82.7	82.8	86.0	90.8	90.7	91.3	93.6
Mining									
Total cases	11.5	11.4	11.2	11.6	10.5	8.4	9.7	8.4	7.4
Lost workday cases	6.4	6.8	6.5	6.2	5.4	4.5	5.3	4.8	4.1
Lost workdays	143.2	150.5	163.6	146.4	137.3	125.1	160.2	145.3	125.9
Construction									
Total cases	16.0	16.2	15.7	15.1	14.6	14.8	15.5	15.2	15.2
Lost workday cases	6.4	6.8	6.5	6.3	6.0	6.3	6.9	6.8	6.9
Lost workdays	109.4	120.4	117.0	113.1	115.7	118.2	128.1	128.9	134.5
General building contractors:									
Total cases	15.9	16.3	15.5	15.1	14.1	14.4	15.4	15.2	14.9
Lost workday cases	6.3	6.8	6.5	6.1	5.9	6.2	6.9	6.8	6.6
Lost workdays	105.3	111.2	113.0	107.1	112.0	113.0	121.3	120.4	122.7
Heavy construction contractors:									
Total cases	16.6	16.6	16.3	14.9	15.1	15.4	14.9	14.5	14.7
Lost workday cases	6.2	6.7	6.3	6.0	5.8	6.2	6.4	6.3	6.3
Lost workdays	110.9	123.1	117.6	106.0	113.1	122.4	131.7	127.3	132.9
Special trade contractors:									
Total cases	15.8	16.0	15.5	15.2	14.7	14.8	15.8	15.4	15.6
Lost workday cases	6.6	6.9	6.7	6.6	6.2	6.4	7.1	7.0	7.2
Lost workdays	111.0	124.3	118.9	119.3	118.6	119.0	130.1	133.3	140.4
Manufacturing									
Total cases	13.2	13.3	12.2	11.5	10.2	10.0	10.6	10.4	10.6
Lost workday cases	5.6	5.9	5.4	5.1	4.4	4.3	4.7	4.6	4.7
Lost workdays	84.9	90.2	86.7	82.0	75.0	73.5	77.9	80.2	85.2
Durable goods									
Lumber and wood products:									
Total cases	22.6	20.7	18.6	17.6	16.9	18.3	19.6	18.5	18.9
Lost workday cases	11.1	10.8	9.5	9.0	8.3	9.2	9.9	9.3	9.7
Lost workdays	178.8	175.9	171.8	158.4	153.3	163.5	172.0	171.4	177.2
Furniture and fixtures:									
Total cases	17.5	17.6	16.0	15.1	13.9	14.1	15.3	15.0	15.2
Lost workday cases	6.9	7.1	6.6	6.2	5.5	5.7	6.4	6.3	6.3
Lost workdays	95.9	99.6	97.6	91.9	85.6	83.0	101.5	100.4	103.0
Stone, clay, and glass products:									
Total cases	16.8	16.8	15.0	14.1	13.0	13.1	13.6	13.9	13.6
Lost workday cases	7.8	8.0	7.1	6.9	6.1	6.0	6.6	6.7	6.5
Lost workdays	126.3	133.7	128.1	122.2	112.2	112.0	120.8	127.8	126.0
Primary metal industries:									
Total cases	17.0	17.3	15.2	14.4	12.4	12.4	13.3	12.6	13.6
Lost workday cases	7.5	8.1	7.1	6.7	5.4	5.4	6.1	5.7	6.1
Lost workdays	123.6	134.7	128.3	121.3	101.6	103.4	115.3	113.8	125.5
Fabricated metal products:									
Total cases	19.3	19.9	18.5	17.5	15.3	15.1	16.1	16.3	16.0
Lost workday cases	8.0	8.7	8.0	7.5	6.4	6.1	6.7	6.9	6.8
Lost workdays	112.4	124.2	118.4	109.9	102.5	96.5	104.9	110.1	115.5
Machinery, except electrical:									
Total cases	14.4	14.7	13.7	12.9	10.7	9.8	10.7	10.8	10.7
Lost workday cases	5.4	5.9	5.5	5.1	4.2	3.6	4.1	4.2	4.2
Lost workdays	75.1	83.6	81.3	74.9	66.0	58.1	65.8	69.3	72.0
Electric and electronic equipment:									
Total cases	8.7	8.6	8.0	7.4	6.5	6.3	6.8	6.4	6.4
Lost workday cases	3.3	3.4	3.3	3.1	2.7	2.6	2.8	2.7	2.7
Lost workdays	50.3	51.9	51.8	48.4	42.2	41.4	45.0	45.7	49.8
Transportation equipment:									
Total cases	11.5	11.6	10.6	9.8	9.2	8.4	9.3	9.0	9.6
Lost workday cases	5.1	5.5	4.9	4.6	4.0	3.6	4.2	3.9	4.1
Lost workdays	78.0	85.9	82.4	78.1	72.2	64.5	68.8	71.6	79.1
Instruments and related products:									
Total cases	6.9	7.2	6.8	6.5	5.6	5.2	5.4	5.2	5.3
Lost workday cases	2.6	2.8	2.7	2.7	2.3	2.1	2.2	2.2	2.3
Lost workdays	37.0	40.0	41.8	39.2	37.0	35.6	37.5	37.9	42.2
Miscellaneous manufacturing industries:									
Total cases	11.8	11.7	10.9	10.7	9.9	9.9	10.5	9.7	10.2
Lost workday cases	4.5	4.7	4.4	4.4	4.1	4.0	4.3	4.2	4.3
Lost workdays	66.4	67.7	67.9	68.3	69.9	66.3	70.2	73.2	70.9

See footnotes at end of table.

48. Continued— Occupational injury and illness incidence rates by industry, United States

Industry and type of case ¹	Incidence rates per 100 full-time workers ²								
	1978	1979	1980	1981	1982	1983	1984	1985	1986
Nondurable goods									
Food and kindred products:									
Total cases	19.4	19.9	18.7	17.8	16.7	16.5	16.7	16.7	16.5
Lost workday cases	8.9	9.5	9.0	8.6	8.0	7.9	8.1	8.1	8.0
Lost workdays	132.2	141.8	136.8	130.7	129.3	131.2	131.6	138.0	137.8
Tobacco manufacturing:									
Total cases	8.7	9.3	8.1	8.2	7.2	6.5	7.7	7.3	6.7
Lost workday cases	4.0	4.2	3.8	3.9	3.2	3.0	3.2	3.0	2.5
Lost workdays	58.6	64.8	45.8	56.8	44.6	42.8	51.7	51.7	45.6
Textile mill products:									
Total cases	10.2	9.7	9.1	8.8	7.6	7.4	8.0	7.5	7.8
Lost workday cases	3.4	3.4	3.3	3.2	2.8	2.8	3.0	3.0	3.1
Lost workdays	61.5	61.3	62.8	59.2	53.8	51.4	54.0	57.4	59.3
Apparel and other textile products:									
Total cases	6.5	6.5	6.4	6.3	6.0	6.4	6.7	6.7	6.7
Lost workday cases	2.2	2.2	2.2	2.2	2.1	2.4	2.5	2.6	2.7
Lost workdays	32.4	34.1	34.9	35.0	36.4	40.6	40.9	44.1	49.4
Paper and allied products:									
Total cases	13.5	13.5	12.7	11.6	10.6	10.0	10.4	10.2	10.5
Lost workday cases	5.7	6.0	5.8	5.4	4.9	4.5	4.7	4.7	4.7
Lost workdays	103.3	108.4	112.3	103.6	99.1	90.3	93.8	94.6	99.5
Printing and publishing:									
Total cases	7.0	7.1	6.9	6.7	6.6	6.6	6.5	6.3	6.5
Lost workday cases	2.9	3.1	3.1	3.0	2.8	2.9	2.9	2.9	2.9
Lost workdays	43.8	45.1	46.5	47.4	45.7	44.6	46.0	49.2	50.8
Chemicals and allied products:									
Total cases	7.8	7.7	6.8	6.6	5.7	5.5	5.3	5.1	6.3
Lost workday cases	3.3	3.5	3.1	3.0	2.5	2.5	2.4	2.3	2.7
Lost workdays	50.9	54.9	50.3	48.1	39.4	42.3	40.8	38.8	49.4
Petroleum and coal products:									
Total cases	7.9	7.7	7.2	6.7	5.3	5.5	5.1	5.1	7.1
Lost workday cases	3.4	3.6	3.5	2.9	2.5	2.4	2.4	2.4	3.2
Lost workdays	58.3	62.0	59.1	51.2	46.4	46.8	53.5	49.9	67.5
Rubber and miscellaneous plastics products:									
Total cases	17.1	17.1	15.5	14.6	12.7	13.0	13.6	13.4	14.0
Lost workday cases	8.1	8.2	7.4	7.2	6.0	6.2	6.4	6.3	6.6
Lost workdays	125.5	127.1	118.6	117.4	100.9	101.4	104.3	107.4	118.2
Leather and leather products:									
Total cases	11.7	11.5	11.7	11.5	9.9	10.0	10.5	10.3	10.5
Lost workday cases	4.7	4.9	5.0	5.1	4.5	4.4	4.7	4.6	4.8
Lost workdays	72.5	76.2	82.7	82.6	86.5	87.3	94.4	88.3	83.4
Transportation and public utilities									
Total cases	10.1	10.0	9.4	9.0	8.5	8.2	8.8	8.6	8.2
Lost workday cases	5.7	5.9	5.5	5.3	4.9	4.7	5.2	5.0	4.8
Lost workdays	102.3	107.0	104.5	100.6	96.7	94.9	105.1	107.1	102.1
Wholesale and retail trade									
Total cases	7.9	8.0	7.4	7.3	7.2	7.2	7.4	7.4	7.7
Lost workday cases	3.2	3.4	3.2	3.1	3.1	3.1	3.3	3.2	3.3
Lost workdays	44.9	49.0	48.7	45.3	45.5	47.8	50.5	50.7	54.0
Wholesale trade:									
Total cases	8.9	8.8	8.2	7.7	7.1	7.0	7.2	7.2	7.2
Lost workday cases	3.9	4.1	3.9	3.6	3.4	3.2	3.5	3.5	3.6
Lost workdays	57.5	59.1	58.2	54.7	52.1	50.6	55.5	59.8	62.5
Retail trade:									
Total cases	7.5	7.7	7.1	7.1	7.2	7.3	7.5	7.5	7.8
Lost workday cases	2.8	3.1	2.9	2.9	2.9	3.0	3.2	3.1	3.2
Lost workdays	39.7	44.7	44.5	41.1	42.6	46.7	48.4	47.0	50.5
Finance, insurance, and real estate									
Total cases	2.1	2.1	2.0	1.9	2.0	2.0	1.9	2.0	2.0
Lost workday cases .....	.8	.9	.8	.8	.9	.9	.9	.9	.9
Lost workdays	12.5	13.3	12.2	11.6	13.2	12.8	13.6	15.4	17.1
Services									
Total cases	5.5	5.5	5.2	5.0	4.9	5.1	5.2	5.4	5.3
Lost workday cases	2.4	2.5	2.3	2.3	2.3	2.4	2.5	2.6	2.5
Lost workdays	36.2	38.1	35.8	35.9	35.8	37.0	41.1	45.4	43.0

¹ Total cases include fatalities.

² The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as: (N/EH) X 200,000, where:

N = number of injuries and illnesses or lost workdays.

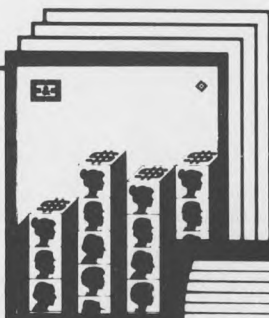
EH = total hours worked by all employees during calendar year.
200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year.)

³ Excludes farms with fewer than 11 employees since 1976.

Where to Find Information on Employment and Unemployment

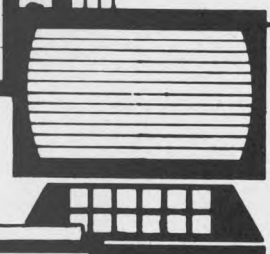
Employment and Earnings:

Monthly periodical containing labor force and establishment data. National, State, and area figures on employment, unemployment, hours, and earnings. Order *Employment and Earnings* from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Includes text, statistical tables, and technical notes.



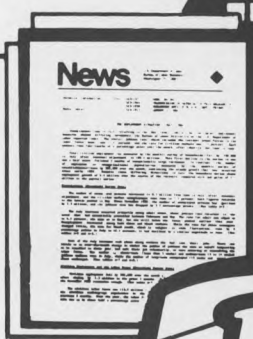
Electronic News Release:

Quickest. Accessible electronically immediately at release time through BLS news release service. Write the Office of Publications, Bureau of Labor Statistics, Washington, D.C. 20212, or call (202) 523-1913.



Employment Situation News Release:

Copies of this national statistical monthly release reach the public about a week after the release date. Write: Inquiries and Correspondence, Bureau of Labor Statistics, Washington, D.C. 20212.



Telephone:

Quick summary on 24-hour recorded message. Key numbers, plus other BLS indicators and upcoming release dates. Call (202) 523-9658.



Machine-Readable Form:

Labor force data from the household survey and employment, hours, and earnings data from the establishment survey are available on both computer tape and diskette. For information, write the Office of Publications, Bureau of Labor Statistics, Washington, D.C. 20212 or call (202) 523-1090.



Monthly Labor Review:

Employment and unemployment statistics included in monthly 47-page summary of BLS data and in analytical articles. Available from the Superintendent of Documents, U.S. Government Printing Office Washington, D.C. 20402.



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