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MONTHLY LABOR REVIEW

U.S. Department of Labor
Bureau of Labor Statistics
May 1986

In this issue:

International labor force participation
Productivity in metal stamping
Foreign housing vouchers





U.S. DEPARTMENT OF LABOR
William E. Brock, Secretary

BUREAU OF LABOR STATISTICS
Janet L. Norwood, Commissioner

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

Subscription price per year—\$24 domestic; \$30 foreign. Single copy—\$4, domestic; \$5 foreign. Subscription prices and distribution policies for the Monthly Labor Review (ISSN 0098-1818) and other Government publications are set by the Government Printing Office, an agency of the U.S. Congress. Send correspondence on circulation and subscription matters (including address changes) to:

Superintendent of Documents
 U.S. Government Printing Office
 Washington, DC 20402

Make checks payable to Superintendent of Documents.

The Secretary of Labor has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through April 30, 1987. Second-class postage paid at Washington, DC and at additional mailing addresses.



May cover:

"Construction," a drawing by Harry Sternberg; photograph courtesy of the Library of Congress, Washington, D.C.

Cover design by Richard L. Mathews

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Labor Month In Review



KLEIN AWARD. The Lawrence R. Klein Award trustees selected two authors of the best articles published in the *Monthly Labor Review* in 1985 as winners of the 17th annual Klein Award. The award was presented at the Bureau of Labor Statistics awards ceremony on April 28. Award for the best *Review* article by a BLS author went to Neal H. Rosenthal, chief of the Division of Occupational Outlook, for "The shrinking middle class: myth or reality?" in the March issue. Winner of the best article written by an author outside of the BLS was Helen Ginsburg, professor of economics at Brooklyn College, for "Flexible and partial retirement for Norwegian and Swedish workers," in the October issue.

The Rosenthal article presents an analysis of statistical data that might better inform the debate stirred by recent articles suggesting a decline in the middle class—defined as middle income earners—claiming that most of the new jobs are at the top and bottom of the earnings structure. Rosenthal focused primarily on how changes in occupational structure and wage levels affect the distribution of earnings of individuals in 1973 and 1982. He arrayed 416 occupations by earnings and arranged them into three earnings groups—bottom, middle, and top; summed the number of workers and occupations in each earnings group; and calculated a percent distribution of employment.

He explains, "If the proportion of middle income earners are declining, the proportion of total employment in the middle would show a decline between 1973 and 1982, and the bottom and top, an increase." The analysis shows an increase for the top group, a modest decrease for the middle and a decrease for the bottom. Rosenthal concludes, "Changes in occupational structure alone from 1973 to 1982 do not support

the notion of bipolarization."

The combined effect of changes in relative wages and in occupational structure of workers over the 1973-82 period show total employment increasing for the top and middle income groups and decreasing for the bottom. This, states Rosenthal, "Indicates a shift of workers from the low to the middle and high earnings levels...."

According to Rosenthal, the middle class is not declining, although, he says, "Some trends in the industrial and occupational structure of employment could cause a degree of earnings bipolarization. However, a multitude of factors have an effect on the occupational structure of our economy and on the earnings of workers in specific occupations. Although not all factors can be quantified, an analysis of available data indicates that the combined effect of all factors apparently has not caused bipolarization over the 1973-82 period. Also, given BLS projections of employment by occupations, bipolarization is not likely to occur between 1982 and 1995."

The Ginsburg article focuses largely on the Swedish retirement plan because of its greater popularity, more widespread use, and because it offers an unusual degree of flexibility in both age and extent of retirement, compared with the Norwegian plan. Ginsburg discussed the plans of the two countries—noting that a major difference is that Sweden's plan encourages partial retirement *prior* to normal retirement age, while the Norwegian plan encourages it *after* the normal retirement age.

Under the Swedish partial pension plan, a person age 60 to 64 can reduce his or her work hours, receive full pay for the time worked, and also receive a pension to replace 50 percent of the lost earnings, up to a limit. Work time must be reduced by at least 5 hours a week, and after reduction, must average at

least 17 hours weekly. Also, to be eligible, a person must have had pensionable earnings for at least 10 years after age 45 (unemployment and sickness benefits are pensionable income in Sweden), and must have been gainfully employed for at least 5 of the last 12 months.

Although not designed to be a weapon against unemployment, Ginsburg notes, partial pensions act as a form of worksharing, preventing employee dismissals in some cases and working against (but not eliminating) the tendency to take early retirement.

Ginsburg concludes, "Developments in Norway and Sweden, which have a more elderly population than the United States, could provide the starting point for a discussion of a comprehensive older-worker policy in the United States."

About the award. Trustees of the Klein Award Fund are Lawrence R. Klein; Charles D. Stewart, president; Ben Burdetsky, secretary-treasurer; Peter Henle; Harold Goldstein; Howard Rosen; and Henry Lowenstern. The award was established in 1968 in honor of Lawrence R. Klein, editor-in-chief of the *Monthly Labor Review* for 22 years until his retirement in 1968. Instead of accepting a retirement gift, Klein donated it and matched the amount collected to initiate the fund. Since then, he has contributed regularly to the fund as have others. The purpose of the award is to encourage *Review* articles that (1) exhibit originality of ideas or method of analysis, (2) adhere to the principles of scientific inquiry, and (3) are well written. Each winning article carries a cash prize of \$200.

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

An international comparison of labor force participation, 1977–84

International comparisons of labor force participation in six countries, including the United States, show vastly different patterns, both overall and for demographic groups

PATRICK J. MCMAHON

Over the past decade there have been substantial changes in the structure and performance of labor markets in most countries. These changes stem from changes in various economic factors such as the oil price crises in 1974 and 1978 and the subsequent slowdown in economic growth and emergence of international recession. However, labor force responses since 1975 to these changes have varied considerably between countries and the outcomes may usefully be compared and contrasted. In this article, six countries with similar approaches to labor force measurement are compared.¹ The largest is the United States, followed by Japan and West Germany. The smallest markets considered are, in order of size, Canada, Australia, and Sweden.

The aggregate participation rates in each country are shown in table 1. The range is large. Sweden had the highest labor force participation rate, followed by Canada, the United States, Japan, Australia, and West Germany.²

The overall changes in labor force participation since 1975 are also shown in table 1. In Australia the labor force participation rate fell 1.7 percentage points from 61.6 percent in 1975. West Germany and Japan experienced little change in the aggregate participation rate. By contrast, labor markets in the other countries were characterized by large growth in participation rates, particularly in Canada and the United States. In Sweden, which had the highest proportion

of the working age population in the labor force of any country considered, the participation rate rose by slightly less.

The magnitude and nature of these different changes in the aggregate labor force participation rate can be seen more clearly by examining the change in the labor force participation rate (shown in column 3) decomposed into the change in the employment-population ratio (shown in column 4) and, completing the identity, the change in the unemployment-population ratio.³

In all countries but the United States, the employment-population ratio either increased by less than the participation rate or fell between 1975 and 1984. Australia and West Germany also stand apart from the remaining countries, having experienced both a large decline in employment growth relative to population growth and hefty increases in unemployment. The fall in participation in Australia decomposes into a large fall in the employment-population ratio accompanied by a smaller offsetting increase in unemployment. In West Germany, contrary to the Australian experience, the effect of a fall in the employment-population ratio was completely offset by an increase in unemployment. In Japan, almost all of the small increase in the participation rate was attributable to a small increase in the employment-population ratio, while, in Canada, most of the increase in participation rate decomposes into a dominant increase in unemployment. In Sweden, both employment and unemployment grew roughly by the same magnitude, at least according to the official "unadjusted data" for the popula-

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tion aged 16 to 74. BLS estimates, shown as the "unadjusted data" for the population aged 16 and over, suggest that in Sweden the participation rate altered predominantly from an increase in unemployment with very little change in the employment-population ratio.

Of all the countries examined, the Australian and U.S. experiences appear to be unique at either end of the spectrum. Only Australia experienced a large decline in the participation rate together with a very large increase in the unemployment-population ratio, and only the United States experienced a large increase in the participation rate together with a decline in the unemployment-population ratio.

Changes in composition

Observed changes in the labor force may reflect shifts in the age and sex structure of the population, changes in labor force behavior within demographic groups, or both. The role of composition effects vis-à-vis behavioral influences is examined in this section.

The effect of demographic changes can be measured by computing the aggregate participation rate for 1984, maintaining the 1975 participation rates for each individual demographic group. The difference between the 1975 and the 1984 rate calculated by assuming no participation change in the demographic components indicates that change in the participation rate was due solely to demographic shifts. Between 1975 and 1984, demographic shifts would have marginally altered the aggregate participation rates of the United States, Canada, and Sweden. (See table 2.) More substantial shifts occurred in Australia (down 1.1 percentage points), Japan (down 1.1 percentage points), and West Germany (up 0.8 percentage points).

After adjusting for demographic factors, West Germany appears to have had similar experiences to Australia. Thus Australia and West Germany were the only countries to have experienced behaviorally induced declines in aggregate labor force participation and large increases in unemployment.

Participation rates by sex

The participation rates of men and women are shown for each country in table 3. Male participation rates varied little between most countries but the rate for West Germany was particularly low. In 1984, Japan had the highest rate (78.9 percent), followed by Canada, the United States, Sweden, Australia, and West Germany which had the lowest (71.9 percent).

Between 1975 and 1984, male labor force participation fell in all countries. Australia experienced the largest change, from 80.5 to 75.7 percent, and the United States the smallest, from 77.9 to 76.4 percent. Most of these changes were because of shifts in behavior rather than demographic factors as the following tabulations of the percentage point change due to the effect of demographic change show:

Australia ..	-0.3	Sweden	-0.2 (unadjusted) or 0.1 (BLS adjusted)
Canada	0.6	United States ..	0.5
Japan	-0.6	West Germany .	0.7

Female participation rates varied considerably between countries and the Australian and West German rates were low, compared with Sweden, the United States, Canada, and Japan.

Female participation rates rose in all countries but the magnitude of the increases varied widely. The rates rose markedly in Canada, Sweden, and the United States. Small increases were recorded in Japan, West Germany, and Australia.

Estimates of the change in participation, net of the effects of demographic shifts, result in large gains in Canada, Sweden, and the United States, moderate gains in Japan and Australia, and a very small increase in West Germany.

The conclusion is that changes in labor force participation rates for both men and women in all countries mainly reflect changes in behavior. It would appear, however, that demographic influences are important in contrasting changing patterns of female labor force participation in Australia with

Table 1. Labor force participation rates and the relative shares of changes in employment and unemployment to changes in labor force participation, six countries, 1975 and 1984¹

Country	Labor force participation rate		Employment-population ratio		Percentage point change in the:		
	1975	1984	1975	1984	Labor force participation rate	Employment-population ratio	Unemployment-population ratio
Australia	61.6	59.9	58.8	54.8	-1.7	-4.0	2.3
Canada	61.1	64.8	56.9	57.4	3.7	0.5	3.2
Japan	63.0	63.5	61.9	61.8	0.5	-0.1	0.6
Sweden:							
Unadjusted	69.6	71.9	68.5	69.6	2.3	1.1	1.2
BLS adjusted ²	65.9	67.0	64.8	64.9	1.1	0.1	1.0
United States	61.2	64.4	56.1	59.5	3.2	3.4	-0.2
West Germany ³	55.5	55.6	53.6	51.6	0.1	-2.0	2.1

¹ Refers to annual average data in Canada, Sweden, the United States, and Japan (except for 1984, where an 11-month average was used). The data for Australia refer to the August survey and were chosen because it is the only month for which a historically consistent time series exists. The data used for West Germany are from the microcensus and are collected each April/May. The microcensus data were chosen because they are the only labor force data collected in West

Germany which conform to International Labor Organization concepts and definitions.

² The published Swedish data are shown as "unadjusted" and refer to the population aged 16 to 74. BLS calculations of the labor force participation rate and employment-population ratios for the population aged 16 and over are shown as "BLS adjusted."

³ The latest data available are for 1983 and the data refer to that year.

those that occurred in West Germany.

Further insights can be gained by considering separately the change in the male and female participation rates relative to the change in employment. Between 1975 and 1984, most of the decline in male labor force participation occurred on the employment side with offsetting increases in unemployment. Large declines in employment were significant in Australia and West Germany, and to a lesser extent, Canada. Modest rises in employment occurred in Japan and Sweden. The United States contrasts with all other countries, but particularly Australia and West Germany. The United States had the smallest decline in the male employment-population ratio and was the only country to achieve an improvement in the male unemployment-population ratio.

Similarly, much of the increase in female participation occurred on the employment side with relatively small increases in unemployment. This holds for all countries except Australia and West Germany. In these countries, unemployment increases accounted for much of the rise in participation rates. Again the United States contrasts starkly. The United States recorded the largest increase in the female employment-population ratio and at the same time was the only country able to achieve an improvement in the unemployment-population ratio.

Demographic groups

Comparisons of labor force participation of various demographic groups in the six countries highlight the reasons why Australia and West Germany have performed so poorly relative to the other countries, and the United States in particular. The groups compared are teenagers and young adults, prime working age persons (aged 25 to 54), and older persons (aged 55 and over).⁴

Teenagers and young adults. The youth labor market is conventionally split into teenage (that is, aged 15 to 19 or 16 to 19) and young adult (aged 20 to 24) groups for analysis, because each component typically exhibits different labor force behavior. These differences are usually reflected in differentiated policy interest in the two groups.

The participation rates of teenagers in each country are shown in table 4. The variation is remarkable. In 1984, for example, the participation rate for female teenagers ranged from 55.7 percent in Australia to only 18.4 percent in Japan.

Between 1975 and 1984, large differences between countries are evident in both the direction and magnitude of change in teenage labor force participation rates. Large declines were recorded in teenage participation rates of Sweden and West Germany. The participation rates of Swedish teenagers fell from 59.0 to 43.8 percent for males and from 56.2 to 47.0 percent for females.⁵ West German teenage male participation rates fell from 57.2 to 46.1 percent for males and from 50.7 to 38.6 percent for females. In contrast, small declines in teenage participation rates were

Table 2. Estimates of contributions of demographic and behavioral changes to labor force participation rate changes, 1975 and 1984¹

Country	Participation rate			Change in participation rate due to:	
	1975	1984	1984 using 1975 weight	Demographic shift	Behavioral shift
Australia	61.6	59.9	60.5	-1.1	-0.6
Canada	61.1	64.8	61.0	-0.1	3.7
Japan	63.0	63.5	61.9	-1.1	1.6
Sweden:					
Unadjusted	69.6	71.9	69.4	-0.2	2.5
BLS adjusted	65.9	67.0	66.0	0.1	1.0
United States	61.2	64.4	61.3	0.1	3.1
West Germany ²	55.5	55.6	56.3	0.8	-0.7

¹ Refers to annual average data in Canada, Sweden, the United States, and Japan (except for 1984, where an 11-month average was used). The data for Australia refer to the August survey and were chosen because it is the only month for which a historically consistent time series exists. The data used for West Germany are from the microcensus and are collected each April/May. The microcensus data were chosen because they are the only labor force data collected in West Germany which conform to International Labor Organization concepts and definitions.

² The latest data available are for 1983 and the data refer to that year.

recorded in Australia and Japan for both males and females.⁶ In the United States and in Canada, male teenagers recorded small declines while small increases were recorded for female teenagers.

As seen above, changes in age composition could explain the changes observed. In Sweden, roughly half of the fall in the male teen participation rate (7.6 of 16.3 percentage points) was because of shifts in the age composition. Among female teenagers, demographic effects should have raised the participation rate 0.2 percentage points but actually it fell 6.9 percentage points. In Canada, demographic effects should have increased the male teen participation rate 1.3 percentage points but it fell 0.6 percentage points. Demographic changes should have increased the female teen participation rate 1.4 percentage points, but the actual increase was 3.3 percentage points. Similarly, in the United States demographic effects should have raised participation rates of male teens by 0.6 percentage points and female teens by 0.4 percentage points but, the actual changes were -3.1 and +2.7 percentage points. In other words, the evidence suggests that demographic influences are swamped by behavioral changes, at least in Sweden, Canada, and the United States, the only countries for which the data is available at a low level of aggregation.

The usual explanation of declining teenage participation rates is that increasing proportions of young people are staying in school. This argument is consistent with teenage participation rate trends in Sweden, West Germany, and Japan. In Australia, Canada, and the United States, however, substantial increases in teenage labor force participation have occurred among teenagers still in school.

The nature of the change in teenage participation rates can be better appreciated by considering the relative contribution of employment and unemployment changes. In Australia and West Germany, many were unable to find work because the growth in employment substantially lagged the

Table 3. Labor force participation rates and the relative shares of employment and unemployment to changes in the labor force participation of men and women six countries, 1975 and 1984

Country and Sex	Labor force participation rate			Employment-population ratio		Percentage point change in the:		
	1975	1984	1984 using 1975 weights			Labor force participation rate	Employment-population ratio	Unemployment-population ratio
				1975	1984			
Men:								
Australia.....	80.5	75.7	80.2	77.7	69.1	-4.8	8.6	3.8
Canada.....	78.4	76.6	79.1	73.5	68.0	-1.8	-5.5	3.7
Japan.....	81.4	78.9	80.8	79.8	76.8	-2.5	-3.0	0.5
Sweden:								
Unadjusted.....	80.0	76.3	79.8	78.9	74.0	-3.7	-4.9	1.2
BLS adjusted ³	77.0	73.0	76.4	(2)	(2)	-4.0	(2)	(2)
United States.....	77.9	76.4	78.4	71.7	70.7	-1.5	-1.0	-0.5
West Germany ⁴	74.5	71.9	75.2	72.1	67.4	-2.6	-4.7	2.1
Women:								
Australia.....	43.0	44.6	41.3	40.3	40.9	1.6	0.6	1.0
Canada.....	44.4	53.5	43.7	40.8	47.3	9.1	6.5	2.6
Japan.....	45.7	49.0	44.1	45.0	47.6	3.3	2.6	0.7
Sweden:								
Unadjusted.....	59.2	67.5	59.4	58.0	65.3	8.3	7.3	1.0
BLS adjusted ³	55.2	61.5	54.5	(2)	(2)	6.3	(2)	(2)
United States.....	46.3	53.6	46.0	42.0	49.5	7.3	7.5	-0.2
West Germany ⁴	38.8	41.0	39.3	37.4	37.5	2.2	0.1	2.1

¹ Refers to annual average data in Canada, Sweden, the United States, and Japan (except for 1984, where an 11-month average was used). The data for Australia refer to the August survey and were chosen because it is the only month for which a historically consistent time series exists. The data used for West Germany are from the microcensus and are collected each April/May. The microcensus data were chosen because they are the only labor force data collected in West Germany which conform to International Labor Organization concepts and definitions.

² Unfortunately, separate estimates of employment of the sexes aged 75 and over were not available to calculate the relevant employment-population ratios.

³ The published Swedish data are shown as "unadjusted" and refer to the population aged 16 to 74. BLS calculations of the labor force participation rate and employment population ratios for the population aged 16 and over are shown as "BLS adjusted."

⁴ The latest data available are for 1983 and the data refer to that year.

growth in the population. In the United States, the situation would appear to be entirely different, unemployment changed little and even improved slightly for female teenagers.⁷ In Canada, employment and unemployment changes substantially offset each other for men, but for women most of the increased participation was reflected in increased unemployment. In all other countries, substantial declines in the teenage employment-population ratio occurred with little or no increase in unemployment.

There has been less of a difference between the countries in the participation rate trends of young adults than for teenagers. Australia, along with Canada and the United States, had the highest male young adult participation rates in 1984. (See table 4.) Sweden and West Germany had rates that lay midway on the range, and Japan had a relatively low rate, 70.9 percent.

Male young adult participation rates have changed very little over time in all countries except Japan.⁸ Participation rates fell there from 76.5 to 70.9 percent, which may reflect the strong move towards further education.

Some differences were apparent in the relative importance of changes in the employment component vis á vis the unemployment component to changes in young adult male participation rates. Almost all of the large decline in Japan reflected declines in employment with little or no unemployment effect. In all other countries, except the United States, declines in employment were largely offset by increases in unemployment. These were substantial in Australia and Canada, and to a lesser extent in West Germany. Only in the

United States was there an increase in the employment-population ratio of young adult men and a reduction in the unemployment-population ratio.

The participation rates of young women were lower than those for men. In 1984, the rate for women ranged from 80.4 to 68.9 percent, and was highest in Sweden, followed by Canada, Australia, West Germany, the United States, and Japan.

In recent years, the labor force participation rates of young women have increased markedly in all countries except West Germany, where the rise was much smaller. The reasons for this upsurge were mainly the expansion of the service sector (which employs large numbers of women), increased opportunities in part-time labor markets, and declining fertility.⁹ The very high labor force participation rate of young women in Sweden has also reflected changes in taxation arrangements for married women, the introduction of parenthood insurance in the 1970's, and government-financed child care centers.¹⁰

The relative contributions of employment and unemployment changes to these increases varied considerably between the countries. Only in the United States, which achieved the largest increase in the female young adult employment-population ratio of any country, was there a reduction in the unemployment-population ratio. Japan also achieved strong employment growth with a small increase in unemployment. West Germany was the only country to experience an actual decline in the employment-population ratio, with a substantial increase in unemployment. Canada

had the lowest increase in the employment-population ratio, but the largest increase in unemployment, while Australia and Sweden experienced more moderate increases in both.

Prime working age persons. Prime working age men (aged 25 to 54) have the highest participation rates of any population subgroup. (See table 4.) Unlike other age groups, there has been little change in the labor force participation of prime working age men in any of the countries considered. In 1984, Japan had the highest rate followed by Sweden, West Germany, the United States, Australia, and Canada. The close similarity across all countries is not surprising, however, given the high degree of labor market attachment of men in the prime working age range.

While Australia had the second highest prime working age male participation rate in 1975 (96 percent), it had the second lowest rate in 1984 (93.6 percent). This decline has been larger than in any other country and, although small in magnitude, is highly significant given the degree of labor force commitment by prime working age men. Moderate declines were experienced in Canada and West Germany, and slight declines occurred in Sweden, the United States, and Japan.

The participation of prime working age men are hardly affected by shifts in the age composition of this group. These shifts would have marginally increased participation rates in Australia (0.4 percentage points), Canada (0.1 percentage points), Sweden (0.2 percentage points), and the United States (0.3 percentage points), and marginally decreased participation in West Germany (0.1 percentage points) and Japan (0.1 percentage points). Behavioral, rather than demographic, influences were important.

These declines in prime working age participation rates are generally attributed to the variety of governmental programs and subsidies (for example, sickness and disabilities payments and retraining programs) available to persons not in the labor force or wishing to leave it. It has also been argued that the increasing participation of married women has relieved prime working age men of the burden of being the sole family breadwinner. In theory, these changes give these men opportunities to reduce their participation, although in practice there are no studies to suggest that these factors have any significant effect.

While the changes in all countries were small, some quite different patterns have emerged in the relative contributions of changes in employment and unemployment. Participation has declined since 1975 in Australia, Canada, and West Germany because their historically large declines in employment were not wholly offset by increases in unemployment. However, the declines were double those of most countries. Japan, the United States, and Sweden have recorded slight declines in participation among prime working age men since 1975, but these changes were predominantly the result of a small decline in employment, relative to the population, with a smaller increase in unemployment.

Unlike the male participation patterns, enormous changes have occurred since 1975 in the labor force participation of prime working age women. Again major differences are apparent between Australia and West Germany and the other countries. In 1984, female labor force participation was still lowest in Australia (55 percent) and West Germany (57.1 percent) and highest in Sweden (88.1 percent). The American, Canadian, and Japanese rates were much higher than Australia and West Germany, but still were well below those for Sweden.

Between 1975 and 1984, the participation rate of prime working age women rose 12 to 16 percentage points in Canada, Sweden, the United States, and Japan. Much less spectacular rises were recorded in Australia (6.7 percent) and West Germany (5.9 percent).

Changes in the age composition of prime working age women again had very little influence on their participation rate. Changes in age composition would have raised the participation rate in Australia by 1.6 percentage points, Japan by 1.0 percentage points, Sweden by 0.4 percentage points, Canada by 0.3 percentage points, and West Germany by 0.2 percentage points and would have lowered the rate in the United States by 0.1 percentage points. Once again, we believe that behavioral, not demographic, changes were important.

Several reasons appear important in explaining these patterns of change in behavior. The expansion of employment in the service sector and the expansion of part-time employment opportunities. Both of these areas of employment tend to be dominated by women in most countries (particularly Australia, Canada, Sweden, and the United States). However, in Japan, female employment in the service sector has been much lower than in other countries, and there are comparatively few women in part-time employment in West Germany.¹¹

These developments suggest that an increase in employment opportunities is a major reason for the upsurge in the labor force participation of prime working age women and this is borne out by an examination of the sources of labor force participation changes. In Canada, Japan, Sweden, and the United States (all of which have had the largest increases since 1975), the increases resulted from large increases in employment and small changes in unemployment. Even in Australia, the employment increases were still dominant. Only in West Germany were increases in unemployment larger than employment growth.

Declining fertility rates are also frequently cited as important in the marked upsurge in prime working age female labor force participation. In the last two decades, fertility rates have fallen in most Western countries except Sweden (which already had a very low rate in the 1960's) and Japan (where fertility has actually risen slightly over the last two decades). Other reasons often cited are the radical improvements in "household technology" and the development of commercial substitutes for household products—dryclean-

Table 4. Labor force participation rates and the relative shares of employment and unemployment to changes in the labor force participation of selected age groups, six countries, 1975-1984¹

Age, sex, and country	Labor force participation rate		Employment-population rate		Percentage point change in the:		
	1975	1984	1975	1984	Labor force participation rate	Employment-population ratio	Unemployment-population ratio
Teenagers²							
Male:							
Australia	60.0	59.1	53.5	46.0	-0.9	-7.5	6.6
Canada	54.6	54.0	46.2	42.5	-0.6	-3.7	3.1
Japan	20.5	18.4	19.5	16.7	-2.1	-2.8	0.7
Sweden	59.0	43.8	56.5	41.5	-15.2	-15.0	0.2
United States	59.1	56.0	47.2	44.9	-3.1	-2.3	0.7
West Germany ³	57.2	46.1	53.5	40.6	-11.1	-12.9	1.8
Female:							
Australia	57.3	55.7	48.7	44.7	-1.6	-4.0	2.4
Canada	47.4	50.3	40.6	41.0	2.9	0.4	2.5
Japan	21.7	18.4	21.2	17.5	-3.3	-3.7	0.4
Sweden	56.2	47.0	52.2	44.8	-9.2	-7.4	1.8
United States	49.1	51.8	39.4	42.5	2.7	3.1	-0.4
West Germany ³	50.7	38.6	47.3	32.1	-12.1	-15.2	3.1
Ages 20 to 24							
Male:							
Australia	90.1	89.4	85.4	76.6	-0.7	-8.8	8.1
Canada	85.0	83.7	76.1	68.3	-1.3	-7.8	6.5
Japan	76.5	70.9	74.1	68.1	-5.6	-6.0	0.4
Sweden	82.7	82.8	80.9	77.7	0.1	-3.2	3.3
United States	84.5	85.0	72.4	74.9	0.5	2.5	-2.0
West Germany ³	79.8	80.1	75.8	72.2	0.3	-3.6	3.9
Female:							
Australia	65.3	71.7	60.8	64.3	6.4	3.5	2.9
Canada	67.0	74.6	60.9	63.5	7.6	2.6	5.0
Japan	72.5	68.9	64.4	68.9	6.3	4.5	1.8
Sweden	73.7	80.4	71.1	74.8	6.7	3.7	3.0
United States	64.1	70.4	56.0	62.7	6.3	6.7	-0.4
West Germany ³	68.4	70.5	65.5	62.7	2.1	-2.8	4.9
Ages 25 to 54							
Male:							
Australia	96.0	93.6	93.7	87.8	-2.4	-5.9	3.5
Canada	94.8	93.5	90.8	84.8	-1.3	-6.0	4.7
Japan	97.4	97.0	95.9	95.1	-0.4	-0.8	0.4
Sweden	95.2	94.9	94.4	92.9	-0.3	-1.5	1.2
United States	94.4	93.9	89.0	88.4	-0.5	-0.6	0.1
West Germany ³	95.9	94.7	93.2	89.5	-1.2	-3.7	2.5
Female:							
Australia	48.3	55.0	47.2	51.7	6.7	3.5	3.2
Canada	50.5	66.7	47.1	59.9	16.2	12.8	0.7
Japan	52.2	65.5	51.4	63.8	13.3	12.8	0.7
Sweden	74.2	88.1	73.2	86.1	13.9	12.9	1.0
United States	55.1	68.2	51.0	63.9	13.1	12.9	0.2
West Germany ³	51.2	57.1	49.6	52.7	5.9	3.1	9.0
Ages 55 to 64							
Male:							
Australia	79.1	61.2	76.5	57.4	-17.9	-19.1	1.2
Canada	79.3	71.1	76.2	65.2	-8.2	-11.0	2.8
Japan	86.0	83.9	83.3	79.6	-2.1	-3.7	1.6
Sweden	82.8	76.2	80.7	73.0	-6.6	-7.7	1.1
United States	75.6	68.5	72.4	65.1	-7.1	-7.3	-0.2
West Germany ³	69.2	62.9	67.3	55.9	-6.3	-11.4	5.1
Female:							
Australia	23.7	19.8	23.2	19.2	-3.9	-4.0	0.1
Canada	30.8	33.4	29.3	30.9	2.6	1.6	1.0
Japan	43.7	45.3	43.1	44.4	1.6	1.3	0.3
Sweden	49.6	59.6	48.9	56.6	10.0	7.7	2.3
United States	41.0	42.1	38.9	39.9	1.1	1.0	0.1
West Germany ³	25.3	26.8	24.7	25.4	1.5	0.7	0.8

¹ Refers to annual average data in Canada, Sweden, the United States, and Japan (except for 1984, where an 11-month average was used). The data for Australia refer to the August survey and were chosen because it is the only month for which a historically consistent time series exists. The data used for West Germany are from the microcensus and are collected each April/May. The microcensus data were chosen because they are the only labor force data collected in West Germany

which conform to International Labor Organization concepts and definitions.

² Teenagers refer to 15- to 19-year-olds in Australia, Canada, Japan, and West Germany, and to 16- to 19-year-olds in Sweden and the United States.

³ The latest data available were for 1983 and the data refer to that year.

ing, fast-foods, restaurants—which have released female labor for the market place. Finally, improved education among women may have shifted their preferences in favor of work outside the home.

The comparatively small increase in prime working age female participation in West Germany probably reflects the historical importance of foreign workers at times of employment expansion and this may have restricted the opportunities for women to successfully enter the labor force. The guest worker has not been significant since the early 1970's but neither has there been a significant employment expansion. While female participation rates have generally been lower in Europe, the higher rates in North America and Scandinavia are now beginning to be replicated in other European countries and the differences currently observed are probably differences in timing and in the overall pace of job growth.

Older persons. People aged 55 and over are defined here as "older persons." The group is split into those aged 55 to 64 and those aged 65 and over, because the participation rates of the latter group are substantially lower than those of the former.

The participation rate of men aged 55 to 64 in 1984 was lower in Australia and West Germany than in most other countries. The rate was relatively high in Japan, Sweden, Canada, and the United States. (See table 4.)

The changes in the participation rate of these men since 1975 have been quite different between Australia and other countries. A particularly large drop was observed in Australia. A large decline was also recorded in Canada. Modest decreases were observed in Sweden and the United States, and only a marginal decline was observed in Japan. While a modest decline was also observed in West Germany, it occurred from an already low base.

Shifts in the age composition of this group should have raised participation rates in West Germany (6.3 percentage points) and lowered participation rates in the United States (0.2 percentage points), Australia (0.3 percentage points), and Sweden (0.5 percentage points). Similar computations could not be made for Canada or Japan. This suggests that age composition effects were insignificant explanations of the overall declines. The age composition effect calculation also shows that the behavioral shifts in West Germany are much greater than indicated by a comparison of participation rates over time.

Declines in the participation rates of older men in Australia and in most countries reflect large declines in employment. In Australia and Canada, the participation drop was because of a decrease in the employment-population ratio with little change in unemployment. The declining participation of older men reflects trends towards earlier retirement ages and the expansion of pension schemes. The reasons for a high participation rate and very small declines in participation in Japan are also related to cultural factors and the

pension system, which is not generous.¹²

The trends in the labor force participation rates of older women aged 55 to 64 have been rather different than those of older men. The participation rate of women aged 55 to 64 in 1984 ranged from a low 19.8 percent in Australia to 59.6 percent in Sweden.

Since 1975, there have been small declines in the participation rates of older women in Australia. In the same period, very small increases were recorded in the United States, Canada, Japan, and West Germany. A large increase was recorded in Sweden.

Shifts in the age composition of this group would have raised participation rates by an insignificant amount in the United States (0.3 percentage points) and lowered it by an insignificant amount in Australia (1.5 percentage points). However, the increase in the participation rate of German women aged 55 to 64 is illusory because demographic shifts should have increased the participation rate by 2.5 percentage points.

Much more variation in participation rates and their employment and unemployment components was evident for older women aged 55 to 64 than for men. For women of this age group, participation declined only in Australia, reflecting a large drop in employment which was not offset by a small rise in unemployment. In West Germany, a slight increase in participation reflected small increases in employment and unemployment. In Sweden, the United States, and Japan, increased participation was almost entirely brought about by rises in employment.

The main feature of these comparisons is that substantial declines in the labor force participation rates of older men have occurred in all countries, yet those trends have not been replicated for older women. In Australia the declines that occurred for women were much smaller than those for men, and in West Germany, Canada, Sweden, Japan, and the United States, an increase in participation was actually observed.

In 1984, the between-country ranking of labor force participation rates for men aged 65 and over was similar. The rate was markedly higher in Japan than in the United States, Canada, Sweden, Australia, and West Germany.

The labor force participation rates of women aged 65 and over in 1984 ranged widely between countries, from 16.3 percent in Japan to 2.5 percent in Australia. The Australian rate was also considerably lower than that of the United States. Only in West Germany did the rate approach that in Australia. The Australian rates have, however, always been low relative to other countries. In the last decade the participation rate in Australia has gradually declined from around 4 percent to 2.5 percent. Declines in the labor force participation rates of women aged 65 and over in other countries have been marginal in the last 10 years.

Conclusions

A comparison of the change in labor force participation

rates, decomposed into changes in the employment and unemployment-population ratios, shows a large disparity in job creation capability between the United States and many other advanced nations. The contrasts between the two extremes—the United States, on one hand, and Australia and Germany, on the other, are illustrative. Australian and West German participation rates, adjusted for change in the demographic composition of the labor force, fell between 1975 and 1984. Underlying these behaviorally induced declines in labor force participation were large declines in employment relative to population growth and hefty increases in the unemployment-population ratio. By contrast, the United States experienced a large behaviorally induced increase in the participation rate, accompanied by strong growth in the employment ratio and a small decline in the

unemployment-population ratio.

Comparisons of labor force participation rates for demographic groups also confirm Australia's and Germany's poor performance relative to the rest, and to the United States in particular. In both, large withdrawals from the labor force, especially among older men, and small increases in female participation rates occurred. Modest falls in male participation rates and enormous increases in female rates occurred in the United States and to a lesser extent in the other countries. These changes suggest substantial increases in unemployment, both recorded and hidden, in Australia and Germany, and estimates suggest a jobless rate of almost double the official rate in Australia and one and a half times it in Germany.¹³ □

—FOOTNOTES—

ACKNOWLEDGMENT: Chris Robinson of the Australian Department of Employment and Industrial Relations contributed greatly towards the work which formed the basis of this article. Also, many helpful comments and advice came from Constance Sorrentino, Patricia Capdevielle, Joyanna Moy, and Arthur Neef of the Bureau of Labor Statistics.

¹ Details about labor force concepts definitions and data collection methods in each country are given in the appendix and in: Australian Bureau of Statistics, *The Labour Force, August 1984*, Catalogue No. 6203, Canberra, 1984 (and previous issues) for Australia; Statistics Canada, *The Labour Force, December 1984*, Catalogue No. 71-001, Ottawa, 1984 (and previous issues) for Canada; Statistics Bureau, *Annual Report of the Labour Force Survey 1984*, Prime Ministers Office, Tokyo, 1984 (and previous issues) for Japan; Statistiska Centralbyran, *Arbetskraftsundersökningen, Series AKU-Arsmedelstal*, Stockholm, 1984 (and previous issues) for Sweden; Bureau of Labor Statistics, *Employment and Earnings, January 1985*, U.S. Department of Labor, Washington, DC, 1985 and *Labor Force Statistics Derived From the Current Population Survey, A Data Book Vols. I & II* for the United States; and Statistisches Bundesamt, *Stund und Entwicklung der Erwerbstätigkeit*, Reihe 4.1.1 Fascherie 1 - Bevölkerung und Erwerbstätigkeit Wiesbaden, 1983 (and previous issues) for West Germany.

² The published Swedish participation rate is even higher (71.9 percent in 1984). Part of the explanation of why the published Swedish rate is so high is that the labor force is expressed as a proportion of the population aged 16 to 74. In other countries no maximum age is used to restrict the numbers in the working age population. The BLS has estimated that the inclusion of the population aged 75 and over would reduce the participation in 1984 by around 5 percentage points. The BLS estimates are used here.

³ These components of the labor force participation rate are conventionally referred to as ratios. Strictly speaking, however, they are rates as the ratios are expressed in percentage terms. For instance, the employment-population ratio is calculated as the ratio of the number employed to the number in the working age population multiplied by 100. The unemployment-population ratio is similarly calculated. It is also important to stress that an examination of labor force participation rate changes in terms of the relative contributions of the employment-population and unemployment-population ratios does not imply anything about the underlying casual factors which have led to participation changes. For instance, if participation rate changes were largely because of changes in the employment-population ratio, it does not necessarily mean that the change was demand-determined. Similarly, participation rate changes that were mainly caused by changes in the unemployment-population ratio are not necessarily supply-determined. Finally some comments on the use of the unemployment-population rather than a conventional unemployment rate are needed. The unemployment-population ratio is used for convenience because it completes the identity. If the reader feels more comfortable with an unemployment rate this can easily be calculated by dividing the unemployment-population ratio by the participation rate.

⁴ In the United States and Sweden, the young age groups refer to men and women aged 16 to 24, and in Sweden, the older age groups refer to men and women aged 55 to 74.

⁵ Measurement differences may complicate the interpretation of these figures. For instance, in Sweden, unlike in other countries, all full-time teenage students who are looking for work are automatically not counted as unemployed. However, this should make a minor contribution to the difference observed. The differences in the age definitions of teenagers also affects the figures. Teenagers are defined as persons aged 15 to 19 in Australia, Canada, Japan, and West Germany, and as 16 to 19 years of age in Sweden and the United States. Comparisons of specific cohorts within the teenage group are possible between Australia and Canada and Australia and the United States but when this is done it becomes apparent that the bulk of the difference in teenage labor force participation between countries is primarily due to differences in participation behavior rather than to differences in the age distribution or measurement of the teenage population.

⁶ Between 1975 and 1981 male teenage participation rates in Australia increased to 62.0 percent and female rates declined marginally to 57.0 percent.

⁷ It should be noted, however, that a large teenage unemployment problem already existed in 1975 which was not evident in most of the other countries.

⁸ It was not possible to analyze the effects of changing age composition among young adults because none of the countries published data for subcomponents.

⁹ By the same argument, differences in the rate of change will also reflect differences in fertility and education, as well as labor force factors identified here.

¹⁰ For a discussion of these influences, see Constance Sorrentino, "International comparisons of labor force participation, 1960-81," *Monthly Labor Review*, February 1983, pp. 23-36. Also see G. Eliasson, B. Holmlund and F. Stafford (eds.), *Studies in Labor Market Behavior: Sweden and the United States* (Industrial Institute of Economic and Social Research, Stockholm, 1981).

¹¹ Constance Sorrentino, "International comparisons," and see also Japan Institute of Labour, *The Japanese Employment System*, Japanese Industrial Relations Series No. 6, Tokyo 1980; and Japan Institute of Labour, *The Problems of Working Women*, Japanese Industrial Relations Series No. 8, Tokyo 1981.

¹² For further explanation see Constance Sorrentino, "International comparisons."

¹³ See *Who's in the Labour Force: A Study of Labour Force Participation*, Research Report No. 7 (Bureau of Labour Market Research, 1985).

APPENDIX: International differences in measuring the labor force

Scope, coverage, and method of labor force surveys

The approach to regular monthly labor force measurement in Australia, Canada, Japan, Sweden, and the United States is the "labor force" or "activity" approach in accordance with the standard International Labor Organization (ILO) guidelines for the definition and measurement of labor market concepts. In West Germany, an annual microcensus of the population is also taken, from which measures of the labor force are made according to the activity approach and this is used in the article.

Similar multistage sampling methods are used in Australia, Canada, Japan, and the United States. Households are selected according to geographical location, and persons within these households are interviewed. In contrast, samples of *persons* which represent the population are selected in Sweden and West Germany. There is no reason to expect that differences in sample selection methods will lead to any significant bias in the result obtained for each country.

Some bias could result from differences in sample rotation and from differences in data collection methods. Households remain in the Australian survey for 8 months and in the Canadian survey for 6 months. In Japan, households are surveyed for 2 consecutive months in 1 year, leave the survey, and rejoin it again for the same 2 consecutive months in the following year. The U.S. system is identical except that households are surveyed for the same 4 consecutive months in each of the 2 years. In the Swedish survey, persons are interviewed once every 3 months over a 2-year period, whereas, in West Germany, a new sample is selected for each annual microcensus. However, the nature and direction of any rotation group bias that may exist in surveys has not been determined.

Differences in definitions and major concepts

The working age population is defined as those persons aged 15 and over in Australia, Canada, Japan, and West Germany. It is defined as those aged 16 and over in the United States and as those aged 16 to 74 in Sweden. In addition, the working age population refers to the civilian noninstitutionalized population in Canada and the United States; to the civilian population in Australia and West Germany; and to the total resident population in Japan and Sweden.

The importance of differences between countries in defining the working age populations to include or exclude non-civilians and institutionalized persons is difficult to determine in the absence of relevant data for all countries. Differences in the minimum age of the working age population are likely to be more important, particularly with respect to comparisons of teenage labor markets. Similarly, the maximum age of 74 in Sweden will have some effect on both older worker and aggregate labor force participation

rate comparisons between Sweden and the other countries, but adjustments are made in the tables to include persons 75 years of age and older.

The major concept underlying the employment definition is that of work for payment during the survey week. In Australia, Japan, Sweden, and West Germany, employment refers to at least 1 hour for payment. In Canada and the United States, it is any work at all for payment. The classification of persons who worked without pay in a family business as employed persons, also differs between countries. Unpaid family workers are counted as being employed if they work at least 15 hours in the survey week in Australia, Sweden, and the United States. This same group are counted as being employed if they only worked at least 1 hour in the survey week in Japan or in West Germany, and if they did any work at all during the survey week in Canada. The other dimension of the employment definition is that of persons who had a job but were not at work during the survey week. Here the differences between countries are minor. It is unlikely that any of these differences in the definitions of employment will have any more than a marginal effect on labor force comparisons between countries.

Differences in the various definitions of unemployment appear to be greater than those for either the working age population or employment. Persons who did not have a job in the survey week but had actively looked for work and were available for work are classified as unemployed. However, the available for work criterion is not used in West Germany. The main difference in unemployment definitions between countries is the time period specified as that in which active job search was carried out in order to be classified as unemployed. In Australia, Canada, and the United States this period is the *4 weeks* up to the end of the survey week. In Sweden it is *60 days* up to the end of the survey week. This will lead to higher estimates of unemployment in Sweden, than is the case for other countries. In contrast, in Japan and West Germany *no period is actually specified*. Constance Sorrentino has shown that, in Japan at least, this may well result in a tendency of job search activities to be counted only if they occurred in the survey week, thereby leading to consistently lower estimates of unemployment. On the other hand, Sorrentino has also shown that a large number of those counted as unemployed in Japan did not seek work during the month. This would be those people who have applied for employment over a month ago but who have not received a reply from their employer. This would lead to an overestimate of the unemployed. On balance, the Japanese unemployment rate is slightly understated. The position for West Germany, however, is unknown.

Two other dimensions of the unemployment definition are important. First, temporary unemployment which did not involve active job search, such as waiting to return to a

job from a temporary absence (not including illness or vacation) or waiting to start a new job in the near future, is counted as unemployment in all countries except Japan, where such persons are classified as not in the labor force. Second, in all countries except Sweden, full-time students are classified as being employed if they had a job or as being unemployed if they were actively looking for work. In Sweden, full-time students are counted as being outside the labor force during school terms even if they are actively looking for work. These factors mean that estimates of unemployment in Japan and Sweden will be lower than in other countries.

In each country the labor force is defined as all those who were counted as employed or unemployed during the survey week. The residual of the working age populations are classified as inactive or not in the labor force.

Published and adjusted labor force data

Only those countries for which data were available and measured according to the standard ILO guidelines (that is,

via the activity approach) were considered for selection in the international comparisons made in this article. Other countries were not considered because their regularly published labor force statistics are measured in a very different way and are not directly comparable with those derived from the activity approach. Hence, the approach adopted here has been to use the published labor force data from those countries for which comparable *activity* data were available.

An alternative approach to making international labor force comparisons would be to use data from various countries that have been *adjusted* to U.S. labor force concepts and definitions. Adjusted data exists for the broad aggregates and are published by the BLS. The ways in which the data are adjusted are outlined in Constance Sorrentino, *International Comparisons of Unemployment*, BLS Bulletin 1979, Washington, DC, 1978; and Constance Sorrentino, "International comparisons of labor force participation, 1960-81," *Monthly Labor Review*, February 1983, pp. 23-36. Adjustment of data to U.S. concepts and definitions has not been made for the detailed age groups examined here.

A note on communications

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Trends of labor productivity in metal stamping industries

Overall growth in the annual rate of output per employee hour was sluggish from 1963 to 1983, but performance was stronger during 1972–83 for producers of automotive stampings, while it weakened in the nonautomotive stampings industry

HORST BRAND AND CLYDE HUFFSTUTLER

Labor productivity, or output per employee hour, in the metal stamping industry rose at an average annual rate of 1 percent over the two decades, 1963–83.¹ Output rose at about the same rate, while employee hours remained on balance unchanged over the period. Between 1963 and 1973, productivity advanced more rapidly (1.2 percent a year) than over the following decade (0.7 percent). The earlier annual improvement was associated with fairly strong output and employment gains, while the subsequent advance resulted from a declining trend in output being exceeded by a declining trend in employment. The longer term productivity performance in terms of average annual rates of change was much lower than for all manufacturing.

	<i>Metal stampings</i>	<i>All manufacturing</i>
1963–83	1.0	2.4
1963–73	1.2	2.6
1973–83	0.7	1.9

The productivity trend for the 20-year period examined here was marked by much volatility. In almost half of the 20

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years, productivity declined, although by small magnitudes. These declines were almost invariably associated with larger drops in output than in employee hours—a pattern frequently encountered in durables manufacturing industries during business slumps. In only 7 years of the period did productivity rise because output gains topped employee hour increases. All these years occurred during an expansionary phase of the business cycle (table 1).

Year-to-year fluctuations in productivity ranged from a fall of 4.0 percent (in 1964) to a rise of 8.6 percent (in 1971), with the more typical movements running between plus or minus 3 percent. However, underlying these movements were often large swings in output and employee hours. For example, the productivity increase of 4 percent in 1976 was linked with output and employee hour rises of 22 and 17 percent. Both of these variables had plummeted by 19 and 16 percent the preceding year—with productivity receding by only 3 percent.

Component industries

Data for metal stampings industry establishments were treated as one industry until 1972. The industry was then reclassified into three separate industries, for two of which

separate measures for productivity and related variables are published and discussed here—automotive and nonautomotive metal stampings.² The productivity trends for these two industries diverged considerably over the 1972-83 span, rising at an average annual rate of 1.8 percent for the former, and declining 0.7 percent a year for the latter. These movements reflect much stronger average annual growth for automotive metal stampings after 1977, and a much sharper decline for nonautomotive stampings.

	Automotive	Nonautomotive
1972-83	1.8	-0.7
1972-77	0.7	-0.4
1977-83	2.5	-2.2

The productivity improvement in the automotive metal stamping industry reflected a long-term decline in output of 1.5 percent annually, accompanied by a 3.2-percent-a-year drop in employee hours. The downward trend in nonautomotive metal stampings, on the other hand, resulted from moderately rising output (0.7 percent a year), and a somewhat higher employee hour rate (1.3 percent). The high productivity growth after 1977 for automotive metal stampings was associated with sharply declining output and even more pronounced decreases in employee hours. The productivity drop in nonautomotive metal stampings was also associated with falling output, but employee hours fell less.

Output and demand

The automotive metal stampings industry manufactures fenders, roofs, exhaust systems, brake shoes, trim, and other motor vehicle stamping components. These larger stampings are usually made in establishments operated by automobile companies. The industry also manufactures such products as brackets, valves, and other smaller items. These products are usually made by smaller, independent suppliers. Nonautomotive stampings consist of a vast array of job stampings often made in comparatively small batches; kitchen, household, and other utensils; pressed metal for such uses as storefronts, curtain walls, and refrigerators; and enclosures for electronic or electrical apparatus. Nonautomotive metal stampings are made mostly by smaller firms. (See below.)

Output of the combined metal stamping industries rose at an average annual rate of 0.9 percent over the 1963-83 span, but its rise during the first decade, 2.3 percent a year, was replaced by a drop during the second (-0.7 percent annually). This slowdown in the industries' output typified the output pattern of all durable manufactures over the period: for these, the annual rate of growth averaged 5 percent for 1963-73, but only 0.7 percent for 1973-83.

Demand for metal stampings stems mostly from other hard goods industries.³ Thus, while the number of domestically made motor vehicles rose 1.8 percent a year during the 1963-73 period, it dropped 3.4 percent annually thereafter—these trends being closely matched, first, by a 4.1-

percent-a-year rise, then by a 1.4-percent-a-year fall in the output of automotive metal stampings. (The larger output rates of automotive metal stampings stem from the demand for replacement stampings in addition to original equipment stampings.)

Output of automotive metal stampings was probably also slowed by imports of motor vehicles during the 1970's and early 1980's. As a proportion of new supplies of motor vehicles, imports rose from 13.6 percent in 1972 to 23.8 percent in 1981. Import penetration of parts of motor vehicles, which often embody metal stampings, rose from 7.7 to 9.1 percent. The import penetration of automotive metal stampings as such rose but slightly, barely exceeding 1 percent in 1981. However, imports classified as metal stampings are likely to have been dwarfed by imports of automotive products, of which metal stampings are an integral component.

Hard goods industries other than motor vehicles, and for which the Bureau of Labor Statistics has computed measures, likewise experienced slower growth (or declines) during the 1973-83 decade, as compared with 1963-73—a development that accounts for the parallel output trend pattern of nonautomotive metal stampings (a 2.3-percent-a-year rise followed by a 2.1-percent-a-year drop). Included in such hard goods industries are construction machinery, agricultural equipment, pumps and compressors, internal combustion engines, and refrigeration and heating equipment.⁴ All these industries purchase job stampings, which accounted for nearly one-half of the total value of nonauto-

Table 1. Indexes of output per employee hour, output, and employee hours in metal stamping industries, 1963-83

[1977 = 100]

Year	Output per employee hour				Employee hours		
	All employees	Production workers	Nonproduction workers	Output	All employees	Production workers	Nonproduction workers
1963....	87.5	87.5	87.8	67.5	77.1	77.1	76.9
1964....	84.0	83.1	89.1	68.6	81.7	82.6	77.0
1965....	88.8	88.2	92.4	79.1	89.1	89.7	85.6
1966....	87.1	85.6	96.3	82.6	94.8	96.5	85.8
1967....	87.7	87.8	87.0	81.0	92.4	92.3	93.1
1968....	91.0	90.0	96.6	89.1	97.9	99.0	92.2
1969....	89.4	89.2	90.5	88.9	99.4	99.7	98.2
1970....	86.4	88.4	77.6	76.9	89.0	87.0	99.1
1971....	93.8	95.2	86.9	79.7	85.0	83.7	91.7
1972....	97.6	97.6	97.5	89.7	91.9	91.9	92.0
1973....	97.1	96.5	100.6	98.7	101.6	102.3	98.1
1974....	96.3	97.7	90.0	89.1	92.5	91.2	99.0
1975....	93.2	96.3	79.6	72.3	77.6	75.1	90.8
1976....	97.2	98.0	93.2	88.0	90.5	89.8	94.4
1977....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978....	101.3	100.8	103.5	102.5	101.2	101.7	99.0
1979....	102.3	102.4	101.4	99.6	97.4	97.3	98.2
1980....	99.9	102.3	88.6	85.4	85.5	83.5	96.4
1981....	101.4	103.5	91.4	85.5	84.3	82.6	93.5
1982....	98.1	103.5	76.7	76.2	77.7	73.6	99.4
1983....	104.0	106.9	91.1	88.3	84.9	82.6	96.9
Average annual rates of change (percent)							
1963-83..	1.0	1.1	0.0	0.9	0.0	-0.2	0.9
1979-83..	0.1	1.0	-3.5	-3.5	-3.6	-4.4	0.0

Table 2. Indexes of output per employee hour, output, and employee hours in the automotive stamping industry, 1972-83

[1977 = 100]

Year	Output per employee hour			Output	Employee hours		
	All employees	Production workers	Nonproduction workers		All employees	Production workers	Nonproduction workers
1972...	95.9	97.3	88.6	89.3	93.1	91.8	100.8
1973...	94.8	95.5	90.5	97.9	103.3	102.5	108.2
1974...	94.9	97.3	81.9	83.0	87.5	85.3	101.4
1975...	94.1	96.9	79.5	70.8	75.2	73.1	89.1
1976...	96.4	97.3	90.5	87.8	91.1	90.2	97.0
1977...	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978...	101.9	102.0	101.3	102.1	100.2	100.1	100.8
1979...	102.9	104.1	96.1	91.4	88.8	87.8	95.1
1980...	101.6	105.9	80.7	69.7	68.6	65.8	86.4
1981...	105.0	108.5	86.5	69.3	66.0	63.9	80.1
1982...	106.7	111.3	84.5	68.2	63.9	61.3	80.7
1983...	121.5	122.7	114.5	89.2	73.4	72.7	77.9
Average annual rates of change (percent)							
1972-83	1.8	1.9	1.0	-1.5	-3.2	-3.4	-2.5
1979-83	3.9	3.9	4.0	-0.7	-4.4	-4.4	-4.6

otive metal stampings shipped in 1982, according to the Census of Manufactures.

The output slowdown in metal stampings noted for the 1972-83 period occurred largely between 1977 and 1983 (average annual rates in percent):

	1972-83	1972-77	1977-83
All hard goods	1.7	1.7	-0.5
Automotive metal stampings ..	-1.5	0.2	-5.0
Number of domestic motor vehicles	-3.4	0.5	-8.8
Nonautomotive metal stampings	0.7	-0.4	-2.8

Employment and hours

In 1983, the metal stamping industries employed close to 194,000 persons. Levels of employment ran 13 percent higher than in 1963, but they had receded 18 percent from their peak in 1978. Much of the rise in total 1963-83 employment, and little of the drop that occurred in recent years, took place among nonproduction workers. Production worker employment ran 10 percent higher in 1983 than in 1963, but in 1983 it still stood 20 percent below 1978.

On balance, however, the long-term trend in employment and hours in the metal stamping industries was flat. Employee hours rose at an average annual rate of 1.3 percent over the first decade of the review period, then dropped by a like magnitude over the second. Employment increased slightly faster in 1963-73 (1.9 percent a year) than employee hours, and declined a bit slower in 1973-83 (1.1 percent annually). Employment and hours in hard goods manufacturing generally paralleled these trends.⁵

The long-term trend in production jobs did not increase

significantly over the 20-year span, while nonproduction employment rose at a 1-percent-a-year rate. Whereas a gain in production jobs during the 1963-73 decade was reversed thereafter, the increase in nonproduction workers merely leveled off.

The following illustrates the evolution of employee hours during the 1970's in both metal stampings industries (average annual rates of change, in percent):

	Automotive	Nonautomotive
1972-83	-3.0	3.3
1972-77	-0.5	0.0
1977-83	-7.3	-0.6

Production worker hours declined somewhat more than nonproduction worker hours in automotive metal stampings. But in nonautomotive metal stampings their decline contrasted with a considerable and sustained increase in nonproduction worker hours. By the end of the period, the proportion of nonproduction workers in nonautomotive metal stampings had expanded to 29 percent of total employment from 20 percent in 1972—a pattern similar to all durable manufacturing, in which the proportion of nonproduction workers had grown to 34 percent from 27 percent in 1972. In automotive metal stampings, nonproduction workers accounted for 15 percent of all employment, not much different from 11 years earlier. The employment of women progressed in relative terms—from 10 to 15 percent of the total in automotive metal stampings, and from 26 to 29 percent in nonautomotive stampings. (In all of durable manufacturing, women's employment grew from 21 to 26 percent over the 1972-83 period.)

Attesting the highly cyclical nature of the demand for automotive metal stampings, and evidently also management policies that linked output (or demand) fluctuations with employment practice, labor turnover rates in the industry ran well above the manufacturing average from 1972 to 1981⁶—as well as above the average for nonautomotive stampings. High labor turnover tends to dilute the levels of skill and experience of the work force. Such dilution (or loss) was made up to an extent by high overtime schedules in automotive metal stampings that averaged 35 percent above manufacturing for the 11 years examined here. In nonautomotive stampings, overtime ran 7 percent below.⁷

	Automotive	Nonautomotive
	(Manufacturing = 100)	
Accessions	119	108
Separations	124	111
Layoffs	264	118

The occupational composition of the two metal stamping industries is more heavily weighted toward production workers than manufacturing as a whole. In 1982, professional, technical, and managerial personnel accounted for 4 percent of total employment in industry group SIC 346

Table 3. Indexes of output per employee hour, output, and employee hours in the nonautomotive metal stamping industry, 1972-83

[1977 = 100]

Year	Output per employee hour			Output	Employee hours		
	All employees	Production workers	Nonproduction workers		All employees	Production workers	Nonproduction workers
1972....	100.0	98.2	107.7	89.3	89.3	90.9	82.9
1973....	99.8	97.1	113.0	99.7	99.9	102.7	88.2
1974....	98.4	98.0	100.2	96.6	98.2	98.6	96.4
1975....	91.7	95.2	79.5	72.6	79.2	76.3	91.3
1976....	98.0	98.8	94.9	87.1	88.9	88.2	91.8
1977....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978....	100.2	98.8	106.7	103.4	103.2	104.7	96.9
1979....	101.5	99.6	109.9	111.3	109.7	111.8	101.3
1980....	98.1	97.6	100.7	106.1	108.1	108.7	105.4
1981....	98.0	97.4	100.5	106.4	108.6	109.2	105.9
1982....	89.3	94.4	73.0	85.7	96.0	90.8	117.4
1983....	88.6	91.8	77.3	88.6	100.0	96.5	114.6
Average annual rates of change (percent)							
1972-83.	-0.7	-0.3	-2.0	0.7	1.3	1.0	2.8
1979-83.	-3.6	-1.9	-9.7	-6.5	-3.0	-4.6	3.6

(metal forgings and stampings).⁸ The corresponding percentage for manufacturing as a whole was 10 percent. Craft and related workers represented 27 percent of the group's employment, compared with 19 percent for all manufacturing. The differences stemmed in part from the two industries' high proportion of tool and die makers (6 percent versus 1 percent). Forty-four percent of the industry group's workers were operatives (versus 41 percent in manufacturing)—with machine tool and punch press operators making up the bulk of the employees in this category (35 percent versus 6 percent for manufacturing).

The level of, as well as the trend in, relative hourly wages was not quite so favorable in nonautomotive stampings as in automotive stampings. In 1983, these amounted to 87 percent of the durables manufacturing average, down from 94 percent in 1972. In automotive stampings, by contrast, the wage relative stood at 130 in 1983, not much different from its 1972 level.

Technological change

Both metal stamping industries discussed here convert steel mill products of varying thicknesses into a vast range of components used in capital goods and consumer durables.⁹ Examples have been noted. The basic apparatus used in both industries consists of production presses. Such presses are considered to be metalforming machine tools, although unlike metalcutting machine tools they cannot reproduce themselves. Production presses have been defined as being essentially power-operated clamps that close one or more dies at a proper speed and pressure.¹⁰ The die or dies with which a press is equipped shear, bend, or otherwise "distort" the sheet or strip fed to it, forming the desired shape. The metal is generally worked cold.

Presses vary widely in size and in the amount of power—

usually expressed in terms of tonnage of pressure—they bring to bear. The die may be single purpose, as when a workpiece is simply cut out or shaped, or it may be a "progressive" or a transfer die, imparting complex shapes to the workpiece. Progressive dies, which may consist of as many as nine work stations, subject the workpiece to several sequential strokes or punches. In such operations, the steel is usually fed automatically from coils through the several work stations as a continuous ribbon of material up to the last station of the die, where the part is sheared off. Manual feeding of strip steel remains widely prevalent.¹¹

According to the most recent *American Machinist* inventory of metalworking machinery, 30 percent of the metalcutting and 20 percent of the metalforming machine tools installed in the industry sector to which the two metal stamping industries belong were less than 10 years old in 1983—a somewhat lower proportion of such relatively up-to-date equipment than had been reported in the *American Machinist's* 1973 inventory.¹² About one-third of the two industries' stock of machine tools was between 10 and 20 years old in 1983, also a lower proportion than a decade earlier. Close to two-fifths of metalcutting and nearly one-half of metalforming machine tools were 20 or more years old in 1983, considerably higher than in 1973.¹³ There has thus occurred a degree of aging in the two industries' basic equipment. However, industry sources believe that such aging may have been partially offset by rebuilding and retrofitting of the older machine tools with updated components. The importance of rebuilding and retrofitting may be inferred from the rise in machine tool manufacturers' shipments of parts of metalforming machine tools, from 19 to 24 percent of total shipments between 1967 and 1972, and to around 29 percent in recent years.¹⁴ Also confirming the importance of retrofitting is the fact that about one-third of all metalcutting machine tools and one-fourth of all metalforming machine tools in the two metal stamping industries feature numerical controls. The production capabilities of machine tools so equipped are generally higher than those without numerical controls. (See below.)

The advent of numerical controls, first applied in metalforming in the punching of flat metal in the 1950's, stimulated new press designs. It probably also contributed to a shift of some metalworking from metalcutting to metalforming machine tools, inasmuch as it helped in improving the precision of the latter. Thus, metal stampings made for automotive castings and forgings, which formerly were finished by metalcutting, came to be completed in one operation by means of metalforming. Filter system components, brake and wheel components, gasoline engine mufflers, oil filter caps, engine mounts and brackets, some kinds of gear, as well as metal cabinets for computers and other electronic devices have come to be made by stamping presses.¹⁵ The shift evidently improved productivity significantly, for per-unit costs were reportedly reduced by as much as one-half.¹⁶

Numerical controls, in addition to enhancing the preci-

sion of production presses, have also made higher production speeds possible. For turret punch machines (a type of power press), setup time has been virtually eliminated, as numerical controls can automatically change punch configurations. Unit costs of short production runs have been drastically reduced as manual setups have been replaced by taped programs fed to the mechanism that controls the punch magazine.¹⁷ Numerical controls have also facilitated rapid alternation of punching movements between the *x* and *y* or other coordinates of a workpiece. The introduction of computer numerical controls in the early 1970's, where installed, has done away with the coordinate calculation required by numerical controls.¹⁸

There exist tens of thousands of smaller punch presses operated manually or by foot, and equipped with an auxiliary electrical motor. Technological advances have evidently been minor here, particularly where little power is needed and production runs are short, as, for example, in crimping or embossing. Mechanical feeding devices, however, do raise the speeds of hand- or foot-operated punch presses somewhat (such presses average 15 to 20 stampings per minute).¹⁹

Where the use of coil stock is feasible, automated feeding of the press has been widely introduced. With continued improvement in the physical stability and accuracy of presses, as many as 1,800 strokes per minute are attained in some jobs. Automatic ejection of parts, as well as automatic chopping and removal of scrap, becomes necessary at such speeds.²⁰

Partly because of the shift of some metal fabrication from metalcutting to metalforming machine tools, partly because of the needs of such industries as computers, robotics, and instrumentation, and also because of international competition, the quality control requirements of the metal stamping industries became increasingly stringent during the review period. Hence, presses had to be designed to accommodate closer tolerances. For example, some 50-ton punch presses have had to operate within 5/1000 of an inch of accuracy, without sacrificing speed, hence, productivity.²¹ Quality control devices, such as coordinate measuring instruments, have come to be linked directly to computers, which correct developing inaccuracies by way of feedback systems. Such installations have tended not only to economize on the labor inputs of quality control personnel, they have also tended to reduce rejects, and have made product improvements possible—for example, the removal of burrs on small metal parts.²²

Notwithstanding the advances sketched here, and the competitive pressures to which both metal stamping industries are subject, both retain an expensive investment in older, at times outdated equipment (as the *American Machinist* inventory data cited also indicate). Thus, the generally lower capabilities of automotive metal stamping presses in the United States than in Japan are linked largely to the enormous inventories here of older dies which must be

bolted into the press, and which are transported by cranes or forklift trucks. The Japanese, who built much of their metal stamping plant in the 1970's, clamp dies hydraulically, and move them to the press by means of tracked cars. Dies are removed from the press by being pushed from their trolleys into one of these cars, while a new die is loaded from the opposite side. American press dies cannot be retrofitted to accommodate this labor-saving setup. This is but one reason for the difficulty of adopting—or adapting—updated metal stamping technologies here in the near term.²³

Capital investment

In terms of constant dollars,²⁴ automotive metal stamping establishments raised their capital expenditures at an average annual rate of about 9 percent, more than triple the rate for nonautomotive stamping establishments. Trends in the real value of capital investment in machinery and equipment also differed considerably between the two industries:

	Total	Machinery and equipment	Structures and buildings
Automotive metal stamping	9.2	11.8	-4.0
Nonautomotive metal stamping	2.6	4.7	-3.3
All manufacturing . . .	4.5	-	-

A breakdown of capital expenditure data for all manufacturing is available only for 1972–81. Constant-dollar expenditures for machinery and equipment over that period rose by 7 percent a year, and a comparison with the rates for the two metal stamping industries suggests that the capital intensity of automotive metal stamping establishments increased at an above-average rate, while the reverse was true of nonautomotive metal stamping firms. As regards structures and buildings, while the rates for the two metal stamping industries declined, the rate for all manufacturing, at least for the 1972–81 period, rose 0.7 percent a year. The relative increase indicated in the capital intensity of automotive metal stamping shops is documented by the rise in their fixed assets per employee, from 134 to 153 of the manufacturing average (=100) over the 1972–82 span. In nonautomotive metal stamping firms, assets per worker declined slightly, from 68 to 66.

The long-term rates shown obscure the exceedingly large year-to-year fluctuations in the constant-dollar capital spending of both metal stamping industries. For example, capital spending by automotive metal stamping firms ranged from a rise of 69 percent (in 1977) to a drop of 48 percent in 1982. Gyration in outlays for structures and buildings were even more pronounced. Comparable movements for all of manufacturing were much more moderate. It should be noted that nearly all of the decline in the two industries' spending rates for structures and buildings stems from cutbacks after 1978.

Structure of the metal stamping industries

The number of establishments in the two metal stamping industries together rose 25 percent between 1972 and 1982. All of the increase occurred among smaller firms with up to 49 employees, while a decline took place among firms with 100 workers or more. In automotive metal stampings, establishments with up to 49 employees accounted for 65 percent of the total in 1982, as against 46 percent in 1972; for nonautomotive shops, the comparable proportions read 82 percent versus 80 percent. However, the percentage of total employment in the smaller firms, while also higher in 1982 than a decade earlier, remained modest. It rose from 5 to 9 percent in automotive metal stampings, and from 27 to 34 percent in nonautomotive stampings.

Larger metal stamping establishments continued to account for a predominant share of employment in automotive stamping shops, and for close to one-half of it in the nonautomotive stamping industry. In the former, establishments with 100 workers or more represented 82 percent of the work force in 1982, in the latter 47 percent. Automotive stamping firms have, for the most part, been large employers, but nonautomotive stamping firms have been typically of modest size, with firms employing 500 workers or more accounting for but 12 percent of this industry's workers.

Automotive metal stamping averaged 135 employees per establishment in 1982, nonautomotive stamping shops, 37. The great differences in both employment size distribution as well as in average number of workers per establishment reflect in part the difference between fixed assets per worker, hence, the extent of business opportunities for persons knowledgeable in the trade. The figure was \$23,773 for nonautomotive metal stampings, and \$55,265 for automotive metal stampings in 1982 (for all manufacturing the figure read \$36,146). Investment per worker in structures also was much lower in the former industry (around \$5,400) than in the latter (about \$10,800). (Here, the manufacturing average was \$8,700.)

Outlook

Industry analysts generally foresee advances in stamping press technology which would raise operating time owing to such factors as improved ease of maintenance, and greater precision without loss of press speed. Robotic transfer and assembly too is likely to be introduced more widely. In turn, output per unit of labor input would be expected to rise. Among anticipated improvements, as well as improvements already on stream but not as yet broadly diffused are devices (such as die cushions) that slow the downward speed of the press. Downward speed accelerates after the punch has penetrated the upper portion of a given workpiece and resistance to the punch's force weakens. Unless the speed is inhibited, the press destabilizes, and this can lead to severe maintenance problems. Also, overload protection, which is designed into the clutch or hydraulic system controlling the

press stroke, will likely be adopted by more metal stamping shops.²⁵

Wider diffusion of solid state press controls is also expected. Such controls, which have no moving parts, usually eliminate the maintenance chores and problems associated with electromechanical controls. Diagnostic and self-check circuits are more easily incorporated in such controls, and at lower cost than in their electromechanical counterparts.²⁶

Continuous-operating presses, equipped with progressive (or transfer) dies, and fed by automatic coil feed systems, are also seen to be more widely adopted. Such presses, with their high production capabilities, require but a single operator who monitors them. They completely fabricate a part with each stroke; that is, they permit the elimination of all secondary operations and multiple handling.²⁷ The reduction of die changing time from hours to a few minutes is also likely to become more widely prevalent. As noted, however, this requires the scrapping of existing presses, and large investments in technically more advanced ones, featuring quick die changing mechanisms. In addition, new die transportation systems would have to be installed.²⁸ The obsolescence of older presses and their dies, together with the force of international cost competition, may in time compel these investments.²⁹

Precision requirements for metal stampings (as for other types of metalworking products) are expected to become more exacting in the years ahead, and small-batch production more frequent.³⁰ These developments spell increasing reliance of metal stamping establishments upon automated and computerized metalforming systems, as well as on die technologies that minimize setup changes. Electronic controls and digital readouts in the shearing, bending, and punching of blanks are also likely to be adopted by more shops. The pace of diffusion depends in some measure upon prospects of production cost savings, which, to be sure, in the two metal stamping industries tend to be clouded by demand cyclicity.

Marrying metal stamping to assembly processes for the thousands of fabrications the two industries produce (or will produce) remains a test of the innovativeness of the designers and builders of presses and their accessories.³¹ The trend toward eliminating manual assembly, and of integrating the metalforming with the assembly process seems likely to become more pronounced.³² This tends to do away with transfer operations. Thus, when two or more parts of a given workpiece are to be joined to make up a given fabrication, this can often already be done without loss of press stroke speed.³³

Nevertheless, robotics as transfer devices are bound to continue to replace human labor in metal stamping—both automotive and nonautomotive. Where the size and complexity of some workpieces necessitate multistation press production lines, that is, where progressive dies are not feasible, transfer of the workpiece from one press to the next is increasingly likely to be done by robots.³⁴ Of course,

short-run stamping operations will remain routine in many metal stamping operations, and these, so industry observers hold, will not soon become susceptible to robotics. Currently, 4,000 to 5,000 stampings of the same configuration are required to yield a reasonable payoff on any investment in robotizing feeding or tailing the press.³⁵ Where longer runs justify the introduction of robots, they are believed likely also to make a broader program of punch press automation economical.³⁶

For the 1984-95 period, BLS has projected a rise of between 5 and 15 percent in the wage and salary employment

of the industry group to which the two metal stamping industries belong. The occupational mix of the industry group is expected to shift somewhat toward more highly skilled workers. The proportion of operatives, such as punch press and assembly workers, has been projected to decline from 44 to 42 percent of the industry group's total employment, while that of craft and related workers rises from 27 to 29 percent. The projections presuppose that the technological advances anticipated in metalforming will not be significantly labor-displacing, or obviate the need for skilled personnel in the years ahead. □

—FOOTNOTES—

¹ The metal stamping industries discussed in this article include automotive metal stampings, designated by the Office of Management and Budget as SIC 3465 in the *Standard Industrial Classification Manual, 1972*; and metal stampings, not elsewhere classified (nonautomotive metal stampings), as SIC 3469. In addition to SIC 3465 and SIC 3469, the measures presented with this article also include crowns and closures (SIC 3466). Automotive stampings consist of such products as hubs, trim, and other parts of motor vehicles. Nonautomotive stampings include job stampings, household appliance housings and parts, and other porcelain enameled products; and cooking and other kitchen utensils. Crowns and closures include bottle caps made of stamped metal, and jar crowns, similarly made.

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

² Prior to 1972, establishments manufacturing all categories of metal stampings were designated as SIC 3461 by the Office of Management and Budget. Beginning in 1972, metal stamping products were regrouped in accordance with the classifications described in footnote 1. Crowns and closures, for which no separate measure has been published here, account for about 3 percent of the employment of the three industries together.

³ See *The Detailed Input-Output Structure of the U.S. Economy, 1977* (U.S. Department of Commerce, Bureau of Economic Analysis, 1984). See also the tables pertaining to SIC 346. The pertinent industry chapter of the 1982 *Census of Manufactures*, table 6a-1, also yields relevant information.

⁴ Major industrial consumers of metal stampings where average annual rates in output declined between 1963-73 and 1973-83 include:

	1963-73	1973-83
Internal-combustion engines	6.2*	-0.7
Farm and garden machinery	3.2	-3.6
Construction machinery	4.1	-4.6
Machine tools	-1.6	-4.2
Pumps and compressors	3.7	1.1
Refrigeration and heating equipment	12.3*	-0.2
Transformers	7.5	-0.7
Motors and generators	1.7	-0.9
Major household appliances	4.0	0.7
Radio and TV receiving sets	3.3	1.8
Motor vehicles and equipment	4.6	-5.1

*1967-73.

⁵ Trends in employment and hours in durable goods manufacturing (average annual rates in percent):

	Employment	Employee hours
1963-83	0.6	0.5
1963-73	2.1	2.2
1973-83	-0.9	-1.2

⁶ Data for years after 1981 are not available. See John Duke and Horst Brand, "Cyclical behavior of productivity in the machine tool industry," *Monthly Labor Review*, November 1981, p. 30.

⁷ Overtime in automotive and nonautomotive metal stamping (all manufacturing = 100):

	Automotive	Nonautomotive
1972	128	103
1973	136	100
1974	126	97
1975	104	81
1976	163	100
1977	162	84
1978	145	92
1979	114	100
1980	107	100
1981	136	86
1982	123	82
1983	183	93
1984	169	97

⁸ BLS employment by industry and occupation matrix, 1982 and 1995 alternatives. Automotive and nonautomotive metal stampings account for 80 to 82 percent of the employment of the industry group (SIC 346) to which they belong.

⁹ According to the Bureau of the Census, nonferrous metals and plastics represent a very small proportion of the materials consumed by the two metal stamping industries.

¹⁰ *Modern Machine Tools*, p. 197.

¹¹ Industry information.

¹² "13th *American Machinist* Inventory of Metalworking Equipment," *American Machinist*, November 1983, various pagings.

¹³ "11th *American Machinist* Inventory of Metalworking Equipment," *American Machinist*, November 1977.

¹⁴ National Machine Tool Builders Association. Data on parts shipments from the Bureau of the Census, *Census of Manufactures*.

¹⁵ *Metal Stamping*, August 1969, pp. 18-19; and industry information.

¹⁶ *Ibid.*

¹⁷ Industry information.

¹⁸ *American Machinist*, April 1977, p. SR-6.

¹⁹ *Ibid.*, p. SR-7. Also, information from J. Winship, Wordsmith Enterprises, Allendale, NJ.

²⁰ *Metal Stamping*, May 1970, p. 14. Also, *American Machinist*, January 1983, p. 117.

²¹ *American Machinist*, April 1977, p. SR-13 ff. The Minster Machine Co. recently advertised a press capable of meeting tolerances of as low as

±.005" with impacts of 20 and 30 tons. The press is required to run up to 537,000 strokes per shift. See *Metal Stamping*, January 1985, back flap.

²² Industry information.

²³ *Japanese Automotive Stamping: Observations, Conclusions, and Recommendations of the American Metal Stamping Association Study Team and a Report to Members* (Cleveland, OH, American Metal Stamping Association, 1981).

²⁴ Capital expenditures were deflated by the implicit price deflators published in *The Annual Report of the Council of Economic Advisers*, February 1985, table B-3, p. 236. See *Economic Report of the President*, transmitted to the Congress, February 1985.

²⁵ Leo R. Rakowski, "Press advances spur stamping productivity gains," *Machine Tool Blue Book*, November 1979, pp. 177-83. See also Donald J. Hennelgarn and Charles Gregorovich, "Stamping Systems Automation," a paper presented at the Biennial International Machine Tool Technical Conference, Chicago, Sept. 5-13, 1984. See Donald F. Wilhelm, "New Developments in Press Force Monitoring," a paper presented at the Biennial International Machine Tool Technical Conference, Chicago, Sept. 5-13, 1984.

²⁶ Rakowski, "Press advances spur productivity gains."

²⁷ *Ibid.*

²⁸ *Ibid.* See also *Japanese Automotive Stamping*.

²⁹ *Japanese Automotive Stamping* and industry information.

³⁰ *Metal Stamping*, September 1985, p. 3.

³¹ See, for example, Robert Rice, "Manufacturing with the use of transfer systems," *The Fabricator*, November-December 1984; and John T. Winship, "Form compression heads in one pass," *American Machinist*, May 1980, reprint. See also the advertising brochure of Willett Transfer Systems, published by M. S. Willett, Cockeysville, MD.

³² *Metal Stamping*, July 1985, p. 13.

³³ *Ibid.*

³⁴ *Metal Stamping*, November 1984, pp. 8-11.

³⁵ Hennelgarn and Gregorovich, *Stamping Systems Automation*, pp. 12-106.

³⁶ James R. Hunter, "New Punch Press Technologies," a paper presented at the Biennial International Machine Tool Technical Conference, Chicago, Sept. 5-13, 1984.

APPENDIX: Measurement techniques and limitations

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

The preferred output index for manufacturing industries would be obtained from data on quantities of the various goods produced by the industry, each weighted (multiplied) by the employee hours required to produce one unit of each good in some specified base period. Thus, those goods that require more labor time to produce are given more importance in the index.

In the absence of adequate physical quantity data, the output indexes for the industries discussed here were developed using a deflated value technique. The value of shipments of the various product classes was adjusted for price

changes by appropriate Producer Price Indexes and Industry Sector Price Indexes to derive real output measures. These, in turn, were combined with employee hour weights to derive overall output measures. The result is a final output index conceptually close to the preferred output measure.

Employment and employee hours indexes were derived from data published by the Bureau of the Census. Employees and employee hours are each considered homogeneous and additive, and thus do not reflect changes in the qualitative aspects of labor, such as skill and experience.

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

Foreign housing voucher systems: evolution and strategies

European governments have historically used housing allowance concepts with various strategies depending on the given definition of "most needy;" models include those with priority given to large families, the elderly, and the handicapped, and a model based on labor mobility

E. JAY HOWENSTINE

The "housing voucher" or "housing allowance" concept is emerging as the principal tool in U.S. housing subsidy policy. In Europe, governments have effectively operated national housing allowance systems for several decades with a wide variety of strategies. This report examines foreign experience.¹

Two fundamental judgments underlie all housing allowance² systems: (1) there are large numbers of families that cannot obtain minimum standard housing by paying a reasonable portion of their income, and (2) the most needy households should be given first priority in the payment of housing subsidies. However, there have been notable differences among housing allowance systems in their approach to the most needy households. There have been different definitions of "most needy," and the principle of priority for the most needy has often been blended with other important economic and social purposes.

The strategic role of the housing allowance concept as it has developed in other countries can be best understood by delineating eight models of the concept: large family hardship model; elderly hardship model; rent harmonization model; excessive shelter-to-income model; tandem-new construction model; social stability model; labor mobility model; and family crisis model. (See exhibit 1.)

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Large family hardship model

The pre-World War II European perception was that wages of the working classes were more or less fixed over time. Other things being equal, therefore, an additional child in the family—and families tended to be big—led to a worsening of life in two major ways: a smaller portion of family income was available for the consumption of each individual; and each person had less physical space within the household.

In other industrialized nations, social concern for the welfare of children in large working class families found political expression in two ways rather different from the American experience, that is, in the establishment of family allowance systems (sometimes called children's allowances) and in social housing programs. Family allowance systems, spearheaded by the International Labour Office created under the League of Nations in 1919, were adopted in most of the highly industrialized countries providing financial assistance for each additional child in the family to avoid a lowering of standards of living.³ And social housing (more or less the European equivalent of U.S. public housing) programs were promoted to help eliminate slums.

Because slums could only be avoided or eliminated by constructing more housing, it was logical that financial assistance should be in the form of producer subsidies to the builder, that is, mainly public and nonprofit agencies acting on behalf of the poor. The new social housing was then normally allotted on the basis of a point system to the most

Exhibit 1. Multiple uses of housing allowance strategies by foreign governments

Model	Countries and approximate date of adoption	Model	Countries and approximate date of adoption
1. Large family hardship	Sweden, 1930's France, 1948 Finland, 1962 Switzerland, Basle Canton, 1963 City of Zurich, 1963 Denmark, 1964	4. Excessive shelter-to-income ratio	Austria Federal Republic of Germany Finland Netherlands
2. Elderly hardship	France, 1948 Sweden, 1950's Denmark, 1959 Switzerland, Basle Canton, 1963 Belgium, 1950's Australia, 1969 Finland, 1970 Canadian provincial systems, 1970's	5. Tandem-new construction	Norway, 1967 Sweden, 1960's France Netherlands
3. Rent harmonization	France, 1948 Federal Republic of Germany, 1955 Denmark, 1967 Netherlands, 1967 Ireland, 1967 Austria, 1970's Norway, 1973	6. Social stability	Applied generally
		7. Labor mobility	Sweden, 1957 France, 1960's Federal Republic of Germany, 1960's Austria, 1960's Denmark, 1966 Netherlands, 1970's Norway, 1972
		8. Family crisis	Australia, Victoria, 1981

needy, which tended to be the largest families.

As children grow up and leave, large families become small families. But under the housing regulations of most countries, families were not required to vacate subsidized housing as their level of need changed, for example, as the size of family shrank or as the level of income rose; rather they continued to occupy old units, even passing them on to the next generation. In this milieu, after World War II, the International Union of Family Organizations became one of the leading protagonists for a housing allowance system based primarily on the large family rationale. It had an important influence in many countries, especially Belgium, France, Luxembourg, the Netherlands, and Scandinavia.⁴

In the view of the International Union of Family Organizations, the key to providing adequate succor to the most needy was the development of "individual compensation for housing expenses . . . as closely adapted as possible to the circumstances of the household with children."⁵ Such a system would ensure a much more effective use of the existing housing stock on the basis of need. As large families shrank and thereby received a smaller housing allowance, they would have an incentive to move to smaller space and to liberate large dwelling units for growing families.⁶

An important corollary was that housing allowances should operate in a national rental housing market organized on the basis of economic rents rather than in a rent controlled market with many different rent levels for equivalent accommodation based on differences in past construction

costs and producer subsidy systems. This was essential for two reasons. First, it avoided the misuse and waste of housing subsidies on space for families that had low priority needs or had ceased to be in a needy position, and it encouraged households to move within the market as their housing needs increased or decreased. Second, it stimulated an increase in the supply of rental housing. With the assurance of economic rents, private rental housing investors would not have to compete with low, subsidized rents, and thus would be encouraged to construct new housing.⁷

The original large family hardship model contained two other concepts, which, although more or less lost in the passage of time, are worth noting. One concerned the formula for calculating the housing allowance. Because the family allowance had become a well-established fixture in national social policy in many countries, it was maintained that the ratio of the family allowance to nonhousing items in the worker's budget provided a ready-made measure of need, which could be applied equally well to housing costs in the family budget. Thus, if the family allowance equaled 20 percent of the nonhousing items in the family budget, the housing allowance should equal 20 percent of the housing cost item in the budget.⁸ In countries without such legislation, the International Union of Family Organizations proposed that housing allowances should cover the amount of the rent in excess of a reasonable percentage of the family income, that is, between 6 and 12 percent of income depending on the size of the family and its income.⁹

The other interesting concept was that housing space should be measured in terms of its capacity to accommodate people rather than in square meters of floor space or number of rooms. Accordingly, at its 1954 session, the International Union of Family Organizations adopted the concept of a "housing capacity index" based on two criteria, the number of bedrooms and the total number of occupants of these bedrooms. Thus, a dwelling unit with an index of A 4/6 was an apartment of four bedrooms for six persons.¹⁰ This index was believed to be in the best possible measure of the housing stock's capacity to meet social need.

Concern for the housing needs of large poor families was prominent in the early evolution of housing allowances. Sweden introduced a housing subsidy for families with many children in the 1930's and has continued to expand the coverage until approximately one-half of all families with children now receive a housing allowance. Finland adopted its first housing allowance system for large families in 1941, the system expanding by 1961 to include about 2,000 families.¹¹ France adopted a housing allowance in 1948 that was payable only to large families which received a family allowance. The Canton of Basle and the city of Zurich in Switzerland launched large family housing allowances in 1963, while Denmark introduced its system for large families and single persons with children in 1964.¹²

Elderly hardship model

A second major category of "most needy" households competing for housing subsidies has been the elderly and the physically handicapped. The old age pension has long been a part of European social security systems; in fact, Chancellor Otto Von Bismark made it a part of the German social insurance system in the 1870's. But while fairly comprehensive in coverage, after World War II European systems were generally deficient in two respects. Pensions were relatively small, and there was little provision for automatically increasing (that is, indexing) pensions to compensate for increases in the cost of living. The systems had been established in an era of price stability, when there was no problem of creeping inflation. As a consequence, a large proportion of the elderly increasingly found themselves in a financial squeeze. Although continued rent controls imposed a brake on the rate of increase in shelter costs, periodic relaxation of rent ceilings clearly intensified rent burdens.

The housing allowance concept offered a cogent solution to this problem. It was a simple subsidy for a well-defined, very needy group. Moreover, because the elderly poor were a rather easily identifiable part of the total poverty problem, governments could provide them with financial relief without opening the floodgate for massive consumer housing subsidies for all the poor.

In the early development of housing allowance systems, the elderly poor often played a central role. In 1948, France established a rent subsidy system for the aged and the dis-

abled living in old apartments. This subsidy was necessary for persons living on fixed incomes, such as pensioners, to offset rent increases which the government began to introduce gradually in the rent ceilings on the old housing stock. After several amendments, this program was completely overhauled in 1971. Since then, it has remained a separate system for the elderly, the physically handicapped, and certain young workers.

In Sweden, where there are three separate housing allowance systems, municipalities provide a special housing allowance supplementing the national retirement pension when the pension is insufficient to provide an adequate dwelling. In 1958, the principles governing the subsidy and its financing became the responsibility of municipalities. As a result, differences in levels of payment prevailed. However, means test rules for determining eligibility now have been established by the National Government. Beginning in 1982, the Government agreed to cover 25 percent of the costs and to coordinate housing allowances for the elderly more closely with the other two more general systems. Among other things, this has involved the imposition of rent ceilings. In 1980, slightly more than one-half of all retired persons received housing allowances under this system.

In 1959, Denmark adopted a rent subsidy plan specifically for those elderly and disabled persons receiving national pensions that were too small to enable them to obtain adequate unsubsidized accommodation. Eligible persons were required to rent subsidized housing owned by the municipality or a nonprofit or charitable housing association. The housing allowance was paid to the owner, not the renter. Two-thirds of total costs were financed by the municipality and one-third by the National Government. The Canton of Basle (Switzerland) launched a similar program for the elderly in 1963. The Belgian housing allowance system is mainly for the elderly. In Australia, the Supplementary Assistance Plan for rental housing for the aged, sole parents, and invalid pensioners was introduced in 1969. Weekly assistance in 1982 was equal to one-half the amount by which rent exceeded \$10, with maximum assistance of \$10 a week. In December 1982, 86 percent of total pensioners received assistance from this plan.¹³

Finland introduced a housing allowance system for the elderly in 1970 to cover housing costs that were above average. The allowance is paid as a part of the national pension system. The number of recipients rose from 50,000 in 1970 to 179,000 in 1983, accounting for about 50 percent of all housing allowance participants in the latter year.

The elderly hardship model was adopted by five Canadian provinces—British Columbia, Manitoba, New Brunswick, Nova Scotia, and Quebec—in the 1970's and 1980's. The aim was to assist the elderly in keeping their existing housing rather than to rehouse them in new projects. The policy reflected the belief that housing occupied by the elderly generally met acceptable standards and that the problem was one of excessive rent burden.

Elderly recipients appear to predominate in most national housing allowance plans. In France, the Federal Republic of Germany, Sweden, and the United Kingdom, they historically have constituted from two-thirds to three-quarters of all participants. In other words, it may be said that housing allowance systems have tended to become a major auxiliary support to old-age pension systems.

European experience demonstrates that initially restricting eligibility to senior citizens (and perhaps handicapped persons) offers an effective political strategy for introducing a housing allowance system. It clearly targets the system to a widely recognized high priority category. From a social point of view, the elderly are probably the most highly disciplined sector of the population; thus the risks of abuses and problems of administration are minimized. Because elderly demographics are generally well known, it is possible to set the lower eligibility age limit at a level that corresponds to financial resources that the government is ready to make available for such a program. In other words, this approach offers a method for a fine tuning of demand to the current limits of fiscal capacity. Then, if experience demonstrates the practicability of the system, if fiscal capacity grows, and it is believed appropriate, the age limit can be progressively lowered to embrace a steadily larger part of the population.

Rent harmonization model

World War II seriously disrupted the European housing market in many ways, including the rental housing sector. In the face of wartime inflationary pressures, strict rent controls were applied. After the war, governments were slow to decontrol rents, mainly because of the political risks involved. Consequently, major inequities and distortions arose.¹⁴

First, rent controls created inequities among renters. On the one side, were the longstanding tenants who paid low rents and, on the other side, young couples and war veterans, who paid high rents as recent entrants into the housing market. Second, controls led to inequalities between renters and landlords. Often rents neither covered operating costs, nor yielded a fair return on capital invested. Third, rent controls led to widespread physical deterioration in existing housing. Finally, they were a negative influence on the supply of housing. They were not only an incentive to convert rental housing to owner-occupancy or commercial use and in certain circumstances to demolish the building and sell the land, but also a disincentive for new investment in private rental housing.¹⁵

Although the aim of European governments generally was the eventual abolition of rent controls, it had become apparent by the 1960's that piecemeal liberalization would not succeed alone. Consequently, a new concept of "rent harmonization" or "rent equalization" emerged, in which housing allowances had a strategic role to play. The objective was to move systematically toward a single unified

rental housing market operating as nearly as possible on an economic cost basis. It was believed that, as a result of rising individual incomes associated with postwar national economic growth and inflation, a majority of tenants could afford to pay higher rents. To avoid hardship for those who lived on more or less fixed incomes, a housing allowance or rent rebate would be granted.

This melding of policies was felicitous. It offered a politically acceptable package by eliminating threatened hardship. It introduced an incentive for families to seek housing space in terms of household requirements rather than because of artificially low rents, promoting a more economic use of the existing housing stock. And it offered promise of a fair return on capital to landlords, and thus the capacity and incentive to keep the rental housing stock in a good state of repair.

France appears to have been the first country to link consumer housing subsidies with relaxation of rent controls as an instrument of national policy. In 1948, a modest housing allowance system was introduced to ease the hardship created for persons on fixed incomes who were not able to cope with rent increases.

In 1955, the Federal Republic of Germany adopted its first housing allowance for similar reasons. The allowance was based on the principle that housing expenditures should be kept below 10 percent of the budget for families with very low incomes, rising to 20 percent for those with incomes just under the eligibility limits.

Denmark in 1967 and the Netherlands in 1970 adopted a much more systematic approach. Denmark envisaged the progressive phasing out of rent control over an 8-year period; the Netherlands, over a 10-year period. The assumption was that, during the previous decade, the incomes of most persons had increased sufficiently that they could afford to pay higher rents without exceeding a fair shelter-to-income ratio—in the case of Denmark, 20 percent, the Netherlands, between 13 and 17 percent for families. The housing allowance was an integral part of rent decontrol policy aimed at aiding households with fixed incomes.

Ireland also followed the principle in 1967 with a differential rent policy that adjusted actual rents to the tenant's income and family circumstances, as rents generally were allowed to rise toward a level more in line with the free market.

In the early 1970's, both France and Austria introduced housing allowances to relieve the hardship imposed by increased rents. The French legislation covered only the elderly and the handicapped. The Austrian 1974 law, applying to low-income families generally, also provided that rent increases should be used to cover proper maintenance and, in certain cases, improvement costs. In 1973, the Norwegian Government increased its housing allowance substantially to mitigate individual burdens that might accompany the relaxation of rent controls and the raising of interest rates on existing mortgages.

Excessive shelter-to-income model

The European working class has historically not been able to afford decent housing. Workers' pre-World War I expectations regarding a home and a living environment were therefore generally low, except through the help of the government. After World II, however, several factors combined to alter expectations. European economies spurted ahead with rapid technological change, high economic growth rates, and rising individual incomes. During the late 1940's, the 1950's, and 1960's, great strides were made in rebuilding destroyed cities, and in slum clearance. By the mid-1970's, most countries were succeeding in overcoming the global housing shortage and the age of affluence was bringing hope to the common man. As a result, two issues began to receive increasingly greater attention in housing, that is, improving the quality of the housing stock, and relieving the excessive shelter-to-income burden on low-income families.

The housing allowance is an ideal tool for eliminating excessive rent burdens on poor households. Public policy need but do two things: (1) determine shelter-to-income ratios that various size families can afford, and (2) provide an allowance to cover the difference (or a suitable part of the difference) between actual rents and the maximum percentage of income that families can afford to pay.

This rationale has pervaded several European housing allowance systems, most notably those of Austria, Finland, the Federal Republic of Germany, and the Netherlands. The central principle in the Dutch system is that the tenant should not have to pay more than a reasonable part of his income for rent. In 1978, the standard shelter-to-income ratio for the minimum wage earner, that is, the percentage of income which the tenant was deemed capable of paying for rent, was fixed at 11.2 percent. The Finnish system is similar to the Dutch. In 1983, a three-member household at the minimum wage level was expected to pay 14.5 percent of gross income in rent. The German housing allowance system, covering 1.7 million households or 1 in 16 families in 1978, had as a major objective the reduction of the burden of housing costs on lower-income households. Similarly, in Austria, the Housing Promotion Act of 1968 set up a housing allowance system which focused on the financial burdens which lower income households could reasonably be expected to bear.

Tandem-new construction model

During the 1960's and early 1970's, the increasingly high cost of new construction¹⁶ led inevitably to a growing gap between rents for newly built housing and rents of the older housing stock for roughly equivalent accommodations. One of the dire consequences of this gap was that, in spite of persistent housing need, by 1974 and 1975, a large number of dwellings, especially in Denmark, the Federal Republic of Germany, the Netherlands, Sweden, and Switzerland, were remaining vacant for well over a year because rents

were too high.¹⁷

In this situation, another housing allowance rationale emerged, which will be called the tandem-new construction model, that is, a housing assistance policy which works as a complementary arm with the national policy on new housing construction. In essence, the housing allowance became a tool to facilitate the renting of new, modern, high-cost apartments to a clientele who could not otherwise afford them.

Norway was a pioneer. In 1967, a National Commission was appointed to design a more comprehensive subsidy system. One of its central recommendations was that subsidies should be paid only to households living in recently built dwellings; these were the most expensive because of high building costs, interest rates, and land costs. But the Commission also recommended that subsidies be paid only for the first 10 years after completion (compared to the then existing 15-year period) and that during that period subsidies should be gradually reduced. The Commission's rationale relating to new construction was generally accepted in the 1972 housing reform.

An interesting variation of this model has been developed in Sweden. In 1966, 43 percent of families with children were living in overcrowded conditions, as legislatively defined, that is, more than two occupants per room excluding kitchen and living room. Sweden undertook a huge effort to upgrade the quality of housing, using the housing allowance as a means of helping large, low-income families to obtain "modern and sufficiently large dwellings." The new system provided an incentive to occupy new, expensive, large dwelling units by offering a higher percent of rent subsidy for the more expensive units, that is, 40 percent, than for the less expensive units, which received a housing allowance of only 30 percent of the rent.

The tandem-new construction rationale also became an important element in the housing allowance systems of France and the Netherlands.

Social stability model

European societies have traditionally put emphasis on social stability. In part, this derives from the class structure inherited from the past, which tended to be threatened by the instabilities associated with social change. In part, the stability has its roots in the strong family, neighborhood, and religious orientation of European urban systems. It may also be partly attributable to the old perception that the size of the national economic pie was more or less fixed and that, consequently, there were fairly well-defined constraints on one's economic well-being. (Such beliefs were common until the unprecedented economic growth following World War II began to belie them.)

In this setting, the eviction of a household because of inability to pay rent is regarded as a serious threat to social stability. It is disruptive to family life and a loss to the neighborhood. To diminish this threat, most European

countries have built into the law considerable tenure rights for renters.

To reduce still further the risk of eviction, a logical next step was to bolster the ability to pay of economically weak households by providing a housing allowance. The elderly have perhaps been among the most vulnerable to circumstances beyond their control. The rent-paying capacity of persons on fixed incomes is rapidly eroded by inflation. Most of the animus of early housing allowance plans for the elderly, noted previously, appears to have been rooted in the concern for social stability. The financial crunch was forcing elderly persons to give up their homes and this was regarded as highly inimical not only to the welfare of those displaced but also to the very core of society itself. There is in this respect, therefore, an overlap between the social stability model and the elderly hardship model.

Similarly, low-income families, already suffering hardship from their economic status, are highly vulnerable to forces beyond their control, such as unemployment and depression. To a considerable degree, therefore, housing allowances in a number of countries have been designed not to improve housing conditions *in situ*, nor to enable households to shop around for alternative accommodation, but merely to strengthen the ability of financially weak households to keep the housing they have.

Labor mobility model

The motif of the labor mobility model is in contrast with that of the social stability model. It is the response of a housing market long under the heavy hand of rent controls.

As noted earlier, there is a strong incentive for households to continue occupying large, low-rent, centrally located apartments long after their housing requirements—as determined by the size of family—have changed, because most alternative smaller units are recently built and, therefore, have much higher rents. Socially, this condition is a gross misallocation of housing space. Economically, it constitutes a serious brake on the rate of national economic growth by preventing the labor force from moving easily as economic growth and job markets beckon. The housing allowance has helped remedy this situation to some extent.

The simplest way to use housing allowances as an instrument for promoting labor mobility is to restrict participation to households living in the most recently built apartments, which by definition were more costly to build and are thus let at the highest rents. All countries have encountered increasingly difficult problems in finding tenants, particularly among low- and moderate-income households, to contract for these high-rent dwelling units. Going back to its early experience, Sweden limited its housing allowance system established in 1947 to dwellings that were erected or converted after December 1947. Norway restricted its 1972 housing allowance plan to housing built after 1962. The Dutch housing allowance system before 1975 was available only to households living in rental accommodation built

after 1960. Two Austrian provinces (Tryol and Vorarlberg) and the country of Denmark have likewise provided that households would be eligible only if their accommodation was built after a specified date.

In 1966, the housing problem became a central issue in Denmark. In a celebrated Housing Pact worked out by the major Danish political parties, one of the major objectives agreed upon was to encourage greater mobility within the housing stock by means of rent harmonization and the introduction of housing allowances for tenants. Similar considerations have also been prominent in French and German housing allowance policy.

Another, perhaps more indirect, way that governments have applied the labor mobility model is by establishing high standards of physical construction and housing amenities as a condition for coverage by the housing allowance system. In many countries, only postwar or even more recent construction—and thus the most expensive rental dwelling units—can meet such requirements.

Again the rationale is similar. Rent controls and the basing of rents on postwar construction costs have created large rent differentials that may not be representative of real differences in housing habitability. Much of this new postwar construction has been in response to economic growth needs, but rent differentials have had the unfortunate result of discouraging mobility in the labor market. Encountering difficulties in letting such high quality, high-rent housing units, governments have developed housing allowance systems as a means of reducing the rent burden and providing an incentive for greater labor mobility.

A number of governments, including those of Denmark, France, the Federal Republic of Germany, the Netherlands, and Sweden, have gone further and used other types of housing assistance to promote labor mobility. For example, in 1975, the Netherlands adopted a rent readjustment grant to assist households that were capable and desirous of living in better accommodations, but who were intimidated by the sudden increase in rent and the burden of moving costs. Three types of tenants were eligible: those leaving an older, cheaper unit for a newly built, higher rent unit (the “moving-up process”); those leaving a slum dwelling for a higher rent unit (“slum clearance”); and those whose rents had been increased because their current accommodations had been modernized (“housing improvement”).

Providing the difference in monthly rent was at least \$11.86, the Dutch rent readjustment grant covered 75 percent of the difference the first year, 50 percent the second year, and 25 percent the third year. In 1982, the grant was lowered to 60 percent the first year and to 40 percent the second year. However, certain ceilings were set. The tenant’s annual 1975 taxable income could not exceed \$11,860 and the monthly rent of the vacated dwelling could not be more than \$98. In addition, a special grant of up to \$1,383 was made available to help cover removal and refurbishing costs for households experiencing major housing improve-

ments or slum clearance and for elderly people moving from low-rent dwellings to smaller, more expensive units or to nonself-contained accommodation.

Family crisis model

Frequently low- and moderate-income families are confronted with temporary household crises, such as loss of job or ill health of the breadwinner(s), or desertion of the family by the husband or wife. If the family must move because of nonpayment of rent, this imposes a heavy burden on the household and the community, for example, in the loss of local friends and support services and disruption in children's schooling, in addition to the costs of moving. In contrast, if temporary assistance can be provided, the family is generally able to cope.

Probably in most countries this kind of crisis tends to be dealt with through some form of public assistance. But in 1981, Victoria Province in Australia embarked on an interesting pilot rental subsidy program.¹⁸ The objective is to provide emergency financial support to enable families to remain in their existing situation. The subsidy is temporary and is paid out for a maximum period of 12 months. This rationale could be considered as a subset of the social stability model, but because it is sufficiently imaginative in its social and psychological design it is included as a separate model.

A related program, the Mortgage and Rent Relief Scheme, was adopted by the Australian Federal Government in 1982 to provide assistance to "crisis" cases of people in rental difficulties. The Commonwealth provided the States with \$20 million (Australian) per annum on a matching basis for 3 years with the intent of providing short-term assistance (about 12 months) until either the crisis was resolved or a longer-term solution was found. Relief was provided in advance as quickly as possible, the first payment being made within 2 weeks after registration.¹⁹

IN FOREIGN EXPERIENCE, the housing allowance has proved to be a highly flexible and versatile tool of national policy. Not only has it been an effective means for directly reducing excessive rent burdens on low-income families, especially the elderly, the physically handicapped, and large families, but it has also provided powerful support in implementing other important national social and economic objectives. It has been an instrument for harmonizing rents and in developing unified rental housing markets. It has complemented producer housing subsidy programs in helping to maintain markets for new housing, and has strengthened social stability by assisting financially weak households to keep their housing. Finally, it has been a useful means of stimulating labor mobility needed for national economic growth and the development of new job markets. □

FOOTNOTES

¹ This is an excerpt from a forthcoming report, *Housing Vouchers: An International Analysis*, to be published by Rutgers University Press.

² The term "housing voucher" is rarely used in foreign countries.

³ *Introduction to Social Security*, 3d. ed. (Geneva, International Labour Office, 1984), Chapter 11; *International Survey of Social Security: Comparative Analysis and Summary of National Laws* (Geneva, International Labour Office, 1950), Studies and Reports, New Series No. 23, pp. 21–23, 30–32, 107–09; see also Convention 102 adopted by the International Labour Organisation in 1952, Minimum Standards of Social Security, Part 7, "Family Benefits," International Labour Organisation, *International Labour Conventions and Recommendations, 1919–1981* (Geneva, International Labour Office, 1982), pp. 533–53.

⁴ *Etudes sur le Financement du Logement Familial* (Brussels, Union Internationale des Organismes Familiaux, 1953), pp. 6–26.

⁵ D. Ceccaldi, "Compensation of Family Housing Expenses," in *Etudes sur le Logement Familial* (Brussels, Union Internationale des Organismes Familiaux, 1955), p. 25.

⁶ The International Union of Family Organizations placed great stress on the development of systems to promote interchange of dwelling units within the housing stock. See also *La Mutation des Occupants de Logements dans les Quartiers d'Habitations Sociales* (Brussels, Union Internationale des Organismes Familiaux, 1962).

⁷ Lucien Wynen, *Le Financement du Logement Social* (Brussels, Union Internationale des Organismes Familiaux, 1962), pp. 2–5.

⁸ *Cout du Logement et Integration du Loyer dans le Budget* (Brussels, Union Internationale des Organismes Familiaux, 1962), 8th sess. p. 2; *Compte-Rendu, 8th Session Plenièr* (Brussels, Union Internationale des Organismes Familiaux, 1962).

⁹ *Cout du Logement et Integration*, pp. 7–8.

¹⁰ *Etudes sur le Logement Familial*, pp. 94–95; *Minimum Habitable*

Surfaces: Increase in Size and Cost of Dwelling in Relation to the Size of Family (Brussels, Union Internationale des Organismes Familiaux, 1957).

¹¹ Ossi Pauku, *The Subsidies of the Housing Sector in Finland in 1956–75* (Helsinki, National Housing Board, 1978), published only in Finnish. Information provided by Keijo Tanner, National Housing Board, Helsinki, Jan. 17, 1985.

¹² Gunter Schwertz, *Systems and Significance of Individual Subsidization of Accommodation Costs in European Countries* (Bonn, Domus-Verlag, 1966), pp. 9, 19, 43, 51, and 59.

¹³ Tim Field, "Pensioners Who Rent: Problems and Alternatives," *Social Security Journal* (Canberra, Australian Government Publishing Service, June 1983), pp. 25–26; *Annual Report, 1981–82* (Canberra, Australia, Department of Social Security, 1982), p. 62.

¹⁴ The distortions were so evident that socialists and trade unionists recognized them. See for example, D. L. Munby, *The Rent Problem* (London, Fabian Publications, 1952), pp. 4–5; Heinz Umrath, "Rent Policy in Western Europe," *International Labour Review*, September 1953, pp. 213–15.

¹⁵ E. Jay Howenstine, "European experience with rent controls," *Monthly Labor Review*, June 1977, pp. 21–28.

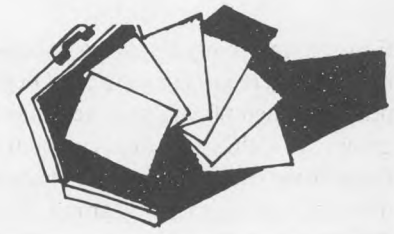
¹⁶ E. Jay Howenstine, *Housing Costs in the United States and Other Industrialized Countries, 1970–1977* (Washington, Department of Housing and Urban Development, 1980).

¹⁷ A. Andrzejewski and M. Lujanen, *Major Trends in Housing Policy in ECE Countries* (New York, United Nations, 1980), p. 22.

¹⁸ *Rental Subsidy Scheme for Families in Crisis* (Melbourne, Australia, Victoria, Ministry of Housing, 1981), p. 8.

¹⁹ *The Rent Relief Scheme in South Australia: The First Twelve Months* (South Australian Housing Trust, 1984), pp. 2–3.

Conference Papers



The following excerpts, closely related to the work of BLS, are adapted from papers presented at the Thirty-Eighth Annual Meeting of the Industrial Relations Research Association, December 1985, in New York.

The full text of the papers appears in the copyrighted IRRA publication, *Proceedings of the Thirty-Eighth Annual Meetings*, available from IRRA, University of Wisconsin, Social Science Building, Madison, WI 53706.

Short-time compensation: assessing the issues

FRANK W. SCHIFF

Since 1978, 10 States have adopted legislation to permit the voluntary use of short-time compensation—that is, work sharing as an alternative to layoffs, combined with the payment of partial unemployment insurance benefits to help compensate employees for their lost work time. The available surveys all indicate that where these programs have actually been used, they have generally been well received by both employers and employees. At the same time, overall usage of short-time compensation has thus far been quite limited, particularly among larger firms.

How short-time compensation will fare in the future will no doubt depend importantly on how actual experience with short-time compensation is evaluated. This paper examines some of the key questions that need to be addressed in assessing the impact of short-time compensation; reviews to what extent they have been answered by recent evaluation studies; and discusses the relevance of this information for the future. I shall draw particularly on two studies that have just become available: the large scale *Evaluation of Short-Time Compensation Programs* prepared by Mathematica Policy Research, Inc. for the U.S. Labor Department¹ and the case study prepared by Bennett Burgoon and Robert D. St. Louis for Motorola²—the firm which has been the largest single user of short-time compensation so far—that

assesses the use of short-time compensation in Motorola's Arizona operation during 1982–83.

Work sharing versus layoffs

My first issue is whether short-time compensation use in cyclical situations implies higher costs for the unemployment insurance system than outright layoffs. This was the central focus of the Mathematica study.

One aspect of this question relates to administrative costs. Mathematica found that these costs were greater under short-time compensation than under regular layoffs. But this finding reflected early experience with the program in only one State. The Mathematica study notes that with more experience, administrative costs under short-time compensation may well be significantly reduced, including having employers file claims for short-time compensation users *en masse*. If one also considers that there will be savings for the Employment Service because it does not have to provide job search assistance and other services associated with regular layoffs, then there is a possibility that net administrative costs with short-time compensation might prove less than with regular layoffs.

A far more important issue is whether the total number of unemployment insurance-compensated hours of unemployment—and the associated unemployment insurance benefit costs—are likely to be greater with short-time compensation programs than with outright layoffs. Surveys of both employers and employees conducted in 1982 by the California Employment Development Department suggested that total work time losses under short-time compensation were significantly less than under layoffs. On the other hand, various simulation studies prepared by the Department produced exactly opposite results.³ However, both types of assessment suffered from important methodological shortcomings. The Mathematica study, which covered work sharing experience in California, Arizona, and Oregon from mid-1982 to mid-1983 and used sophisticated econometric techniques, sought to avoid such shortcomings primarily by relating the experience of firms using short-time compensation (often side-by-side with direct layoffs) to that of a comparison group of firms that presumably faced similar economic circumstances.

Mathematica's principal finding was that for firms using short-time compensation, total hours of compensated unemployment (including *both* regular unemployment insurance and short-time compensation benefits) were larger than for

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firms relying solely on direct layoffs—on average approximately 11 percent. However, in Oregon, total hours of compensated unemployment were almost identical for the two groups. In California, total compensated unemployment for firms using short-time compensation was said to exceed those of the comparison group by 29 percent, while the differential in Arizona came to 12 percent. Another way to describe the Mathematica results is in terms of *marginal* effects. Thus, the study showed that in Oregon, each hour of compensated unemployment under short-time compensation substituted for an hour of regular layoffs. For California, on the other hand, the study produced the extraordinary result that there had been virtually no substitution. The substitution rate for Arizona was about 50 percent.

On the basis of simulations that used these various results as inputs, the study also concluded that unemployment insurance benefit charges for firms using short-time compensation can be expected to be higher than those for similar employers who do not and that this is likely to impose a net drain on the Unemployment Insurance Trust Fund in the short run. However, these negative impacts were expected to be significantly reduced over time by more complete experience-rating of short-time compensation benefits and by revenues gained from special short-time compensation surtaxes.

There is a major question in these studies as to whether users of short-time compensation and non-user comparison employers actually faced similar economic circumstances. Only three primary characteristics were used in selecting comparison group firms: industry classification (according to three-digit Standard Industrial Classification codes); employment size; and the unemployment insurance tax rate. The unemployment insurance tax rate has little relevance to current economic conditions. The relatively broad industry classifications used did not automatically assure that firms in the comparison groups were subject to the same degree of economic stress as those which used short-time compensation.

One specific indication of such stress would have been evidence that these firms were laying off people. In fact, however, a significant number of comparison group firms showed no layoffs. If there were conclusive evidence from other sources that the two sets of firms faced similar economic conditions, the exclusion of firms with no layoffs from the comparison group might be justified, but this was clearly not the case in this instance. When one *excludes* firms that made no layoffs from the comparison group, the excess in total hours of compensated unemployment for firms using short-time compensation over those in the comparison group falls from 11 percent to 7 percent. Moreover, when the figures are adjusted to take account of delayed impacts of work sharing in the first two quarters after the year covered by the study, the differential almost disappears.

Even with these adjustments, the Mathematica study still

suggests that total hours of compensated unemployment were larger for short-time compensation firms than for the comparison group firms. But this qualitative result, too, is open to question when other aspects of the Mathematica study are considered. Thus, there are other indications that short-time compensation participants may in fact have faced more severe economic conditions than comparison group employers. The report indicates, for example, that short-time compensation firms were significantly more likely to have had financial losses in fiscal year 1982 than comparison group firms. Also, in California, short-time compensation employers were more heavily concentrated in durable manufacturing than comparison group employers.

Moreover, the basic finding for California—that use of short-time compensation essentially did not substitute for layoffs *at all*—strikes me as totally implausible. Since short-time compensation firms had to submit affidavits indicating that short-time compensation represented an alternative to layoffs, one would have to believe that all of these affidavits were 100 percent inaccurate. Even less credible is the implication that the unions involved would go along with a program that involved wage losses for *all* their members without any compensating gain in terms of reduced layoffs.

An additional problem is posed by the fact that the Arizona part of the study excluded Motorola's operations, which accounted for approximately 40 percent of the employees covered by short-time compensation in that State. This was done on the ground that a comparison group employer of equivalent size could not be found. It raises a major question, however, whether the overall finding for Arizona—namely, that short-time compensation firms used more hours of compensated unemployment than comparison firms—would have held if Motorola had been included in the study. This is a particularly pertinent question because Motorola's study of its experience with short-time compensation indicated that when the units surveyed went on a 4-day week, a significant number of employees did not draw unemployment insurance for the fifth day. Hence, overall unemployment insurance costs, at least under this firm's work sharing program, may well have been *less* than if regular layoffs had been utilized.

What does all this add up to? My overall assessment is that while the Mathematica study has provided useful insights into the measurement problems in this area, its findings with respect to the likely impact of short-time compensation programs on the Unemployment Insurance Trust Fund are beset by so many uncertainties that they can by no means be regarded as conclusive. In my view, this applies even to Mathematica's *qualitative* conclusion that short-time compensation programs are likely to entail greater use of compensated hours of unemployment than outright layoffs.

Structural adjustments and net costs

A second issue relates to the need to distinguish between

short-time compensation in cyclical situations and as part of structural adjustments—that is, as a device to ease the transition toward permanent layoffs. Mathematica found that the firms it studied used the program only to deal with temporary declines in demands for labor. These findings, however, relate to a period of unusually severe cyclical downturn. More recently, problems of structural unemployment and permanent dislocation of workers have gained in relative importance, particularly as a result of sharply rising competition from imports. Hence, the possible use of short-time compensation in such structural situations will bear close watching.

A third area for further investigation involves the impact of short-time compensation on the net costs of employers. The Mathematica study provides some useful perspectives on this issue through the use of employer surveys and some simulations. Another way to approach this subject is through case studies. In this connection, I find the case study just issued by Motorola (the firm which has been the strongest advocate of short-time compensation) of special interest. Motorola utilized work sharing in its Arizona non-defense semiconductor products operations during 1982 and early 1983. The total number of employees participating in these short-time compensation plans came to more than 9,000. On the basis of a detailed examination of costs and benefits of work sharing in six representative departments, the study concluded that short-time compensation had resulted in a sizable net saving for the firm, compared with layoffs. Motorola also concluded that future use of short-time compensation is likely to result in significant net savings for the company over periods of up to 6 months and would, in most cases, probably produce net savings for at least 1 year.

The savings cited in the report were based on costs and benefits that could be directly quantified. The company indicates that the savings from work sharing would be larger if one considered factors that are harder to quantify, such as higher morale in the absence of layoffs, the avoidance of “bumping” and other disruptions of established production processes, and the competitive advantage the firm gained by being able to respond quickly to pickups in demand during the recovery phase with an established, fully trained work force.

These results, of course, are unique to Motorola’s specific situation and may not necessarily hold in other cases. The study is nevertheless very valuable and a useful model for similar efforts because of the precise way in which it pinpoints specific elements of costs and benefits from the use of short-time compensation.

Affirmative action results

A fourth issue is whether short-time compensation has had favorable “affirmative action” results. A major argument for using work sharing as an alternative to layoffs has been that it would preserve the jobs of minority group mem-

bers, women, and younger workers who are typically viewed as among the “last-hired” and the “first-fired.” With short-time compensation, employees in these categories do not have to be laid off and potential conflicts between seniority rules and affirmative action requirements are avoided.

Surprisingly, the Mathematica study did not find that these groups cited fared better under short-time compensation than with direct layoffs. This, incidentally, was also the finding of the California study. As Mathematica has suggested, a more detailed look at the available data seems desirable to help determine how this counter-intuitive result can best be explained. One possibility is that firms using short-time compensation have been particularly progressive in their labor relations and that the groups cited were not disproportionately represented among the “last hired” by these firms. A contrasting explanation would be that members of such groups had been selectively dismissed prior to the adoption of short-time compensation by the firms. Mathematica did not find evidence for this in its study, but future studies should be alert to this possibility.

If it should turn out that short-time compensation programs do have positive affirmative action results, questions might be raised about the desirable length of such programs. At present, the time period for which particular employees can stay on the program usually does not exceed 26 weeks. If there is a severe recession that lasts longer than this, should the period of eligibility be extended to include the full period of the recession? If the program ends in the middle of a recession, the “last-hired” would still be the “first-fired.” One way to deal with this problem would be to permit longer-than-normal periods of short-time compensation use if national or local area unemployment rates, or both, remain unusually high for prolonged periods.

AS MORE INFORMATION about the issues raised here becomes available, the case for adopting additional administrative requirements under the short-time compensation program may also become stronger—for example, to increase the likelihood that short-time compensation will, in fact, be used as an alternative to layoffs; to allow clearer distinctions between cyclical and structural adjustments; or to permit more extended use of work sharing in prolonged recessions. □

FOOTNOTES

¹ Mathematica Policy Research, Inc. *An Evaluation of Short-Time Compensation Programs: Summary Report*; December 1985.

² Bennett Burgoon and Robert D. St. Louis, *The Impact of Work Sharing On Selected Motorola Units*, Technical Report #84-12 (Arizona State University, October 1984).

³ *Shared Work Unemployment Insurance Evaluation Report* (Employment Development Department, Sacramento, California, May 1982). For further analysis of the Californian experience, see Fred Best, *Reducing Work Weeks to Prevent Layoffs: The Economic and Social Impacts of Unemployment Insurance Supported Work Sharing* (forthcoming).

Work sharing programs: an evaluation of their use

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Among the most innovative changes to basic unemployment insurance since its inception is short-time compensation. The programs allow workers to receive partial unemployment benefits in the event that they suffer even moderate reductions in their work hours, as long as those reductions are expected to be temporary. Employees who have their work time reduced by, say, 1 day per week might be eligible for one-fifth of their weekly unemployment insurance benefit amount. This policy differs from previous unemployment insurance regulations, under which such workers would typically be ineligible for any benefits. It is generally believed that broadening the conditions under which unemployment insurance benefits may be paid will help reduce the "pro-layoff" bias of unemployment insurance and, instead, encourage employers to adopt reduced-hours strategies during periods that necessitate reducing employment levels.

This report is based on research on short-time compensation programs undertaken in response to Section 194 of the Tax Equity and Fiscal Responsibility Act of 1982. Through the Act, Congress recognized the growing number of States that have adopted short-time compensation programs as part of their overall unemployment insurance systems, and raised many important questions in response to those State efforts.¹

The short-time compensation experience we will refer to occurred from mid-1982 to mid-1984 in the three States that have operated programs for the longest period of time: California, Arizona, and Oregon. The study focused primarily on the behavior of employers, although some issues that pertain more directly to employees were addressed with employee data aggregated on a per-employer basis.²

Before results of the study are discussed, three important limitations of its overall design should be stressed. The first is that the study involved only three States, each of which exhibited very low levels of short-time compensation use. The implication is that it is extremely difficult to generalize from the experiences of these States to other States that are using short-time compensation or that might use it in the future. The second is that the study did not collect data directly from employees. Thus, many issues that pertain to the attitudes and overall well-being of workers could not be addressed directly. However, evidence on some of these issues was available from information provided by employers and through unemployment insurance records. The third

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is that the use of a comparison-group methodology may be problematic. Both the operational status and the limited use of the work sharing programs in the study's States precluded an experimental design that would have assigned firms *randomly* to short-time compensation and control groups. Hence, it is possible that uncontrolled-for differences in characteristics among firms that used short-term compensation, and those that did not, may have contributed to some of the observed differences in outcomes.

Work sharing versus layoff

As noted, the primary purpose of short-time compensation is to provide firms with an alternative to layoffs during temporary downturns in their demand for labor. Many of the potential social benefits from work sharing (such as reduced labor turnover costs or increased work force productivity) derive from the ability of the program to encourage firms to substitute hours reductions for layoffs. To examine this substitution, we chose to focus on the hours spent on regular unemployment insurance and on short-time compensation by workers in our sample firms. These data were normalized by total hours employed in the fiscal 1982 base period, so as to create measures of the percentage of work time spent in these two forms of compensated unemployment. Although measuring layoffs and hours reductions with data on compensated unemployment poses some conceptual disadvantages, we believe that they are largely outweighed by the enhanced accuracy of data on compensated unemployment (because the data come from administrative records) and by the relevance of compensated unemployment to various issues of unemployment insurance financing. These data were used to examine differences in the percentage of work hours spent on compensated unemployment between firms that were short-time compensation users and those that did not participate in the program.

Although the findings exhibited fairly large State-by-State differences, three major patterns were apparent. First, participation rate in short-time compensation was very low: generally less than 1 percent of all employers in the sample States participated at any point in time, and less than 1 percent of unemployment insurance benefit claims were for short-time compensation. Second, the average firm in the short-time compensation sample appears to have continued using layoffs as the primary method of work force reduction. In no State did work sharing represent more than 25 percent of total hours on compensated unemployment among firms that used the program. Third, although evidence clearly suggests that short-time compensation did reduce layoffs (as measured by the reduced receipt of regular unemployment insurance), this substitution does not seem to have been on an hour-for-hour basis. In all of the States, firms that used short-time compensation experienced some net addition to total hours of compensated unemployment (both regular unemployment insurance and short-time compensation), although this addition was quite small in Ore-

gon. Hence, the empirical results suggest that the actual work force-adjustment strategies adopted by firms under short-time compensation might be quite varied and complex.

The large State-by-State differences in the apparent response to short-time compensation use posed a number of questions that could not be answered satisfactorily. Whether they represented differences caused by how the program is administered, unmeasured differences among the types of firms in the various State samples, or some undiscovered methodological problem in these comparisons could not be determined conclusively given the small number of States involved and the limitations inherent in a comparison-group methodology. However, broadly similar results were obtained through a wide variety of econometric methods.

A number of other topics pertaining to layoffs and short-time compensation use are investigated in the technical report.³ Perhaps the most interesting finding from these additional investigations is that work sharing appears to have had no discernible effect on the demographic composition of layoffs undertaken by participants. That is, contrary to what has been hypothesized about the program, short-time compensation did not seem to have major "affirmative action" advantages for newly hired minority and female workers.

Unemployment insurance trust fund

Concern that widespread use of short-time compensation might have a negative impact on unemployment insurance trust funds has made many States cautious in adopting such programs and has prompted them to include in their laws special surtax provisions for firms that use the program. This concern appears to have arisen from two sources. The first is the possibility that workers who are placed on short-time compensation may have somewhat higher wages and, hence, higher weekly unemployment insurance benefit amounts than do workers who may have been laid off. Second, if short-time compensation encourages more compensated unemployment than would have occurred under a layoff-only strategy (as our results suggest), benefit payments to workers in firms that use short-time compensation may also increase.

The study results tended to support these presumptions. In all of the States, mean per-employee benefit charges (for regular unemployment insurance and short-time compensation) were significantly higher in the samples of firms that used short-time compensation. About half of the differences appear to be related to the higher unemployment insurance benefit levels for which short-time compensation recipients are eligible, and the other half can be attributed to additional amounts of compensated unemployment.

However, we also found that firms which participated in work sharing tended to have greater increases in their unemployment insurance tax rates over the study period than did otherwise similar firms who did not use the program. Although developing a precise model of how these extra tax collections should be netted against the additional benefit

amounts paid was beyond the scope of the project, it was possible to provide a rough, qualitative assessment. In the short run, it is likely that short-time compensation imposed some drain on the unemployment insurance trust fund. Lags in the operations of the States' experience-rating formulas make it unlikely that the extra benefits payable under short-time compensation can be recouped in 1 or 2 tax years. Over the longer term, however, the picture is quite different. Because short-time compensation benefit charges under most of the States' current surtax provisions are more effectively experience-rated than are regular unemployment insurance benefit charges, it seems likely that any extra benefit charges would be fully recouped in the long run. Hence, concerns about the fiscal impact of work sharing might properly be focused on ensuring trust fund adequacy during temporary downturns, because the longer term solvency of the system would not seem to be imperiled by short-time compensation programs if surtax provisions are included in State laws.

Administration of the program

In adopting short-time compensation amendments to their basic unemployment insurance laws, all States attempted to restrict the concept's use to its intended purpose of substituting for layoffs during temporary downturns. In our study, we catalogued a wide variety of these provisions, and attempted to establish their effectiveness. The following general picture emerged: programs experience some startup problems but, on the whole, seem susceptible to careful monitoring and direction. We did find that some of the specific provisions of State laws do not appear to effectively ensure adherence to the basic goals of short-time compensation. (For example, constraints on minimum required work reductions do not seem to restrict minimum hours reductions to at least one averted layoff.) But these shortcomings seem relatively minor, and, in any case, the small number of States in the analysis precluded any quantitative assessment of the impacts of variations in such provisions.

In terms of unemployment insurance administrative costs, work sharing has both advantages and disadvantages relative to an equivalent work force reduction that involves only layoffs with the associated unemployment insurance collections. Initial claims-filing costs are lower under work sharing (because eligibility determination is simpler), and cost associated with unemployment insurance "work test" monitoring do not arise. However, relative to an equivalent level of layoffs, short-time compensation entails processing a much greater number of weekly benefit claims. Our analysis (which was constrained by a relatively meager amount of administrative cost data) suggested that, under current circumstances, the costs associated with the greater volume of claims tended to dominate the lower per-claim costs. However, in interpreting this conclusion, it is important to keep in mind the relative newness of short-time compensation programs. It is quite possible that the administrative

cost disadvantages of them may decline over time as experience with the programs accumulates. □

—FOOTNOTES—

¹ The questions focused on the effects of short-time compensation on contemporaneous and subsequent layoffs, unemployment insurance tax rates, the integrity of the unemployment insurance trust funds, and the net benefits to the various affected parties.

² The analysis was based on survey and unemployment insurance records data covering 1,050 firms spread across the three States. Approximately half of the sample had used short-time compensation during the study period, and the other half did not. Nonusing firms were carefully matched to the program sample on many observable dimensions, and the actual analysis was based on regression techniques that controlled statistically for possible remaining sample differences.

³ Stuart Kerachsky and others, "An Evaluation of Short-Time Compensation Programs: Technical Report" (Mathematica Policy Research, Inc., Princeton, NJ, December 1985), prepared for the Employment and Training Administration, U.S. Department of Labor.

Short-time compensation: the AFL-CIO perspective

JOHN ZALUSKY

In 1975, the proposal that shorter workweeks be financed through the unemployment trust funds was cautiously but favorably received by AFL-CIO President George Meany, who wrote to Lillian Poses that the Federation's "... general view is in favor of the plan as long as it remains voluntary and safeguards are included in state legislation to protect all parties."

As high unemployment continued, States began cutting unemployment benefits and it became clear that using trust funds to pay for a reduced workweek would mean worse hardship to those totally unemployed. And because benefits had lagged far behind wages, it looked as though senior workers in higher wage classifications would lose a higher share of their incomes, and not just for a few weeks, but for months or years.

Blindness to these threats to well-paid workers with secure jobs on the part of those who continued to promote work sharing as a "win-win" solution to layoffs eroded support among labor leaders. Repeated citations of the great success of German and Canadian experiments with work sharing turned out to be overstated, if not misrepresented. Both the German and Canadian counterparts of the AFL-CIO, the Deutscher Gewerkschafts bund Bundesvorstand (DGB) and the Canadian Labour Congress (CLC), reported problems and shortcomings that made it clear that foreign experiences were irrelevant and nontransferable to the American scene. The AFL-CIO then set about formulating its own concept of how short-time compensation could be made to work

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in the United States.

While discussions were going on within the AFL-CIO and jointly with the Department of Labor, the California legislature adopted the experimental short-time compensation law which has been extended three times since 1978 and will run through 1986. Although the California AFL-CIO neither supported nor opposed the Shared Work Unemployment Compensation bill, the plan proved more positive than might have been expected in that time and place, and a number of labor leaders strongly supported its passage and extension. Many workers gained from the bill under existing contracts—about 20 percent of the agreements allowed employers to reduce the workweek before resorting to layoffs. Previously, when employers exercised this option, considerable numbers of workers lost income without being able to qualify for unemployment compensation. In meeting this need, California's shared work bill opened the way for further development and experimentation and helped lay the foundation for the executive council's resolution of August 5, 1981, endorsing the concept of short-time compensation and outlining the conditions needed to make the concept's promise a reality.

First, the council said that short-time compensation must not be viewed as an alternative to active government programs to stimulate employment opportunities and the economy. This is vital because work sharing redefines employment while creating no new employment opportunities. This tends to hide a large part of the unemployment problem by inflating the statistic, "Working part-time for economic reasons." In 1985, there were 5.4 million workers in this category, and although it is better than being unemployed, it reflects the failure of our economy to provide full employment. This general concern is strongly shared by the German and Canadian labor movements.

Secondly, the needs of those completely unemployed must be given the highest priority. If short-time compensation increases costs to the unemployment insurance fund, as it certainly may, legislators face the options of either reducing benefits to the unemployed in one way or another or of increasing revenue. And in today's political climate, it is nearly impossible to raise revenue for social needs. This approach—of looking at the costs to the fund—regards unemployment insurance and short-time compensation as a closed system. The meaningful cost-benefit analysis would fit work sharing into the total cost of unemployment to society.

Although the benefits of short-time compensation warrant increasing the funds available for this purpose, well-meaning supporters want to sell it to the employer as a cost-free benefit. This is unrealistic. Work sharing is in the best interest of the States and local governments, most workers, and many farsighted employers. But to do the job well will require additional funding. A fair-cost analysis that looks at all of the costs to State and local governments for unemployment, including lost taxes, the cost of support

systems, and the wasted worker's skills, will demonstrate the value of a strong, well-funded program.

Overall, the AFL-CIO supported the short-time compensation concept as a tool in dealing with the multiple consequences of unemployment, but not as a no-cost or even low-cost, "win-win" solution. The problem is that too few employers support it or use it at all, as long as they can get most of the benefits of work sharing costs by just transferring the burden to workers. Workers should be entitled to short-time compensation, through unemployment insurance or some other funding, any time the workweek is reduced due to a lack of work. Absent this, work sharing will only be used by few forward-looking employers, willing to sign up for the program and then after they have laid off the more easily replaced workers.

As the executive council resolution stressed, the AFL-CIO wants assurance that firms that use the concept do not lay off the recently hired and less-costly-to-recruit workers first, that is, women and minority group members.

This issue has been the hardest to deal with, and yet it would seem to be a fairly easy one on which to get support. In discussing this issue prior to passage of the Tax Equity and Fiscal Responsibility Act of 1982, the AFL-CIO sought a provision in the act requiring that employer progress toward Equal Employment Opportunity goals would not be reduced by layoffs prior to application for short-time compensation. Employers objected strongly on the grounds that it would encourage "EEOC fishing expeditions." And, surprisingly, the civil rights groups which the AFL-CIO generally works with were willing to drop the issue on assurance that short-time compensation by its nature would be "helpful."

The result was the present language in Section 194(d)(3) of the Tax Equity and Fiscal Responsibility Act of 1982, which suggests to States that their laws limit participation to employers who have not reduced their work force 10 percent by layoff in the previous 4 months. At the time, it seemed that this language would protect the newly hired youth, minorities, and women. This does not seem to be the case. Rather, it seems to have limited employer participation with little or no help for the newly hired.

The AFL-CIO and other supporters of short-time compensation often complain that employers fail to adopt the concept. Some feel that the low usage is due to employers' lack of knowledge. The Federation is sure this is not the case. The basic options to the employer are not work sharing versus layoff—they are layoffs with unemployment insurance, work sharing without unemployment insurance for their workers, and short-time compensation with unemployment insurance for their workers, or a combination of these options.

The evidence that too few employers use the short-time compensation concept is no surprise. The least cost options to many employers are to reduce the workweek, resort to rotating crews, simply shut down for a week, or require

employees to use earned vacation time—all of which avoid adverse unemployment insurance experience ratings and increased costs—and then layoff the most easily replaced workers.

From March 1980 to March 1985, private-sector costs for unemployment insurance increased 15 percent. All other factors remaining equal, there has been a growing incentive for employers to avoid unemployment insurance increases and short-time compensation, just as they have avoided other labor costs. Therefore, if work sharing is to be useful to protect employment opportunities, it should be elective to employees, not employers. And this leads to the final two points in the AFL-CIO Executive Council Resolution, that workers participate voluntarily and that the income replacement be two-thirds of their individual gross pay for each day lost. Most workers would be willing to share their employment with others with lesser entitlements if the hardship is not too great in amount or in time.

Economic need can be just as great among individual workers with longer years of service as to those new to the work relationship. Some senior workers are paying college tuition. About 12 percent have pensions based on their last few years of work. Others have their homes paid for, their children have finished school, and they may well relish preretirement time off.

Elective work sharing is far more acceptable and a lot less devisable than any unilateral decision by the employer or even by a majority of workers in a local union. Thus, rather than force short-time compensation on senior workers, the far better solution is to attract them to it by a respectable income replacement level and maintenance of benefits. The two-thirds replacement rate of individual gross income is also somewhat less than that for the Steelworkers and Autoworkers Supplemental Unemployment Benefit. But the supplemental plan showed that senior workers volunteered for layoff when the income replacement rate was over 80 percent and benefits continued. The short-time compensation replacement rate could be lower, because these higher paid workers will still be working a good share of the week.

California, Arizona, Oregon, Washington, Florida, Maryland, and New York have adopted short-time compensation, and Kentucky, Ohio, Pennsylvania, Illinois, Wisconsin, and New Jersey have considered the concept. The AFL-CIO supports the concept, but delivery on a no-cost, low usage and low benefit basis has been far short of the promise of full employment made by this Nation.

The workers and their unions that have had experience with short-time compensation are pleased with the program and support its improvement as a part of the unemployment insurance concept. But if the full value of the concept is to be achieved for the community, the State, and the Nation, workers must be entitled to short-time compensation when the workweek is reduced, and the funds must be available to maintain benefits and wages while providing decent benefits for those who are totally unemployed. □

Communications



A new leading indicator: workers recently laid off

GEOFFREY H. MOORE AND JOHN P. CULLITY

Layoff rates have long been used as leading indicators in business cycle analysis. The layoff rate in manufacturing was initially selected as a leading indicator of business cycles in 1960.¹ In 1961, it became 1 of 12 leading indicators published by the Bureau of Economic Analysis in *Business Conditions Digest*. The rate was derived from the labor turnover survey of manufacturing establishments, conducted by the Bureau of Labor Statistics and discontinued at the end of 1981. BEA subsequently replaced layoffs with initial claims for unemployment insurance.

Prior to 1967, the Current Population Survey collected data on laid-off workers on a very limited basis and only indirectly. This group included only those persons who were neither working nor looking for work, but responded that they had a job from which they were temporarily laid off and expected recall within 30 days. Since 1967, nonworking survey respondents have been asked directly whether they were on layoff. These workers are counted as unemployed regardless of their job search activity and form a subgroup of the job losers category. Further, workers on layoff are classified by the number of weeks since they were laid off.

At the Center for International Business Cycle Research, we used the number of all job losers on layoff, together with temporary layoffs prior to 1967, as a component of our leading employment index.

Recently, we observed that a better leading indicator could be obtained from data on *recent* "job losers on layoff," rather than all workers on layoff. The recent jobless consist of those who were laid off within the last 5 weeks and are still unemployed at the time of the household survey. This group would seem to correspond closely to those included in the reports by employers on the number of workers laid off during the past month. The category can be converted to a layoff rate by dividing by total civilian employment. The result is a new leading indicator available currently.

The new indicator's lead-lag record during the business cycle from 1969 to 1982 is shown in table 1, together with the records of the related series. The layoff series, which we

have seasonally adjusted, and the unemployment claims measure performed identically at all four troughs. The new series led at all four peaks, while initial claims led at three of the four.

Compared with the total layoff rate, the new indicator has longer leads at several turns, as would be expected because the new series reflects recent actions, whereas total layoffs include many who were laid off months earlier. Relative to the manufacturing layoff rate during the overlapping period of 1969–81, the new indicator shows longer leads at three of the four peaks, and about the same timing at the troughs. The manufacturing layoff rate, in turn, has a somewhat better leading record than temporary layoffs before 1969. Therefore, it seems reasonable to join the manufacturing layoff rate before 1969 to the new rate after 1969 to form a longer series with one break in coverage. It leads at 14 of the 16 business cycle turns from 1948 to 1982, with coincident timing in the other two turns and an overall average lead time of 6 months. The combined series is a more consistent leader than initial claims for unemployment insurance, which has coincident timing four times and *lags* twice during the same period.

So far as other important indicator characteristics are concerned, such as prompt availability and freedom from extra cycles and erratic movements, the new layoff rate stands up reasonably well to its competitors. Because it is a product of the household employment survey, the figures for a previous month are normally available on the first Friday of the following month. These figures are subject to revision annually, when seasonal factors are changed. Initial claims are available weekly, with a 2-week delay, which puts them on a par with the new layoff rate, although the monthly average is not available until the middle of the following month. Erratic movements in the new layoff rate are relatively large, however, as the following measures show:²

	Ratio of irregular to cyclical change	Months for cyclical dominance
New layoff rate, under 5 weeks, 1969–85	2.51	3
Manufacturing layoff rate, 1948–75 .	2.08	3
Initial claims, unemployment insurance, 1948–82	2.00	3

In all three series, it takes a span of 3 months for the average cyclical change to exceed the average irregular change.

The layoff rate and initial claims series tend to lead at business cycle peaks by much longer intervals than at

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Table 1. Leads and lags of layoff rates at business cycle turns, 1948-82

[Lead (-) or lag (+) in months]

Business cycle		Temporary layoff rate		Layoff rate, manufacturing		Layoff rate, under 5 weeks		Layoff rate, total		Layoff rate, manufacturing, to 1968; layoff rate under 5 weeks, 1969 ff.		Initial claims, unemployment insurance	
		Peak	Trough	Peak	Trough	Peak	Trough	Peak	Trough	Peak	Trough	Peak	Trough
October 1949	November 1948	0	-4	-5	-6					-5	-6	+1	-22
May 1954	July 1953	-4	-4	-4	-8					-4	-8	+4	-10
April 1958	August 1957	0	-14	-1	-21					-1	-21	0	-23
February 1961	April 1960	0	-12	0	-11					0	-11	0	-12
November 1970	December 1969			-1	-8	-1	-9	0	-9	-1	-9	-1	-11
March 1975	November 1973			-1	-9	0	-2	+3	-1	0	-2	0	-9
July 1980	January 1980			-2	-11	-2	-19	0	-19	-2	-19	-2	-16
November 1982	July 1981			(¹)	0	-2	-8	-2	0	-2	-8	-2	0
Average lead (months):		-1	-8	-2	-12								
1948-61 Peak and trough			-5		-7								
1969-81 Peak and trough				-1	-7	-1	-10	+1	-7	-1	-10	-1	-9
1948-82 Peak and trough										-2	-10	0	-13
Percent of timing comparisons that are leads:													
1948-61 Peak and trough		25	100	75	100								
1969-81 Peak and trough			62		88	66	100	0	75	66	100	66	75
1948-82 Peak and trough					86		86		43		86		71
										75	100	38	88
										88		62	

NOTE: Business cycle turning points are designated by the National Bureau of Economic Research, Inc., Cambridge, MA. All series are adjusted for seasonal variation.

¹ Not available.

Table 2. Leads and lags of layoff rates at turns in employment and unemployment, 1948-82

[Lead (-) or lag (+) in months]

Unemployment rate		Layoff rate, manufacturing, to 1968; layoff rate, under 5 weeks, 1969 ff.		Nonfarm employment		Layoff rate, manufacturing, to 1968; layoff rate, under 5 weeks, 1969 ff.	
Peak	Trough	Peak	Trough	Trough	Peak	Peak	Trough
October 1949	January 1948	-5	+4	October 1949	September 1948	-5	-4
September 1954	June 1953	-8	-7	August 1954	July 1953	-7	-7
July 1958	April 1957	-4	-17	May 1958	March 1957	-2	-16
May 1961	February 1960	-3	-9	February 1961	April 1960	0	-11
August 1971	May 1969	-10	-2	November 1970	March 1970	-1	-12
May 1975	October 1973	-2	-1	April 1975	October 1974	-1	-13
July 1980	July 1979	-2	-13	July 1980	March 1980	-2	-21
December 1982	July 1981	-3	-8	December 1982	July 1981	-3	-8
Average lead (months):		-5	-7			-2	-12
1948-82 Peak and trough			-6				-7
Percent of timing comparisons that are leads:							
1948-82 Peak and trough		100	88			88	100
			94				94

NOTE: Business cycle turning points are designated by the National Bureau of Economic Research, Inc., Cambridge, MA. All series are adjusted for seasonal variation.

troughs. In this respect, they are similar to the total unemployment rate, which leads at peaks but usually lags at troughs. The primary reason for this asymmetry is that business cycle dates are based upon data that reflect the long-run growth of the economy, whereas layoff and unemployment rates are relatively "trendless." A trendless series tends to reach earlier peaks and later troughs than a series with a rising trend. When the turns in the layoff rates are matched with those in the total unemployment rate, rather than the business cycle, the leads are more nearly symmetrical. (See table 2.) The new layoff rate series leads the downturns in unemployment by an average of 5 months and the upturns by 7 months, for an overall average lead of 6 months.

Compared with employment, the new layoff rate again leads at both peaks and troughs, but by much longer intervals at peaks. This is to be expected, because nonfarm employment is virtually coincident with the business cycle, and reflects the growth trend of the economy.

In view of the record of the new layoff rate as a leading indicator, the Center for International Business Cycle Research has revised its leading employment index to include the new layoff rate since 1969 and the manufacturing layoff rate prior to 1969. At some future date, the new indicator might be considered a candidate for the Bureau of Economic Analysis' composite leading index, replacing initial claims for unemployment insurance. □

— FOOTNOTES —

ACKNOWLEDGMENT: We are indebted to Chantal Dubrin and Marcus Yumane for the statistical work on this report, and to John Stinson of the Bureau of Labor Statistics for providing the new data on layoffs.

¹ Geoffrey H. Moore, *Business Cycle Indicators* (Princeton University Press for the National Bureau of Economic Research, Princeton, NJ, 1961), p. 64.

² For an explanation of the ratio of irregular to cyclical change and months for cyclical dominance, see the *Handbook of Cyclical Indicators*, Bureau of Economic Analysis, 1984, pp. 167-68.

Union response to changes in printing technology: another view

DAVID J. EISEN

In the July 1985 issue of the *Review*, Michael Wallace presents a three-nation comparison of union response to the massive technological changes in the newspaper printing industry over the last two decades.¹ Professor Wallace contends that the historical craft orientation of U.S. printing unions and the resulting fragmentation of the labor movement in the industry have seriously impaired workers' abil-

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ity to deal on an equal footing with management concerning the changes. He asserts, moreover, that a belated wave of mergers between the unions over the last 10 years has done little to give labor the appearance of a united front on the technology issue, citing in particular what he describes as a continuing jurisdictional struggle between The Newspaper Guild (reporters and other nonmechanical workers) and the International Typographical Union (typesetters) over the computerized setting of type. He concludes by describing labor relations patterns in the British and West German newspaper industries where, he claims, more farsighted unions took the decision at much earlier stages to consolidate or cooperate, and thus maintain their traditional control over the allocation of work.

The Newspaper Guild takes issue with Wallace on issues of both fact and interpretation:

Composition of the Guild. Wallace states that The Newspaper Guild is composed of "reporters, editors, and a few other white-collar workers." As a matter of fact, close to half the Guild's members are "other white-collar workers." The union has included advertising, circulation, business office, and other noneditorial employees since 1937 and actively seeks to represent them. On the other hand, Britain's National Union of Journalists (NUJ), which Wallace says "more than its U.S. counterpart, the Guild, seeks a broad-based membership of all white-collar workers in the industry," is, in fact, entirely limited to reporters and editors. Of course, in view of Wallace's mistaken conception of the Guild, his further statement that each of the three U.S. newspaper unions, including the Guild, "continues to be organized along occupational lines," is also incorrect. The Guild is an industrial union, and the Graphic Communications International Union (GCIU) is approaching that status.

Merger efforts. With regard to merger activity, Wallace states that the International Typographical Union (ITU) "was twice unsuccessful in completing merger negotiations with the Guild." Aside from the fact that there was only one such attempt, extending over several years, the statement seems to suggest that the Guild was the unwilling party. As a matter of fact, the Guild sought energetically to bring about a merger and had approved it by convention in June 1983; the plan fell apart when the ITU Convention unexpectedly refused to do likewise 2 months later.

There are other, less consequential errors in Wallace's discussion of merger efforts: the incumbent president, Joe Bingel, was "voted down" in the ITU's 1983 election but the Teamsters merger proposal was not on the ballot, except inferentially. And it was not the National Labor Relations Board but the Labor Department that stepped in to void the election; the NLRB has no such authority.

Guild-ITU conflict. More disturbing is Wallace's notion that "differences among journalists and composing room

workers over jurisdiction of cold-type technology remain a point of friction between the Guild and the ITU." There have been such differences in a few shops, where the issue has gone to arbitration, but they have not had any effect on relations between the two unions on the international level and played no role whatsoever in the breakdown of merger efforts.

This questionable evaluation carries over into Wallace's analysis of the impetus for merger negotiations. He states: "The printing unions, particularly the ITU, were slow to react to the changes wrought by the new technology and, as a result, turned to mergers out of desperation after questions of jurisdiction over the new technology had already been decided by publishers on a plant-by-plant basis." As a matter of fact, the ITU for many years made extraordinary efforts to prepare its members for new technology, setting up a training center at its headquarters to school members in the new equipment. These efforts broke down only when computerization set the stage for the complete elimination of typesetting and thus the printers' jobs. Local exceptions aside, the Typographical Union recognized that assertion of jurisdiction over work that now originated almost entirely in the newsroom was not a viable position and that the only practicable choice was a rearguard action to preserve the maximum number of jobs while obtaining the best possible compensation for printers displaced by the new equipment. The ITU's turn to merger was to a great extent motivated by the resulting swath this cut through its membership, to be sure, but it was not the primary force fueling the merger engine. That force was—and is—the compelling need for unity felt by all three unions in the face of the vastly strengthened bargaining position the new technology has given the publishers.

The case of Great Britain. Wallace's analysis also is poorly founded when it moves to Britain. He states:

The NGA (National Graphical Association) and the NUJ (National Union of Journalists) have established joint committees dealing with technology issues. In general, the journalists have supported the NGA's contention that composing room workers should maintain jurisdiction over direct input of newspaper material into video display terminals (VDT's).

And later:

Essentially, composing room workers have retained the right to control input of all materials into VDT's, which is critical in the leverage they have with publishers In contrast to their U.S. counterparts, the British trade unions have displayed considerable farsightedness in anticipating the impact of technological changes in their industry and responding accordingly.

This is an inaccurate picture. The British unions succeeded in fending off the impact of new technology for so long because of their strength. Now, however, the publishers are insisting, like *their* U.S. counterparts, on "capturing the original keystroke," and the jurisdictional question has arisen explosively between the two unions. The Journalists Union by no means concedes that the NGA should retain jurisdiction over input under these circumstances, because it would put the Graphical Association in the newsroom. The issue has been posed sharply in at least one shop, and the ultimate outcome is still unclear. One can hope that the two unions will avert a head-on clash and that the NGA will be able to protect its members' interests without invading the NUJ's territory. But already the NGA and the NUJ are more sharply at odds over management plans for the new technology than the Guild and the Typographers ever were. Wallace has written an epilogue to a story that has yet to unfold.

Postscript: The foregoing comments were written in October 1985. In early February of this year, publisher Rupert Murdoch moved his British newspaper operations to a new, high-technology plant outside of London, and indicated that he would no longer bargain with the Graphical Association. Unfortunately, most of Murdoch's journalists are crossing the NGA's picket lines, despite a directive by the Journalists Union to respect them. The significance of these developments for the argument speaks for itself. □

— FOOTNOTE —

¹ Michael Wallace, "Technological changes in printing: union response in three countries," *Monthly Labor Review*, July 1985, pp. 41-43.

Technical Note



Computer-aided telephone interviewing used in the Hours at Work Survey

GUY A. TOSCANO

The Hours at Work Survey, a new component of U.S. productivity measures, represents the first use of Computer Assisted Telephone Interviewing (CATI) at the Bureau of Labor Statistics.¹ CATI refers to the use of interactive computer systems by interviewers during telephone contacts with survey respondents.² This relatively new process is in contrast to the traditional "batch" survey procedure, in which interviewing, data entry, data verification, and error correction constitute separate functions. This report describes the CATI process and presents the results of using the technique in the Hours at Work Survey.

An overview of the system

The Hours at Work CATI is an interactive system in which multiple users can access a mainframe computer data base using IBM 3270 terminals. CATI software is written in MANTIS, an application development system produced by CINCOM, Inc., and files are managed using VSAM (Virtual Storage Access Method), an IBM file management system. Communication with the data base is controlled by CICS (Customer Information Control System), also an IBM software package.

When a user logs onto the system and is properly identified, CATI displays a menu screen which contains six functions. By keying in the appropriate code, the user may select one of the following functions:

Function 1. Used to interview the survey respondent or to reconcile data failing edit criteria.

Function 2. Used to display the names of all respondents within the same primary company.

Function 3. Used to display previous year's data for a recurring respondent.

Function 4. Used to scan the data base for reports that have failed edit criteria.

Function 5. Used to scan the data base by interviewer identification code or by the date scheduled for contacting particular respondents.

Function 6. Used to print paper copies of status reports.

The following are the major features of the CATI system:

- *Form script.* A facsimile of the report form is displayed on the screen for the interviewer, along with reported data and notations on edit failures.
- *Cursor control.* The interviewer has complete cursor control and can move the cursor to any field on the facsimile report form to enter or change data.
- *Full screen editing.* While still on the telephone with a respondent, the interviewer can enter data into the mainframe data base and be immediately informed of entries that fail the system's edit criteria.

After telephone contact is established with a respondent, the interviewer simply follows the edit prompts displayed by the CATI system. If the interviewer is unable to resolve an edit failure during the initial contact, CATI provides for entry of a date on which the respondent should be recontacted for clarification. This information is stored in the data base and the file can be searched later based on the scheduled contact date. If the respondent provides an explanation or a correction, the interviewer moves the cursor to the entry in question, and keys a correction or enters an explanation code beside the entry. The system instantaneously edits the record based on the new entry and displays appropriate messages if further clarification is necessary.

With CATI, the interviewer no longer uses a pencil, paper error listing, calculator, and correction form. The edit-reconciliation process is reduced to one task—namely, using a terminal and telephone to interact with a data base containing reported data.

The phasing-in of CATI

The first Hours at Work Survey was conducted in 1982 in order to collect data for the 1981 reference year. The survey collects quarterly and annual data for hours paid (including vacations, holidays, and so forth) and hours actually spent

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at work for production or nonsupervisory employees at business establishments in all nonagricultural sectors of the economy. The survey is based on a probability design to produce ratios of "hours at work" to "hours paid" for each 2-digit Standard Industrial Classification in manufacturing and 1-digit Standard Industrial Classification in nonmanufacturing. The ratios are then used in computing productivity measures for the major economic sectors.

The first annual survey was conducted entirely by mail. It was not until 1983, the second survey year, that CATI was used. Because it was not known how CATI would affect the survey response, the new system was implemented in stages over a period of several years.

1982: basic operations. The first-year operation consisted of an initial mailing of 1-page questionnaires to approximately 4,200 sample units in March, with two mail follow-ups to nonrespondents between April and June. Upon receipt, the completed reports were checked in and batched for key entry. The reported data were machine edited for validity, and data failing the edit criteria were printed on error listings for review. A report failing the edit was first checked for key entry errors, and then the respondent was contacted by mail or telephone to verify any remaining questionable entries. The resulting corrections were manually transcribed to yet another form which was sent to key entry for processing. Once again, data records with corrections would either pass or fail computer editing. If a record failed, it would go through the verification procedures again. This reiterative process continued until all data passed the prescribed edit criteria.

The data processing was labor-intensive and time-consuming. Approximately one-third of the respondents (1,200 sample units) had to be contacted for data verification. Many of these were contacted by telephone. This led the Bureau to conclude that telephone contact to clarify information previously supplied by mail was feasible and cost-effective. Although 76 percent of the initial sample units returned the survey form, the response rate—the proportion of sample units providing usable data—was only 50.4 percent.³ The difference between the two rates occurred primarily because some reported data did not meet the survey definition of "hours at work," rendering the report unusable. A response is considered usable when a reporting unit provides acceptable data for at least one quarter of the reference year.

1983: the second year. In 1983, the survey operation was modified to incorporate CATI into the edit-reconciliation function. The questionnaires were mailed to the sample units, returned reports were batched, and data were keyed and computer edited as in the previous year. Additionally, the name and telephone number of the respondent were entered into the data base. Using the edit-reconciliation function, interviewers searched the data base for records

Table 1. Response rates for the BLS Hours at Work Survey over the CATI phase-in period, 1982–85

Item	1982 ¹	1983 ²	1984 ³	1985 ⁴
Total response rate (percent)	50.4	80.1	78.2	85.2
Initial mailing	24.0	40.1	35.0	32.0
First follow-up (mail)	15.0	23.0	21.0	23.6
Second follow-up:				
Mail	11.4	17.0	13.2	12.5
CATI	—	—	9.0	17.1
Designated sample	4,170	4,584	4,582	4,565
Eligible sample	3,773	4,242	4,095	4,054

¹ No use of CATI.

² CATI used for edit-reconciliation only.

³ CATI used for edit-reconciliation and follow-up of nonresponse.

⁴ Augmented CATI.

with error codes. No paper error listings were produced, however. Instead, data failing one or more edits were displayed on a terminal video screen. The respondent was then contacted by telephone and requested to verify the reported information.

CATI produced excellent results. A completion rate (sample units reporting data) of 90 percent yielded a total response rate of 80.1 percent, despite a 75-percent staff turnover from the previous year. Staff productivity was clearly enhanced through use of the new system. Although the improvement in the response rate was not entirely attributable to the implementation of CATI, it was apparent that the system enabled the staff to be more efficient in the edit-reconciliation process.

1984: initial solicitation of nonrespondents. In the third year, a prompting feature was added to CATI for use in conducting initial solicitation. The prompts display questions designed to guide the interviewer through the process of initiating solicitation by telephone. However, it was decided to use this new feature only after all efforts to obtain the data by mail had failed. This decision was based on the following considerations:

- While data being requested are generally available from the payroll records of employers, the respondent probably would not be able to provide the information by telephone without some type of prenotification. Mail solicitation gives the respondent more time to research and prepare these data.
- Before the Bureau could initiate a contact by telephone, time and resources would be needed to obtain the name and telephone number of the appropriate person to contact within each sample unit. Telephone numbers for sample units were accessible, but reaching an individual in the establishment who could provide the information was more difficult and time consuming.

After efforts to obtain data by mail ended, the CATI solicitation function was used to conduct follow-ups of the 1,079 nonrespondents. The sample units were equally and ran-

domly assigned to each of five interviewers, who were given 10 workdays to complete the contacts and to obtain data using the CATI system.

Completion rates, measured as usable responses divided by eligible assigned units,⁴ varied by interviewer from a low of 21.5 percent to a high of 78.6 percent. The interviewer with the highest completion rate had a rate that was 24.7 percent higher than the second most successful interviewer, who had a rate of 53.9 percent. The average completion rate for all interviewers using CATI was 34 percent.

Both clerical employees and junior level professionals were used in the CATI data collection procedure. All interviewers received training on the IBM 3270 terminal. In addition, recommended interviewing techniques were demonstrated using mock interviews. Although there was a standard script for introducing oneself to the respondent, interviewers were given approval to develop their own introductory statements using established guidelines.

A thorough review of the CATI solicitation procedures used by each interviewer was conducted in order to identify any cause for the large differences in the completion rates. The review revealed that certain personal characteristics of the interviewers, such as a professional demeanor and a good grasp of the subject matter, contributed significantly to effectiveness on the telephone. The results of the review were documented and used in staff selection and in training interviewers.

Collecting "hard data" by telephone generally required several telephone calls to a sample unit: first, to establish a contact who could provide the data or schedule a date when the data would be available, and later, to actually collect the data. The final survey results were comparable to those in the previous year. The response rate was 78.2 percent, of which 9 percent was obtained using CATI solicitation.

1985: monitoring continues. As in previous years, the initial survey contact was done by mail. A certified follow-up mailing was used to contact the nonrespondents. The signature on the certified return receipt was entered into the CATI data base and used to establish an initial contact person within the nonresponding unit. For program analysis, CATI was modified to keep a record of each call, including the duration of the call.

The initial response rate by mail was 32 percent. The response rates for two mail follow-ups were 23.6 percent

and 12.5 percent. After mail solicitation ended, there were 1,413 sample units with eligibility not determined, of which 1,120 were contacted using the CATI system. Data were collected from two-thirds of the eligible sample units.

An average of 2.1 telephone calls was made to each sample unit, and the average time spent on each telephone contact was 5.9 minutes. CATI solicitation contributed 17.1 percent to the total response rate, which was 85.2 percent for the year.

Summary on using CATI

The BLS experience with using CATI to improve survey response has been positive. We started the first year with a response rate of 50.4 percent, and three surveys later, attained a response rate of 85.2 percent. This improvement was not wholly attributable to CATI but, rather to a combination of CATI and a more experienced staff. Even so, evidence of the benefits of CATI has been so persuasive that plans have been developed for modifying the Hours at Work Survey CATI to run on a microcomputer. Switching the system from a mainframe computer to a microcomputer will significantly reduce system operating costs and improve online computer response time. The use of CATI is also being tested for other BLS survey programs, in hopes of similarly cutting data collection time and operating costs, boosting response rates, and improving data quality. □

—FOOTNOTES—

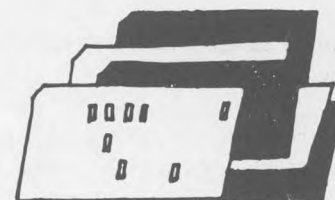
¹ See Kent Kunze, "A new BLS survey measures the ratio of hours worked to hours paid," *Monthly Labor Review*, June 1984, pp. 3-7, for a description of the Hours at Work Survey.

² Robert M. Groves and Nancy A. Mathiowetz, "Computer Assisted Telephone Interviewing: Effects on Interviewers and Respondents," *Public Opinion Quarterly*, Spring 1984, pp. 356-69; J. Merrill Shanks, "The Current Status of Computer-Assisted Telephone Interviewing: Recent Progress and Future Prospects," *Sociological Methods and Research*, November 1983, pp. 119-42; and *The Role of Telephone Data Collection in Federal Statistics*, Statistical Policy Working Paper 12, Prepared by Subcommittee on the Role of Telephone, Mail, and Personal Interviews in Federal Statistics, Federal Committee on Statistical Methodology, Statistical Policy Office (Washington, Office of Management and Budget, 1984).

³ Response rate = Number of units providing usable reports/(Number of eligible sample units + Number of sample units with eligibility not determined).

⁴ A sample unit is deemed "ineligible" if, by the nature of its activity, it does not meet the definitions established for the Hours at Work Survey or the unit is out of business and no longer exists.

Research Summaries



Work-related deaths in 1984: BLS survey findings

DIANE M. COTTER

The number of occupational fatalities in private sector establishments with 11 employees or more was 3,740 in 1984, according to the Bureau of Labor Statistics' Annual Survey of Occupational Injuries and Illnesses. (See table 1.) The corresponding fatality rate was 6.4 per 100,000 full-time workers. About 3,300 of all deaths were related to injuries.

Among industry divisions, fatality rates ranged from 41.4 per 100,000 full-time workers in mining to 1.9 in finance, insurance, and real estate. (See table 2.) A high of 800 lives were lost in manufacturing and a low of 80, in finance, insurance, and real estate.

The fatality data are based on reports received from a sample of employers selected randomly. Participating employers provided a brief description of the object or event most directly responsible for the death. Although the sample for this survey is large (280,000 units), reported fatalities (3,740) are relatively rare events which make it tenuous to compare year-to-year changes precisely. The fatalities are classified into broad causal categories, and estimates of the percentages of fatalities are based on the total number of reported cases for the 1983 and 1984 surveys.

Analysis by cause and industry

The majority of deaths from occupational accidents in the private sector were grouped into four causal categories: highway vehicles, industrial vehicles or equipment, falls, and electrocutions. (See table 3.) Cars and trucks were involved in more than one-fourth of the work-related deaths; heart attacks caused about one-eighth; and industrial vehicles or equipment, falls, and electrocutions each contributed roughly one-tenth. The remaining deaths were related to assaults, entrapments, explosions, aircraft crashes, gas inhalation, plant machinery operations, fires, objects other than vehicles or equipment, and other causes.

Highway vehicles were the leading cause of death in 6 of

the 8 industry divisions. Cars and trucks were responsible for the largest percentage of fatalities in the industries of agriculture, forestry, and fishing; manufacturing; transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. About 30 percent of these over-the-road fatalities occurred in the transportation and public utilities industry, which had only 7 percent of total employment. (See table 4.) Some of these deaths were the result of employees being run over at the worksite, overturning vehicles, and collisions.

Industrial vehicles or equipment, such as tractors and high-lift trucks, were involved in nearly 11 percent of all fatalities. The construction and manufacturing industries each accounted for about one-fourth of these fatalities. These industries accounted for about 5 and 28 percent of total employment.

Approximately 11 percent of all fatalities involved falls, particularly from higher levels. More than 2 of every 5 of these deaths occurred in construction industries.

Electrocutions were the cause of roughly 10 percent of all fatalities. Almost three-tenths occurred in construction industries, and nearly one-fourth were in manufacturing industries. Some electrocutions resulted from workers receiv-

Table 1. Number and rate of fatalities for employers with 11 employees or more, private sector, 1974 through 1984

Year	Annual average employment ¹ (thousands)	Number of fatalities	Incidence rate per 100,000 workers ²
1974	54,272	4,970	9.8
1975	52,693	4,570	9.4
1976	53,693	3,940	7.9
1977	56,333	4,760	9.1
1978	59,297	4,590	8.2
1979	61,660	4,950	8.6
1980	61,677	4,400	7.7
1981	62,895	4,370	7.6
1982	61,646	4,090	7.4
1983	63,981	3,100	5.6
1984	68,008	3,740	6.4

¹ Employment is expressed as an annual average and is derived primarily from the BLS-State Current Employment Statistics program. Employment estimates have been adjusted based on data provided by the Annual Survey of Occupational Injuries and Illnesses to exclude establishments with fewer than 11 employees.

² The incidence rates represent the number of fatalities per 100,000 full-time workers and were calculated as: $(N/EH) \times 200,000,000$, where:

N = number of fatalities

EH = total hours worked by all employees during calendar year

200,000,000 = base for 100,000 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

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ing a severe shock after coming in contact with electrical wires.

Agriculture, forestry, and fishing. Highway vehicles accounted for the plurality of the fatalities, followed by industrial vehicles or equipment, and then heart attacks.

*Mining—oil and gas extraction only.*¹ Accidents involving industrial vehicles or equipment, highway vehicles, and falling objects—other than vehicles or equipment—were the primary causes of death.

Construction. Deaths which occurred as the result of an employee falling were the most common, followed by accidents involving highway vehicles, and industrial vehicles or equipment.

Manufacturing. Highway vehicles were the primary cause of death; industrial vehicles or equipment, heart attacks, and electrocutions were also leading causes.

Transportation and public utilities. Highway vehicles were the main cause of death; heart attacks and industrial vehicles or equipment were also important causes.

Wholesale and retail trade. Primary causes of death involved highway vehicles, industrial vehicles or equipment, and assaults.

Finance, insurance, and real estate. Highway vehicles caused the majority of the fatalities, and heart attacks accounted for another large portion.

Services. Highway vehicles were the major cause of death; heart attacks and electrocutions were other chief causes.

Table 2. Number and rate of occupational fatalities for employers with 11 employees or more, by industry division, 1983–1984

Industry division	1983		1984	
	Fatalities	Incidence rate ¹	Fatalities	Incidence rate ¹
Private sector	3,100	5.6	3,740	6.4
Agriculture, forestry, and fishing	80	12.7	110	16.3
Mining	240	27.6	370	41.4
Construction	670	26.3	660	22.8
Manufacturing	730	4.3	800	4.4
Transportation and public utilities ...	570	13.3	770	16.9
Wholesale and retail trade	440	3.3	440	3.1
Finance, insurance, and real estate . .	70	1.7	80	1.9
Services	310	2.2	510	3.9

¹ The incidence rates represent the number of fatalities per 100,000 full-time workers and were calculated as: (N/EH) × 200,000,000, where:

N = number of fatalities

EH = total hours worked by all employees during calendar year

2,000,000,000 = base for 100,000 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

NOTE: Because of rounding, components may not add to totals.

Background of the survey

The 1984 Annual Survey of Occupational Injuries and Illnesses, authorized by the Occupational Safety and Health Act, surveyed all employers except the self-employed, farmers with fewer than 11 employees, private households, Federal, State, and local government agencies, employers with fewer than 11 employees in low-risk industries, and those establishments in which working conditions are covered by other Federal safety and health laws.

Since 1977, the published data on occupational fatalities reflect only those deaths in establishments with 11 employees or more. The 1983 report on the survey of occupational fatalities entitled, "Work-related deaths dropped sharply during 1983, BLS survey finds," was published in the

Table 3. Distribution of fatalities by cause for employers with 11 employees or more, private sector, 1983 and 1984¹

[In percent]

Cause ²	Total private sector ³	Agriculture, forestry, and fishing	Mining—oil and gas extraction only	Construction	Manufacturing	Transportation and public utilities ⁴	Wholesale and retail trade	Finance, insurance, and real estate	Services
Total—all causes	100	100	100	100	100	100	100	100	100
Highway vehicles	27	30	18	20	19	42	38	51	23
Heart attacks	12	13	9	12	11	10	8	25	20
Industrial vehicles or equipment	11	19	19	15	12	8	13	5	2
Falls	11	8	8	23	8	5	9	7	9
Electrocutions	10	7	3	14	9	7	7	4	16
Assaults	4	1	0	1	2	3	10	4	12
Struck by objects other than vehicles or equipment	4	6	15	3	7	2	2	0	1
Caught in, under, or between objects other than vehicles or equipment	4	3	2	3	7	3	3	0	2
Explosions	4	2	9	2	8	2	4	0	1
Aircraft crashes	3	2	2	1	4	4	3	3	5
Gas inhalation	3	1	8	1	3	8	0	0	1
Plant machinery operations	2	1	0	(⁵)	6	1	2	0	(⁵)
Fires	1	1	3	2	2	(⁵)	1	0	(⁵)
All other ⁶	4	5	5	4	3	5	1	1	9

¹ It is difficult to estimate year-to-year changes for the causal categories precisely because sampling errors are large at the industry division level. Therefore, the results are for both years rather than a comparison between them.

² Cause is defined as the object or event associated with the fatality.

³ Excludes coal, metal and nonmetal mining, and railroads, for which data are not available.

⁴ Excludes railroads.

⁵ Less than 1 percent.

⁶ The "All other" category includes, for example, contact with carcinogenic or toxic substances, drowning, train accidents, and various occupational illnesses.

NOTE: Because of rounding, percentages may not add to 100.

Table 4. Distribution of fatalities by industry division for employers with 11 employees or more, private sector, 1983 and 1984¹

[In percent]

Cause ²	Total private sector ³	Agriculture, forestry, and fishing	Mining—oil and gas extraction only	Construction	Manufacturing	Transportation and public utilities ⁴	Wholesale and retail trade	Finance, insurance, and real estate	Services
Total—all causes	100	3	5	20	25	19	14	1	13
Highway vehicles	100	3	4	15	17	29	19	3	11
Heart attacks	100	3	4	20	24	16	9	3	21
Industrial vehicles or equipment	100	5	9	28	27	13	16	1	2
Falls	100	2	3	44	17	10	12	1	11
Electrocutions	100	2	2	29	23	14	9	1	21
Assaults	100	1	0	4	12	14	33	1	35
Struck by objects other than vehicles or equipment	100	5	20	14	41	11	6	0	3
Caught in, under, or between objects other than vehicles or equipment	100	3	3	18	45	16	10	0	5
Explosions	100	2	13	10	51	9	13	0	3
Aircraft crashes	100	2	4	5	27	27	15	1	19
Gas inhalation	100	1	15	6	23	53	0	0	3
Plant machinery operations	100	1	0	3	74	7	12	0	3
Fires	100	3	12	25	48	3	8	0	2
All other ⁶	100	4	6	18	19	25	3	(5)	25

¹ It is difficult to estimate year-to-year changes for the causal categories precisely because sampling errors are large at the industry division level. Therefore, the results are for both years rather than a comparison between them.

² Cause is defined as the object or event associated with the fatality.

³ Excludes coal, metal and nonmetal mining, and railroads, for which data are not available.

⁴ Excludes railroads.

⁵ Less than 1 percent.

⁶ The "All other" category includes, for example, contact with carcinogenic or toxic substances, drowning, train accidents, and various occupational illnesses.

NOTE: Because of rounding, percentages may not add to 100.

Monthly Labor Review, September 1985, pp. 41–44.

The 1984 survey was comprised of a sample of 280,000 units. The relative standard errors, which are a measure of the sampling error in the estimates, are given in the following tabulation in percent and are to be used only in conjunction with the numbers of fatalities or the incidence rate for 1984 shown in tables 1 and 2:

Industry	Relative standard error
Private sector	8
Agriculture, forestry, and fishing	26
Mining	13
Construction	12
Manufacturing	6
Transportation and public utilities	13
Wholesale and retail trade	58
Finance, insurance, and real estate	39
Services	21

—FOOTNOTE—

¹ The Mine Safety and Health Administration of the U.S. Department of Labor and the Federal Railroad Administration of the U.S. Department of Transportation provided data for the number of deaths in coal, metal, and nonmetal mining and railroads but not for the objects or events involved in the cases.

Union membership of employed wage and salary workers, 1985

The number of employed wage and salary workers who were members of unions or employee associations declined from 20.1 to 17.0 million between 1980 and 1985. During the same period, the number of employed wage and salary workers rose from 87.5 to 94.5 million. Thus, the propor-

tion of workers who were union members fell from 23.0 to 18.0 percent over the 5-year period. The number and proportion of workers represented by unions—that is, union members as well as nonmembers covered by collective bargaining agreements—also declined, from 22.5 to 19.4 million or from 25.7 to 20.5 percent of employed wage and salary workers.

Data on union employment were obtained from the Current Population Survey (CPS), conducted by the Bureau of the Census for the Bureau of Labor Statistics. The CPS collected data on workers identified by their membership in unions or by their representation at work by a union, whether or not they were members. It should be noted that the CPS union membership data covered only employed wage and salary workers, not union members who were self-employed, unemployed, retired, laid off, or who, for other reasons, were not wage and salary employees.

Industry. Among the major industry groups, the transportation, communications, and public utilities industry had the highest union membership proportion—37 percent, or 2.1 million members out of 5.7 million workers. Three other major industry groups had union membership proportions greater than the national average of 18.0 percent: the public sector—Federal, State, and local government (35.8 percent); manufacturing (24.8 percent); and construction (22.3 percent). In mining, 17.3 percent of the workers were union members, just below the national average. Among the other industry groups (wholesale and retail trade; services; and finance, insurance, and real estate), union membership rates were no higher than 7.2 percent. (See table 1.)

Union membership was disproportionately concentrated in three major industry groups. The public sector accounted for 33.8 percent of all employed union members; manufac-

Table 1. Employed wage and salary workers affiliated with a union, by selected characteristics, 1985 annual average

[Numbers in thousands]

Characteristic	Total employed	Members of unions ¹		Represented by unions ²	
		Total	Percent of employed	Total	Percent of employed
Total, 16 years and over . . .	94,521	16,996	18.0	19,358	20.5
Men	51,015	11,264	22.1	12,448	24.4
Women	43,506	5,732	13.2	6,910	15.9
White ³	81,862	14,124	17.3	16,083	19.6
Men	44,680	9,623	21.5	10,625	23.8
Women	37,182	4,501	12.1	5,458	14.7
Black ³	10,073	2,445	24.3	2,775	27.6
Men	4,967	1,387	27.9	1,530	30.8
Women	5,106	1,058	20.7	1,245	24.4
Full-time workers ⁴	77,002	15,717	20.4	17,816	23.1
Part-time workers ⁴	17,518	1,280	7.3	1,542	8.8
Occupation:					
Managerial and professional specialty	21,688	3,307	15.2	4,166	19.2
Technical, sales, and administrative support	30,082	3,243	10.8	3,928	13.1
Service occupations	13,325	1,922	14.4	2,162	16.2
Precision production, craft, and repair	11,482	3,272	28.5	3,543	30.9
Operators, fabricators, and laborers	16,207	5,157	31.8	5,453	33.6
Farming, forestry, and fishing	1,736	95	5.5	107	6.1
Industry:					
Agricultural wage and salary workers	1,427	30	2.1	32	2.3
Private nonagricultural wage and salary workers	77,044	11,227	14.6	12,409	16.1
Mining	881	153	17.3	167	19.0
Construction	4,716	1,051	22.3	1,114	23.6
Manufacturing	20,120	4,996	24.8	5,422	26.9
Transportation and public utilities	5,725	2,118	37.0	2,275	39.7
Wholesale and retail trade	19,402	1,400	7.2	1,552	8.0
Finance, insurance, and real estate	6,032	177	2.9	244	4.0
Services	20,167	1,331	6.6	1,636	8.1
Government workers	16,050	5,740	35.8	6,917	43.1

¹ Members of a labor union or an employee association similar to a union.

² Members of a labor union or an employee association similar to a union, as well as workers who report no union affiliation but whose jobs are covered by a union or employee association contract.

³ Detail for the race groups will not add to total because separate data are not presented for "other races" and Hispanic groups.

⁴ The distinction between full- and part-time workers is based on hours usually worked.

NOTE: Data refer to the sole or principal job of full- and part-time workers. Excluded are self-employed workers whose businesses are incorporated, although they technically qualify as wage and salary workers.

turing for 29.4 percent; and transportation, communications, and public utilities for 12.5 percent. Although these three groups accounted for three-fourths of union membership, they employed only 44 percent of the Nation's wage and salary workers.

Occupation. The two most heavily unionized major occupational groups were operators, fabricators, and laborers, with 31.8 percent membership, and precision production, craft, and repair workers, with 28.5 percent membership. Although membership rates were less than 16 percent among the other occupational groups, two subgroups had

comparatively high rates of unionization.

About three-tenths of all union members were in the operators, fabricators, and laborers occupational group. Almost 60 percent were about equally distributed among three other major occupational groups: managerial and professional specialty; precision production, craft, and repair; and technical, sales, and administrative. The service occupations accounted for about one-tenth of the workers who were union members.

Demographic characteristics. While a larger proportion of male workers than of female workers belonged to unions (22.1 versus 13.2 percent), the pattern of change in union membership proportions across age brackets was similar for both sexes. The proportion of workers belonging to unions was smallest for workers age 16 to 24 for both men and women. (See table 1.) As workers' age rose, so did the percentage of those who belonged to unions. The highest unionization rate reported was for workers in the 45- to 64-year old bracket. This relationship held for both men and women.

A higher proportion of black than of white employees

Table 2. Median weekly earnings of full-time wage and salary workers affiliated with a union, by selected characteristics, 1985 annual average

Characteristic	Total	Represented by a union ¹	Not represented by a union
Total, 16 years and over	\$343	\$419	\$315
Men	406	463	383
Women	277	347	262
White ²	355	433	323
Men	417	475	395
Women	281	356	267
Black ²	277	352	246
Men	304	381	266
Women	252	316	228
Occupation:			
Managerial and professional specialty	488	481	490
Technical sales and administrative support	307	380	297
Service	216	322	195
Precision production, craft, and repair	397	495	349
Operators, fabricators, and laborers	295	395	249
Farming, forestry, and fishing	212	334	206
Industry:			
Agricultural wage and salary workers	211	(3)	210
Private nonagricultural wage and salary workers	332	418	312
Mining	501	507	499
Construction	369	556	315
Manufacturing	368	401	347
Transportation and public utilities	458	492	414
Wholesale and retail trade	270	373	262
Finance, insurance, and real estate	334	340	333
Services	298	327	294
Government workers	394	420	360

¹ Members of a labor union or an employee association similar to a union, as well as workers who report no union affiliation but whose jobs are covered by a union or an employee association contract.

² Detail for the race groups will not add to total because data for "other races" and Hispanic groups are not presented.

³ Data not shown where base is less than 50,000.

NOTE: Data refer to the sole or principal job of full- and part-time workers. Excluded are self-employed workers whose businesses are incorporated although they technically qualify as wage and salary workers. Data on median weekly earnings are derived using \$50 centered intervals, rather than the \$10 intervals previously used.

belonged to unions, 24.3 and 17.3 percent. This relationship held for both men and women.

Earnings. Full-time unionized workers had substantially higher median usual weekly earnings than those who were not represented by a union. (See table 2.) This relationship held for six of the eight major industry groups (exceptions were mining and finance, insurance, and real estate) and

among the occupational groups, except for managerial and professional specialty workers. Similarly, among black and white workers of both sexes, those covered by a collective bargaining agreement had weekly earnings substantially higher than their nonrepresented counterparts.

More detailed data appear in Larry T. Adams, "Union Membership of Employed Wage and Salary Workers," *Current Wage Developments*, March 1985, pp. 45-50. □

Making work more human

Where work is badly organized, the morale of the workers is almost certainly going to be low, and the working atmosphere depressed. Monotonous jobs, requiring little skill, can be extremely tiring and even degrading. An authoritarian style of management can add to the burden. If a worker has only one duty and that is to be obedient; if he is given only simple tasks, to be repeated from morning till night; if the pace of work allows him no time to relax for a moment; in all these conditions, he is gradually forced into the position of a draught animal who only works, eats, and sleeps. Fortunately, it is now increasingly acknowledged that—whatever purely economic considerations might dictate—this is not good enough. Everyone is now familiar with the demand for "the humanization of work."

—INTERNATIONAL LABOR ORGANIZATION
Working Conditions and Environment:
A Worker's Education Manual
(Washington, International Labor
Organization, 1983), pp. 27-28.

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 Wages and Industrial Relations. The list includes agreements covering 1,000 workers or more. Private industry is arranged in order of Standard Industrial Classification.

Employer and location	Industry or activity	Labor organization ¹	Number of workers
Private			
Kennecott Copper Corp. (Interstate)	Mining	Steelworkers	4,600
Magma Copper Co. (Superior, AZ)	Mining	Steelworkers	2,800
Inspiration Consolidated Copper Co. (Arizona)	Mining	Various unions	1,000
Associated General Contractors of California, Inc., and 2 others (California)	Construction	Carpenters	20,000
Associated General Contractors of California, Inc., and 2 others (California)	Construction	Laborers	15,000
Associated General Contractors, San Diego Chapter and 1 other (California)	Construction	Laborers	4,000
Associated General Contractors (Alaska)	Construction	Operating Engineers	6,300
Associated General Contractors and others, Northern California (California)	Construction	Laborers	15,000
Associated General Contractors of California, Inc., Northern California (California)	Construction	Plasterers and Cement Masons	4,000
Building Industry Association and 2 others, Northern California (California)	Construction	Carpenters	16,000
Associated General Contractors and 2 others, Southern California (California)	Construction	Carpenters	13,000
Residential Contractors Employers Council (Chicago, IL)	Construction	Carpenters	12,000
Michigan Road Builders Association (Michigan)	Construction	Operating Engineers	6,500
Associated General Contractors of California, Inc., 46 Northern California counties (California)	Construction	Carpenters	15,000
Associated General Contractors of California, Inc., Northern California (California)	Construction	Operating Engineers	12,000
Associated General Contractors of California, Inc., Northern California (California)	Construction	Teamsters (Ind.)	2,400
Associated General Contractors, Southern California Chapter (California)	Construction	Plasterers and Cement Masons	4,100
Highway Contractors Inc. (Kentucky)	Construction	Carpenters	5,500
New York Electrical Contractors Association (New York, NY)	Construction	Electrical Workers (IBEW)	10,000
California Conference of Mason Contractors Association, bricktenders (California)	Construction	Laborers	2,000
Plumbing and Piping Industry Council (Los Angeles, CA)	Construction	Plumbers	11,000
Sheet Metal and Air Conditioning Contractors and 1 other, Los Angeles Chapter (California)	Construction	Sheet Metal Workers	2,400
Associated General Contractors and others (California and Nevada)	Construction	Iron Workers	10,000
Mechanical Contractors Council of Central California (California)	Construction	Plumbers	2,000
Painting and Decorating Contractors Association (Seattle, WA)	Construction	Painters	2,500
San Francisco Newspaper Publishers Association (California)	Printing and publishing	Newspaper Guild	1,000
Celanese Corp. of America, Fibers division (Virginia)	Chemicals	Clothing Workers	4,000
Asarco, Inc. (Interstate)	Primary Metals	Various unions	3,000
American Standard Inc. (Louisville, KY)	Fabricated metal products	Standard Allied Trades Council	1,250
Master Lock Co. (Milwaukee, WI)	Fabricated metal products	Auto Workers	1,000
Western Steel Council (San Francisco, CA)	Fabricated metal products	Iron Workers	1,000
Aluminum Co. of America (Cleveland, OH)	Fabricated metal products	Auto Workers	1,100
Caterpillar Tractor Co. (Interstate)	Machinery	Auto Workers	20,400
Deere and Co. (Interstate)	Machinery	Auto Workers	18,000
Tecumseh Products Co., Lauson Engine division (Wisconsin)	Machinery	Machinists	1,000
Brunswick Corp., Mercury Marine division (Fond Du Lac, WI)	Machinery	Machinists	2,300

See footnotes at end of table.

Continued—Major Agreements Expiring Next Month

Employer and location	Industry or activity	Labor organization ¹	Number of workers
Manufacturers of Illumination Products, Inc. (New York, NY)	Electrical products	Electrical Workers (IBEW)	1,000
Magnavox Consumer Electronics Co. (Greenville, TN)	Electrical products	Electrical Workers (IUE)	2,600
Avco Corp., Aerostructures division (Tennessee)	Transportation equipment	Machinists	2,100
Teledyne Continental Motors (Interstate)	Transportation equipment	Auto Workers	3,400
Motor Wheel Corp. (Lansing, MI)	Transportation equipment	Industrial Workers	2,500
MTL, Inc. (Hawaii)	Transit	Teamsters (Ind.)	1,200
Northwest Airlines, pilots (Interstate) ²	Air transportation	Air Line Pilots	1,600
Connecticut Light and Power Co. (Connecticut)	Utilities	Electrical Workers (IBEW)	1,800
Consolidated Edison Company of New York (New York)	Utilities	Utility Workers	16,000
Gulf States Utilities Co. (Interstate)	Utilities	Electrical Workers (IBEW)	3,000
Illinois Power Co. (Illinois)	Utilities	Electrical Workers (IBEW)	1,150
Acme Markets, Inc. (Pennsylvania)	Retail trade	Food and Commercial Workers	2,200
Safeway Stores Inc. (Interstate)	Retail trade	Teamsters (Ind.)	2,600
Star Markets (Rhode Island and Massachusetts)	Retail trade	Food and Commercial Workers	1,200
Eastern Motor Car Dealers, Inc. (California)	Retail trade	Various unions	1,200
Save-On Drug Stores (California)	Retail trade	Food and Commercial Workers	2,500
Blue Cross of California (California)	Insurance	Office and Professional Employees	1,200
Maintenance Contractors agreement (Los Angeles, CA)	Services	Service Employees	1,800
Alliance of Motion Picture and Television Producers, Inc. (Interstate)	Amusements	Screen Actors Guild	4,300
League of New York Theatres Inc. (Interstate)	Amusements	Actors' Equity Association	1,300
League of Voluntary Hospitals and Homes of New York (New York, NY)	Hospitals	Retail, Wholesale and Department Store	50,000
Rush Presbyterian-St. Lukes Medical Center (Chicago, IL)	Hospitals	Various unions	1,000
Kaiser Permanente (Los Angeles, CA)	Hospitals	United Nurses Association of California	2,200
Washington Hospital Center, nurses (Washington, DC)	Hospitals	Nurses' Association (Ind.)	1,000
Community Hospital and Health Care Systems, Inc., Prince Georges County (Maryland)	Hospitals	Firemen and Oilers	1,100
Public			
Arizona: Phoenix general unit, clerical	General government	State, County and Municipal Employees	1,800
Phoenix general unit, blue collar	General government	State, County and Municipal Employees	2,400
Phoenix Police Department, nonsupervisory	Law enforcement	Police Associations (Ind.)	1,400
Phoenix teachers	Education	Education Association (Ind.)	1,100
Tucson Board of Education, teachers	Education	Education Association (Ind.)	2,900
California: Chula Vista Board of Education, teachers	Education	Education Association (Ind.)	1,100
Compton Board of Education, teachers	Education	Education Association (Ind.)	1,300
Fremont Board of Education, teachers	Education	Education Association (Ind.)	1,100
Fremont Board of Education, clerical	Education	State Employees Association	1,500
Fremont Board of Education, classified	Education	United Public Employees union (Ind.)	1,000
Long Beach office and technical nonsupervisory unit	General government	Long Beach City Employees Association (Ind.)	1,300
Alameda County Contra Costa Transit Authority	Transit	Transit Union	1,800
Sacramento Board of Education, teachers	Education	Education Association (Ind.)	3,000
California Forest fire fighters, Unit 8	Fire protection	Fire Fighters	3,000
Monterey County general unit	General government	Monterey County Employees Association	1,600
San Diego general unit, blue collar	General government	State, County and Municipal Employees	1,700
San Diego Board of Education, operational support	Education	Service Employees	2,000
San Diego County multi-unit	General government	Various unions	7,200
San Diego County sheriffs	Law enforcement	San Diego County Sheriffs Association	1,000
San Jose Board of Education, teachers	Education	Education Association (Ind.)	1,400
San Juan Board of Education, teachers	Education	Education Association, (Ind.)	2,350
Connecticut: Bridgeport teachers	Education	Education Association (Ind.)	1,100
State Department of Mental Retardation, nonprofessional	Social services	Various unions	6,000
Hartford Board of Education, teachers	Education	Teachers	1,600
University of Connecticut, faculty	Education	University Professors (Ind.)	1,600
Florida: Broward County Board of Education, clerical	Education	Education Association (Ind.)	1,000
Duval County School District, teachers	Education	Teachers	5,700
Leon County Board of Education, teachers	Education	Education Association (Ind.)	1,400
Hillsborough County, paraprofessionals	Education	Hillsborough Classroom Teachers Association	1,600
Iowa: Davenport Board of Education, teachers	Education	Education Association (Ind.)	1,300
Illinois: Department of Corrections multi-unit	Prisons	State, County and Municipal Employees	4,300
Paraprofessionals unit RC28	General government	State, County and Municipal Employees	2,000
Clerical unit	General government	State, County and Municipal Employees	10,200

See footnotes at end of table.

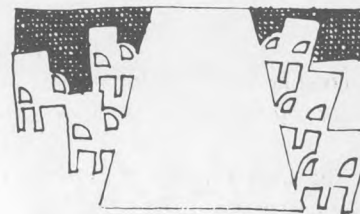
Continued—Major Agreements Expiring Next Month

Employer and location	Industry or activity	Labor organization ¹	Number of workers
Mental health workers	Social services	State, County and Municipal Employees	8,400
Protective and regulatory unit RC29	Law enforcement	State Employees Association	1,300
Nurses unit RC23	Health services	Nurses Association (Ind.)	1,200
Indiana: Indiana University, maintenance unit	Education	State, County and Municipal Employees	1,500
Kansas: Shawnee Mission, teachers	Education	Education Association (Ind.)	2,000
Wichita Board of Education, noninstructional	Education	Service Employees	1,150
Massachusetts: University of Massachusetts, service, clerical, security	Education	Various unions	4,000
Massachusetts State College, faculty	Education	Education Association (Ind.)	1,500
Commonwealth administrative and clerical	General government	Service Employees	9,000
Commonwealth administrative professionals	General government	Service Employees	3,500
Commonwealth trades and crafts	General government	Service Employees	1,500
Commonwealth engineers and scientists	General government	Massachusetts Organization of State Engineers and Scientists	2,800
Springfield Board of Education, teachers	Education	Education Association (Ind.)	1,600
Worcester general unit	General government	Service Employees	1,400
Maryland: Anne Arundel County Board of Education, bus drivers, custodians, maintenance, cafeteria employees	Education	State, County and Municipal Employees	1,450
Technical, clerical, instructional aides	Education	Secretaries and Aides Association	1,000
Baltimore classified white collar	General government	State, County and Municipal Employees	5,000
Baltimore blue collar	General government	State, County and Municipal Employees	7,200
Baltimore Fire Department	Fire protection	Fire Fighters	1,700
Baltimore Board of School Commissioners, teachers, paraprofessionals, 2 agreements	Education	Teachers	7,600
Hartford County Board of Education, teachers	Education	Education Association (Ind.)	1,600
Frederick County Board of Education, teachers	Education	Education Association (Ind.)	1,450
Howard County Board of Education, teachers	Education	Education Association (Ind.)	1,600
Prince Georges County Board of Education, classified	Education	State, County and Municipal Employees	3,000
Maine: State employees	General government	State Employees Association	10,000
Michigan: Detroit city employees	General government	State, County and Municipal Employees	7,000
Detroit Police Department	Law enforcement	Police Officers Association (Ind.)	4,400
Detroit Fire Department	Fire protection	Fire Fighters	1,200
University of Michigan, service and maintenance	Education	State, County and Municipal Employees	2,100
Missouri: St. Louis Board of Education, teachers	Education	Education Association (Ind.)	3,800
New Jersey: State administrative and clerical	General government	State Employees Association	12,400
State professional unit	General government	State Employees Association	11,200
State blue collar unit	General government	State, County and Municipal Employees	8,000
State Health, Care and Rehabilitation Services	Health services	State, County and Municipal Employees	10,000
Nevada: Clark County public employees unit	General government	Public Employees Association (Ind.)	2,100
Las Vegas general unit	General government	Las Vegas Employees Association (Ind.)	1,500
Washoe County Board of Education, teachers	Education	Education Association (Ind.)	1,700
New York: Buffalo Fire Department	Fire protection	Fire Fighters	1,000
Oklahoma: Oklahoma City Board of Education, teachers	Education	Teachers	2,300
Tulsa Board of Education, teachers	Education	Classroom Teachers Association (Ind.)	1,100
Oregon: Eugene Board of Education, teachers	Education	Education Association (Ind.)	1,200
Multnomah County School District, teachers	Education	Portland Association of Teachers (Ind.)	3,000
Portland Board of Education, teachers	Education	Education Association (Ind.)	2,500
Pennsylvania: Philadelphia Fire Department	Fire protection	Fire Fighters	2,700
Philadelphia Police Department	Law enforcement	Police	7,200
Philadelphia city employees	General government	State, County and Municipal Employees	13,000
Rhode Island: State employees	General government	State, County and Municipal Employees	10,500
Tennessee: Hamilton County Board of Education, teachers	Education	Education Association (Ind.)	1,100
Memphis general unit	General government	State, County and Municipal Employees	1,900
Memphis Fire Department	Fire protection	Fire Fighters	1,250
Utah: Davis County Board of Education, noninstructional	Education	State Employees Association	1,600
Teachers	Education	Education Association (Ind.)	1,750
Salt Lake City Board of Education, teachers	Education	Salt Lake City Teachers Association (Ind.)	1,200
Vermont: State nonmanagement unit	General government	State Employees Association	4,500

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

² Information is from newspaper reports.

Developments in Industrial Relations



Container contracts call for two-tier pay system

A 16-day strike ended when four container manufacturers and the Steelworkers agreed on 3-year contracts for 13,300 employees. The first settlement was with National Can Corp., followed hours later by agreements on similar terms at Continental Can Co., American Can Co., and Crown Cork & Seal Co. This company-by-company bargaining was a departure from the employers' practice of bargaining as a unit, but the union was able to maintain similar terms at all of the companies.

The contracts do not provide for specified wage increases, but the workers will receive an immediate \$400 lump-sum payment and \$300 payments in the second and third years. They will also continue to be eligible for annual cost-of-living pay adjustments.

In a change that will save money for the companies, the union agreed to a temporary two-tier pay system under which new workers will be paid 20 percent less than the regular rate for the job during their first 2 years of employment. Leon Lynch, the union's chief negotiator for the industry, explained, "our members are some of the highest paid workers in the industrial sector, and workers who come in off the street don't always have the highest skills." At the time of the settlements, pay rates ranged from \$12.55 to \$15.93 an hour, according to the union.

The new contracts, which expire February 19, 1989, also provide for:

- A \$3 increase in the monthly pension rate for each year of credited service.
- A health care cost containment program including pre-admission reviews of non-emergency surgery, second opinion requirements, 20 percent co-payments for employees who do not follow the requirements of the program (one "learning experience" is permitted in the first year); establishment of a mail order generic drug program; and a medical expense audit program under which employees can recover up to \$500.
- A voluntary product promotion program financed through payroll deductions.
- A joint committee, financed 85 percent by the company and 15 percent by the union, to determine if "special

treatment" is necessary to preserve plants that continue to manufacture three-piece cans.

Volkswagen pay catches 'Big Three' automakers

Volkswagen of America and the United Auto Workers negotiated new contracts for plants in New Stanton, PA, and South Charleston, WV. The 3-year New Stanton accord, covering 2,200 employees, brought wage and benefit levels up to parity with General Motors Corp., Ford Motor Co., and Chrysler Corp. The immediate pay increase ranged from 3 cents to \$1.69 an hour. For assemblers, the most heavily populated job category, the increase was 13 cents an hour, bringing the rate to \$13.46. In April 1987, the employees will receive a lump-sum payment equal to 3 percent of their earnings during the preceding 12 months. Their April 1988 pay increase will match the initial increase resulting from the union's 1987 bargaining with Ford and General Motors.

Other provisions included a \$6 increase in the pension calculation rate over the term, bringing the range to \$18.75-\$19.50 a month for each year of credited service; a 6-cent per hour increase in Volkswagen's financing of Supplemental Unemployment Benefits; and increased sickness and accident benefits.

The company also agreed to place the Auto Workers' logo on vehicles assembled at the plant, and to give the union 60 days' notice of planned subcontracting of work that will eliminate five or more jobs.

The agreement for the South Charleston stamping plant runs to June 30, 1987, the date the facility is scheduled to close if a buyer is not found. Provisions to aid the 750 employees include:

- a new income maintenance program financed by a company payment of 51.3 cents per hour—1.5 times the amount necessary to attain parity with the "Big Three" auto companies;
- a plan for converting Supplemental Unemployment Benefits to a separation pay fund, paying displaced workers amounts equivalent to 50 hours of pay for those with 2 years of service up to 570 hours for those with 13 or more years of service;
- an early retirement provision giving employees age 50 with 10 years of service lifetime benefits calculated at \$12.75 to \$13.50 a month for each year of service, plus supplemental benefits until age 62, calculated at \$11 a month for each year of service; and

"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.

- continuation of health insurance and job search assistance for 6 months after layoff.

The South Charleston employees will receive a lump-sum payment in April 1987 equal to 2.25 percent of their earnings during the preceding 12 months. They will also receive automatic quarterly cost-of-living pay adjustments during the contract's term.

UAW to intensify organizing efforts at Honda

The United Auto Workers' plan to organize foreign-owned vehicle and parts plants opening in the United States suffered a blow when the union was forced to drop its bid for a representation election at the Honda of America Manufacturing Corp.'s plant in Marysville, OH. The union said the withdrawal of its petition to the National Labor Relations Board was a temporary action. It attributed the setback to confusion resulting from unfair labor practices charges it had filed against Honda (which were rejected by the Board), "misinformation" being spread by anti-UAW workers, and an influx of new employees. The UAW said the withdrawal of the election petition was not a defeat and that the drive to organize the Honda operations will be intensified.

In the charges filed with the Board late last year, the UAW contended that Honda had attempted to influence the election outcome by illegally questioning plant workers about their attitude toward unions, allowing anti-union material to be distributed on company time, and improving employees benefits during the organizing drive. The Board dismissed the complaint, citing "insufficient evidence."

So far, the UAW has not been successful in organizing any of the Japanese-owned automobile plants that have resisted the union's efforts. UAW does represent workers at the General Motors-Toyota joint venture in Fremont, CA, and will represent workers at the Mazda plant being built in Flat Rock, MI, and has represented workers at the Volkswagen plant in New Stanton, PA, since 1978.

Court contract allows drug testing

Drug testing and treatment provisions were adopted in a settlement between New York State's Office of Court Administration and three unions representing 3,000 court officers and clerks in State courts in New York City. Howard Rubenstein, director of employee relations for the Office of Court Administration, said the agency was committed to adopting similar provisions for the rest of the State court system when labor contracts expire in 1988.

Both the Office of Court Administration and the three unions indicated that the drug control provisions were a preventive measure rather than a reaction to an existing problem. Rubenstein said, "We think it's an issue whose time has come. These are people who carry guns, and I think we have a duty to assure the public." A union official indicated that the unions were not pleased with the program but had accepted it because the workers' sensitive duties re-

quired them to be above suspicion.

Under the provisions, the deputy chief administrative judge in the area will determine if there is "reasonable cause" to test a particular employee. If so, and the test is positive, the employee will be given the option of entering a rehabilitation program rather than facing disciplinary action. After completing the program, which will vary in scope and duration according to the employee's needs, the employee will be subject to periodic retesting and disciplinary action if drug abuse is again detected.

Other contract terms included wage increases of 5 percent retroactive to June 13, 1985, 5.5 percent on April 1, 1986, and 6 percent on April 1, 1987. The unions, comprising a joint bargaining council sponsored by the International Longshoremen's Association, are the Court Officers Association, the New York State Supreme Court Officers Association, and the Court Clerks Associations.

New rules on drug, alcohol use by rail workers

After years of controversy, the Department of Transportation issued regulations banning railroad workers from reporting to work under the influence of alcohol or drugs or consuming them on the job. The rules had been scheduled to go into effect on November 1, 1985, but were delayed by legal challenges by railroad unions. Implementation of the rules became possible when the Supreme Court favored the Government's position.

The new rules also authorize testing of employees following major accidents; when there are indications of possible impairment; and as a routine part of the hiring procedure. The regulations also require railroads to establish incentives for addicted employees to seek help voluntarily, but also permit employers to dismiss workers who violate the drug and alcohol rules.

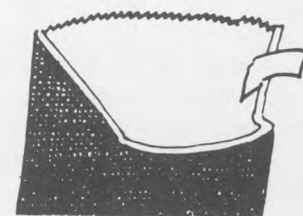
One of the first calls for adoption of the rules came from the National Transportation Safety Board in 1974. There have been 48 train accidents since 1975 attributed to employees impaired by alcohol or drugs, resulting in 37 deaths and \$34 million in property damage.

Displaced airline workers given rehire rights

In the airline transportation industry, the Department of Labor issued rules providing rehiring rights for employees who lost their jobs as a result of the Airline Deregulation Act of 1978, which opened the industry to intense competition. Under the rules, all airlines must list their job vacancies on a central register and airlines that were in existence when the law took effect must give preference to applicants with rehiring rights. Preferential hiring is limited to persons who were employed by an airline for at least 4 years prior to 1978.

The hiring preference rule, authorized by the deregulation act, was originally expected to continue for 10 years, but because of delays resulting from legal challenges by the airlines, will now extend for fewer than 3 years. □

Book Reviews



A neoclassical perspective

Labor Market Economics. By Saul D. Hoffman. Englewood Cliffs, NJ, Prentice-Hall, Inc., 1986. 354 pp. \$28.95.

The first interesting thing about this book appears on its cover—the title. Although the author may assume that his readership would pay no particular attention to the word “market,” that is precisely the word that piques the interest of the classical economist. Has a modern text finally been written which begins with the premise that labor is, among other things, a commodity which is bought and sold? Yes, and Saul D. Hoffman is its author.

Indeed, a major strength of this book is its sound economic analysis, which is based on the understanding that labor is not magically exempt from the economic laws and pressures which operate in a market economy. (Anticipating the objections of those who would say that today’s economy is too far removed from the free-market ideal to justify such an approach, Hoffman has included a convincing defense.) The use of the traditional economic tools of analysis, avoiding the need to reinvent the wheel in order to examine the subject, contributes to the effectiveness of this text, which uses a “neoclassical” perspective.

This comprehensive study is well written and well organized. There are separate chapters on demand for labor, labor supply, human capital, discrimination, unions, income, and unemployment, as well as one on “further topics.” “Applications sections” are employed, many of which delve into real-world cases. Much of the author’s analysis is quite enlightening, while imprecisions are mostly minimal. The exception is the statement: “. . . it should be obvious that the wage income of all workers is exactly equal to the labor costs of all firms.” The author should have added a section on benefits as an aspect of compensation, or included a disclaimer stating that the term “wages” is used synonymously with “compensation.” Also, because the idea of labor cost is not useful without considering productivity, it cannot be considered in such absolute terms. In a lesser violation, Puerto Rico is listed as one of the “countries” (sic) which has minimum wage legislation.

Although some equations and graphs merely quantify the obvious, most are helpful. Hoffman makes good use of new ideas and research. Divergent opinions are presented in a balanced, unbiased manner. Overall, *Labor Market Eco-*

nomics is an excellent choice for the introductory college course and for those interested in the subject.

—MICHAEL WEINERT
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Pruning the executive branch

Servants of the People: The Uncertain Future of the Federal Civil Service. By Howard Rosen. Salt Lake City, UT, Olympus Publishing Co., 1985. 188 pp. \$12.95, paper.

Howard Rosen has presented a frank, well-written book concerning the Federal Government’s personnel system. This is more than just a good textbook about the personnel system, although any professor who chose this as a text would be doing students a favor. It is also a frank assessment of the follies and foibles of the system which the government has saddled itself for many years.

Rosen speaks with the authority of a man who understands the system. If there is a dimension missing from Rosen’s perceptions, it stems from the fact that this book represents a personnel view of the system rather than that of a line manager. When he poses the question, “Who Manages the Workforce?” he is eloquent in explaining how the system is weak and outmoded as a management tool, but he never states clearly that it is the *managers* who are supposed to be using the tool, because they are in charge of the work force and are its most critical element. Thus, managers are let off Rosen’s hook.

The author also deals inadequately with the current topic of contracting out work formerly done by civil servants. The chapter entitled, “The Contracting-Out Industry: An Extension of the Federal Labor Force?” treats the issue of government contracting on far too narrow a base, ignoring decades of broader government-industry contract relationships in major program arenas such as military weapons system manufacture, NASA’s large scale R&D contracts, and extensive grant-based programs for highways, water treatment, and other public infrastructure.

Finally, Rosen seems reluctant to deal with a difficult question: what happens when, for reasonable and legitimate

reasons, the Federal work force must be cut back? He suggests that cutbacks are made solely for short term and questionable reasons. But managers in the private sector and in State and local government have faced numerous situations where cutting back the work force was a correct decision and had to be done. We need to stop denying that this reality cannot and should not occur in the Federal Government. Instead, we need to deal with the necessary political and systemic changes in order to consider this possibility realistically and, where justified, handle cutbacks sensibly and humanely.

If there is a threat to the civil service system, it is, as Rosen states, that the American public will lose the recognition that this enormously talented body of employees are indeed the servants of the people. This ethic is a great strength for government. The most corrosive thing that the political leadership can do is to believe that this talent is irrelevant and unneeded in the conduct of the public's business, and that government can be run on a combination of a deeper, thicker layer of political appointees, and a mass of clerks. Rosen attempts to emphasize that this is bad judgment on the part of politicians. I suggest the American public knows better.

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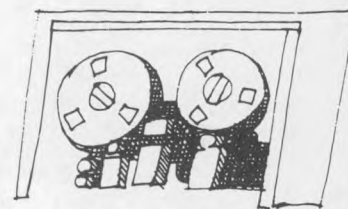
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Current Labor Statistics



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U.S. Import and Export Price Indexes . . .	May 1	1st quarter	July 31	2nd quarter	2; 36-41
Employment situation	May 2	April	June 6	May	July 3	June	1; 4-21
Producer Price Index	May 16	April	June 13	May	July 11	June	2; 33-35
Consumer Price Index	May 21	April	June 20	May	July 23	June	2; 30-32
Real earnings	May 21	April	June 20	May	July 23	June	14-17
Productivity and costs:							
Nonfinancial corporations	May 29	1st quarter	.....	....	.....	.....	2; 42-44
Nonfarm business and manufacturing . . . . .	.....	.....	.....	....	July 30	2nd quarter	2; 42-44
Major collective bargaining settlements . . . . .	.....	.....	.....	....	July 28	1st 6 months	3; 25-28
Employment Cost Index . . . . .	.....	.....	.....	....	July 29	2nd quarter	1-3; 22-24

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 is 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, 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 being seasonally adjusted with a new 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 Estla Bee Dagum (Statistics Canada, Catalogue No. 12-564E, January 1983). The second change is that seasonal factors are now being calculated for use during the first 6 months of the year, rather than for the entire year, and then are calculated at mid-year 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 1986 issue of the *Review*, to reflect experience through 1985.

Annual revisions of the seasonally adjusted payroll data shown in tables 13, 14, and 18 were made in July 1985 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 1967 = 100, the hourly rate expressed in 1967 dollars is \$2 ($\$3/150 \times 100 = \2). The \$2 (or any other resulting values) are described as "real," "constant," or "1967" dollars.

Additional information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. Press 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 is published in the two-volume data book—*Labor Force Statistics Derived From the Current Population Survey*, Bulletin 2096. More data from the establishment survey appears 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.

EMPLOYMENT 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 household work, 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

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).

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 1984.

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 1982 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 200,000 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 blue-collar worker supervisors and all nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 12–16 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 Earner 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 gross average weekly hours which were 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 1985 data, published in the July 1985 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 1983; seasonally adjusted data have been revised back to January 1980. These revisions were published in the *Supplement to Employment and Earnings* (Bureau of Labor Statistics, 1985). Unadjusted data from April 1984 forward, and seasonally adjusted data from January 1981 forward are subject to revision in future benchmarks.

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 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.

Fixed employment weights from the 1970 Census of Population are used each quarter to calculate the indexes for civilian, private, and State and local governments. 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 1970 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 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 Chapter 11, "The Employment Cost Index," in 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

(wages and benefits 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 of 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 work days lost by workers involved in the stoppages.

Days of idleness as a percent of estimated working time: Aggregate work days lost as a percent of the aggregate number of standard work days 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 (1967 = 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 1972-73 buying habits of about 80 percent of the noninstitutional population of the United States at that time, compared with 40 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 24,000 retail establishments and 24,000 tenants in 85 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 28 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.

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*, June 1982, pp. 9-14.

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 3,200 commodities and about 60,000 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 1976, 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 1972. 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*. Series on the net output of major mining and manufacturing industry groups will appear in the *Review* starting with data for July 1986.

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 Laspeyeres 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.

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).

PRODUCTIVITY DATA

(Tables 2; 42-44)

U. S. productivity and related data

Description of the series

The productivity measures relate real physical output to real input. As such, they encompass a family of measures which include single factor 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 is the labor compensation costs expended in the production of a unit of output and is derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current dollar value of output and dividing by output. **Unit nonlabor costs** contain all the components of unit nonlabor payments except unit profits.

Unit profits include corporate profits 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, Great Britain; 15 and over in Canada, Australia, Japan, Germany, the Netherlands, and prior to 1973, Great Britain; 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, Great Britain, Italy, and the Netherlands 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 1976), 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, Vol. 1, Chapter 16 (Bureau of Labor Statistics, 1982) 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	1984	1985	1984				1985			
			I	II	III	IV	I	II	III	IV
Employment data										
Employment status of the civilian noninstitutionalized population (household survey) ¹										
Labor force participation rate	64.4	64.8	64.1	64.5	64.4	64.5	64.8	64.7	64.7	64.9
Employment-population ratio	59.5	60.1	59.0	59.6	59.7	59.8	60.1	60.0	60.1	60.4
Unemployment rate	7.5	7.2	7.9	7.5	7.4	7.2	7.3	7.3	7.2	7.0
Men	7.4	7.0	7.9	7.4	7.3	7.1	7.1	7.1	7.0	6.9
16 to 24 years	14.4	14.1	15.0	14.3	14.5	13.8	14.1	14.2	14.0	14.0
25 years and over	5.7	5.3	6.1	5.7	5.5	5.4	5.4	5.4	5.3	5.2
Women	7.6	7.4	7.9	7.6	7.6	7.5	7.6	7.5	7.4	7.2
16 to 24 years	13.3	13.0	13.9	13.5	13.1	12.9	13.1	13.0	12.7	13.1
25 years and over	6.0	5.9	6.1	5.9	6.0	5.9	6.0	6.0	5.9	5.5
Unemployment rate, 15 weeks and over	2.4	2.0	2.7	2.5	2.3	2.1	2.0	2.0	2.0	1.9
Employment, nonagricultural (payroll data): ^{1, 2}										
Total	94,461	97,699	93,035	94,013	94,915	95,849	96,640	97,338	97,967	98,815
Private sector	78,477	81,404	77,153	78,082	78,898	79,745	80,522	81,143	81,588	82,321
Goods-producing	24,730	25,057	24,402	24,680	24,861	24,973	25,077	25,055	24,986	25,098
Manufacturing	19,412	19,426	19,182	19,394	19,509	19,564	19,564	19,430	19,331	19,384
Service-producing	69,731	72,643	68,633	69,333	70,055	70,876	71,563	72,283	72,981	73,717
Average hours:										
Private sector	35.3	35.1	35.3	35.3	35.3	35.2	35.1	35.1	35.1	35.1
Manufacturing	40.7	40.5	40.9	40.8	40.5	40.5	40.4	40.3	40.5	40.8
Overtime	3.4	3.3	3.5	3.5	3.3	3.4	3.3	3.2	3.3	3.5
Employment Cost Index										
Percent change in the ECI, compensation: ³										
All workers (excluding farm, household, and Federal workers)	-	-	1.7	.8	1.3	1.2	1.3	.7	1.6	.6
Private industry workers	-	-	1.7	.9	.8	1.3	1.2	.8	1.3	.6
Goods-producing ⁴	-	-	1.6	.9	.9	1.1	1.5	.7	.6	.6
Servicing-producing ⁴	-	-	1.9	1.0	.7	1.4	1.0	1.0	1.8	.5
State and local government workers	-	-	1.6	.4	3.5	1.0	1.2	.2	3.4	.7
Workers by bargaining status (private industry)										
Union	-	-	1.5	.9	.7	1.1	.7	.6	.8	.5
Nonunion	-	-	1.8	1.0	.9	1.3	1.6	1.0	1.4	.6

¹ Quarterly data seasonally adjusted.

² Data for 1985 and 4th quarter 1985 are preliminary.

³ Annual changes are December-to-December change. Quarterly changes calculated using the last month of each quarter.

⁴ Goods-producing industries include mining, construction, and manufacturing. Service-producing industries include all other private sector industries.

- Data not available.

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

Selected measures	1984	1985	1984				1985			
			I	II	III	IV	I	II	III	IV
Compensation data: ^{1, 2}										
Employment Cost Index--Compensation (wages, salaries, benefits)										
Civilian nonfarm	-	-	1.7	0.8	1.3	1.2	1.3	0.7	1.6	0.6
Private nonfarm	-	-	1.7	.9	.8	1.3	1.2	.8	1.3	.6
Employment Cost Index--Wages and Salaries										
Civilian nonfarm	-	-	1.2	.8	1.3	1.2	1.2	.9	1.7	.6
Private nonfarm	-	-	1.2	.9	.8	1.2	1.2	1.1	1.3	.6
Price data¹										
Consumer Price Index (All urban consumers): All items	4.0	3.8	1.3	1.1	1.2	.3	1.0	1.1	.7	.9
Producer Price Index										
Finished goods	1.7	1.8	1.5	-.2	-.5	.9	.0	.7	-1.4	2.5
Finished consumer goods	1.6	1.5	1.7	-.3	-.5	.8	-.3	.7	-1.4	2.5
Capital equipment	1.8	2.7	.7	.5	-.5	1.1	1.3	.4	-1.4	2.4
Intermediate materials, supplies, components	1.3	-.3	1.3	.6	-.4	-.1	-.4	.2	-.5	.3
Crude materials	-1.2	-6.4	5.4	-3.6	-2.9	.1	-4.0	-3.8	-7.8	9.9
U.S. Export Price Index	-	-	-	-	-	-	-	-	-	-
U.S. Import Price Index	-	-	-	-	-	-	-	-	-	-
Productivity data¹										
Output per hour of all persons:										
Business sector	4.0	.2	7.7	4.5	1.0	.0	1.3	.7	2.1	-4.0
Nonfarm business sector	3.0	-.6	6.2	3.9	-.5	-.5	1.1	-.2	.5	-4.7
Nonfinancial corporations ³	4.2	-.4	8.2	5.0	-.8	-.3	-.2	-1.1	3.2	-2.3

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. Productivity data are seasonally adjusted.

² Excludes Federal and private household workers.

³ Output per hour of all employees.
- Data not available.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ended in--					
	1984		1985				1984		1985			
	III	IV	I	II	III	IV	III	IV	I	II	III	IV
Average hourly compensation: ¹												
All persons, business sector	-	-	-	-	-	-	-	-	-	-	-	-
All employees, nonfarm business sector	-	-	-	-	-	-	-	-	-	-	-	-
Hourly earnings Index: ²												
All private nonfarm	-	-	-	-	-	-	-	-	-	-	-	-
Employment Cost Index--compensation:												
Civilian nonfarm ³	1.3	1.2	1.3	0.7	1.6	0.6	5.1	5.2	4.8	4.6	4.9	4.3
Private nonfarm .....	.8	1.3	1.2	.8	1.3	.6	4.8	4.9	4.4	4.2	4.7	3.9
Union .....	.7	1.1	.7	.6	.8	.5	4.1	4.3	3.5	3.1	3.2	2.6
Nonunion .....	.9	1.3	1.6	1.0	1.4	.6	5.2	5.2	4.9	4.9	5.4	4.6
State and local governments	3.5	1.0	1.2	.2	3.4	.7	6.6	6.6	6.3	6.1	6.0	5.7
Employment Cost Index--wages and salaries:												
Civilian nonfarm ³	1.3	1.2	1.2	.9	1.7	.6	4.3	4.5	4.4	4.5	5.0	4.4
Private nonfarm .....	.8	1.2	1.2	1.1	1.3	.6	4.1	4.1	4.1	4.3	4.8	4.1
Union .....	.7	.9	.7	1.1	.9	.5	3.3	3.4	3.0	3.4	3.6	3.1
Nonunion .....	.8	1.3	1.4	1.1	1.5	.6	4.5	4.5	4.6	4.8	5.4	4.6
State and local governments	3.4	.8	1.0	.2	3.5	.8	5.8	5.9	5.6	5.5	5.6	5.6
Total effective wage adjustments ⁴	1.2	.7	.8	.8	1.2	.5	4.2	3.7	3.6	3.5	3.5	3.3
From current settlements .....	.2	.3	.1	.2	.2	.2	1.0	.8	.7	.9	.9	.7
From prior settlements .....	.7	.2	.6	.5	.6	.2	2.1	2.0	2.2	1.9	1.8	1.8
From cost-of-living provision .....	.3	.2	.1	.1	.4	.1	1.2	.9	.7	.7	.8	.8
Negotiated wage adjustments from settlements ⁴												
First-year adjustments	2.1	2.3	3.3	2.5	2.0	2.1	3.2	2.4	2.4	2.4	2.4	2.3
Annual rate over life of contract	2.6	1.5	3.2	2.8	3.1	1.9	2.8	2.4	2.3	2.4	2.5	2.7
Negotiated wage and benefit adjustments from settlements: ⁵												
First-year adjustment	2.7	3.7	3.6	3.5	2.0	2.0	4.2	3.6	3.4	3.5	3.1	-
Annual rate over life of contract	3.1	2.0	2.7	3.4	3.0	1.4	3.2	2.8	2.6	2.7	2.7	-

¹ Seasonally adjusted.

² Production or nonsupervisory workers.

³ Excludes Federal and household workers.

⁴ Limited to major collective bargaining units of 1,000 workers or more. The

most recent data are preliminary.

⁵ Limited to major collective bargaining units of 5,000 workers or more. The

most recent data are preliminary.

- Data not available.

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

(Number in thousands)

Employment status	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
TOTAL															
Noninstitutional population ^{1, 2}	178,080	179,912	179,368	179,501	179,649	179,798	179,967	180,131	180,304	180,470	180,642	180,810	181,361	181,512	181,678
Labor force ²	115,241	117,167	117,036	116,958	117,044	116,726	116,976	117,069	117,522	117,814	117,832	117,927	118,477	118,779	118,900
Participation rate ³	64.7	65.1	65.2	65.2	65.2	64.9	65.0	65.0	65.2	65.3	65.2	65.2	65.3	65.4	65.4
Total employed ²	106,702	108,856	108,652	108,574	108,644	108,303	108,575	108,936	109,251	109,513	109,671	109,904	110,646	110,252	110,481
Employment-population ratio ⁴	59.9	60.5	60.6	60.5	60.5	60.2	60.3	60.5	60.6	60.7	60.7	60.8	61.0	60.7	60.8
Resident Armed Forces ¹	1,697	1,706	1,701	1,702	1,705	1,702	1,704	1,726	1,732	1,700	1,702	1,698	1,691	1,691	1,693
Civilian employed	105,005	107,150	106,951	106,872	106,939	106,601	106,871	107,210	107,519	107,813	107,969	108,206	108,955	108,561	108,788
Agriculture	3,321	3,179	3,314	3,353	3,284	3,140	3,120	3,095	3,017	3,058	3,070	3,151	3,299	3,096	3,285
Nonagricultural industries	101,685	103,971	103,637	103,519	103,655	103,461	103,751	104,115	104,502	104,755	104,899	105,055	105,655	105,465	105,503
Unemployed	8,539	8,312	8,384	8,384	8,400	8,423	8,401	8,133	8,271	8,301	8,161	8,023	7,831	8,527	8,419
Unemployment rate ⁵	7.4	7.1	7.2	7.2	7.2	7.2	7.2	6.9	7.0	7.0	6.9	6.8	6.6	7.2	7.1
Not in labor force	62,839	62,744	62,332	62,543	62,605	63,072	62,991	63,062	62,782	62,656	62,810	62,883	62,885	62,733	62,778
Men, 16 years and over															
Noninstitutional population ^{1, 2}	85,156	86,025	85,764	85,827	85,898	85,970	86,052	86,132	86,217	86,293	86,374	86,459	86,882	86,954	87,035
Labor force ²	65,386	65,967	65,898	65,929	66,012	65,808	65,884	65,945	66,074	66,227	66,176	66,139	66,679	66,838	66,864
Participation rate ³	76.8	76.7	76.8	76.8	76.8	76.5	76.6	76.6	76.6	76.7	76.6	76.5	76.7	76.9	76.8
Total employed ²	60,642	61,447	61,381	61,373	61,498	61,175	61,273	61,510	61,629	61,656	61,731	61,793	62,458	62,243	62,288
Employment-population ratio ⁴	71.2	71.4	71.6	71.5	71.6	71.2	71.2	71.4	71.5	71.4	71.5	71.5	71.9	71.6	71.6
Resident Armed Forces ¹	1,551	1,556	1,553	1,553	1,556	1,552	1,554	1,574	1,580	1,551	1,552	1,549	1,539	1,539	1,540
Civilian employed	59,091	59,891	59,828	59,820	59,942	59,623	59,719	59,936	60,049	60,105	60,179	60,244	60,919	60,704	60,748
Unemployed	4,744	4,521	4,517	4,556	4,514	4,633	4,611	4,435	4,445	4,571	4,445	4,346	4,221	4,595	4,577
Unemployment rate ⁵	7.3	6.9	6.9	6.9	6.8	7.0	7.0	6.7	6.7	6.9	6.7	6.6	6.3	6.9	6.8
Women, 16 years and over															
Noninstitutional population ^{1, 2}	92,924	93,886	93,603	93,674	93,751	93,828	93,915	93,999	94,087	94,177	94,266	94,351	94,479	94,558	94,643
Labor force ²	49,855	51,200	51,138	51,029	51,032	50,918	51,092	51,124	51,448	51,587	51,655	51,788	51,797	51,941	52,036
Participation rate ³	53.7	54.5	54.6	54.5	54.4	54.3	54.4	54.4	54.7	54.8	54.8	54.9	54.8	54.9	55.0
Total employed ²	46,061	47,409	47,271	47,201	47,146	47,128	47,302	47,426	47,622	47,857	47,939	48,111	48,187	48,009	48,194
Employment-population ratio ⁴	49.6	50.5	50.5	50.4	50.3	50.2	50.4	50.5	50.6	50.8	50.9	51.0	51.0	50.8	50.9
Resident Armed Forces ¹	146	150	148	149	149	150	150	152	152	149	149	149	152	152	153
Civilian employed	45,915	47,259	47,123	47,052	46,997	46,978	47,152	47,274	47,470	47,708	47,790	47,962	48,035	47,857	48,041
Unemployed	3,794	3,791	3,867	3,828	3,886	3,790	3,790	3,698	3,826	3,730	3,716	3,677	3,610	3,932	3,842
Unemployment rate ⁵	7.6	7.4	7.6	7.5	7.6	7.4	7.4	7.2	7.4	7.2	7.2	7.1	7.0	7.6	7.4

¹ The population and Armed Forces figures are not adjusted for seasonal variation.

² Includes members of the Armed Forces stationed in the United States.

³ Labor force as a percent of the noninstitutional population.

⁴ Total employed as a percent of the noninstitutional population.

⁵ Unemployment as a percent of the labor force (including the resident Armed Forces).

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

(Numbers in thousands)

Employment status	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
TOTAL															
Civilian noninstitutional population ¹	176,383	178,206	177,667	177,799	177,944	178,096	178,263	178,405	178,572	178,770	178,940	179,112	179,670	179,821	179,985
Civilian labor force	113,544	115,461	115,335	115,256	115,339	115,024	115,272	115,343	115,790	116,114	116,130	116,229	116,786	117,088	117,207
Participation rate	64.4	64.8	64.9	64.8	64.8	64.6	64.7	64.7	64.8	65.0	64.9	64.9	65.0	65.1	65.1
Employed	105,005	107,150	106,951	106,872	106,939	106,601	106,871	107,210	107,519	107,813	107,969	108,206	108,955	108,561	108,788
Employment-population ratio ²	59.5	60.1	60.2	60.1	60.1	59.9	60.0	60.1	60.2	60.3	60.3	60.4	60.6	60.4	60.4
Unemployed	8,539	8,312	8,384	8,384	8,400	8,423	8,401	8,133	8,271	8,301	8,161	8,023	7,831	8,527	8,419
Unemployment rate	7.5	7.2	7.3	7.3	7.3	7.3	7.3	7.1	7.1	7.1	7.0	6.9	6.7	7.3	7.2
Not in labor force	62,839	62,744	62,332	62,543	62,605	63,072	62,991	63,062	62,782	62,656	62,810	62,883	62,885	62,733	62,778
Men, 20 years and over															
Civilian noninstitutional population ¹	76,219	77,195	76,904	76,988	77,068	77,135	77,243	77,306	77,389	77,498	77,566	77,651	78,101	78,171	78,236
Civilian labor force	59,701	60,277	60,154	60,165	60,240	60,246	60,158	60,269	60,407	60,526	60,553	60,548	61,212	61,183	61,268
Participation rate	78.3	78.1	78.2	78.1	78.2	78.1	77.9	78.0	78.1	78.1	78.1	78.0	78.4	78.3	78.3
Employed	55,789	56,562	56,411	56,390	56,544	56,384	56,403	56,636	56,751	56,849	56,897	56,982	57,706	57,384	57,459
Employment-population ratio ²	73.2	73.3	73.4	73.2	73.4	73.1	73.0	73.3	73.3	73.4	73.4	73.4	73.9	73.4	73.4
Agriculture	2,418	2,278	2,329	2,358	2,352	2,260	2,230	2,231	2,171	2,188	2,210	2,278	2,349	2,258	2,411
Nonagricultural industries	53,351	54,284	54,082	54,032	54,192	54,124	54,173	54,405	54,580	54,661	54,687	54,704	55,356	55,127	55,048
Unemployed	3,932	3,715	3,743	3,775	3,696	3,862	3,755	3,633	3,656	3,677	3,656	3,566	3,507	3,799	3,809
Unemployment rate	6.6	6.2	6.2	6.3	6.1	6.4	6.2	6.0	6.1	6.1	6.0	5.9	5.7	6.2	6.2
Women, 20 years and over															
Civilian noninstitutional population ¹	85,429	86,506	86,181	86,274	86,380	86,477	86,575	86,652	86,727	86,810	86,901	86,988	87,112	87,185	87,263
Civilian labor force	45,900	47,283	47,095	47,103	47,082	47,185	47,190	47,340	47,558	47,663	47,713	47,870	47,895	47,921	47,952
Participation rate	53.7	54.7	54.6	54.6	54.5	54.6	54.5	54.6	54.8	54.9	54.9	55.0	55.0	55.0	55.0
Employed	42,793	44,154	43,927	43,925	43,883	44,033	44,070	44,197	44,363	44,609	44,656	44,882	44,980	44,710	44,797
Employment-population ratio ²	50.1	51.0	51.0	50.9	50.8	50.9	50.9	51.0	51.2	51.4	51.4	51.6	51.6	51.3	51.3
Agriculture	595	596	630	633	600	572	596	581	557	609	591	597	696	593	598
Nonagricultural industries	42,198	43,558	43,297	43,292	43,283	43,461	43,474	43,616	43,806	44,000	44,065	44,285	44,284	44,117	44,199
Unemployed	3,107	3,129	3,168	3,178	3,199	3,152	3,120	3,143	3,195	3,054	3,057	2,988	2,915	3,211	3,155
Unemployment rate	6.8	6.6	6.7	6.7	6.8	6.7	6.6	6.6	6.7	6.4	6.4	6.2	6.1	6.7	6.6
Both sexes, 16 to 19 years															
Civilian noninstitutional population ¹	14,735	14,506	14,582	14,538	14,496	14,483	14,445	14,448	14,456	14,463	14,472	14,474	14,458	14,465	14,485
Civilian labor force	7,943	7,901	8,086	7,988	8,017	7,593	7,924	7,734	7,825	7,925	7,864	7,811	7,678	7,984	7,987
Participation rate	53.9	54.5	55.5	54.9	55.3	52.4	54.9	53.5	54.1	54.8	54.3	54.0	53.1	55.2	55.1
Employed	6,444	6,434	6,613	6,557	6,512	6,184	6,398	6,377	6,405	6,355	6,416	6,342	6,269	6,467	6,532
Employment-population ratio ²	43.7	44.4	45.4	45.1	44.9	42.7	44.3	44.1	44.3	43.9	44.3	43.8	43.4	44.7	45.1
Agriculture	309	305	355	362	332	308	294	283	289	261	269	276	254	246	276
Nonagricultural industries	6,135	6,129	6,258	6,195	6,180	5,876	6,104	6,094	6,116	6,094	6,147	6,066	6,015	6,221	6,256
Unemployed	1,499	1,468	1,473	1,431	1,505	1,409	1,526	1,357	1,420	1,570	1,448	1,469	1,409	1,517	1,455
Unemployment rate	18.9	18.6	18.2	17.9	18.8	18.6	19.3	17.5	18.1	19.8	18.4	18.8	18.4	19.0	18.2
White															
Civilian noninstitutional population ¹	152,347	153,679	153,296	153,388	153,489	153,597	153,717	153,819	153,938	154,082	154,203	154,327	154,784	154,889	155,005
Civilian labor force	98,492	99,926	99,862	99,718	99,771	99,527	99,705	99,817	100,179	100,533	100,478	100,533	100,961	101,232	101,248
Participation rate	64.6	65.0	65.1	65.0	65.0	64.8	64.9	64.9	65.1	65.2	65.2	65.1	65.2	65.4	65.3
Employed	92,120	93,736	93,617	93,470	93,574	93,132	93,378	93,684	94,055	94,369	94,507	94,585	95,165	94,803	94,958
Employment-population ratio ²	60.5	61.0	61.1	60.9	61.0	60.6	60.7	60.9	61.1	61.2	61.3	61.3	61.5	61.2	61.3
Unemployed	6,372	6,191	6,245	6,248	6,197	6,395	6,327	6,133	6,124	6,164	5,971	5,948	5,796	6,429	6,290
Unemployment rate	6.5	6.2	6.3	6.3	6.2	6.4	6.3	6.1	6.1	6.1	5.9	5.9	5.7	6.4	6.2
Black															
Civilian noninstitutional population ¹	19,348	19,664	19,569	19,594	19,620	19,646	19,675	19,700	19,728	19,761	19,790	19,819	19,837	19,863	19,889
Civilian labor force	12,033	12,364	12,294	12,364	12,372	12,317	12,354	12,289	12,378	12,412	12,457	12,522	12,548	12,545	12,656
Participation rate	62.2	62.9	62.8	63.1	63.1	62.7	62.8	62.4	62.7	62.8	62.9	63.2	63.3	63.2	63.6
Employed	10,119	10,501	10,422	10,489	10,466	10,538	10,499	10,560	10,500	10,566	10,518	10,657	10,737	10,690	10,791
Employment-population ratio ²	52.3	53.4	53.3	53.5	53.3	53.6	53.4	53.6	53.2	53.5	53.1	53.8	54.1	53.8	54.3
Unemployed	1,914	1,864	1,872	1,875	1,906	1,779	1,855	1,729	1,878	1,846	1,939	1,865	1,810	1,855	1,865
Unemployment rate	15.9	15.1	15.2	15.2	15.4	14.4	15.0	14.1	15.2	14.9	15.6	14.9	14.4	14.8	14.7

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		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Hispanic origin															
Civilian noninstitutional population ¹	11,478	11,915	11,789	11,826	11,862	11,897	11,933	11,969	12,004	12,040	12,075	12,111	12,148	12,184	12,219
Civilian labor force	7,451	7,698	7,621	7,607	7,616	7,669	7,713	7,781	7,844	7,854	7,782	7,772	7,787	7,943	7,920
Participation rate	64.9	64.6	64.6	64.3	64.2	64.5	64.6	65.0	65.3	65.2	64.4	64.2	64.1	65.2	64.8
Employed	6,651	6,888	6,838	6,814	6,806	6,856	6,870	6,973	7,026	6,982	6,953	6,962	6,998	6,969	7,105
Employment-population ratio ²	57.9	57.8	58.0	57.6	57.4	57.6	57.6	58.3	58.5	58.0	57.6	57.5	57.6	57.2	58.2
Unemployed	800	811	783	793	810	813	843	808	818	872	829	810	789	974	815
Unemployment rate	10.7	10.5	10.3	10.4	10.6	10.6	10.9	10.4	10.4	11.1	10.7	10.4	10.1	12.3	10.3

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		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
CHARACTERISTIC															
Civilian employed, 16 years and over	105,005	107,150	106,951	106,872	106,939	106,601	106,871	107,210	107,519	107,813	107,969	108,206	108,955	108,561	108,788
Men	59,091	59,891	59,828	59,820	59,942	59,623	59,719	59,936	60,049	60,105	60,179	60,244	60,919	60,704	60,748
Women	45,915	47,259	47,123	47,052	46,997	46,978	47,152	47,274	47,470	47,708	47,790	47,962	48,035	47,857	48,041
Married men, spouse present ..	39,056	39,248	39,467	39,362	39,260	38,966	39,096	39,142	39,103	39,272	39,314	39,278	39,615	39,382	39,365
Married women, spouse present	25,636	26,336	26,163	26,087	26,036	26,174	26,316	26,392	26,531	26,702	26,721	26,804	26,958	26,593	26,656
Women who maintain families ..	5,465	5,597	5,600	5,603	5,626	5,643	5,607	5,627	5,556	5,514	5,605	5,693	5,702	5,733	5,771
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,555	1,535	1,596	1,653	1,582	1,530	1,479	1,456	1,438	1,465	1,537	1,572	1,673	1,519	1,689
Self-employed workers	1,553	1,458	1,502	1,493	1,498	1,451	1,474	1,444	1,414	1,436	1,361	1,409	1,492	1,444	1,453
Unpaid family workers	213	185	223	219	196	159	170	176	179	172	158	164	163	156	172
Nonagricultural industries:															
Wage and salary workers	93,565	95,871	95,606	95,493	95,660	95,391	95,523	95,791	96,546	96,530	96,676	96,921	97,911	97,516	97,698
Government	15,770	16,031	15,969	15,955	15,936	16,000	15,949	16,075	16,145	16,213	16,157	16,194	16,418	16,104	16,095
Private industries	77,794	79,841	79,637	79,538	79,724	79,391	79,574	79,716	80,401	80,317	80,519	80,727	81,494	81,412	81,604
Private households	1,238	1,249	1,225	1,218	1,255	1,228	1,251	1,295	1,266	1,271	1,197	1,131	1,256	1,197	1,213
Other	76,556	78,592	78,412	78,320	78,469	78,163	78,323	78,421	79,135	79,046	79,322	79,596	80,238	80,216	80,390
Self-employed workers	7,785	7,811	7,764	7,717	7,711	7,728	7,724	7,874	7,846	7,991	8,013	7,903	7,655	7,669	7,644
Unpaid family workers	335	289	321	305	290	292	277	303	266	248	249	250	273	270	240
PERSONS AT WORK PART TIME¹															
All industries:															
Part time for economic reasons ..	5,744	5,590	5,682	5,690	5,876	5,544	5,596	5,680	5,554	5,475	5,498	5,494	5,543	5,377	5,538
Slack work	2,430	2,430	2,585	2,567	2,607	2,524	2,414	2,480	2,433	2,251	2,306	2,303	2,364	2,369	2,330
Could only find part-time work ..	2,948	2,819	2,763	2,767	2,871	2,751	2,766	2,835	2,815	2,897	2,883	2,864	2,883	2,703	2,953
Voluntary part time	13,169	13,489	13,517	13,356	13,078	13,439	13,634	13,622	13,496	13,713	13,645	13,556	13,958	13,817	13,754
Nonagricultural industries:															
Part time for economic reasons ..	5,512	5,334	5,421	5,402	5,550	5,278	5,328	5,413	5,299	5,241	5,295	5,294	5,275	5,158	5,301
Slack work	2,291	2,273	2,397	2,380	2,418	2,334	2,251	2,319	2,292	2,115	2,196	2,195	2,208	2,224	2,159
Could only find part-time work ..	2,866	2,730	2,670	2,679	2,785	2,675	2,686	2,740	2,730	2,801	2,784	2,760	2,776	2,636	2,861
Voluntary part time	12,704	13,038	13,016	12,926	12,612	12,995	13,235	13,179	13,053	13,277	13,194	13,122	13,441	13,369	13,285

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		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
CHARACTERISTIC															
Total, all civilian workers	7.5	7.2	7.3	7.3	7.3	7.3	7.3	7.1	7.1	7.1	7.0	6.9	6.7	7.3	7.2
Both sexes, 16 to 19 years	18.9	18.6	18.2	17.9	18.8	18.6	19.3	17.5	18.1	19.8	18.4	18.8	18.4	19.0	18.2
Men, 20 years and over	6.6	6.2	6.2	6.3	6.1	6.4	6.2	6.0	6.1	6.1	6.0	5.9	5.7	6.2	6.2
Women, 20 years and over	6.8	6.6	6.7	6.7	6.8	6.7	6.6	6.6	6.7	6.4	6.4	6.2	6.1	6.7	6.6
White, total	6.5	6.2	6.3	6.3	6.2	6.4	6.3	6.1	6.1	6.1	5.9	5.9	5.7	6.4	6.2
Both sexes, 16 to 19 years	16.0	15.7	15.1	15.2	16.0	16.0	16.1	15.2	15.3	17.0	15.5	15.9	14.9	16.2	14.5
Men, 16 to 19 years	16.8	16.5	15.6	15.7	16.7	16.7	17.1	17.2	16.2	18.5	15.8	16.2	14.7	16.5	15.3
Women, 16 to 19 years	15.2	14.8	14.7	14.5	15.1	15.2	15.0	13.0	14.4	15.3	15.1	15.5	15.1	15.8	13.7
Men, 20 years and over	5.7	5.4	5.4	5.4	5.2	5.7	5.6	5.3	5.2	5.2	5.2	5.1	5.0	5.4	5.5
Women, 20 years and over	5.8	5.7	5.9	5.8	5.8	5.8	5.7	5.7	5.7	5.5	5.4	5.4	5.3	5.9	5.8
Black, total	15.9	15.1	15.2	15.2	15.4	14.4	15.0	14.1	15.2	14.9	15.6	14.9	14.4	14.8	14.7
Both sexes, 16 to 19 years	42.7	40.2	41.5	39.3	40.4	39.5	41.2	35.3	38.8	39.7	40.8	41.6	41.9	39.1	43.7
Men, 16 to 19 years	42.7	41.0	41.1	39.4	39.3	41.0	43.1	34.9	41.1	41.0	45.2	41.0	41.3	38.7	44.1
Women, 16 to 19 years	42.6	39.2	41.9	39.3	41.5	37.8	39.0	35.9	36.1	38.2	36.0	42.3	42.4	39.5	43.4
Men, 20 years and over	14.3	13.2	13.3	13.3	13.4	12.5	12.8	11.9	13.3	13.7	13.7	13.1	12.7	13.3	12.6
Women, 20 years and over	13.5	13.1	13.0	13.2	13.5	12.7	13.1	13.1	13.5	12.1	13.6	12.6	12.0	12.5	12.2
Hispanic origin, total	10.7	10.5	10.3	10.4	10.6	10.6	10.9	10.4	10.4	11.1	10.7	10.4	10.1	12.3	10.3
Married men, spouse present	4.6	4.3	4.3	4.3	4.0	4.6	4.4	4.1	4.3	4.2	4.3	4.3	4.3	4.5	4.5
Married women, spouse present	5.7	5.6	5.8	5.8	5.7	5.8	5.7	5.4	5.6	5.3	5.5	5.3	5.1	5.5	5.6
Women who maintain families	10.3	10.4	10.3	10.7	10.8	9.9	10.3	10.8	11.3	10.4	10.0	9.4	9.9	9.9	10.1
Full-time workers	7.2	6.8	6.9	6.9	6.9	6.9	7.0	6.8	6.8	6.8	6.7	6.6	6.4	6.9	6.9
Part-time workers	9.3	9.3	9.5	9.7	10.0	9.5	9.4	9.0	9.3	9.6	8.8	9.0	8.4	9.4	9.1
Unemployed 15 weeks and over	2.4	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.8	2.0	1.9
Labor force time lost ¹	8.6	8.1	8.2	8.2	8.3	8.2	8.2	8.1	8.1	7.9	7.9	7.8	7.6	8.1	8.1
INDUSTRY															
Nonagricultural private wage and salary workers	7.4	7.2	7.2	7.3	7.2	7.3	7.3	7.1	7.2	7.1	7.0	6.9	6.7	7.2	7.2
Mining	10.0	9.5	10.9	10.6	7.5	10.9	9.9	8.6	8.9	7.7	7.3	10.3	10.9	9.2	10.4
Construction	14.3	13.1	13.3	13.3	11.0	13.5	13.4	13.1	13.6	13.5	13.4	12.6	12.9	13.2	13.0
Manufacturing	7.5	7.7	7.7	7.9	7.8	7.7	7.9	7.8	7.7	7.5	7.7	7.3	7.0	7.2	7.2
Durable goods	7.2	7.6	7.5	7.7	7.8	7.9	7.9	7.9	7.7	7.3	7.6	7.3	7.0	7.4	6.8
Nondurable goods	7.8	7.8	8.1	8.2	7.8	7.5	7.9	7.6	7.8	7.8	7.8	7.3	7.1	7.0	7.7
Transportation and public utilities	5.5	5.1	4.7	5.4	5.2	5.3	5.7	4.5	5.3	5.1	5.1	5.0	4.3	5.3	6.1
Wholesale and retail trade	8.0	7.6	7.5	7.4	7.8	7.7	7.6	7.7	7.8	7.7	7.5	7.6	7.2	7.8	7.6
Finance and service industries	5.9	5.6	5.7	5.7	6.1	5.7	5.6	5.5	5.5	5.4	5.4	5.3	5.2	5.9	5.7
Government workers	4.5	3.9	4.0	3.9	3.9	3.9	4.0	3.9	3.8	3.9	3.6	3.8	3.4	3.8	4.0
Agricultural wage and salary workers	13.5	13.2	12.5	13.2	11.9	12.5	14.0	14.0	13.3	12.9	12.5	10.6	10.9	14.3	11.9

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		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Total, 16 years and over	7.5	7.2	7.3	7.3	7.3	7.3	7.3	7.1	7.1	7.1	7.0	6.9	6.7	7.3	7.2
16 to 24 years	13.9	13.6	13.5	13.4	14.0	13.6	13.9	13.0	13.3	13.9	13.5	13.3	13.0	13.6	13.2
16 to 19 years	18.9	18.6	18.2	17.9	18.8	18.6	19.3	17.5	18.1	19.8	18.4	18.8	18.4	19.0	18.2
16 to 17 years	21.2	21.0	20.6	20.8	21.2	21.6	21.7	19.1	20.3	22.7	21.4	21.1	20.9	21.8	19.4
18 to 19 years	17.4	17.0	16.5	16.3	17.1	16.4	17.3	16.8	16.7	17.8	16.9	17.5	16.4	17.2	17.1
20 to 24 years	11.5	11.1	11.1	11.1	11.6	11.2	11.2	10.8	10.9	10.9	11.0	10.6	10.4	10.8	10.6
25 years and over	5.8	5.6	5.6	5.7	5.5	5.8	5.6	5.5	5.6	5.4	5.4	5.3	5.1	5.7	5.7
25 to 54 years	6.1	5.8	6.0	6.1	5.8	6.0	5.9	5.8	5.8	5.7	5.6	5.5	5.4	5.9	5.9
55 years and over	4.5	4.1	4.0	4.1	4.3	4.3	4.4	4.1	4.1	3.9	3.8	3.9	3.9	4.4	4.3
Men, 16 years and over	7.4	7.0	7.0	7.1	7.0	7.2	7.2	6.9	6.9	7.1	6.9	6.7	6.5	7.0	7.0
16 to 24 years	14.4	14.1	13.9	13.8	14.7	14.2	14.6	13.8	13.8	14.6	13.9	13.5	12.8	13.6	13.6
16 to 19 years	19.6	19.5	18.5	18.5	19.4	19.2	20.5	19.6	19.3	21.5	19.4	19.3	18.2	19.3	18.9
16 to 17 years	21.9	21.9	21.7	21.4	22.2	23.2	22.1	21.9	20.7	24.0	20.9	21.6	20.9	23.2	20.0
18 to 19 years	18.3	17.9	16.1	16.8	17.6	16.4	18.7	18.1	18.3	19.9	18.7	18.0	16.2	16.6	17.8
20 to 24 years	11.9	11.4	11.7	11.4	12.3	11.7	11.6	10.9	11.0	11.1	11.2	10.6	10.3	10.7	11.0
25 years and over	5.7	5.3	5.3	5.5	5.1	5.6	5.4	5.3	5.3	5.2	5.1	5.0	5.0	5.5	5.5
25 to 54 years	5.9	5.6	5.6	5.8	5.3	5.8	5.6	5.6	5.5	5.5	5.4	5.4	5.3	5.7	5.7
55 years and over	4.6	4.1	3.9	4.0	4.1	4.4	4.6	3.8	4.0	4.1	4.0	3.9	3.9	4.4	4.3
Women, 16 years and over	7.6	7.4	7.6	7.5	7.6	7.5	7.4	7.3	7.5	7.3	7.2	7.1	7.0	7.6	7.4
16 to 24 years	13.3	13.0	13.1	12.9	13.3	12.9	13.1	12.2	12.9	13.1	13.1	13.2	13.2	13.6	12.7
16 to 19 years	18.0	17.6	17.9	17.2	18.1	17.8	17.9	15.3	16.9	17.9	17.4	18.3	18.5	18.6	17.5
16 to 17 years	20.4	20.0	19.3	20.0	20.1	19.9	21.2	15.8	19.8	21.2	22.0	20.6	20.8	20.2	18.7
18 to 19 years	16.6	16.0	16.9	15.7	16.5	16.4	15.7	15.3	14.9	15.5	15.1	16.9	16.5	17.7	16.3
20 to 24 years	10.9	10.7	10.5	10.7	10.8	10.6	10.7	10.7	10.9	10.7	10.8	10.6	10.5	11.0	10.1
25 years and over	6.0	5.9	6.0	6.0	6.1	6.0	5.9	5.8	6.0	5.6	5.6	5.4	5.3	5.9	5.9
25 to 54 years	6.3	6.2	6.4	6.3	6.4	6.3	6.2	6.1	6.2	5.9	5.9	5.7	5.6	6.2	6.3
55 years and over	4.2	4.1	4.2	4.2	4.4	4.1	4.2	4.5	4.2	3.7	3.6	3.9	3.8	4.4	4.4

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

(Numbers in thousands)

Reason for unemployment	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Job losers	4,421	4,139	4,177	4,229	3,994	4,167	4,206	4,144	4,142	4,040	4,081	3,933	3,776	4,162	4,246
On layoff	1,171	1,157	1,155	1,182	1,068	1,135	1,134	1,112	1,167	1,161	1,175	1,132	1,163	1,152	1,164
Other job losers	3,250	2,982	3,022	3,047	2,926	3,032	3,072	3,032	2,975	2,879	2,906	2,801	2,613	3,010	3,082
Job leavers	823	877	861	852	870	983	894	875	852	911	808	876	996	1,001	1,002
Reentrants	2,184	2,256	2,301	2,283	2,378	2,233	2,184	2,191	2,335	2,237	2,226	2,225	2,066	2,292	2,197
New entrants	1,110	1,039	1,074	1,051	1,142	1,018	1,098	941	918	1,045	1,055	1,033	1,025	1,097	1,000
PERCENT OF UNEMPLOYED															
Job losers	51.8	49.8	49.6	50.3	47.6	49.6	50.2	50.8	50.2	49.1	50.0	48.8	48.0	48.7	50.3
On layoff	13.7	13.9	13.7	14.0	12.7	13.5	13.5	13.6	14.2	14.1	14.4	14.0	14.8	13.5	13.8
Other job losers	38.1	35.9	35.9	36.2	34.9	36.1	36.6	37.2	36.1	35.0	35.6	34.7	33.2	35.2	36.5
Job leavers	9.6	10.6	10.2	10.1	10.4	11.7	10.7	10.3	11.1	9.9	10.9	12.7	11.7	11.9	
Reentrants	25.6	27.1	27.4	27.1	28.4	26.6	26.1	26.9	28.3	27.2	27.2	27.6	26.3	26.8	26.0
New entrants	13.0	12.5	12.8	12.5	13.6	12.1	13.1	11.5	11.1	12.7	12.9	12.8	13.0	12.8	11.8
PERCENT OF CIVILIAN LABOR FORCE															
Job losers	3.9	3.6	3.6	3.7	3.5	3.6	3.6	3.6	3.6	3.5	3.5	3.4	3.2	3.6	3.6
Job leavers .....	.7	.8	.7	.7	.8	.9	.8	.8	.7	.8	.7	.8	.9	.9	.9
Reentrants	1.9	2.0	2.0	2.0	2.1	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.8	2.0	1.9
New entrants	1.0	.9	.9	.9	1.0	.9	1.0	.8	.8	.9	.9	.9	.9	.9	.9

10. Duration of unemployment, monthly data seasonally adjusted

(Numbers in thousands)

Weeks of unemployment	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Less than 5 weeks	3,350	3,498	3,556	3,528	3,607	3,466	3,525	3,422	3,484	3,430	3,465	3,374	3,311	3,562	3,589
5 to 14 weeks	2,451	2,509	2,487	2,516	2,594	2,536	2,514	2,508	2,505	2,536	2,448	2,460	2,441	2,622	2,640
15 weeks and over	2,737	2,305	2,400	2,374	2,274	2,328	2,329	2,274	2,307	2,277	2,205	2,188	2,056	2,340	2,258
15 to 26 weeks	1,104	1,025	1,061	1,031	1,063	1,033	1,078	1,047	1,035	1,057	894	973	969	1,149	1,099
27 weeks and over	1,634	1,280	1,339	1,343	1,211	1,295	1,251	1,227	1,272	1,220	1,311	1,215	1,087	1,191	1,159
Mean duration in weeks	18.2	15.6	15.9	16.1	15.0	15.5	15.5	15.5	15.5	15.4	15.7	15.4	14.9	15.3	14.4
Median duration in weeks	7.9	6.8	7.0	6.8	6.7	6.8	7.1	7.2	6.9	7.0	6.9	6.9	6.8	6.9	6.8

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

State	Feb. 1985	Feb. ^P 1986	State	Feb. 1985	Feb. ^P 1986
Alabama	10.3	9.1	Montana	9.3	9.5
Alaska	11.3	11.5	Nebraska	6.1	7.0
Arizona	6.1	6.5	Nevada	8.7	8.2
Arkansas	10.6	9.5	New Hampshire	4.6	3.8
California	7.4	7.7	New Jersey	6.6	6.4
Colorado	6.5	.0	New Mexico	9.1	9.2
Connecticut	5.6	4.3	New York	7.1	7.3
Delaware	7.2	6.7	North Carolina	6.7	5.7
District of Columbia	8.8	7.2	North Dakota	7.4	7.9
Florida	5.8	5.4	Ohio	9.3	9.1
Georgia	6.8	5.7	Oklahoma	7.8	7.8
Hawaii	5.5	5.7	Oregon	10.3	9.7
Idaho	9.2	10.2	Pennsylvania	9.3	8.2
Illinois	9.4	10.1	Rhode Island	6.0	5.3
Indiana	9.9	7.5	South Carolina	7.5	7.6
Iowa	9.9	9.0	South Dakota	6.1	5.5
Kansas	5.9	6.5	Tennessee	9.6	8.7
Kentucky	11.9	12.5	Texas	7.1	8.8
Louisiana	11.5	13.2	Utah	7.1	6.2
Maine	6.8	6.6	Vermont	5.8	5.1
Maryland	5.5	5.1	Virginia	6.2	6.0
Massachusetts	4.4	4.3	Washington	10.0	8.6
Michigan	10.2	9.3	West Virginia	17.0	13.1
Minnesota	7.4	7.6	Wisconsin	9.3	8.8
Mississippi	11.6	11.2	Wyoming	8.1	10.3
Missouri	8.1	7.0			

NOTE: Some data in this table may differ from data published elsewhere because of the continued updating of the database.
^P = preliminary

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

(In thousands)

State	Feb., 1985	Jan., 1986	Feb., 1986 ^P	State	Feb., 1985	Jan., 1986	Feb., 1986 ^P
Alabama	1,395.9	1,428.6	1,432.7	Nebraska	637.2	642.1	642.0
Alaska	215.3	217.1	218.4	Nevada	490.0	447.2	448.9
Arizona	1,248.1	1,304.5	1,320.7	New Hampshire	444.1	473.5	471.8
Arkansas	773.2	803.9	809.9	New Jersey	3,312.8	3,405.2	3,407.0
California	10,745.8	11,051.3	11,072.5	New Mexico	507.5	518.9	519.2
Colorado	1,402.5	1,426.0	1,430.3	New York	7,583.1	7,720.9	7,747.1
Connecticut	1,529.7	1,571.1	1,568.5	North Carolina	2,594.1	2,669.2	2,674.3
Delaware	280.7	291.5	287.6	North Dakota	244.6	243.7	243.7
District of Columbia	617.3	629.6	632.1	Ohio	4,238.9	4,393.4	4,387.1
Florida	4,381.0	4,517.9	4,536.6	Oklahoma	1,168.6	1,161.3	1,158.3
Georgia	2,490.9	2,595.6	2,596.2	Oregon	998.3	1,022.1	1,024.4
Hawaii	421.6	425.1	427.9	Pennsylvania	4,610.0	4,708.7	4,706.9
Idaho	325.6	332.7	331.4	Rhode Island	416.3	420.7	421.0
Illinois	4,688.0	4,685.2	4,692.7	South Carolina	1,261.7	1,306.3	1,313.8
Indiana	2,102.2	2,186.3	2,183.9	South Dakota	241.2	241.2	242.0
Iowa	1,048.5	1,062.9	1,063.2	Tennessee	1,800.4	1,877.9	1,878.9
Kansas	952.0	959.5	967.9	Texas	6,582.9	6,704.2	6,709.0
Kentucky	1,208.0	1,249.1	1,247.8	Utah	608.7	628.6	629.4
Louisiana	1,582.3	1,575.3	1,570.7	Vermont	219.1	229.6	229.8
Maine	438.9	452.5	455.9	Virginia	2,361.8	2,484.8	2,478.8
Maryland	1,815.3	1,870.9	1,870.3	Washington	1,649.4	1,710.2	1,715.8
Massachusetts	2,859.9	2,911.7	2,917.9	West Virginia	575.5	590.2	583.8
Michigan	3,415.7	3,513.4	3,521.4	Wisconsin	1,914.4	1,953.4	1,958.9
Minnesota	1,813.5	1,840.5	1,844.5	Wyoming	194.5	196.2	194.9
Mississippi	818.6	841.9	842.5	Puerto Rico	695.6	689.3	696.7
Missouri	2,025.2	2,086.5	2,085.9	Virgin Islands	37.1	36.4	37.2
Montana	269.7	271.8	270.8				

^P = preliminary
 NOTE: Some data in this table may differ from data published elsewhere because of the continued updating of the database.

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

(In thousands)

Industry	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	Mar. ^P
TOTAL	94,461	97,699	96,910	97,120	97,421	97,473	97,707	97,977	98,217	98,559	98,801	99,086	99,496	99,649	99,841
PRIVATE SECTOR	78,477	81,404	80,767	80,962	81,208	81,260	81,366	81,634	81,765	82,073	82,317	82,573	82,992	83,101	83,292
GOODS PRODUCING	24,730	25,057	25,056	25,090	25,066	25,010	24,980	25,015	24,962	25,051	25,089	25,155	25,300	25,237	25,158
Mining	974	969	977	982	982	974	969	965	962	960	954	952	947	928	899
Oil and gas extraction	613	616	618	623	624	619	619	615	615	610	605	603	598	580	556
Construction	4,345	4,662	4,553	4,641	4,658	4,638	4,660	4,688	4,721	4,753	4,754	4,770	4,906	4,875	4,867
General building contractors	1,158	1,240	1,223	1,233	1,234	1,223	1,228	1,242	1,252	1,262	1,269	1,274	1,329	1,320	1,300
Manufacturing	19,412	19,426	19,526	19,467	19,426	19,398	19,351	19,362	19,279	19,338	19,381	19,433	19,447	19,434	19,392
Production workers	13,310	13,214	13,309	13,249	13,203	13,169	13,137	13,145	13,087	13,140	13,169	13,219	13,222	13,216	13,191
Durable goods	11,522	11,566	11,651	11,608	11,586	11,560	11,509	11,519	11,449	11,493	11,512	11,534	11,541	11,523	11,483
Production workers	7,749	7,692	7,776	7,730	7,704	7,671	7,630	7,638	7,586	7,627	7,636	7,651	7,650	7,631	7,602
Lumber and wood products	707	703	701	694	697	694	697	700	701	708	712	715	720	719	717
Furniture and fixtures	487	497	499	497	493	494	494	499	494	496	497	499	499	498	498
Stone, clay, and glass products	595	600	601	600	599	598	599	601	598	600	601	604	607	610	607
Primary metal industries	858	816	832	823	819	815	806	798	795	799	804	810	804	800	790
Blast furnaces and basic steel products	334	303	311	306	305	304	302	289	291	292	299	303	300	299	291
Fabricated metal products	1,464	1,472	1,480	1,479	1,477	1,472	1,467	1,467	1,462	1,465	1,466	1,463	1,462	1,457	1,455
Machinery, except electrical	2,197	2,181	2,220	2,207	2,203	2,191	2,175	2,167	2,143	2,143	2,137	2,133	2,137	2,128	2,118
Electrical and electronic equipment	2,208	2,208	2,243	2,223	2,216	2,205	2,190	2,194	2,175	2,179	2,180	2,186	2,188	2,186	2,183
Transportation equipment	1,906	1,990	1,969	1,982	1,981	1,990	1,985	1,995	1,986	2,008	2,017	2,025	2,023	2,021	2,011
Motor vehicles and equipment	860	872	867	876	873	875	868	868	861	872	868	875	868	861	850
Instruments and related products	714	724	727	726	723	725	724	725	722	722	723	725	725	725	728
Miscellaneous manufacturing industries	384	376	379	377	378	376	372	373	373	373	375	374	376	379	376
Nondurable goods	7,890	7,860	7,875	7,859	7,840	7,838	7,842	7,843	7,830	7,845	7,869	7,899	7,906	7,911	7,909
Production workers	5,561	5,523	5,533	5,519	5,499	5,498	5,507	5,507	5,501	5,513	5,533	5,568	5,572	5,585	5,589
Food and kindred products	1,619	1,637	1,638	1,630	1,634	1,644	1,630	1,638	1,633	1,636	1,638	1,655	1,652	1,666	1,664
Tobacco manufactures	65	65	66	66	66	66	65	64	65	64	65	64	64	64	65
Textile mill products	746	703	706	707	701	699	696	697	695	698	700	700	701	704	705
Apparel and other textile products	1,197	1,162	1,167	1,164	1,153	1,142	1,160	1,152	1,155	1,158	1,160	1,171	1,173	1,159	1,154
Paper and allied products	681	683	682	681	682	684	684	683	681	682	688	686	687	688	689
Printing and publishing	1,372	1,422	1,407	1,411	1,414	1,419	1,426	1,429	1,427	1,431	1,442	1,442	1,447	1,453	1,455
Chemicals and allied products	1,048	1,042	1,052	1,049	1,044	1,042	1,040	1,038	1,040	1,036	1,033	1,033	1,032	1,030	1,030
Petroleum and coal products	189	177	183	182	181	180	178	176	170	170	169	169	168	167	167
Rubber and misc. plastics products	782	795	798	795	791	789	787	792	790	795	800	804	810	809	810
Leather and leather products	192	175	176	174	174	173	176	174	174	175	174	175	172	171	170
SERVICE-PRODUCING	69,731	72,643	71,854	72,030	72,355	72,463	72,727	72,962	73,255	73,508	73,712	73,931	74,196	74,412	74,683
Transportation and public utilities	5,171	5,300	5,269	5,278	5,301	5,295	5,302	5,282	5,317	5,327	5,342	5,350	5,357	5,342	5,352
Transportation	2,929	3,059	3,028	3,037	3,057	3,052	3,060	3,038	3,078	3,087	3,106	3,115	3,123	3,109	3,120
Communication and public utilities	2,242	2,241	2,241	2,241	2,244	2,243	2,242	2,244	2,239	2,240	2,236	2,235	2,234	2,233	2,232
Wholesale trade	5,550	5,769	5,714	5,733	5,748	5,768	5,773	5,791	5,805	5,830	5,833	5,848	5,872	5,887	5,900
Durable goods	3,272	3,417	3,377	3,388	3,402	3,414	3,426	3,434	3,442	3,454	3,464	3,473	3,487	3,501	3,513
Nondurable goods	2,278	2,352	2,337	2,345	2,346	2,354	2,347	2,357	2,363	2,376	2,369	2,375	2,385	2,386	2,387
Retail trade	16,584	17,425	17,249	17,280	17,392	17,425	17,453	17,514	17,539	17,610	17,640	17,702	17,825	17,905	17,982
General merchandise stores	2,278	2,354	2,349	2,348	2,371	2,361	2,344	2,354	2,356	2,365	2,367	2,353	2,359	2,378	2,377
Food stores	2,655	2,827	2,790	2,794	2,823	2,831	2,842	2,849	2,852	2,869	2,865	2,882	2,920	2,923	2,944
Automotive dealers and service stations	1,802	1,892	1,873	1,884	1,890	1,895	1,895	1,902	1,906	1,912	1,914	1,916	1,930	1,936	1,942
Eating and drinking places	5,403	5,692	5,615	5,642	5,660	5,692	5,728	5,725	5,740	5,758	5,774	5,803	5,821	5,855	5,889
Finance, insurance, and real estate	5,682	5,924	5,835	5,858	5,888	5,906	5,932	5,959	5,987	6,011	6,048	6,068	6,098	6,130	6,151
Finance	2,855	2,978	2,933	2,941	2,956	2,968	2,984	2,998	3,011	3,023	3,038	3,054	3,068	3,085	3,093
Insurance	1,753	1,816	1,792	1,799	1,808	1,814	1,817	1,827	1,831	1,837	1,850	1,852	1,863	1,873	1,882
Real estate	1,074	1,130	1,110	1,118	1,124	1,124	1,131	1,134	1,145	1,151	1,160	1,162	1,167	1,172	1,176
Services	20,761	21,930	21,644	21,723	21,813	21,856	21,926	22,073	22,155	22,244	22,365	22,450	22,540	22,600	22,749
Business services	4,076	4,453	4,377	4,402	4,424	4,441	4,446	4,489	4,504	4,539	4,571	4,607	4,625	4,646	4,688
Health services	6,104	6,267	6,204	6,218	6,240	6,243	6,260	6,291	6,308	6,333	6,363	6,389	6,409	6,436	6,459
Government	15,984	16,295	16,143	16,158	16,213	16,213	16,341	16,343	16,452	16,486	16,484	16,513	16,504	16,548	16,549
Federal	2,807	2,875	2,850	2,859	2,873	2,872	2,878	2,886	2,904	2,892	2,904	2,914	2,918	2,914	2,917
State	3,712	3,780	3,744	3,749	3,759	3,765	3,788	3,789	3,818	3,827	3,833	3,827	3,844	3,854	3,867
Local	9,465	9,640	9,549	9,550	9,581	9,576	9,675	9,668	9,730	9,767	9,747	9,772	9,742	9,780	9,765

^P = preliminary

revision.

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

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

Industry	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	Mar. ^P
PRIVATE SECTOR	35.3	35.1	35.2	35.0	35.1	35.1	35.0	35.1	35.1	35.1	35.0	35.1	35.2	34.9	35.0
CONSTRUCTION	37.7	37.7	38.1	38.0	37.6	37.2	37.6	37.5	37.9	37.9	37.4	37.1	38.5	36.3	36.8
MANUFACTURING	40.7	40.5	40.4	40.2	40.4	40.4	40.3	40.6	40.7	40.7	40.7	41.0	41.0	40.6	40.7
Overtime hours	3.4	3.3	3.2	3.4	3.1	3.2	3.2	3.3	3.3	3.4	3.4	3.6	3.6	3.4	3.5
Durable goods	41.4	41.2	41.1	40.9	41.1	41.2	41.0	41.3	41.3	41.3	41.3	41.7	41.7	41.3	41.3
Overtime hours	3.6	3.5	3.5	3.6	3.2	3.3	3.3	3.4	3.5	3.5	3.6	3.8	3.7	3.5	3.6
Lumber and wood products	39.9	39.8	39.6	39.5	39.8	40.1	39.7	40.0	40.1	40.3	39.9	40.2	40.4	39.9	40.3
Furniture and fixtures	39.7	39.4	39.5	39.3	38.9	38.9	38.8	39.2	39.4	39.4	39.4	40.1	40.4	39.8	39.7
Stone, clay, and glass products	42.0	41.9	42.0	42.0	42.1	41.9	42.0	42.0	42.0	42.1	41.6	41.7	42.8	41.9	41.7
Primary metal industries	41.7	41.5	41.1	41.0	41.2	41.6	41.4	41.7	41.5	41.8	41.8	42.2	41.8	42.1	42.1
Blast furnaces and basic steel products	40.6	41.1	40.5	40.2	40.7	41.2	41.2	41.8	41.0	41.7	42.0	41.9	41.6	41.9	42.0
Fabricated metal products	41.4	41.3	41.1	41.1	41.1	41.3	41.3	41.4	41.6	41.5	41.4	41.6	41.6	41.5	41.3
Machinery except electrical	41.9	41.5	41.6	41.2	41.4	41.6	41.3	41.6	41.6	41.6	41.6	41.8	41.7	41.5	41.4
Electrical and electronic equipment	41.0	40.6	40.7	40.2	40.4	40.6	40.3	40.7	40.5	40.6	41.0	41.4	41.2	40.8	40.8
Transportation equipment	42.7	42.7	42.5	42.3	42.6	42.3	42.5	42.9	42.9	42.8	42.6	43.2	43.0	42.6	42.4
Motor vehicles and equipment	43.8	43.5	43.2	43.3	43.5	42.7	43.3	43.8	43.8	43.8	43.7	44.2	43.6	43.5	43.4
Instruments and related products	41.3	41.0	41.0	40.7	40.9	41.1	40.7	40.7	40.9	40.8	41.1	41.9	41.2	41.1	41.4
Miscellaneous manufacturing	39.4	39.4	39.1	39.0	39.3	39.4	39.0	39.3	39.8	39.9	39.7	40.0	40.4	39.8	39.8
Nondurable goods	39.6	39.5	39.4	39.1	39.4	39.4	39.4	39.6	39.8	39.9	39.8	40.1	40.0	39.6	39.8
Overtime hours	3.1	3.1	2.9	3.0	2.9	3.0	3.0	3.1	3.1	3.2	3.2	3.4	3.4	3.2	3.4
Food and kindred products	39.8	40.0	39.8	39.6	40.1	39.6	40.0	39.9	40.2	40.3	39.9	40.3	40.2	39.7	39.7
Tobacco manufactures	38.9	37.2	38.9	35.4	37.0	36.6	34.6	36.8	36.9	38.2	35.2	38.0	38.7	38.0	38.8
Textile mill products	39.9	39.7	39.1	38.8	38.9	39.4	39.1	40.0	40.7	40.7	41.0	41.3	40.9	40.4	40.6
Apparel and other textile products	36.4	36.3	36.1	35.6	36.2	36.3	36.3	36.4	36.5	36.6	36.8	37.0	37.0	36.1	36.4
Paper and allied products	43.1	43.1	42.9	43.0	43.0	42.9	42.7	43.0	43.1	43.3	43.3	43.6	43.7	43.6	43.7
Printing and publishing	37.9	37.7	37.6	37.6	37.4	37.5	37.5	37.9	38.0	37.9	37.8	38.2	38.0	37.9	38.1
Chemicals and allied products	41.9	41.9	42.1	41.9	41.9	42.0	41.8	41.8	41.6	41.7	41.9	42.0	41.9	41.9	42.2
Petroleum and coal products	43.7	43.0	43.3	42.0	41.7	42.6	42.9	43.3	43.4	44.3	43.1	43.7	43.6	43.3	44.0
Leather and leather products	36.8	37.3	37.1	37.0	37.1	37.0	37.0	37.3	37.8	37.9	37.7	37.8	37.6	36.9	37.3
TRANSPORTATION AND PUBLIC UTILITIES	39.4	39.4	39.5	39.4	39.5	39.5	39.2	39.6	39.5	39.5	39.4	39.5	39.4	39.3	39.2
WHOLESALE TRADE	38.6	38.7	38.7	38.6	38.7	38.8	38.6	38.6	38.7	38.6	38.7	38.7	38.8	38.7	38.7
RETAIL TRADE	30.0	29.7	29.8	29.7	29.9	29.9	29.7	29.6	29.6	29.5	29.5	29.3	29.5	29.4	29.4
SERVICES	32.8	32.8	32.8	32.7	32.8	32.8	32.7	32.8	32.8	32.9	32.8	32.8	32.9	32.8	32.9

^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		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	Mar. ^P
PRIVATE SECTOR	\$8.33	\$8.58	\$8.52	\$8.54	\$8.53	\$8.56	\$8.54	\$8.54	\$8.68	\$8.65	\$8.68	\$8.73	\$8.73	\$8.74	\$8.74
Seasonally adjusted	-	-	8.52	8.54	8.55	8.59	8.57	8.60	8.65	8.64	8.67	8.74	8.67	8.71	8.74
MINING	11.63	11.95	11.91	11.93	11.86	11.99	11.88	11.95	12.00	11.95	12.02	12.22	12.18	12.26	12.24
CONSTRUCTION	12.12	12.26	12.22	12.21	12.19	12.12	12.16	12.22	12.40	12.36	12.22	12.42	12.29	12.30	12.20
MANUFACTURING	9.18	9.52	9.45	9.48	9.48	9.50	9.53	9.48	9.55	9.54	9.61	9.72	9.68	9.68	9.71
Durable goods	9.74	10.09	10.01	10.03	10.04	10.08	10.10	10.05	10.15	10.14	10.21	10.34	10.27	10.28	10.30
Lumber and wood products	8.03	8.20	8.06	8.04	8.12	8.24	8.20	8.26	8.31	8.29	8.28	8.34	8.28	8.34	8.33
Furniture and fixtures	6.85	7.19	7.07	7.08	7.11	7.18	7.22	7.22	7.29	7.31	7.34	7.40	7.38	7.34	7.37
Stone, clay, and glass products	9.57	9.83	9.71	9.80	9.80	9.84	9.89	9.87	9.90	9.86	9.90	9.94	9.95	9.92	9.88
Primary metal industries	11.47	11.68	11.66	11.64	11.64	11.65	11.78	11.63	11.69	11.61	11.76	11.84	11.81	11.94	11.98
Blast furnaces and basic steel products	12.99	13.35	13.27	13.32	13.31	13.29	13.51	13.37	13.45	13.34	13.44	13.46	13.49	13.75	13.76
Fabricated metal products	9.38	9.66	9.62	9.64	9.63	9.65	9.66	9.61	9.70	9.68	9.73	9.88	9.82	9.81	9.83
Machinery, except electrical	9.96	10.29	10.15	10.17	10.22	10.28	10.31	10.27	10.39	10.41	10.48	10.55	10.50	10.52	10.59
Electrical and electronic equipment	9.04	9.47	9.39	9.40	9.39	9.46	9.47	9.50	9.55	9.56	9.61	9.68	9.61	9.59	9.63
Transportation equipment	12.22	12.71	12.59	12.63	12.63	12.66	12.65	12.65	12.78	12.77	12.83	13.06	12.90	12.86	12.89
Motor vehicles and equipment	12.74	13.44	13.29	13.40	13.38	13.39	13.38	13.34	13.51	13.46	13.55	13.84	13.69	13.61	13.69
Instruments and related products	8.85	9.19	9.10	9.11	9.13	9.15	9.20	9.22	9.28	9.27	9.30	9.42	9.35	9.42	9.45
Miscellaneous manufacturing	7.04	7.28	7.20	7.22	7.28	7.28	7.30	7.26	7.30	7.30	7.35	7.47	7.47	7.46	7.48
Nondurable goods	8.37	8.68	8.61	8.67	8.64	8.65	8.72	8.67	8.70	8.69	8.75	8.84	8.83	8.82	8.86
Food and kindred products	8.38	8.54	8.53	8.59	8.58	8.55	8.54	8.47	8.51	8.49	8.58	8.68	8.70	8.67	8.72
Tobacco manufactures	11.27	12.05	12.00	12.16	12.65	12.83	12.91	12.44	11.47	11.45	12.08	11.90	12.01	12.31	12.72
Textile mill products	6.46	6.71	6.64	6.70	6.68	6.69	6.69	6.72	6.75	6.76	6.79	6.83	6.84	6.83	6.86
Apparel and other textile products	5.55	5.73	5.73	5.74	5.69	5.70	5.70	5.68	5.75	5.73	5.75	5.80	5.81	5.79	5.78
Paper and allied products	10.41	10.82	10.64	10.72	10.75	10.79	10.91	10.86	10.90	10.91	10.97	11.07	11.02	11.00	11.06
Printing and publishing	9.40	9.69	9.61	9.60	9.60	9.61	9.67	9.73	9.79	9.75	9.81	9.90	9.83	9.85	9.91
Chemicals and allied products	11.08	11.57	11.37	11.48	11.46	11.52	11.60	11.62	11.67	11.72	11.82	11.87	11.87	11.82	11.79
Petroleum and coal products	13.43	14.04	14.06	14.18	14.00	13.97	14.03	13.99	14.07	13.97	14.06	14.22	14.24	14.16	14.37
Rubber and miscellaneous plastics products	8.29	8.53	8.46	8.48	8.45	8.50	8.54	8.51	8.55	8.53	8.62	8.72	8.68	8.69	8.71
Leather and leather products	5.70	5.82	5.82	5.84	5.83	5.83	5.83	5.80	5.82	5.76	5.83	5.83	5.85	5.84	5.87
TRANSPORTATION AND PUBLIC UTILITIES	11.11	11.38	11.24	11.27	11.24	11.32	11.35	11.40	11.52	11.46	11.57	11.60	11.58	11.60	11.60
WHOLESALE TRADE	8.96	9.26	9.19	9.24	9.24	9.28	9.27	9.25	9.33	9.25	9.32	9.41	9.38	9.41	9.39
RETAIL TRADE	5.88	5.97	5.97	5.96	5.97	5.94	5.93	5.91	5.99	5.97	6.00	6.02	6.05	6.06	6.05
FINANCE, INSURANCE, AND REAL ESTATE	7.62	7.93	7.87	7.85	7.83	7.95	7.87	7.90	8.03	8.00	8.05	8.14	8.13	8.24	8.25
SERVICES	7.64	7.95	7.87	7.89	7.88	7.91	7.86	7.87	8.04	8.04	8.10	8.16	8.17	8.22	8.21

- 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		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb. ^P	Mar. ^P
PRIVATE SECTOR															
Current dollars	\$294.05	\$301.16	\$298.20	\$298.05	\$298.55	\$303.02	\$301.46	\$302.32	\$305.54	\$303.62	\$302.93	\$308.17	\$303.80	\$301.53	\$304.15
Seasonally adjusted	-	-	299.90	298.90	300.11	301.51	299.95	301.86	303.62	303.26	303.45	306.77	305.18	303.98	305.90
Constant (1977) dollars	173.48	171.60	171.68	170.80	170.50	172.56	171.48	171.68	173.01	171.54	170.47	172.93	170.01	169.30	-
MINING	503.58	518.63	519.28	516.57	515.91	523.96	509.65	517.44	524.40	516.24	520.47	535.24	540.79	518.60	515.30
CONSTRUCTION	456.92	462.20	460.69	461.54	464.44	461.77	469.38	468.03	477.40	472.15	448.47	458.30	457.19	431.73	444.08
MANUFACTURING															
Current dollars	373.63	385.56	381.78	380.15	382.04	385.70	382.15	382.99	389.64	388.28	393.05	404.35	393.98	389.14	394.23
Constant (1977) dollars	220.43	219.69	219.79	217.85	218.18	219.65	217.38	217.48	220.63	219.37	221.19	226.91	220.47	218.50	-
Durable goods	403.24	415.71	412.41	410.23	411.64	417.31	410.06	412.05	420.21	418.78	423.72	439.45	425.18	421.48	426.42
Lumber and wood products	320.40	326.36	317.56	317.58	325.61	336.19	325.54	333.70	337.39	334.92	327.06	335.27	328.72	327.76	334.03
Furniture and fixtures	271.95	283.29	277.85	276.83	275.16	281.46	276.53	285.19	290.14	292.40	292.13	304.14	290.77	286.26	291.12
Stone, clay, and glass products	401.94	411.88	404.91	411.60	415.52	418.20	418.35	418.49	420.75	418.06	413.82	414.50	413.92	403.74	409.03
Primary metal industries	478.30	484.72	481.56	480.73	479.57	486.97	485.34	480.32	487.47	480.65	491.57	504.38	493.66	502.67	506.75
Blast furnaces and basic steel products	527.39	548.69	540.09	547.45	543.05	552.86	559.31	550.84	554.14	545.61	557.76	565.32	557.14	578.88	580.67
Fabricated metal products	388.33	398.96	396.34	395.24	395.79	400.48	394.13	395.93	403.52	401.72	404.77	420.89	406.55	402.21	405.98
Machinery, except electrical	417.32	427.04	424.27	417.99	421.06	427.65	420.65	422.10	432.22	430.97	438.06	451.54	437.85	435.53	440.54
Electrical and electronic equipment	370.64	384.48	383.11	376.00	377.48	385.02	376.91	383.80	387.73	388.14	396.89	408.50	394.97	389.35	393.87
Transportation equipment	521.79	542.72	537.59	538.04	539.30	539.32	531.30	531.30	544.43	545.28	550.41	578.56	554.70	542.69	549.11
Motor vehicles and equipment	558.01	584.64	576.79	586.92	587.38	579.79	574.00	566.95	586.33	586.86	590.78	626.95	596.88	583.87	598.25
Instruments and related products	365.51	376.79	374.01	368.96	372.50	376.07	370.76	373.41	381.41	377.29	384.09	400.35	384.29	386.22	392.18
Miscellaneous manufacturing	277.38	286.83	282.24	280.86	285.38	286.10	281.78	284.59	292.00	294.19	295.47	303.28	297.31	293.18	298.45
Nondurable goods	331.45	342.86	338.37	337.26	339.55	342.54	341.82	344.20	348.00	346.73	350.00	358.02	350.55	345.74	351.74
Food and kindred products	333.52	341.60	335.23	336.73	343.20	340.29	341.60	341.34	347.21	343.00	344.92	353.28	347.13	338.13	341.82
Tobacco manufactures	438.40	448.26	452.40	424.38	469.32	483.69	437.65	461.52	438.15	448.84	439.71	452.20	452.78	446.85	478.27
Textile mill products	257.75	266.39	258.96	257.28	260.52	266.93	258.23	270.14	275.40	276.48	279.75	283.45	278.39	273.88	278.52
Apparel and other textile products	202.02	208.00	206.85	203.20	205.98	209.19	206.34	207.32	209.88	210.86	212.18	215.18	212.65	206.70	210.39
Paper and allied products	448.67	466.34	454.33	458.82	460.10	463.97	465.86	465.89	473.06	472.40	477.20	490.40	479.37	474.10	481.11
Printing and publishing	356.26	365.31	362.30	360.00	358.08	358.45	360.69	369.74	373.98	369.53	373.76	384.12	370.59	370.36	378.56
Chemicals and allied products	464.25	484.78	478.68	481.01	480.17	484.99	482.56	483.39	487.81	486.38	496.44	504.48	496.17	494.08	497.54
Petroleum and coal products	586.89	603.72	601.77	595.56	583.80	596.52	606.10	605.77	620.49	620.27	610.20	621.41	615.17	604.63	625.10
Rubber and miscellaneous plastics products	345.69	350.58	347.71	346.83	345.61	350.20	346.72	346.36	351.41	350.58	356.01	366.24	359.35	356.29	360.59
Leather and leather products	209.76	217.09	212.43	215.50	218.04	221.54	218.63	216.92	219.41	216.58	219.79	221.54	217.04	211.99	215.43
TRANSPORTATION AND PUBLIC UTILITIES	437.73	448.37	441.73	441.78	441.73	449.40	448.33	454.86	457.34	452.67	457.02	460.52	451.62	451.24	452.40
WHOLESALE TRADE	345.86	358.36	353.82	354.82	357.59	360.99	359.68	358.90	362.00	357.98	361.62	366.99	362.07	360.40	361.52
RETAIL TRADE	176.40	177.31	175.52	175.22	177.91	179.39	180.27	179.07	177.90	175.52	175.80	180.00	174.24	173.92	175.45
FINANCE, INSURANCE, AND REAL ESTATE	278.13	288.65	286.47	285.74	284.23	291.77	285.68	286.77	292.29	290.40	291.41	298.74	295.93	303.23	303.60
SERVICES	250.59	260.76	256.56	257.21	257.68	261.03	260.17	260.50	263.71	263.71	264.87	267.65	267.16	267.97	268.47

- 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. 1985	Jan. 1986	Feb. 1986 ^P	Mar. 1986 ^P	Mar. 1985	Nov. 1985	Dec. 1985	Jan. 1986	Feb. 1986 ^P	Mar. 1986 ^P
PRIVATE SECTOR (in current dollars)	164.3	168.2	168.7	168.7	164.4	167.1	168.4	167.4	168.4	168.8
Mining ¹	177.8	180.8	180.5	179.6	-	-	-	-	-	-
Construction	148.8	149.3	149.2	148.1	149.9	148.9	150.5	149.2	150.1	149.1
Manufacturing	167.3	171.4	171.5	171.9	167.4	170.1	170.8	170.8	171.4	172.0
Transportation and public utilities	164.8	169.1	169.6	169.4	165.4	168.1	169.2	168.3	169.1	170.1
Wholesale trade ¹	169.9	173.1	173.6	173.3	-	-	-	-	-	-
Retail trade	155.8	157.8	158.2	158.3	155.5	157.4	158.9	157.1	157.7	158.2
Finance, insurance, and real estate ¹	170.3	175.6	178.1	178.3	-	-	-	-	-	-
Services	167.4	173.5	174.6	174.6	167.2	172.1	173.4	171.8	173.5	174.5
PRIVATE SECTOR (in constant dollars)	94.6	94.1	94.7	-	94.5	94.1	94.4	93.5	94.5	-

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

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

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

(In percent)

Time span and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Over 1-month span												
1984	67.3	72.7	66.8	67.3	60.5	64.3	65.7	58.1	48.4	66.5	55.1	63.5
1985	57.6	50.3	55.9	44.6	50.3	47.0	54.9	56.8	45.7	63.5	61.6	63.2
1986	63.0	49.5	52.4	-	-	-	-	-	-	-	-	-
Over 3-month span												
1984	78.1	75.9	77.6	68.9	69.7	67.0	65.4	60.3	60.0	56.5	67.0	60.0
1985	58.6	54.1	46.8	45.9	44.1	49.7	50.5	49.2	53.8	52.7	65.1	67.8
1986	63.0	55.4	-	-	-	-	-	-	-	-	-	-
Over 6-month span												
1984	79.2	77.8	77.3	75.4	69.2	64.9	63.2	64.1	67.0	59.7	57.6	60.3
1985	52.2	49.5	44.3	44.6	44.3	42.4	46.8	50.0	56.8	61.6	58.1	-
1986	-	-	-	-	-	-	-	-	-	-	-	-
Over 12-month span												
1984	81.9	78.4	76.8	75.1	72.7	73.0	70.0	65.7	63.5	60.5	56.2	51.9
1985	50.8	48.4	49.5	47.3	46.2	47.3	48.6	48.4	-	-	-	-
1986	-	-	-	-	-	-	-	-	-	-	-	-

- 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. 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	1977	1978	1979	1980	1981	1982	1983	1984	1985
Noninstitutional population	160,689	163,541	166,460	169,349	171,775	173,939	175,891	178,080	179,912
Labor force									
Total (number)	100,665	103,882	106,559	108,544	110,315	111,872	113,226	115,241	117,167
Percent of population	62.6	63.5	64.0	64.1	64.2	64.3	64.4	64.7	65.1
Employed									
Total (number)	93,673	97,679	100,421	100,907	102,042	101,194	102,510	106,702	108,856
Percent of population	58.3	59.7	60.3	59.6	59.4	58.2	58.3	59.9	60.5
Resident Armed Forces	1,656	1,631	1,597	1,604	1,645	1,668	1,676	1,697	1,706
Civilian									
Total	92,017	96,048	98,824	99,303	100,397	99,526	100,834	105,005	107,150
Agriculture	3,283	3,387	3,347	3,364	3,368	3,401	3,383	3,321	3,179
Nonagricultural industries	88,734	92,661	95,477	95,938	97,030	96,125	97,450	101,685	103,971
Unemployed									
Total (number)	6,991	6,202	6,137	7,637	8,273	10,678	10,717	8,539	8,312
Percent of labor force	6.9	6.0	5.8	7.0	7.5	9.5	9.5	7.4	7.1
Not in labor force (number)	60,025	59,659	59,900	60,806	61,460	62,067	62,665	62,839	62,744

20. Annual data: Employment levels by industry

(Numbers in thousands)

Industry	1977	1978	1979	1980	1981	1982	1983	1984	1985
Total employment	82,471	86,697	89,823	90,406	91,156	89,566	90,196	94,461	97,699
Private sector	67,344	71,026	73,876	74,166	75,126	73,729	74,330	78,477	81,404
Goods-producing	24,346	25,585	26,461	25,658	25,497	23,813	23,334	24,730	25,057
Mining	813	851	958	1,027	1,139	1,128	952	974	969
Construction	3,851	4,229	4,463	4,346	4,188	3,905	3,948	4,345	4,662
Manufacturing	19,682	20,505	21,040	20,285	20,170	18,781	18,434	19,412	19,426
Service-producing	58,125	61,113	63,363	64,748	65,659	65,753	66,862	69,731	72,643
Transportation and public utilities	4,713	4,923	5,136	5,146	5,165	5,082	4,954	5,171	5,300
Wholesale trade	4,708	4,969	5,204	5,275	5,358	5,278	5,268	5,550	5,769
Retail trade	13,808	14,573	14,989	15,035	15,189	15,179	15,613	16,584	17,425
Finance, insurance, and real estate	4,467	4,724	4,975	5,160	5,298	5,341	5,468	5,682	5,924
Services	15,303	16,252	17,112	17,890	18,619	19,036	19,694	20,761	21,930
Government	15,127	15,672	15,947	16,241	16,031	15,837	15,869	15,984	16,295
Federal	2,727	2,753	2,773	2,866	2,772	2,739	2,774	2,807	2,875
State	3,377	3,474	3,541	3,610	3,640	3,640	3,662	3,712	3,780
Local	9,023	9,446	9,633	9,765	9,619	9,458	9,434	9,465	9,640

NOTE: Data include Alaska and Hawaii beginning in 1959. 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	1977	1978	1979	1980	1981	1982	1983	1984	1985
Private sector									
Average weekly hours	36.0	35.8	35.7	35.3	35.2	34.8	35.0	35.3	35.1
Average hourly earnings	5.25	5.69	6.16	6.66	7.25	7.68	8.02	8.33	8.58
Average weekly earnings	189.00	203.70	219.91	235.10	255.20	267.26	280.70	294.05	301.16
Mining									
Average weekly hours	43.4	43.4	43.0	43.3	43.7	42.7	42.5	43.3	43.4
Average hourly earnings	6.94	7.67	8.49	9.17	10.04	10.77	11.28	11.63	11.95
Average weekly earnings	301.20	332.88	365.07	397.06	438.75	459.88	479.40	503.58	518.63
Construction									
Average weekly hours	36.5	36.8	37.0	37.0	36.9	36.7	37.1	37.7	37.7
Average hourly earnings	8.10	8.66	9.27	9.94	10.82	11.63	11.94	12.12	12.26
Average weekly earnings	295.65	318.69	342.99	367.78	399.26	426.82	442.97	456.92	462.20
Manufacturing									
Average weekly hours	40.3	40.4	40.2	39.7	39.8	38.9	40.1	40.7	40.5
Average hourly earnings	5.68	6.17	6.70	7.27	7.99	8.49	8.83	9.18	9.52
Average weekly earnings	228.90	249.27	269.34	288.62	318.00	330.26	354.08	373.63	385.56
Transportation and public utilities									
Average weekly hours	39.9	40.0	39.9	39.6	39.4	39.0	39.0	39.4	39.4
Average hourly earnings	6.99	7.57	8.16	8.87	9.70	10.32	10.79	11.11	11.38
Average weekly earnings	278.90	302.80	325.58	351.25	382.18	402.48	420.81	437.73	448.37
Wholesale trade									
Average weekly hours	38.8	38.8	38.8	38.5	38.5	38.3	38.5	38.6	38.7
Average hourly earnings	5.39	5.88	6.39	6.96	7.56	8.09	8.55	8.96	9.26
Average weekly earnings	209.13	228.14	247.93	267.96	291.06	309.85	329.18	345.86	358.36
Retail trade									
Average weekly hours	31.6	31.0	30.6	30.2	30.1	29.9	29.8	30.0	29.7
Average hourly earnings	3.85	4.20	4.53	4.88	5.25	5.48	5.74	5.88	5.97
Average weekly earnings	121.66	130.20	138.62	147.38	158.03	163.85	171.05	176.40	177.31
Finance, insurance, and real estate									
Average weekly hours	36.4	36.4	36.2	36.2	36.3	36.2	36.2	36.5	36.4
Average hourly earnings	4.54	4.89	5.27	5.79	6.31	6.78	7.29	7.62	7.93
Average weekly earnings	165.26	178.00	190.77	209.60	229.05	245.44	263.90	278.13	288.65
Services									
Average weekly hours	33.0	32.8	32.7	32.6	32.6	32.6	32.7	32.8	32.8
Average hourly earnings	4.65	4.99	5.36	5.85	6.41	6.92	7.31	7.64	7.95
Average weekly earnings	153.45	163.67	175.27	190.71	208.97	225.59	239.04	250.59	260.76

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

(June 1981 = 100)

Series	1983	1984				1985				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1985	
Civilian workers²	117.8	119.8	120.8	122.4	123.9	125.5	126.4	128.4	129.2	0.6	4.3
Workers, by occupational group:											
White-collar workers	118.9	120.9	122.1	124.0	125.5	127.3	128.3	130.7	131.6	.7	4.9
Blue-collar workers	115.8	117.7	118.6	119.6	120.9	122.2	123.1	124.4	124.9	.4	3.3
Service workers	119.1	122.0	122.1	124.6	126.8	127.8	128.0	130.9	131.8	.7	3.9
Workers, by industry division:											
Manufacturing	116.0	117.9	119.1	120.4	122.0	123.9	124.6	125.5	126.0	.4	3.3
Nonmanufacturing	118.6	120.7	121.6	123.3	124.8	126.2	127.2	129.7	130.6	.7	4.6
Services	122.6	125.0	125.5	128.8	130.9	131.9	132.6	136.4	137.1	.5	4.7
Public administration ³	121.4	122.9	123.7	126.9	128.6	130.1	130.3	134.2	134.8	.4	4.8
Private industry workers	117.0	119.0	120.1	121.1	122.7	124.2	125.2	126.8	127.5	.6	3.9
Workers, by occupational group:											
White-collar workers	117.9	119.9	121.4	122.4	123.9	125.8	127.1	128.8	129.8	.8	4.8
Blue-collar workers	115.7	117.5	118.4	119.3	120.6	121.9	122.8	124.0	124.4	.3	3.2
Service workers	117.9	121.5	121.2	123.2	125.7	126.3	126.5	128.8	129.5	.5	3.0
Workers, by industry division:											
Manufacturing	116.0	117.9	119.1	120.4	122.0	123.9	124.6	125.5	126.0	.4	3.3
Nonmanufacturing	117.5	119.6	120.7	121.6	123.1	124.4	125.6	127.6	128.4	.6	4.3
State and local government workers	122.0	123.9	124.4	128.8	130.1	131.7	132.0	136.5	137.5	.7	5.7
Workers, by occupational group:											
White-collar workers	122.6	124.5	125.0	129.7	131.1	132.5	132.9	137.6	138.6	.7	5.7
Blue-collar workers	119.2	121.9	122.3	125.0	125.9	128.1	128.5	131.9	132.7	.6	5.4
Workers, by industry division:											
Services	122.6	124.5	125.0	129.9	131.3	132.8	133.2	137.9	139.1	.9	5.9
Schools	122.6	124.5	124.7	130.6	132.0	133.4	133.7	139.1	140.3	.9	6.3
Elementary and secondary	123.9	125.4	125.7	132.1	133.5	134.4	134.6	140.9	142.0	.8	6.4
Hospitals and other services ⁴	122.6	124.4	125.7	127.9	129.2	131.1	131.5	134.1	135.2	.8	4.6
Public administration ³	121.4	122.9	123.7	126.9	128.6	130.1	130.3	134.2	134.8	.4	4.8

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

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

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

(June 1981 = 100)

Series	1983		1984				1985				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended	
										Dec. 1985		
Civilian workers ¹	116.5	117.9	118.8	120.3	121.7	123.1	124.2	126.3	127.0	0.6	4.4	
Workers, by occupational group:												
White-collar workers	117.9	119.3	120.4	122.2	123.5	125.2	126.4	128.8	129.8	.8	5.1	
Blue-collar workers	114.0	115.3	116.1	117.0	118.2	119.3	120.5	122.0	122.3	.2	3.5	
Service workers	117.4	120.0	119.8	122.3	124.3	124.8	125.3	128.0	128.6	.5	3.5	
Workers, by industry division												
Manufacturing	114.5	115.7	116.8	118.0	119.5	121.0	122.3	123.2	123.8	.5	3.6	
Nonmanufacturing	117.4	118.9	119.7	121.3	122.6	123.9	125.0	127.6	128.4	.6	4.7	
Services	121.3	123.3	123.8	127.2	128.9	129.7	130.5	134.2	134.8	.4	4.6	
Public administration ²	119.4	120.4	121.3	124.4	125.7	127.0	127.2	131.4	132.0	.5	5.0	
Private industry workers	115.8	117.2	118.2	119.2	120.6	122.0	123.3	124.9	125.6	.6	4.1	
Workers, by occupational group:												
White-collar workers	117.2	118.5	119.9	120.9	122.3	124.0	125.5	127.3	128.3	.8	4.9	
Professional and technical	120.4	122.2	123.8	125.2	127.3	127.7	128.7	131.2	131.5	.2	3.3	
Managers and administrators	115.7	118.0	119.2	121.0	122.2	123.8	126.5	127.7	128.4	.5	5.1	
Salesworkers	111.2	110.2	111.9	110.5	111.6	116.3	117.4	119.3	122.5	2.7	9.8	
Clerical workers	118.3	119.8	120.7	122.0	122.9	124.7	125.6	127.1	127.9	.6	4.1	
Blue-collar workers	113.9	115.1	115.9	116.7	118.0	119.1	120.3	121.7	122.0	.2	3.4	
Craft and kindred workers	115.4	116.5	117.3	118.0	119.4	120.8	122.0	123.7	123.8	.1	3.7	
Operatives, except transport	113.6	114.9	115.8	116.6	117.9	118.9	120.1	121.1	121.6	.4	3.1	
Transport equipment operatives	110.2	111.7	112.7	113.4	114.0	114.5	115.7	117.7	117.8	.1	3.3	
Nonfarm laborers	112.1	112.9	114.1	114.7	115.9	116.7	118.5	118.6	119.8	1.0	3.4	
Service workers	116.5	119.8	119.3	121.2	123.7	123.8	124.4	126.3	126.6	.2	2.3	
Workers, by industry division:												
Manufacturing	114.5	115.7	116.8	118.0	119.5	121.0	122.3	123.2	123.8	.5	3.6	
Durables	114.4	115.7	116.6	117.7	119.1	120.6	122.0	122.7	123.4	.6	3.6	
Nondurables	114.6	115.8	117.1	118.6	120.2	121.6	122.6	124.0	124.6	.5	3.7	
Nonmanufacturing	116.5	118.0	119.0	119.9	121.2	122.6	123.9	125.9	126.6	.6	4.5	
Construction	112.9	113.3	114.0	114.3	114.4	115.5	116.6	117.3	117.9	.5	3.1	
Transportation and public utilities	116.8	118.5	119.3	119.9	120.7	121.7	122.8	124.8	125.2	.3	3.7	
Wholesale and retail trade	112.3	114.3	116.0	116.5	118.1	118.8	121.1	122.7	123.7	.8	4.7	
Wholesale trade	116.5	118.2	120.0	120.7	122.9	123.7	126.8	127.7	128.3	.5	4.4	
Retail trade	110.6	112.8	114.4	114.9	116.2	116.9	118.9	120.8	121.9	.9	4.9	
Finance, insurance, and real estate	116.9	116.1	116.9	115.3	115.8	122.0	121.7	124.1	126.5	1.9	9.2	
Services	121.9	124.2	124.7	127.1	129.5	129.9	131.0	133.9	134.1	.1	3.6	
State and local government workers	120.0	121.6	122.0	126.1	127.1	128.4	128.7	133.2	134.2	.8	5.6	
Workers, by occupational group												
White-collar workers	120.6	122.2	122.5	127.1	128.0	129.3	129.6	134.3	135.3	.7	5.7	
Blue-collar workers	116.9	119.1	119.6	121.9	122.5	124.2	124.5	127.9	128.4	.4	4.8	
Workers, by industry division												
Services	120.6	122.2	122.5	127.2	128.1	129.4	129.7	134.5	135.6	.8	5.9	
Schools	120.6	122.2	122.3	127.8	128.7	129.9	130.2	135.8	137.0	.9	6.4	
Elementary and secondary	121.7	122.9	123.0	129.3	130.2	130.8	131.1	137.5	138.5	.7	6.4	
Hospitals and other services ³	120.6	121.9	123.1	125.1	125.9	127.7	128.0	130.2	130.9	.5	4.0	
Public administration ²	119.4	120.4	121.3	124.4	125.7	127.0	127.2	131.4	132.0	.5	5.0	

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.

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

(June 1981 = 100)

Series	1983	1984				1985				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec.	1985
COMPENSATION											
Workers, by bargaining status¹											
Union	118.8	120.6	121.7	122.6	123.9	124.8	125.5	126.5	127.1	0.5	2.6
Manufacturing	117.2	119.3	120.5	121.6	123.2	124.2	124.2	125.0	125.5	.4	1.9
Nonmanufacturing	120.4	121.9	122.8	123.6	124.5	125.3	126.6	127.8	128.6	.6	3.3
Nonunion	115.9	118.0	119.2	120.3	121.9	123.8	125.0	126.8	127.5	.6	4.6
Manufacturing	114.9	116.6	117.9	119.3	120.8	123.6	124.8	125.7	126.3	.5	4.6
Nonmanufacturing	116.4	118.6	119.8	120.7	122.4	123.9	125.1	127.3	128.1	.6	4.7
Workers, by region¹											
Northeast	117.5	118.9	120.7	122.4	123.8	125.1	126.4	128.8	129.9	.9	4.9
South	117.1	119.7	120.7	120.7	122.2	124.2	125.2	126.5	127.2	.6	4.1
Midwest (formerly North Central)	114.7	117.2	117.9	119.7	120.8	122.0	122.7	124.2	124.6	.3	3.1
West	120.0	121.0	122.2	122.5	124.9	126.8	127.9	129.1	129.8	.5	3.9
Workers, by area size¹											
Metropolitan areas	117.4	119.4	120.6	121.5	123.2	124.7	125.7	127.3	128.1	.6	4.0
Other areas	114.5	116.7	117.4	119.0	119.8	121.4	122.5	123.9	123.9	.0	3.4
WAGES AND SALARIES											
Workers, by bargaining status¹											
Union	116.9	118.1	119.0	119.8	120.9	121.7	123.0	124.1	124.7	.5	3.1
Manufacturing	114.8	116.1	117.1	118.1	119.5	120.4	121.7	122.8	123.3	.4	3.2
Nonmanufacturing	118.9	120.1	120.7	121.3	122.1	122.8	124.1	125.3	125.9	.5	3.1
Nonunion	115.2	116.7	117.8	118.8	120.4	122.1	123.4	125.2	125.9	.6	4.6
Manufacturing	114.2	115.4	116.5	117.9	119.5	121.5	122.8	123.7	124.4	.6	4.1
Nonmanufacturing	115.6	117.2	118.3	119.2	120.7	122.3	123.6	125.9	126.6	.6	4.9
Workers, by region¹											
Northeast	116.6	117.4	118.9	120.5	121.9	123.0	124.6	126.8	128.1	1.0	5.1
South	115.7	117.9	119.0	119.0	120.2	122.3	123.4	124.8	125.4	.5	4.3
Midwest (formerly North Central)	113.6	115.5	116.0	117.8	118.7	119.6	121.1	122.5	122.9	.3	3.5
West	118.5	118.8	119.6	120.0	122.5	124.0	125.1	126.6	127.1	.4	3.8
Workers, by area size¹											
Metropolitan areas	116.2	117.6	118.6	119.5	121.0	122.4	123.8	125.5	126.3	.6	4.4
Other areas	113.4	115.1	116.0	117.5	118.3	119.6	120.6	121.9	122.0	.1	3.1

¹ The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the

Monthly Labor Review Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.

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							
	1984	1985	1984				1985			
			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	3.6	2.6	5.1	3.5	2.7	3.7	3.6	3.5	2.0	2.0
Annual rate over life of contract	2.8	2.7	4.7	3.2	3.1	2.0	2.7	3.4	3.0	1.4
Wage adjustments, settlements covering 1,000 workers or more:										
First year of contract	2.4	2.3	2.8	2.6	2.1	2.3	3.3	2.5	2.0	2.1
Annual rate over life of contract	2.4	2.7	3.3	2.7	2.6	1.5	3.2	2.8	3.1	1.9
Effective adjustments:										
Total effective wage adjustment ³	3.7	3.3	.9	.9	1.2	.7	.8	.8	1.2	.5
From settlements reached in period .....	.8	.7	.1	.1	.2	.3	.1	.2	.2	.2
Deferred from settlements reached in earlier periods	2.0	1.8	.4	.7	.7	.2	.6	.5	.6	.2
From cost-of-living-adjustments clauses .....	.9	.8	.3	.2	.3	.2	.1	.1	.4	.1

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

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

compensation or wages.

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

^P = preliminary.

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--							
	1984				1985			
	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	4.8	4.7	4.2	3.6	3.4	3.5	3.1	(¹)
Annual rate over life of contract	3.6	3.5	3.2	2.8	2.6	2.7	2.7	2.8
Specified wage adjustments, settlements covering 1,000 workers or more:								
All industries								
First year of contract	3.5	3.5	3.2	2.4	2.4	2.4	2.4	2.3
Contracts with COLA clauses	4.0	4.6	4.5	2.9	2.5	2.3	1.9	1.6
Contracts without COLA clauses	3.0	2.7	2.3	2.1	2.4	2.4	2.7	2.7
Annual rate over life of contract	3.0	3.1	2.8	2.4	2.3	2.4	2.5	2.7
Contracts with COLA clauses	2.6	2.9	2.8	1.8	1.3	1.5	1.8	2.5
Contracts without COLA clauses	3.4	3.2	2.8	2.7	2.8	2.8	3.0	2.8
Manufacturing								
First year of contract	2.6	3.0	2.6	2.3	2.1	2.0	1.5	.8
Contracts with COLA clauses	2.4	3.2	1.5	2.1	2.0	1.9	1.5	.8
Contracts without COLA clauses	2.9	2.8	3.7	2.9	2.5	2.2	1.5	.9
Annual rate over life of contract	2.8	3.1	2.8	1.5	1.4	1.5	1.6	1.8
Contracts with COLA clauses	2.2	2.8	1.8	1.0	.9	1.0	1.4	2.1
Contracts without COLA clauses	3.7	3.6	3.8	3.3	3.2	3.0	2.4	1.6
Nonmanufacturing								
First year of contract	3.8	3.7	3.3	2.5	2.6	2.7	3.2	3.3
Contracts with COLA clauses	4.9	5.2	5.4	5.5	5.1	4.3	4.0	3.6
Contracts without COLA clauses	3.0	2.6	2.1	2.0	2.4	2.5	3.0	3.3
Annual rate over life of contract	3.1	3.0	2.8	2.9	2.8	2.9	3.3	3.3
Contracts with COLA clauses	2.9	3.0	3.1	4.8	4.0	3.8	3.9	3.6
Contracts without COLA clauses	3.3	3.0	2.6	2.6	2.7	2.8	3.2	3.3
Construction								
First year of contract	1.2	.8	.9	.5	.9	1.1	1.0	1.5
Contracts with COLA clauses .....	.1	-.4	4.0	4.0	4.6	9.2	(¹)	(¹)
Contracts without COLA clauses	1.4	.9	.9	.4	.8	1.0	(¹)	(¹)
Annual rate over life of contract	2.0	1.7	1.4	1.0	1.4	1.7	1.7	2.1
Contracts with COLA clauses .....	.7	.0	1.4	1.4	1.7	4.6	(¹)	(¹)
Contracts without COLA clauses	2.2	1.8	1.4	1.0	1.4	1.7	(¹)	(¹)

¹ Data do not meet publication standards.

^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--						
	1984			1985			
	II	III	IV	I	II ^P	III ^P	IV ^P
For all workers:¹							
Total	4.3	4.2	3.7	3.6	3.5	3.5	3.3
From settlements reached in period	1.0	1.0	.8	.7	.9	.9	.7
Deferred from settlements reached in earlier period	2.2	2.1	2.0	2.2	1.9	1.8	1.8
From cost-of-living-adjustments clauses	1.1	1.2	.9	.7	.7	.8	.8
For workers receiving changes:							
Total	5.3	5.0	4.4	4.5	4.2	4.3	4.1
From settlements reached in period	3.6	3.7	3.0	2.9	2.9	2.8	3.4
Deferred from settlements reached in earlier period	4.9	4.2	4.0	4.2	3.9	3.7	3.7
From cost-of-living-adjustments clauses	4.0	3.2	2.7	2.3	2.3	2.8	2.2

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		Second 6 months 1985 ^P
	1984	1985	
Specified adjustments:			
Total compensation ¹ adjustments, ² settlements covering 5,000 workers or more:			
First year of contract	5.2	4.2	3.8
Annual rate over life of contract	5.4	5.2	5.3
Wage adjustments, settlements covering 1,000 workers or more:			
First year of contract	4.8	4.6	4.4
Annual rate over life of contract	5.1	5.4	5.6
Effective adjustments:			
Total effective wage adjustment ³	5.0	5.8	4.1
From settlements reached in period	1.9	4.1	3.2
Deferred from settlements reached in earlier periods	3.1	1.6	.9
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 change in compensation or wages.

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

⁴ Less than 0.05 percent.

^P = preliminary.

29. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. ^P	Feb. ^P	Mar. ^P
Number of stoppages:															
Beginning in period	62	54	4	3	2	2	9	6	11	4	2	2	4	3	-
In effect during period	68	61	12	8	8	8	13	18	20	18	11	8	7	7	-
Workers involved:															
Beginning in period (in thousands)	376.0	323.9	15.2	6.2	6.9	15.7	52.3	15.3	69.5	74.6	25.0	8.2	7.6	24.0	-
In effect during period (in thousands)	391.0	584.1	48.2	14.1	14.8	28.5	60.2	66.8	93.9	117.3	64.6	38.1	12.0	28.4	-
Days idle:															
Number (in thousands)	8,499.0	7,079.1	698.5	229.5	203.3	454.3	500.2	869.7	931.4	1,433.0	651.2	665.4	17.0	309.5	-
Percent of estimated working time ¹ .....	.04	.03	.03	.01	.01	.02	.02	.03	.04	.06	.03	.03	.01	.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.

- Data not available.

^P = preliminary.

30. Consumer Price Index for All Urban Consumers: U.S. city average, by expenditure category and commodity service group; and CPI for Urban Wage Earners and Clerical Workers, all items

(1967 = 100, unless otherwise indicated)

Series	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS:															
All items	311.1	322.2	318.8	320.1	321.3	322.3	322.8	323.5	324.5	325.5	326.6	327.4	328.4	327.5	326.0
All items (1957-59=100)	361.9	374.7	370.7	372.3	373.7	374.8	375.5	376.2	377.4	378.5	379.9	380.8	381.9	380.8	379.1
Food and beverages	295.1	302.0	301.6	301.6	301.0	301.4	301.6	301.8	302.1	302.5	303.6	305.6	307.9	307.7	307.8
Food	302.9	309.8	309.7	309.6	308.9	309.3	309.5	309.7	309.9	309.8	311.0	313.2	315.6	315.3	315.4
Food at home	292.6	296.8	298.4	297.7	296.2	296.0	296.2	295.9	295.6	295.3	296.6	299.3	302.5	301.5	301.2
Cereals and bakery products	305.3	317.0	314.4	314.8	315.9	317.3	317.3	318.5	319.2	318.9	319.9	321.9	322.0	322.5	322.7
Meats, poultry, fish, and eggs	266.6	263.4	266.1	263.6	259.8	260.5	259.7	260.6	261.1	260.9	261.1	269.9	271.5	268.4	267.7
Dairy products	253.2	258.0	258.9	258.3	258.4	257.8	257.8	257.4	258.0	257.1	257.1	256.9	257.2	257.3	256.8
Fruits and vegetables	317.4	325.7	332.1	333.2	330.3	329.0	328.9	326.3	319.9	317.1	314.3	323.9	334.4	320.7	319.2
Other foods at home	352.2	361.1	360.5	360.8	361.3	360.8	360.6	361.7	362.6	363.0	362.2	361.3	365.7	375.1	375.4
Sugar and sweets	389.1	398.8	394.8	396.1	397.6	398.3	400.2	401.8	401.1	402.6	401.4	402.2	405.1	408.6	408.4
Fats and oils	288.0	294.4	294.9	294.0	294.0	296.0	297.8	297.1	294.8	291.2	292.1	290.3	292.1	291.4	290.2
Nonalcoholic beverages	443.0	451.7	454.0	454.0	454.1	451.5	448.2	449.6	452.8	454.1	451.7	448.8	459.7	485.3	488.0
Other prepared foods	284.9	294.2	292.2	292.8	293.4	293.4	294.5	296.8	296.8	296.8	296.8	297.3	298.0	299.5	299.3
Food away from home	333.4	346.6	342.6	343.9	345.1	346.9	347.3	348.4	349.9	350.3	351.3	352.1	353.1	354.2	355.5
Alcoholic beverages	222.1	229.5	226.5	226.7	227.7	227.8	227.8	228.9	229.3	236.4	236.2	236.2	237.5	238.3	238.8
Housing	336.5	349.9	344.7	345.9	348.5	350.4	351.6	352.9	353.8	354.4	355.0	355.8	356.8	356.5	357.0
Shelter	361.7	382.0	374.3	375.9	379.5	381.0	383.2	385.9	386.9	389.1	391.3	392.3	393.8	394.8	397.0
Renters' costs (12/82=100)	108.6	115.4	112.9	113.5	114.5	115.1	115.8	116.6	117.0	117.9	118.4	118.3	118.8	119.0	119.6
Rent, residential	249.3	264.6	259.2	260.4	262.6	263.6	265.0	266.6	267.7	269.9	271.7	272.4	273.4	273.7	275.0
Other renters' costs	373.4	398.4	386.1	390.9	396.5	401.6	405.1	409.9	410.7	412.5	408.7	398.1	401.1	404.1	405.5
Homeowners' costs (12/82=100)	107.3	113.1	110.8	111.3	112.4	112.8	113.5	114.3	114.6	115.1	115.8	116.3	116.7	117.0	117.9
Owners' equivalent rent (12/82=100)	107.3	113.2	110.9	111.3	112.5	112.8	113.5	114.3	114.6	115.1	115.9	116.3	116.7	117.0	117.9
Household insurance (12/82=100)	107.5	112.4	110.4	111.4	112.0	112.7	113.0	113.7	113.7	114.6	114.5	115.0	115.7	117.4	118.0
Maintenance and repairs	359.2	368.9	370.0	368.0	366.2	367.6	367.8	370.6	368.7	368.5	372.7	373.7	379.1	379.6	367.5
Maintenance and repair services	409.7	421.1	422.2	418.2	416.0	423.2	421.1	425.1	421.9	422.2	426.4	426.2	432.6	432.8	422.4
Maintenance and repair commodities	262.7	269.6	270.6	270.4	269.2	265.7	267.8	269.2	268.6	268.0	271.5	273.3	277.1	277.8	266.1
Fuel and other utilities	387.3	393.6	388.2	388.7	393.0	399.4	399.9	398.9	400.5	396.5	392.1	393.3	394.6	390.0	385.5
Fuels	485.5	488.1	482.2	483.0	490.0	497.7	497.3	494.4	496.8	488.4	481.5	483.6	484.7	476.3	467.6
Fuel oil, coal, and bottled gas	641.8	619.5	620.8	623.5	620.8	612.0	601.9	594.6	601.7	615.3	641.6	657.3	650.3	591.2	549.9
Gas (piped) and electricity	445.2	452.7	445.5	445.9	454.7	465.6	467.1	465.1	466.5	453.9	440.5	439.9	442.6	444.5	442.3
Other utilities and public services	230.2	240.7	236.3	236.4	236.8	241.1	242.8	244.2	244.6	244.7	245.9	245.8	247.3	249.0	249.8
Household furnishings and operations	242.5	247.2	246.9	247.9	247.6	247.1	246.5	247.0	247.1	248.4	248.9	248.8	248.8	249.0	249.8
Housefurnishings	199.1	200.1	200.6	201.7	201.2	200.0	198.8	199.1	199.0	200.3	200.8	200.1	199.8	199.7	201.0
Housekeeping supplies	303.2	313.6	311.8	312.6	312.9	313.6	313.1	313.5	313.9	315.7	316.4	317.7	318.3	318.6	317.9
Housekeeping services	327.5	338.9	337.4	337.9	338.0	338.3	339.8	340.7	341.5	342.2	342.7	343.2	343.9	344.5	345.1
Apparel and upkeep	200.2	206.0	205.3	205.9	205.3	204.6	202.8	205.3	209.6	211.1	211.2	209.0	205.0	204.1	206.3
Apparel commodities	187.0	191.6	191.3	191.8	191.0	190.2	188.0	190.6	195.3	196.7	196.8	194.2	189.5	188.5	190.8
Men's and boys' apparel	192.4	197.9	195.2	197.4	197.8	196.4	194.5	197.2	201.5	203.2	203.6	202.0	198.6	198.8	198.3
Women's and girls' apparel	163.6	169.5	169.9	170.0	168.0	166.5	163.4	167.7	176.1	177.9	176.5	172.6	164.4	163.4	167.6
Infants' and toddlers' apparel	287.0	299.7	302.1	295.3	298.3	300.7	294.5	300.6	302.0	302.1	307.0	304.1	313.9	311.6	313.1
Footwear	209.5	212.1	213.1	213.2	213.2	213.9	211.4	210.3	210.9	212.3	215.5	213.1	209.1	207.9	210.1
Other apparel commodities	216.4	215.5	216.9	215.8	215.1	216.3	216.7	217.5	215.2	214.9	214.9	214.6	215.5	216.1	214.6
Apparel services	305.0	320.9	317.1	318.4	319.4	319.9	321.4	322.9	324.1	325.7	326.3	326.9	328.9	330.7	331.5
Transportation	311.7	319.9	316.7	320.0	321.4	321.8	321.8	320.7	319.7	320.9	323.2	324.0	323.9	319.2	309.6
Private transportation	306.6	314.2	311.0	314.6	316.0	316.3	316.1	314.9	313.6	314.7	317.0	317.8	317.3	312.2	302.1
New vehicles	208.0	214.9	213.8	213.9	214.2	214.3	214.3	214.2	214.2	215.9	218.2	219.2	219.7	220.2	220.1
New cars	208.5	215.2	214.1	214.1	214.5	214.7	214.7	214.6	214.5	216.2	218.4	219.4	219.9	220.4	220.3
Used cars	375.7	379.7	386.1	386.4	384.2	380.3	376.7	374.0	374.3	375.3	376.4	375.6	374.1	370.7	367.2
Motor fuel	370.7	373.8	360.6	374.2	381.6	384.7	385.5	381.9	377.7	374.6	376.7	377.5	373.3	351.5	308.5
Gasoline	370.2	373.3	360.0	373.8	381.4	384.5	385.3	381.8	377.4	374.2	376.1	376.8	372.5	350.8	307.7
Maintenance and repair	341.5	351.4	348.5	348.2	349.6	350.4	351.1	351.9	353.5	355.7	355.8	357.5	357.9	358.9	359.3
Other private transportation	273.3	287.6	284.5	285.8	285.6	286.6	287.6	287.7	285.8	289.6	293.9	295.2	297.7	299.2	301.5
Other private transportation commodities	201.5	202.6	201.9	202.8	201.3	203.9	202.2	202.8	203.4	202.8	201.6	202.1	203.4	202.9	203.6
Other private transportation services	295.0	312.8	309.1	310.5	310.7	311.3	313.0	310.4	315.4	321.2	322.7	325.5	327.6	330.3	313.0
Public transportation	385.2	402.8	397.3	398.0	398.4	399.3	402.4	403.7	408.0	411.5	412.8	412.9	419.6	422.2	421.2
Medical care	379.5	403.1	396.5	398.0	399.5	401.7	404.0	406.6	408.3	410.5	413.0	414.7	418.2	422.3	425.8
Medical care commodities	239.7	256.7	251.9	253.9	255.2	257.0	257.8	259.3	260.2	261.3	262.7	262.9	264.5	267.4	269.4
Medical care services	410.3	435.1	428.1	429.4	430.9	433.0	435.8	438.6	440.5	443.0	445.8	448.0	451.9	456.2	460.1
Professional services	346.1	367.3	361.9	363.0	364.5	366.4	368.1	370.0	371.7	373.2	375.5	377.1	378.9	381.6	385.0
Other medical care services	488.0	517.0	508.0	509.6	511.2	513.6	517.6	521.6	523.9	527.4	530.8	533.6	540.3	546.4	550.8
Entertainment	255.1	265.0	262.2	263.3	263.6	264.8	265.7	265.7	266.8	268.4	269.0	268.3	270.8	272.0	271.9
Entertainment commodities	253.3	260.6	258.7	259.5	259.5	260.1	260.8	260.5	262.5	264.0	264.0	262.5	264.7	265.2	265.0
Entertainment services	258.3	271.8	267.6	269.2	269.9	272.0	273.3	273.6	273.3	275.2	276.6	277.1	279.9	282.1	282.2
Other goods and services	307.7	326.6	321.1	321.8	322.3	323.0	325.0	326.0	333.3	334.9	335.3	336.5	339.1	340.3	341.1
Tobacco products															

30. Continued— Consumer Price Index for All Urban Consumers: U.S. city average, by expenditure category and commodity service group; and CPI for Urban Wage Earners and Clerical Workers, all items

(1967=100, unless otherwise indicated)

Series	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
All items	311.1	322.2	318.8	320.1	321.3	322.3	322.8	323.5	324.5	325.5	326.6	327.4	328.4	327.5	326.0
Commodities	280.7	286.7	285.3	286.8	287.0	286.9	286.5	286.5	287.1	287.9	289.2	289.9	290.1	287.4	283.7
Food and beverages	295.1	302.0	301.6	301.6	301.0	301.4	301.6	301.8	302.1	302.5	303.6	305.6	307.9	307.7	307.8
Commodities less food and beverages	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nondurables less food and beverages	275.7	282.1	277.9	281.5	283.1	283.5	282.9	283.1	284.6	285.3	286.8	286.8	284.9	278.6	268.9
Apparel commodities	187.0	191.6	191.3	191.8	191.0	190.2	188.0	190.6	195.3	196.7	196.8	194.2	189.5	188.5	190.8
Nondurables less food, beverages, and apparel	325.8	333.3	327.1	332.3	335.1	336.2	336.4	335.4	335.3	335.6	337.8	339.1	338.7	329.5	313.6
Durables	266.5	270.7	271.9	272.6	271.6	270.4	269.3	268.6	268.7	270.2	271.5	271.4	271.4	270.5	269.7
Services	363.0	381.5	375.0	376.2	378.9	381.3	383.3	384.9	386.5	387.7	388.7	389.5	391.7	393.3	394.9
Rent of shelter	107.7	113.9	111.5	112.0	113.2	113.6	114.3	115.1	115.4	116.1	116.7	117.0	117.4	117.7	118.5
Household services less rent of shelter	108.1	111.2	109.7	109.8	110.9	112.7	113.2	113.2	113.5	112.1	110.8	110.8	111.4	111.8	111.6
Transportation services	321.1	337.0	333.2	334.1	334.5	335.3	337.0	337.4	337.1	341.1	344.7	346.1	349.0	351.0	352.4
Medical care services	410.3	435.1	428.1	429.4	430.9	433.0	435.8	438.6	440.5	443.0	445.8	448.0	451.9	456.2	460.1
Other services	296.0	314.1	308.6	309.9	310.7	312.0	313.0	313.8	319.7	321.4	322.5	322.9	324.8	326.1	326.6
Special indexes:															
All items less food	311.3	323.3	319.1	320.8	322.4	323.6	324.2	325.0	326.2	327.4	328.5	328.9	329.5	328.5	326.6
All items less shelter	295.1	303.9	301.5	302.8	303.4	304.3	304.4	304.6	305.7	306.3	307.2	307.9	308.8	307.4	305.2
All items less homeowners' costs	106.3	109.7	108.7	109.2	109.5	109.8	109.9	110.1	110.4	110.7	111.1	111.3	111.6	111.2	110.5
All items less medical care	307.3	317.7	314.5	315.8	317.0	317.9	318.4	318.9	319.9	320.8	321.9	322.6	323.4	322.2	320.5
Commodities less food	267.0	272.5	270.6	272.8	273.4	273.1	272.4	272.3	273.1	274.4	275.7	275.7	274.7	270.9	265.2
Nondurables less food	270.8	277.2	273.2	276.5	278.0	278.4	277.9	278.1	279.6	280.7	282.0	282.0	280.4	274.5	265.6
Nondurables less food and apparel	311.9	319.2	313.5	318.1	320.7	321.7	321.9	321.1	321.0	322.0	324.0	325.1	324.9	316.8	302.7
Nondurables	286.6	293.2	291.0	292.7	293.3	293.7	293.5	293.7	294.6	295.1	296.4	297.4	297.7	294.3	289.5
Services less rent of shelter	108.5	113.5	111.9	112.2	112.8	113.7	114.2	114.5	115.0	115.1	115.2	115.2	116.2	116.8	117.1
Services less medical care	355.6	373.3	366.9	368.1	370.9	373.3	375.2	376.7	378.3	379.3	380.1	380.8	382.7	384.0	385.4
Energy	423.6	426.5	416.6	424.4	431.7	436.8	437.1	433.8	432.6	427.1	425.1	426.5	424.7	408.9	381.3
All items less energy	302.9	314.8	312.0	312.7	313.3	313.9	314.5	315.6	316.8	318.4	319.8	320.5	321.8	322.3	323.3
All items less food and energy	301.2	314.4	310.8	311.8	312.8	313.4	314.1	315.3	316.9	318.9	320.4	320.7	321.6	322.3	323.6
Commodities less food and energy	253.1	259.7	259.3	260.0	259.6	259.0	258.2	258.8	260.2	262.0	262.7	262.2	261.8	261.6	262.0
Energy commodities	409.8	409.9	398.3	410.8	417.0	418.7	418.1	414.0	411.2	410.1	415.2	417.9	413.2	386.5	343.0
Services less energy	356.4	375.9	369.4	370.7	372.9	374.6	376.6	378.6	380.2	382.5	384.8	385.8	387.9	389.4	391.5
Purchasing power of the consumer dollar:															
1967=\$1.00	32.1	31.0	31.4	31.2	31.1	31.0	31.0	30.9	30.8	30.7	30.6	30.5	30.5	30.5	30.7
1957-59=\$1.00	27.6	26.7	27.0	26.9	26.8	26.7	26.6	26.6	26.5	26.4	26.3	26.3	26.2	26.3	26.4
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS:															
All items	307.6	318.5	315.3	316.7	317.8	318.7	319.1	319.6	320.5	321.3	322.6	323.4	324.3	323.2	321.4
All items (1957-59=100)	357.7	370.4	366.7	368.3	369.6	370.6	371.2	371.8	372.7	373.7	375.1	376.1	377.1	375.8	373.7
Food and beverages	295.2	301.8	301.6	301.4	300.8	301.2	301.4	301.6	301.8	302.2	303.4	305.4	307.7	307.5	307.6
Food	302.7	309.3	309.3	309.2	308.4	308.8	309.0	309.1	309.3	309.3	310.6	312.8	315.1	314.9	315.0
Food at home	291.2	295.3	296.9	296.1	294.6	294.5	294.6	294.0	293.7	295.2	297.0	299.9	300.9	300.1	299.7
Cereals and bakery products	303.7	315.4	312.7	313.1	314.1	315.7	315.7	316.8	317.6	317.3	318.2	320.4	320.4	320.9	321.1
Meats, poultry, fish, and eggs	266.0	262.7	265.6	262.9	259.2	259.3	259.7	259.0	259.9	260.4	265.4	269.2	270.7	267.7	267.2
Dairy products	252.2	256.9	257.8	257.2	257.3	256.7	256.6	256.3	256.8	255.9	255.9	255.7	256.0	256.0	255.5
Fruits and vegetables	312.5	320.3	326.8	328.1	324.8	323.5	323.9	320.6	313.6	311.2	309.4	319.3	329.7	316.0	314.6
Other foods at home	352.7	361.5	361.0	361.3	361.6	361.3	362.2	362.9	363.4	362.5	361.6	366.1	375.2	375.6	
Sugar and sweets	388.6	398.3	394.2	395.5	396.9	398.0	399.8	401.4	400.8	402.2	400.9	401.8	404.7	408.1	407.8
Fats and oils	287.5	293.9	294.3	293.7	293.6	295.6	297.3	296.5	294.1	290.6	291.8	289.6	291.6	290.8	289.7
Nonalcoholic beverages	444.4	453.2	455.5	455.6	455.4	453.0	449.8	451.2	454.1	455.6	453.1	450.4	461.0	485.5	487.4
Other prepared foods	286.4	295.7	293.7	294.2	294.9	295.0	296.1	297.3	297.7	298.3	298.3	298.7	299.4	300.9	300.7
Food away from home	336.7	349.7	345.8	347.1	348.4	350.1	350.4	351.5	353.0	353.4	354.4	355.2	356.2	357.3	358.6
Alcoholic beverages	225.3	232.6	229.9	229.9	230.8	231.0	231.0	232.2	232.6	239.1	238.8	239.1	240.1	240.9	241.4
Housing	329.2	343.3	338.2	339.5	342.1	344.0	345.0	346.2	347.2	347.5	348.3	349.1	350.1	349.7	350.1
Shelter	350.0	370.4	363.0	364.7	368.1	369.5	371.5	374.0	375.0	377.1	379.3	380.4	381.8	382.9	385.0
Renters' costs (12/84=100)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rent, residential	248.6	263.7	258.4	259.6	261.8	262.7	264.1	265.7	266.8	268.9	270.7	271.5	272.5	272.8	274.1
Other renters' costs	372.4	397.9	385.3	391.0	396.7	401.0	405.2	409.6	409.8	411.6	408.0	397.5	400.8	403.5	405.4
Homeowners' costs (12/84=100)	-	103.1	101.0	101.4	102.5	102.8	103.4	104.1	104.3	104.8	105.5	105.9	106.3	106.6	107.4
Owners' equivalent rent (12/84=100)	-	103.0	100.9	101.4	102.4	102.8	103.4	104.1	104.3	104.8	105.5	105.9	106.3	106.6	107.3
Household insurance (12/84=100)	-	103.2	101.4	102.4	102.8	103.4	103.5	103.7	104.3	105.2	105.2	105.7	106.3	107.8	108.2
Maintenance and repairs	356.3	364.1	364.3	363.1	361.8	362.9	363.4	365.6	364.4	364.6	367.7	368.5	373.2	374.0	364.7
Maintenance and repair services	403.5	415.0	414.8	411.7	410.1	417.0	415.3	419.6	416.8	417.4	420.9	421.0	426.2	426.5	416.6
Maintenance and repair commodities	257.2	261.1	261.6	261.6	260.7	258.4	260.0	260.6	260.5	260.5	262.7	264.2	267.2	268.1	261.1
Fuel and other utilities	388.6	394.7	389.2	389.7	393.8	400.9	401.2	400.1	401.9	396.3	393.2	394.3	395.6	390.9	386.3
Fuels	485.0	487.5	481.6	482.3	488.9	497.7	497.0	494.0	496.7	487.2	481.0	483.1	484.1	475.7	467.1
Fuel oil, coal, and bottled gas	644.3	622.0	623.1	625.9	623.2	614.3	604.2	596.9	604.3	618.1	644.3	659.9	652.7	593.6	552.8
Gas (piped) and electricity	444.1	451.6	444.4	444.6	453.0	465.1	466.3	464.2	465.9	452.0	439.5	438.8	441.4	443.2	441.2
Other utilities and public services	231.2	241.6	237.2	237.3	237.7	242.0	243.7	245.1	245.6	245.7	246.8	246.7	248.3	248.8	249.9
Household furnishings and operations	239.1	243.4	243.2	244.1	244.0	243.0	242.6	243.1	243.2	244.5					

30. Continued— Consumer Price Index for All Urban Consumers: U.S. city average, by expenditure category and commodity service group; and CPI for Urban Wage Earners and Clerical Workers, all items

(1967=100, unless otherwise indicated)

Series	Annual average		1985										1986		
	1984	1985	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Apparel commodities	186.6	191.3	190.9	191.5	190.7	190.0	187.8	190.4	195.1	196.6	196.5	194.1	189.4	188.2	190.4
Men's and boys' apparel	192.9	198.2	195.7	197.8	198.2	196.6	194.8	197.3	201.8	203.5	203.7	202.2	198.8	196.8	198.0
Women's and girls' apparel	165.0	171.3	171.5	172.0	169.7	168.4	165.5	169.9	178.2	180.0	178.3	174.5	166.1	165.2	169.0
Infants' and toddlers' apparel	297.6	311.7	314.5	306.4	310.6	313.5	306.4	311.2	314.9	314.8	320.7	317.3	332.7	328.6	329.6
Footwear	210.0	212.5	213.4	213.3	213.3	214.1	211.6	210.5	211.0	212.6	215.9	213.6	209.9	208.4	210.7
Other apparel commodities	204.5	203.1	204.2	203.3	202.7	204.0	204.5	205.2	202.5	202.4	202.5	202.4	203.5	204.2	203.5
Apparel services	302.9	318.5	314.7	316.1	317.0	317.6	319.0	320.5	321.6	323.2	323.6	324.4	327.2	328.1	329.0
Transportation	313.9	321.6	318.7	322.0	323.3	323.6	323.5	322.3	321.1	322.2	324.6	325.3	325.1	320.1	310.3
Private transportation	310.1	317.4	314.6	318.0	319.4	319.6	319.3	318.0	316.6	317.6	320.1	320.8	320.2	314.8	304.5
New vehicles	207.3	214.2	213.2	213.2	213.5	213.6	213.6	213.5	213.5	215.3	217.5	218.6	219.0	219.4	219.4
New cars	207.9	214.5	213.4	213.4	213.8	214.0	214.0	213.9	213.8	215.5	217.8	218.8	219.2	219.7	219.5
Used cars	375.7	379.7	386.2	386.4	384.2	380.3	376.7	374.0	374.3	375.3	376.4	375.6	374.1	370.7	367.2
Motor fuel	372.2	375.4	362.2	375.7	383.0	386.2	387.2	383.8	379.5	376.3	378.7	379.6	375.3	353.0	309.6
Gasoline	371.8	375.0	361.6	375.3	383.0	386.0	387.0	383.7	379.2	375.8	378.1	378.9	374.6	352.3	308.8
Maintenance and repair	342.2	352.6	349.6	349.3	350.6	351.5	352.2	352.9	354.5	356.9	357.2	359.0	359.4	360.4	360.9
Other private transportation	274.2	287.7	285.1	286.3	285.9	286.9	287.7	287.6	285.2	289.2	293.7	294.7	296.9	298.0	297.6
Other private transportation commodities	203.9	204.7	204.2	205.1	203.5	205.9	204.3	204.9	205.6	205.0	203.7	204.3	205.6	205.4	206.0
Other private transportation services	295.4	312.3	309.2	310.4	310.4	310.9	312.4	308.9	314.1	320.2	321.3	323.7	325.7	328.3	328.3
Public transportation	376.8	391.7	386.7	387.4	387.6	388.4	392.1	393.5	396.8	399.3	400.1	400.2	408.6	412.6	412.0
Medical care	377.7	401.2	394.6	396.1	397.7	399.8	402.0	404.5	406.3	408.5	410.9	412.6	416.0	420.0	423.5
Medical care commodities	239.7	256.3	251.5	253.5	254.8	256.7	257.4	259.0	259.8	260.9	262.2	262.3	264.1	267.0	268.8
Medical care services	407.9	432.7	425.7	427.1	428.7	430.7	433.3	436.1	438.1	440.6	443.2	445.4	449.2	453.5	457.3
Professional services	346.5	367.7	362.4	363.6	365.0	366.8	368.5	370.4	372.1	373.7	375.8	377.6	379.3	382.2	385.6
Other medical care services	484.7	513.9	505.0	506.6	508.2	510.5	514.4	518.4	520.7	524.4	527.5	530.4	536.9	543.0	547.3
Entertainment	251.2	260.1	257.3	258.6	258.9	260.1	260.9	260.8	261.6	263.0	263.7	263.0	265.4	266.5	266.5
Entertainment commodities	247.7	254.2	252.2	253.2	253.1	253.9	254.5	254.3	256.0	257.1	257.2	255.7	257.8	258.3	258.3
Entertainment services	258.5	271.6	267.4	269.2	270.0	272.0	273.2	273.3	272.6	274.6	276.3	276.8	280.0	282.0	282.1
Other goods and services	304.9	322.7	317.6	318.3	318.8	319.5	321.8	322.9	328.7	330.1	330.5	331.9	334.9	336.1	337.0
Tobacco products	309.7	328.1	323.4	323.6	323.6	324.4	329.7	331.1	332.4	334.0	334.3	337.1	342.4	344.4	345.2
Personal care	269.4	279.6	276.3	277.5	278.6	279.2	279.9	280.9	281.8	282.7	283.1	284.0	285.9	288.8	288.0
Toilet goods and personal care appliances	270.3	279.0	276.5	277.5	277.8	278.2	279.2	280.0	281.1	282.0	281.9	283.3	285.9	286.7	288.1
Personal care services	268.8	280.5	276.5	278.0	279.7	280.7	280.9	282.2	282.8	283.7	284.8	285.2	286.4	287.4	288.4
Personal and educational expenses	368.2	399.3	390.1	390.7	390.9	391.6	392.5	393.2	414.5	416.5	417.3	417.4	418.9	419.9	420.1
School books and supplies	327.5	355.7	348.8	349.4	349.5	349.9	350.6	351.2	366.9	369.2	369.3	369.4	375.6	378.4	379.0
Personal and educational services	378.2	410.1	400.3	401.0	401.2	401.9	402.9	403.6	426.1	428.1	428.9	429.1	429.7	430.3	430.5
All items	307.6	318.5	315.3	316.7	317.8	318.7	319.1	319.6	320.5	321.3	322.6	323.4	324.3	323.2	321.4
Commodities	280.4	286.5	285.2	286.7	286.8	286.8	286.4	286.3	287.6	288.9	289.7	289.7	289.8	287.0	283.1
Food and beverages	295.2	301.8	301.6	301.4	300.8	301.2	301.4	301.6	301.8	302.2	303.4	305.4	307.7	307.5	307.6
Commodities less food and beverages	269.3	-	273.6	276.3	277.5	277.7	-	-	-	-	-	-	-	-	-
Nondurables less food and beverages	277.5	283.8	279.4	283.2	284.9	285.4	285.0	285.1	286.5	287.0	288.5	288.7	286.9	280.1	269.6
Apparel commodities	186.6	191.3	190.9	191.5	190.7	190.0	187.8	190.4	195.1	196.6	196.5	194.1	189.4	188.2	190.4
Nondurables less food, beverages, and apparel	327.0	334.2	327.8	333.1	336.0	337.2	337.6	336.6	336.4	336.5	338.8	340.1	339.6	330.1	313.2
Durables	261.1	265.2	266.7	267.3	266.3	265.1	263.8	263.1	263.1	264.5	265.7	265.7	265.6	264.6	263.7
Services	358.0	377.3	371.0	372.2	374.9	377.4	379.2	380.7	382.0	383.0	384.2	385.1	387.2	388.8	390.5
Rent of shelter (12/84=100)	-	103.2	101.1	101.6	102.6	102.9	103.5	104.3	104.5	105.1	105.8	106.1	106.4	106.7	107.4
Household services less rent of shelter (12/84=100)	-	102.6	101.1	101.2	102.2	104.2	104.5	104.6	104.8	103.3	102.1	102.0	102.6	103.0	102.8
Transportation services	317.2	332.2	328.8	329.6	329.9	330.6	332.2	332.4	331.4	335.5	339.3	340.5	343.3	345.4	347.0
Medical care services	407.9	432.7	425.7	427.1	428.7	430.7	433.3	436.1	438.1	440.6	443.2	445.4	449.2	453.5	457.3
Other services	292.9	310.1	304.9	306.2	307.2	308.4	309.3	310.1	315.0	316.7	317.8	318.3	320.4	321.6	322.1
Special indexes:															
All items less food	307.5	319.4	315.4	317.2	318.7	319.8	320.3	320.9	321.9	322.9	324.2	324.6	325.1	323.8	321.5
All items less shelter	295.1	303.4	301.1	302.4	303.0	303.9	304.0	304.0	304.8	305.4	306.4	307.2	307.9	306.4	303.8
All items less homeowners' costs (12/84=100)	-	101.8	101.0	101.4	101.7	102.0	102.0	102.1	102.4	102.6	103.0	103.2	103.5	103.0	102.3
All items less medical care	304.0	314.3	311.3	312.6	313.7	314.6	314.9	315.3	316.1	316.9	318.1	318.9	319.6	318.3	316.2
Commodities less food	267.1	272.8	271.0	273.3	273.8	273.6	272.8	272.7	273.4	274.5	275.9	275.9	275.0	270.9	264.9
Nondurables less food	272.6	279.0	274.7	278.2	279.8	280.4	280.0	280.2	281.5	282.4	283.8	283.9	282.3	276.1	266.4
Nondurables less food and apparel	313.2	320.3	314.4	319.1	321.8	322.9	323.2	322.4	323.3	323.1	325.0	326.3	325.9	317.5	302.6
Nondurables	287.4	293.9	291.6	293.4	294.0	294.4	294.3	294.5	295.2	295.7	297.1	298.2	298.4	295.0	289.8
Services less rent of shelter (12/84=100)	-	102.6	101.2	101.4	101.9	102.8	103.3	103.5	103.8	103.9	103.9	104.2	104.9	105.5	105.7
Services less medical care	350.5	369.0	362.8	364.1	366.8	369.3	371.1	372.5	373.6	374.5	375.5	376.2	378.2	379.5	381.0
Energy	423.3	426.3	416.0	424.2	431.3	436.9	437.2	433.9	432.5	426.6	425.4	426.8	424.7	408.1	379.0
All items less energy	298.3	309.9	307.4	308.1	308.6	309.1	309.5	310.4	311.5	313.0	314.5	315.3	316.5	316.9	317.8
All items less food and energy	295.8	308.7	305.5	306.4	307.3	307.8	308.3	309.4	310.7	312.7	314.2	314.6	315.4	316.1	317.2
Commodities less food and energy	250.5	256.8	256.6	257.2	256.8	256.2	255.3	255.8	257.2	258.8	259.5	259.2	258.8	258.5	258.7
Energy commodities	410.5	410.9	399.0	411.6	418.0	419.9	419.6	415.7	412.6	411.2	416.3	418.9	414.1	387.3	343.3
Services less energy	350.8	371.1	364.9	366.2	368.4	369.9	371.9	373.7	374.9	377.3	379.8	380.8	382.9	384.5	386.5
Purchasing power of the consumer dollar:															

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

(1967=100, unless otherwise indicated)

Area ¹	Pricing schedule ²	Other index base	All Urban Consumers								Urban Wage Earners					
			1985				1986				1985				1986	
			Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.	
U.S. city average		-	318.8	320.1	326.6	327.4	328.4	327.5	326.0	315.3	316.7	322.6	323.4	324.3	323.2	321.4
Chicago, Ill.-Northwestern																
Ind.	M	-	317.4	319.1	324.2	325.9	326.3	326.4	323.9	304.7	306.2	310.9	312.6	312.9	312.8	309.7
Detroit, Mich.	M	-	315.5	315.8	323.1	323.1	323.1	322.9	320.0	306.0	306.3	313.2	313.1	313.4	312.3	309.3
Los Angeles-Long Beach, Anaheim, Calif.	M	-	314.7	315.9	325.0	326.1	326.8	326.6	328.2	309.8	311.2	319.1	320.1	320.9	320.4	321.6
New York, N.Y.-Northeastern N.J.	M	-	310.9	311.8	319.9	320.8	323.1	322.3	322.4	304.2	305.1	312.5	313.5	315.8	314.7	314.5
Philadelphia, Pa.-N.J.	M	-	310.4	312.4	318.8	319.7	320.3	320.1	319.1	313.5	315.3	321.5	322.5	323.0	322.8	321.4
Anchorage, Alaska (10/67 = 100)	1	10/67	280.0	-	286.9	-	287.1	-	291.2	273.1	-	280.1	-	280.2	-	284.4
Baltimore, Md.	1	-	320.7	-	327.3	-	332.0	-	331.1	320.2	-	326.3	-	331.1	-	329.5
Boston, Mass.	1	-	314.4	-	325.4	-	327.1	-	324.9	312.3	-	323.0	-	324.5	-	322.3
Cincinnati, Ohio-Ky.-Ind.	1	-	328.4	-	333.4	-	333.2	-	329.4	322.2	-	326.2	-	326.0	-	321.8
Denver-Boulder, Colo.	1	-	355.1	-	359.4	-	364.4	-	355.7	350.7	-	354.1	-	359.1	-	350.1
Miami, Fla. (11/77 = 100)	1	11/77	170.1	-	173.9	-	174.6	-	174.5	171.3	-	174.9	-	175.7	-	175.1
Milwaukee, Wis.	1	-	327.8	-	333.9	-	333.9	-	329.1	346.9	-	353.2	-	353.0	-	347.2
Northeast, Pa.	1	-	304.9	-	310.6	-	311.6	-	309.3	304.2	-	309.6	-	310.6	-	308.3
Portland, Oreg.-Wash.	1	-	309.0	-	317.1	-	321.3	-	315.0	299.8	-	307.3	-	311.0	-	304.3
St. Louis, Mo.-Ill.	1	-	314.3	-	321.6	-	322.4	-	319.2	311.0	-	318.5	-	319.1	-	315.0
San Diego, Calif.	1	-	369.2	-	379.0	-	381.9	-	379.2	333.7	-	341.9	-	344.7	-	341.9
Seattle-Everett, Wash.	1	-	321.4	-	324.0	-	327.0	-	325.0	309.0	-	310.8	-	313.5	-	311.4
Washington, D.C.-Md.-Va.	1	-	319.2	-	326.9	-	331.1	-	329.1	322.3	-	330.5	-	332.6	-	330.5
Atlanta, Ga.	2	-	-	324.6	-	335.3	-	336.9	-	-	322.3	-	332.6	-	334.3	-
Buffalo, N.Y.	2	-	-	305.4	-	309.8	-	310.1	-	-	291.9	-	295.9	-	295.8	-
Cleveland, Ohio	2	-	-	342.4	-	348.8	-	350.2	-	-	321.8	-	327.5	-	328.3	-
Dallas-Ft. Worth, Tex.	2	-	-	335.6	-	344.5	-	347.0	-	-	329.6	-	338.3	-	340.4	-
Honolulu, Hawaii	2	-	-	292.7	-	298.5	-	301.2	-	-	300.1	-	305.8	-	308.5	-
Houston, Tex.	2	-	-	335.3	-	336.8	-	337.2	-	-	332.8	-	334.1	-	334.3	-
Kansas City, Mo.-Kansas	2	-	-	319.8	-	321.8	-	321.1	-	-	309.7	-	311.7	-	310.1	-
Minneapolis-St. Paul, Minn.-Wis.	2	-	-	333.6	-	340.4	-	339.9	-	-	329.2	-	336.0	-	334.9	-
Pittsburgh, Pa.	2	-	-	324.3	-	331.5	-	330.1	-	-	306.8	-	312.8	-	311.4	-
San Francisco-Oakland, Calif.	2	-	-	330.4	-	336.4	-	341.1	-	-	326.1	-	331.3	-	336.0	-
Region ³																
Northeast	2	12/77	-	169.8	-	174.3	-	174.5	-	-	167.9	-	172.1	-	172.3	-
North Central	2	12/77	-	172.8	-	176.0	-	175.4	-	-	169.7	-	172.6	-	171.8	-
South	2	12/77	-	172.6	-	176.3	-	176.6	-	-	172.5	-	176.0	-	176.1	-
West	2	12/77	-	173.0	-	177.2	-	177.5	-	-	171.4	-	175.2	-	175.4	-
Population size class ³																
A-1	2	12/77	-	169.6	-	174.2	-	174.7	-	-	166.0	-	170.2	-	170.5	-
A-2	2	12/77	-	174.7	-	178.4	-	178.7	-	-	172.0	-	175.4	-	175.5	-
B	2	12/77	-	173.5	-	177.2	-	176.9	-	-	171.2	-	174.6	-	174.2	-
C	2	12/77	-	171.4	-	174.9	-	174.7	-	-	172.0	-	175.3	-	175.0	-
D	2	12/77	-	171.0	-	174.7	-	174.0	-	-	172.8	-	176.0	-	175.2	-
Region/population size class cross classification ³																
Class A:																
Northeast	2	12/77	-	166.7	-	171.2	-	171.8	-	-	163.5	-	167.7	-	168.1	-
North Central	2	12/77	-	175.9	-	179.4	-	179.2	-	-	171.1	-	174.5	-	174.0	-
South	2	12/77	-	172.4	-	176.5	-	177.3	-	-	172.6	-	176.5	-	177.0	-
West	2	11/77	-	174.6	-	179.3	-	179.8	-	-	170.9	-	175.0	-	175.5	-
Class B:																
Northeast	2	12/77	-	173.5	-	176.7	-	176.4	-	-	170.5	-	173.5	-	173.4	-
North Central	2	12/77	-	171.7	-	174.2	-	173.7	-	-	168.4	-	170.5	-	169.7	-
South	2	12/77	-	173.7	-	178.0	-	178.2	-	-	170.7	-	174.7	-	174.6	-
West	2	12/77	-	174.4	-	178.4	-	177.6	-	-	175.1	-	178.9	-	178.2	-

See footnotes at end of table.

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

(1967=100, unless otherwise indicated)

Area ¹	Pricing schedule ²	Other index base	All Urban Consumers						Urban Wage Earners							
			1985				1986		1985				1986			
			Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.	
Class C:																
Northeast	2	12/77	-	177.8	-	184.1	-	183.1	-	-	182.5	-	188.8	-	187.8	-
North Central	2	12/77	-	168.6	-	171.5	-	170.4	-	-	165.7	-	168.2	-	167.1	-
South	2	12/77	-	172.2	-	175.3	-	175.3	-	-	173.9	-	176.7	-	176.6	-
West	2	12/77	-	166.9	-	169.1	-	171.1	-	-	165.9	-	167.8	-	169.6	-
Class D:																
Northeast	2	12/77	-	174.2	-	178.1	-	178.9	-	-	174.2	-	177.7	-	178.6	-
North Central	2	12/77	-	169.1	-	172.6	-	170.7	-	-	171.4	-	174.2	-	172.4	-
South	2	12/77	-	171.6	-	174.5	-	174.7	-	-	173.7	-	176.1	-	176.0	-
West	2	12/77	-	170.8	-	176.2	-	174.8	-	-	172.4	-	177.7	-	176.3	-

¹ Area is generally the Standard Metropolitan Statistical Area (SMSA), exclusive of farms. L.A.-Long Beach, Anaheim, Calif. is a combination of two SMSA's, and N.Y., N.Y.-Northeastern N.J. and Chicago, Ill.-Northwestern Ind. are the more extensive Standard Consolidated Areas. Area definitions are those established by the Office of Management and Budget in 1973, except for Denver-Boulder, Colo. which does not include Douglas County. Definitions do not include revisions made since 1973.

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.

The population size classes are aggregations of areas which have urban population as defined:

A-1 - More than 4,000,000.

A-2 - 1,250,000 to 4,000,000.

B - 385,000 to 1,250,000

C - 75,000 to 385,000.

D - Less than 75,000.

Population size class A is the aggregation of population size classes A-1 and A-2.

- 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 all items and major groups

Series	1977	1978	1979	1980	1981	1982	1983	1984	1985
Consumer Price Index for All Urban Consumers:									
All items:									
Index	181.5	195.4	217.4	246.8	272.4	289.1	298.4	311.1	322.2
Percent change	6.5	7.7	11.3	13.5	10.4	6.1	3.2	4.3	3.6
Food and beverages:									
Index	188.0	206.3	228.5	248.0	267.3	278.2	284.4	295.1	302.0
Percent change	6.0	9.7	10.8	8.5	7.8	4.1	2.2	3.8	2.3
Housing:									
Index	186.5	202.8	227.6	263.3	293.5	314.7	323.1	336.5	349.9
Percent change	6.8	8.7	12.2	15.7	11.5	7.2	2.7	4.1	4.0
Apparel and upkeep:									
Index	154.2	159.6	166.6	178.4	186.9	191.8	196.5	200.2	206.0
Percent change	4.5	3.5	4.4	7.1	4.8	2.6	2.5	1.9	2.9
Transportation:									
Index	177.2	185.5	212.0	249.7	280.0	291.5	298.4	311.7	319.9
Percent change	7.1	4.7	14.3	17.8	12.1	4.1	2.4	4.5	2.6
Medical care:									
Index	202.4	219.4	239.7	265.9	294.5	328.7	357.3	379.5	403.1
Percent change	9.6	8.4	9.3	10.9	10.8	11.6	8.7	6.2	6.2
Entertainment:									
Index	167.7	176.6	188.5	205.3	221.4	235.8	246.0	255.1	265.0
Percent change	4.9	5.3	6.7	8.9	7.8	6.5	4.3	3.7	3.9
Other goods and services:									
Index	172.2	183.3	196.7	214.5	235.7	259.9	288.3	307.7	326.6
Percent change	5.8	6.4	7.3	9.0	9.9	10.3	10.9	6.7	6.1
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	181.5	195.3	217.7	247.0	272.3	288.6	297.4	307.6	318.5
Percent change	6.5	7.6	11.5	13.5	10.2	6.0	3.0	3.4	3.5

33. Producer Price Indexes, by stage of processing

(1967 = 100)

Grouping	Annual average		1985										1986		
	1984	1985	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	
Finished goods	291.1	293.8	293.1	294.1	294.0	294.8	293.5	290.0	294.7	296.4	297.2	296.2	292.3	288.1	
Finished consumer goods	290.3	291.9	291.2	292.4	292.2	293.1	291.4	288.2	292.3	294.4	295.4	294.1	288.9	283.5	
Finished consumer foods	273.3	271.2	272.2	269.5	268.7	271.2	268.7	265.7	268.2	271.8	274.4	274.9	272.3	272.2	
Finished consumer goods excluding foods	294.1	297.4	295.9	299.0	299.0	299.2	297.8	294.7	299.4	300.7	301.1	298.8	292.5	284.4	
Nondurable goods less food	337.3	339.4	337.4	342.4	342.1	342.4	340.0	340.3	340.3	342.6	343.7	340.3	329.3	315.0	
Durable goods	236.8	241.5	240.7	241.4	241.9	241.9	241.8	234.5	244.9	245.0	244.4	243.6	243.6	243.9	
Capital equipment	294.0	300.5	299.9	300.3	300.5	300.8	301.0	296.3	303.5	303.8	303.5	304.0	304.2	304.3	
Intermediate materials, supplies, and components	320.0	318.7	319.3	319.9	319.3	318.6	317.9	317.7	317.6	318.1	318.8	317.2	313.5	309.4	
Materials and components for manufacturing	301.8	299.4	300.6	300.5	300.3	299.8	299.1	298.4	298.0	297.7	297.6	297.0	296.5	296.4	
Materials for food manufacturing	271.1	258.7	263.9	261.9	262.0	260.3	253.0	249.9	252.3	254.0	253.0	252.4	248.9	246.3	
Materials for nondurable manufacturing	290.5	285.8	287.1	286.7	286.4	285.8	285.8	285.1	283.3	282.8	282.5	283.2	283.0	281.9	
Materials for durable manufacturing	325.1	320.2	322.1	323.0	322.3	320.9	320.3	319.2	318.6	317.5	317.6	313.9	313.0	313.6	
Components for manufacturing	287.5	291.5	291.1	291.1	291.3	291.6	291.9	292.1	292.3	292.3	292.4	292.9	293.3	294.2	
Materials and components for construction	310.3	315.2	314.0	315.9	317.3	316.9	316.5	315.6	315.5	315.0	315.4	316.3	316.6	316.8	
Processed fuels and lubricants	566.2	549.4	552.3	558.0	549.1	544.0	539.8	542.4	542.6	550.5	557.3	539.8	500.7	453.9	
Containers	302.3	311.2	312.4	311.7	312.0	311.4	310.3	309.9	310.4	309.8	310.7	310.7	310.6	311.2	
Supplies	283.4	284.2	283.7	283.4	283.3	283.6	284.1	284.5	285.1	285.6	285.9	286.7	286.3	286.7	
Crude materials for further processing	330.8	306.2	311.0	309.1	305.6	303.9	295.3	291.8	297.8	304.7	304.7	301.3	290.5	280.9	
Foodstuffs and feedstuffs	259.5	235.0	239.9	236.3	233.7	231.6	221.0	215.4	224.6	236.6	236.8	231.4	226.9	224.0	
Nonfood materials ¹	380.5	355.4	360.2	357.7	354.0	353.5	351.2	352.2	352.8	352.0	351.1	351.2	321.7	293.2	
Special groupings															
Finished goods, excluding foods	294.8	299.1	297.8	300.1	300.2	300.5	299.5	295.9	301.3	302.4	302.5	301.1	296.7	291.1	
Finished energy goods	750.3	721.4	714.9	746.1	741.4	733.8	719.9	718.2	716.5	729.5	736.1	704.8	636.8	551.1	
Finished goods less energy	265.1	269.2	268.8	268.4	268.4	269.7	269.0	265.5	270.5	271.6	272.1	272.7	272.2	272.3	
Finished consumer goods less energy	257.8	261.3	260.9	260.3	260.3	261.9	260.9	257.7	262.1	263.4	264.1	264.8	264.1	264.2	
Finished goods less food and energy	262.3	268.7	267.7	268.2	268.6	269.4	269.4	265.7	271.6	271.8	271.4	272.1	272.4	272.6	
Finished consumer goods less food and energy	245.9	252.1	251.1	251.5	252.0	252.9	252.9	249.6	254.9	255.0	254.7	255.5	255.9	256.1	
Consumer nondurable goods less food and energy	239.0	246.2	245.0	245.2	245.6	247.4	247.3	247.9	248.3	248.5	248.5	250.6	251.1	251.3	
Intermediate materials less foods and feeds	325.0	325.0	325.5	326.4	325.7	325.0	324.5	324.4	324.1	324.5	325.2	323.5	319.7	315.5	
Intermediate foods and feeds	253.1	232.7	235.4	232.6	232.2	231.7	227.1	225.4	228.6	231.4	231.7	232.4	228.6	227.6	
Intermediate energy goods	545.0	528.8	531.5	536.7	528.6	523.8	519.8	522.3	522.2	529.3	536.3	519.1	481.9	437.4	
Intermediate goods less energy	303.8	303.9	304.3	304.5	304.6	304.3	303.9	303.4	303.4	303.2	303.3	303.4	303.0	303.2	
Intermediate materials less foods and energy	303.6	305.2	305.6	305.9	306.0	305.6	305.5	305.0	304.6	304.2	304.2	304.2	304.2	304.4	
Crude energy materials	785.2	749.1	749.1	760.7	754.5	752.6	742.9	743.2	743.1	737.1	739.5	739.9	679.0	618.4	
Crude materials less energy	255.5	233.2	238.6	234.8	231.7	230.1	221.8	217.9	224.7	233.2	232.9	229.1	225.9	224.0	
Crude nonfood materials less energy	266.1	249.7	257.3	252.3	247.4	247.2	245.8	246.7	246.5	244.6	242.6	243.7	244.6	245.6	

¹ Crude nonfood materials except fuel.

34. Producer Price indexes, by durability of product

(1967 = 100)

Grouping	Annual average		1985									1986		
	1984	1985	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Total durable goods	293.6	297.3	297.1	297.6	297.8	297.8	297.8	295.2	298.8	298.5	298.5	298.2	298.3	298.7
Total nondurable goods	323.3	317.3	318.4	318.9	317.5	317.3	314.1	313.0	314.3	317.6	318.7	316.9	309.0	300.6
Total manufactures	302.9	304.3	304.2	305.2	304.8	304.6	303.8	302.2	304.4	305.4	305.7	304.7	301.0	297.3
Durable	293.9	298.1	297.6	298.4	298.7	298.7	298.6	296.0	299.7	299.5	299.5	299.1	299.2	299.5
Nondurable	312.3	310.5	310.8	312.1	311.0	310.6	309.0	308.4	309.2	311.4	312.0	310.3	302.7	294.7
Total raw or slightly processed goods	346.6	328.2	332.1	329.8	327.3	327.5	320.2	317.6	320.6	326.2	328.8	326.9	319.0	310.4
Durable	266.7	252.2	262.1	255.4	247.3	247.6	249.7	249.7	248.1	245.2	243.8	247.6	250.6	251.5
Nondurable	351.4	332.8	336.2	334.3	332.1	332.3	324.4	321.6	324.9	331.2	334.0	331.7	323.1	313.8

35. Annual data: Producer Price Indexes, by stage of processing

(1967 = 100)

Index	1977	1978	1979	1980	1981	1982	1983	1984	1985
Finished goods:									
Total	181.7	195.9	217.7	247.0	269.8	280.7	285.2	291.1	293.8
Consumer goods	180.7	194.9	217.9	248.9	271.3	281.0	284.6	290.3	291.9
Capital equipment	184.6	199.2	216.5	239.8	264.3	279.4	287.2	294.0	300.5
Intermediate materials, supplies, and components:									
Total	201.5	215.6	243.2	280.3	306.0	310.4	312.3	320.0	318.7
Materials and components for manufacturing	195.4	208.7	234.4	265.7	286.1	289.8	293.4	301.8	299.4
Materials and components for construction	203.4	224.7	247.4	268.3	287.6	293.7	301.8	310.3	315.2
Processed fuels and lubricants	282.5	295.3	364.8	503.0	595.4	591.7	564.8	566.2	549.4
Containers	188.3	202.8	226.8	254.5	276.1	285.6	286.6	302.3	311.2
Supplies	188.7	198.5	218.2	244.5	263.8	272.1	277.1	283.4	284.2
Crude materials for further processing:									
Total	209.2	234.4	274.3	304.6	329.0	319.5	323.6	330.8	306.2
Foodstuffs and feedstuffs	192.1	216.2	247.9	259.2	257.4	247.8	252.2	259.5	235.0
Nonfood materials except fuel	212.2	233.1	284.5	346.1	413.7	376.8	372.2	380.5	355.4
Fuel	372.1	426.8	507.6	615.0	751.2	886.1	931.5	931.3	912.3

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

(June 1977=100, unless otherwise indicated)

Category	1974 SITC	1983			1984				1985			
		June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
ALL COMMODITIES (9/83=100)		-	100.0	99.5	100.2	101.5	99.3	98.1	97.5	97.5	96.5	96.8
Food (3/83=100)	0	105.1	113.1	108.8	106.2	109.6	103.5	96.5	95.8	94.0	90.2	93.6
Meat (3/83=100)	01	100.5	100.8	101.2	108.9	108.7	105.6	104.4	103.9	104.7	106.1	112.3
Fish (3/83=100)	03	96.5	97.7	100.4	99.8	98.7	98.0	98.7	101.0	103.6	102.6	101.8
Grain and grain preparations (3/80=100)	04	103.5	111.5	105.6	102.7	107.4	101.2	92.9	92.4	90.3	82.6	87.1
Vegetables and fruit (3/83=100)	05	105.8	114.8	116.1	116.2	126.8	125.5	114.6	119.4	120.1	126.8	118.8
Feedstuffs for animals (3/83=100)	08	100.6	121.4	117.4	106.9	98.8	83.5	82.4	72.8	68.6	75.7	83.4
Misc. food products (3/83=100)	09	101.1	102.8	101.7	104.9	110.6	109.5	108.4	110.6	109.2	108.1	107.7
Beverages and tobacco (6/83=100)	1	100.0	100.0	101.5	101.6	101.9	102.8	101.3	99.9	100.1	99.7	98.6
Beverages (9/83=100)	11	-	100.0	103.3	102.3	102.9	103.3	103.7	104.0	105.3	101.8	100.9
Tobacco and tobacco products (6/83=100)	12	100.0	100.0	101.4	101.6	101.8	102.7	101.1	99.5	99.6	99.5	98.4
Crude materials (6/83=100)	2	100.0	114.6	112.2	112.5	118.3	105.2	101.4	97.5	96.8	93.3	93.2
Raw hides and skins (6/80=100)	21	118.2	129.2	135.2	145.6	154.7	153.7	133.6	121.0	126.2	129.0	139.9
Oilseeds and oleaginous fruit (9/77=100)	22	75.0	105.6	96.8	93.9	104.3	79.9	74.8	71.0	71.2	64.2	63.9
Crude rubber (including synthetic and reclaimed) (9/83=100)	23	-	100.0	102.2	103.3	106.0	104.1	104.0	106.4	106.3	107.1	106.0
Wood	24	127.1	128.7	129.8	131.1	129.4	123.8	125.4	128.7	125.7	124.5	128.1
Pulp and waste paper (6/83=100)	25	100.0	103.5	106.0	112.5	122.1	120.8	114.2	100.5	96.1	93.8	92.7
Textile fibers	26	111.3	117.3	123.1	120.5	125.6	109.4	106.7	102.4	105.8	103.6	102.6
Crude fertilizers and minerals	27	145.0	144.8	144.8	146.6	147.7	163.0	163.2	165.6	167.9	169.4	165.5
Metaliferous ores and metal scrap	28	-	100.0	96.7	100.2	98.5	93.2	92.4	89.2	82.0	80.1	78.0
Mineral fuels	3	-	100.0	99.2	99.1	99.7	99.7	99.7	100.1	99.2	97.6	96.6
Animal and vegetable oils, fats, and waxes	4	100.0	125.6	122.0	129.8	164.5	145.7	147.9	142.0	144.5	114.5	101.4
Fixed vegetable oils and fats (6/83=100)	42	100.0	138.2	129.3	133.2	176.4	159.0	156.7	152.9	164.8	128.8	108.7
Chemicals (3/83=100)	5	96.4	97.0	98.6	101.4	99.7	98.3	97.7	97.0	96.8	97.1	96.6
Organic chemicals (12/83=100)	51	-	-	100.0	100.2	101.0	97.4	94.7	93.8	96.5	97.1	95.4
Fertilizers, manufactured (3/83=100)	56	88.9	89.8	96.8	108.3	96.9	97.4	94.8	92.5	87.9	89.8	90.0
Intermediate manufactured products (9/81=100)	-	100.4	100.8	100.0	101.0	101.3	102.0	100.4	99.4	99.2	99.2	99.2
Leather and furskins (9/79=100)	6	67.2	70.1	75.8	83.5	81.2	80.8	79.0	82.5	79.2	75.9	78.5
Rubber manufactures	61	144.8	145.0	145.0	146.7	147.5	148.9	148.5	150.2	149.0	148.3	148.7
Paper and paperboard products (6/78=100)	62	135.8	139.7	145.5	150.2	154.7	160.0	159.5	155.0	151.6	149.6	148.1
Iron and steel (3/82=100)	64	95.9	96.6	96.3	95.9	96.1	96.8	96.5	95.5	95.3	95.9	98.3
Nonferrous metals (9/81=100)	-	102.8	102.3	93.8	94.2	92.9	90.4	82.5	79.7	79.6	79.8	78.2
Metal manufactures, n.e.s. (3/82=100)	-	101.5	101.9	102.1	103.1	104.5	105.1	105.0	105.4	105.2	105.4	104.4
Machinery and transport equipment, excluding military and commercial aircraft (12/78=100)	67	135.3	135.9	137.0	138.5	139.4	140.1	141.5	142.3	143.0	143.1	143.3
Power generating machinery and equipment (12/78=100)	68	152.5	152.3	154.4	158.4	156.9	160.6	167.5	165.3	167.4	167.1	167.6
Machinery specialized for particular industries (9/78=100)	69	148.9	149.1	151.1	152.3	152.8	153.7	153.4	155.0	155.7	156.0	156.1
Metalworking machinery (6/78=100)	7	148.4	148.3	148.7	150.8	151.2	151.7	151.9	153.4	155.1	156.3	158.4
General industrial machines and parts n.e.s. 9/78=100)	71	145.0	145.4	145.9	148.6	149.0	149.3	150.2	152.4	152.0	152.4	152.2
Office machines and automatic data processing equipment	72	103.6	103.2	102.5	101.4	101.5	99.8	101.4	100.9	100.0	99.9	99.4
Telecommunications, sound recording and reproducing equipment	73	131.1	132.2	132.1	133.0	132.3	134.4	134.3	133.3	133.3	134.1	134.5
Electrical machinery and equipment	74	108.5	109.4	109.8	110.2	112.6	113.8	114.6	114.9	116.1	115.3	113.8
Road vehicles and parts (3/80=100)	75	125.6	127.5	128.8	130.2	131.2	131.0	131.8	133.1	133.9	133.8	135.0
Other transport equipment, excl. military and commercial aviation	76	175.8	176.4	179.3	183.1	187.7	189.6	191.7	195.5	196.9	199.6	201.0
Other manufactured articles	77	-	100.0	100.2	100.6	100.4	100.7	99.3	99.5	100.4	100.3	100.3
Apparel (9/83=100)	78	-	100.0	100.8	101.9	102.1	103.9	103.4	104.7	104.7	105.0	105.3
Professional, scientific, and controlling instruments and apparatus	79	169.8	169.0	171.5	171.8	172.0	175.8	171.7	175.5	178.3	178.7	178.8
Photographic apparatus and supplies, optical goods, watches and clocks (12/77=100)	8	129.8	130.0	132.0	132.0	131.3	132.7	130.3	128.0	129.1	127.5	128.5
Miscellaneous manufactured articles, n.e.s.	84	100.0	100.0	98.2	98.5	97.9	95.2	94.1	92.4	93.1	93.1	92.4
Gold, non-monetary (6/83=100)	971	-	-	-	-	-	-	-	-	-	-	-

- Data not available.

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

(June 1977 = 100, unless otherwise indicated)

Category	1974 SITC	1983	1984				1985			
		Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
ALL COMMODITIES (9/82=100)		97.3	98.0	98.3	96.7	95.7	93.5	93.0	92.9	94.6
Food (9/77=100)	0	100.4	102.5	103.5	102.0	98.1	98.5	96.8	94.9	102.8
Meat	01	134.1	133.4	133.8	135.4	132.3	130.4	118.2	120.6	131.2
Dairy products and eggs (6/81=100)	02	99.6	100.8	99.8	98.9	98.4	98.3	97.9	99.1	100.5
Fish	03	136.0	132.7	134.2	134.2	133.9	132.9	129.4	129.7	132.7
Bakery goods, pasta products, grain and grain preparations (9/77=100)	04	132.7	136.5	134.8	132.9	132.8	131.8	132.3	136.3	141.9
Fruits and vegetables	05	125.0	136.1	135.8	135.4	117.2	127.1	129.4	120.2	131.2
Sugar, sugar preparations, and honey (3/82=100)	06	117.9	117.1	120.3	119.0	118.5	118.4	122.6	123.1	111.9
Coffee, tea, cocoa	07	59.6	61.4	62.4	60.3	58.4	57.0	56.0	54.4	64.6
Beverages and tobacco	1	155.4	155.3	156.3	157.1	156.5	156.2	157.1	158.0	161.6
Beverages	11	152.7	152.6	153.6	153.5	152.8	154.2	154.3	156.0	159.1
Crude materials	2	98.6	103.2	102.6	100.6	98.9	94.0	93.6	91.5	91.2
Crude rubber (inc. synthetic & reclaimed) (3/84=100)	23	-	100.0	93.7	90.7	83.8	77.6	76.4	68.9	73.2
Wood (9/81=100)	24	107.2	114.8	103.2	99.6	104.0	100.7	106.9	101.6	99.4
Pulp and waste paper (12/81=100)	25	80.9	87.6	96.1	96.3	93.2	84.0	80.4	76.8	75.8
Crude fertilizers and crude minerals (12/83=100)	27	100.0	100.0	96.2	98.0	98.6	100.3	101.7	102.7	102.1
Metalliferous ores and metal scrap (3/84=100)	28	-	100.0	102.8	100.1	95.6	90.4	87.6	89.5	90.1
Crude vegetable and animal materials, n.e.s.	29	-	100.0	100.8	101.1	106.4	104.3	104.9	102.5	102.5
Fuels and related products (6/82=100)	3	87.6	88.3	88.0	86.9	85.2	82.9	80.9	79.8	80.1
Petroleum and petroleum products (6/82=100)	33	87.6	88.2	88.1	87.0	85.2	83.8	81.6	80.3	81.1
Fats and oils (9/83=100)	4	100.4	117.4	141.8	124.4	114.9	89.9	76.7	57.6	50.6
Vegetable oils (9/83=100)	42	100.5	118.1	143.1	125.3	115.3	89.5	75.9	56.2	48.9
Chemicals (9/82=100)	5	99.5	101.1	100.6	98.8	97.1	95.7	94.9	94.5	94.2
Medicinal and pharmaceutical products (3/84=100)	54	-	100.0	98.5	96.4	94.6	91.6	95.1	95.3	96.7
Manufactured fertilizers (3/84=100)	56	-	100.0	101.7	98.5	92.9	94.2	82.0	80.8	78.5
Chemical materials and products, n.e.s. (9/84=100)	59	-	-	-	100.0	97.5	96.1	95.6	96.9	97.8
Intermediate manufactured products (12/77=100)	6	137.3	137.6	139.6	137.2	136.8	133.1	132.4	133.6	133.4
Leather and furskins	61	137.6	141.6	145.3	144.0	140.4	135.3	133.3	137.0	141.3
Rubber manufactures, n.e.s.	62	141.1	141.8	140.8	139.6	140.5	139.5	138.6	137.3	138.1
Cork and wood manufactures	63	134.7	130.1	131.0	126.4	126.1	121.3	121.2	123.4	124.0
Paper and paperboard products	64	147.0	148.0	150.4	156.1	157.5	157.6	157.2	157.8	156.5
Textiles	65	128.5	130.8	130.1	131.6	132.9	130.4	127.5	126.5	128.1
Nonmetallic mineral manufactures, n.e.s.	66	166.4	168.4	166.6	166.6	159.4	154.3	151.8	157.6	162.3
Iron and steel (9/78=100)	67	119.5	118.5	123.8	124.7	123.7	121.0	120.1	119.1	118.3
Nonferrous metals (12/81=100)	68	94.8	95.0	96.3	90.2	87.3	81.9	82.3	83.7	80.4
Metal manufactures, n.e.s.	69	118.9	119.7	120.5	119.3	119.3	117.4	117.8	119.5	121.6
Machinery and transport equipment (6/81=100)	7	104.1	104.0	104.1	102.6	102.9	101.6	102.6	103.5	107.2
Machinery specialized for particular industries (9/78=100)	72	100.8	100.4	100.0	98.8	98.0	96.2	97.0	101.4	104.7
Metalworking machinery (3/80=100)	73	95.7	94.3	93.8	92.1	89.9	86.3	90.5	94.2	98.1
General industrial machinery and parts, n.e.s. (6/81=100)	74	93.5	93.7	94.4	92.4	91.3	89.2	91.1	94.3	98.0
Office machines and automatic data processing equipment (3/80=100)	75	96.9	97.8	96.7	94.1	92.2	89.6	89.4	90.3	93.7
Telecommunications, sound recording and reproducing apparatus (3/80=100)	76	94.9	94.2	94.8	93.6	91.3	90.0	88.8	88.3	88.6
Electrical machinery and equipment (12/81=100)	77	95.9	94.2	91.2	87.0	86.4	82.1	83.9	81.4	83.3
Road vehicles and parts (6/81=100)	78	109.5	109.0	110.4	109.8	111.3	111.5	112.1	112.7	117.8
Misc. manufactured articles (3/80=100)	8	100.0	100.6	101.5	99.7	100.0	97.0	98.0	99.6	100.8
Plumbing, heating, and lighting fixtures (6/80=100)	81	108.2	109.5	112.0	110.7	111.6	113.9	114.1	117.8	115.0
Furniture and parts (6/80=100)	82	136.0	136.8	140.8	138.4	142.5	137.4	136.7	142.1	142.7
Clothing (9/77=100)	84	128.5	130.2	132.5	135.4	138.5	136.7	133.9	134.5	134.5
Footwear	85	136.0	136.8	140.8	138.4	142.5	137.4	136.7	142.1	142.7
Professional, scientific, and controlling instruments and apparatus (12/79=100)	87	97.6	98.7	97.8	95.6	92.9	89.2	92.3	98.8	102.4
Photographic apparatus and supplies, optical goods, watches, and clocks (3/80=100)	88	90.6	89.6	92.8	91.2	91.3	88.9	89.5	91.1	94.9
Misc. manufactured articles, n.e.s. (6/82=100)	89	104.9	105.2	104.0	98.3	96.3	91.2	95.2	96.4	97.9
Gold, non-monetary (6/82=100)	971	-	-	-	-	-	-	-	-	-

- Data not available.

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

(September 1983 = 100 unless otherwise indicated)

Category	Per-centage of 1980 trade value	1983	1984				1985			
		Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Foods, feeds, and beverages	16.294	95.0	92.8	98.5	88.8	83.0	81.5	80.9	76.2	77.5
Raw materials	30.696	100.7	102.2	102.5	100.5	99.1	97.6	97.2	96.5	96.2
Raw materials, nondurable	21.327	101.9	103.6	104.4	102.8	101.4	99.6	99.5	98.7	98.3
Raw materials, durable	9.368	97.7	98.8	97.7	95.0	93.3	92.6	91.6	91.1	91.0
Capital goods (12/82=100)	30.186	102.0	103.2	103.9	104.6	105.6	106.2	106.6	106.6	106.6
Automotive vehicles, parts and engines (12/82=100)	7.483	103.9	104.5	105.3	105.3	105.7	106.7	108.0	108.1	109.2
Consumer goods	7.467	99.6	100.9	100.9	101.3	100.8	100.9	101.1	101.9	101.7
Durables	3.965	98.9	100.1	99.6	99.4	99.3	99.1	99.2	100.4	100.0
Nondurables	3.501	100.3	101.8	102.1	103.0	102.3	102.7	103.0	103.3	103.3

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

(December 1982=100)

Category	Per-centage of 1980 trade value	1983	1984				1985			
		Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Foods, feeds, and beverages	7.477	104.0	106.0	107.2	105.6	101.8	102.1	100.4	99.0	106.0
Petroleum and petroleum products, excl. natural gas	31.108	88.1	88.8	88.5	87.5	85.7	84.4	82.1	80.9	81.5
Raw materials, excluding petroleum	19.205	101.8	103.5	104.3	102.5	101.1	96.3	95.8	95.4	93.9
Raw materials, nondurable	9.391	99.0	100.7	102.1	101.7	100.7	95.0	93.9	93.5	91.8
Raw materials, durable	9.814	104.7	106.5	106.7	103.3	101.6	97.7	97.8	97.4	96.2
Capital goods	13.164	101.3	100.8	99.8	98.0	97.8	94.8	96.3	97.6	100.0
Automotive vehicles, parts and engines	11.750	103.8	103.6	104.9	104.0	105.2	105.4	105.9	106.4	111.4
Consumer goods	14.250	100.4	101.0	101.9	100.6	101.1	99.5	99.4	101.0	102.5
Durable	5.507	101.1	101.1	101.4	98.8	98.5	97.0	97.0	98.9	100.8
Nondurable	8.743	99.5	100.9	102.5	103.0	104.6	103.0	102.5	103.9	104.7

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

Industry group	1983	1984				1985			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Manufacturing:									
Food and kindred products (6/83=100)	108.3	109.0	112.7	105.6	103.3	99.5	99.5	96.7	98.1
Tobacco manufactures	-	-	-	-	-	-	-	-	-
Textile mill products	-	-	-	-	-	-	-	-	-
Apparel and related products	-	-	-	-	-	-	-	-	-
Lumber and wood products, except furniture (6/83=100)	101.0	101.5	100.1	97.0	97.9	99.9	99.5	98.3	101.2
Furniture and fixtures (9/83=100)	100.9	101.8	103.1	103.5	104.9	105.2	106.5	107.1	108.4
Paper and allied products (3/81=100)	94.7	98.6	104.3	106.2	103.6	97.1	94.7	93.2	92.1
Printing, publishing, and allied products	-	-	-	-	-	-	-	-	-
Chemicals and allied products (12/84=100)	101.4	103.3	102.3	101.3	100.7	100.3	99.6	99.7	99.2
Petroleum and coal products (12/83=100)	100.0	101.6	102.1	100.7	100.4	101.3	102.7	102.0	99.1
Rubber and miscellaneous plastic products	-	-	-	-	-	-	-	-	-
Leather and leather products	-	-	-	-	-	-	-	-	-
Stone, clay, glass, and concrete products	-	-	-	-	-	-	-	-	-
Primary metal products (3/82=100)	105.0	105.1	104.0	100.0	95.8	91.2	92.7	93.6	93.6
Fabricated metal products	-	-	-	-	-	-	-	-	-
Machinery, except electrical (9/78=100)	135.8	137.4	137.9	138.0	139.9	140.4	140.5	140.6	140.5
Electrical machinery (12/80=100)	107.6	108.0	109.5	110.7	111.1	111.3	112.4	111.9	111.2
Transportation equipment (12/78=100)	153.6	155.7	157.2	157.8	158.9	160.5	162.0	162.8	164.4
Scientific instruments; optical goods; clocks (6/77=100)	152.8	153.1	153.2	156.0	153.0	154.9	156.6	156.2	156.7
Miscellaneous manufactured commodities	-	-	-	-	-	-	-	-	-

¹ SIC - based classification.

- Data not available.

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

Industry group	1983	1984				1985			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Manufacturing:									
Food and kindred products (6/77=100)	120.8	122.3	126.6	124.1	122.6	118.8	115.0	114.2	115.1
Tobacco manufactures	-	-	-	-	-	-	-	-	-
Textile mill products (9/82=100)	103.3	104.4	103.8	104.3	104.7	102.8	101.0	100.4	101.8
Apparel and related products (6/77=100)	126.5	128.1	129.6	133.9	138.2	135.6	133.0	133.9	134.4
Lumber and wood products, except furniture (6/77=100)	125.0	129.4	121.1	117.3	120.0	116.3	120.6	117.5	115.8
Furniture and fixtures (6/80=100)	95.5	95.7	96.9	96.2	95.6	93.9	96.1	97.7	98.2
Paper and allied products (6/77=100)	132.9	136.5	141.9	146.0	145.5	141.5	139.8	138.7	137.4
Printing, publishing, and allied products	-	-	-	-	-	-	-	-	-
Chemicals and allied products (9/82=100)	99.5	101.8	101.8	99.8	98.2	95.3	93.9	93.3	95.8
Petroleum and coal products	-	-	-	-	-	-	-	-	-
Rubber and miscellaneous plastic products (12/80=100)	97.4	98.1	98.5	97.8	98.0	96.9	96.7	96.6	97.5
Leather and leather products	139.1	140.3	143.7	141.6	144.2	139.1	138.9	142.3	144.0
Stone, clay, glass, concrete products	-	-	-	-	-	-	-	-	-
Primary metal products (6/81=100)	90.5	90.1	91.9	88.3	86.6	82.2	83.0	83.4	81.9
Fabricated metal products (12/84=100)	-	-	-	-	100.0	99.0	99.1	101.0	102.6
Machinery, except electrical (3/80=100)	98.0	97.8	97.1	95.5	94.1	91.8	93.4	96.6	100.0
Electrical machinery (9/84=100)	-	-	-	100.0	98.6	95.1	95.8	94.5	95.9
Transportation equipment (6/81=100)	110.3	110.6	111.6	110.7	112.9	113.1	114.2	114.8	119.6
Scientific instruments; optical goods; clocks (12/79=100)	94.3	94.0	95.5	94.4	93.2	90.7	91.7	94.6	99.0
Miscellaneous manufactured commodities (9/82=100)	99.7	99.8	99.1	95.8	96.4	95.1	95.1	96.6	98.7

¹ SIC - based classification.

- Data not available.

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

(1977=100)

Item	Annual average	Quarterly Indexes											
	1984	1983			1984				1985				
		II	III	IV	I	II	III	IV	I	II	III	IV	
Business:													
Output per hour of all persons	105.2	103.5	103.5	103.6	104.9	105.5	105.3	105.0	105.3	105.5	105.9	105.9	104.9
Compensation per hour	168.2	161.5	162.1	164.1	166.1	167.5	169.1	170.4	172.4	174.3	176.1	177.6	177.6
Real compensation per hour	98.2	98.7	98.1	98.3	98.3	98.2	98.2	98.1	98.5	98.5	98.9	98.7	98.7
Unit labor costs	159.9	156.0	156.6	158.4	158.4	158.7	160.6	162.3	163.8	165.2	166.3	169.3	169.3
Unit nonlabor payments	156.5	144.9	146.8	148.6	153.4	156.8	157.3	158.0	157.6	158.2	158.6	156.2	156.2
Implicit price deflator	158.7	152.0	153.1	154.9	156.6	158.0	159.4	160.8	161.6	162.7	163.5	164.6	164.6
Nonfarm business:													
Output per hour of all persons	104.1	102.8	103.3	103.0	104.0	104.5	104.2	103.8	104.1	104.2	104.3	103.2	103.2
Compensation per hour	168.0	161.6	162.3	164.0	165.9	167.4	168.8	170.1	172.1	173.7	175.0	176.4	176.4
Real compensation per hour	98.0	98.8	98.2	98.2	98.1	98.1	98.0	97.9	98.3	98.2	98.3	98.0	98.0
Unit labor costs	161.4	157.2	157.1	159.1	159.6	160.1	162.0	163.9	165.3	166.8	167.8	170.9	170.9
Unit nonlabor payments	156.3	146.9	148.9	150.7	152.5	156.3	157.6	158.4	158.8	160.2	161.4	157.7	157.7
Implicit price deflator	159.6	153.6	154.2	156.1	157.1	158.8	160.5	161.9	163.0	164.5	165.5	166.3	166.3
Nonfinancial corporations:													
Output per hour of all employees	106.2	103.7	104.6	105.0	106.2	106.7	106.1	105.8	105.8	105.8	106.5	105.9	105.9
Compensation per hour	166.1	160.1	160.8	162.4	164.2	165.6	166.8	167.9	169.4	170.8	172.0	173.3	173.3
Real compensation per hour	96.9	97.9	97.3	97.3	97.1	97.1	96.9	96.7	96.7	96.6	96.6	96.3	96.3
Total unit costs	161.2	160.1	159.6	159.5	159.1	159.9	162.2	163.6	164.4	165.8	165.5	167.2	167.2
Unit labor costs	156.4	154.4	153.8	154.8	154.7	155.1	157.2	158.7	160.0	161.5	161.5	163.7	163.7
Unit nonlabor costs	175.3	176.9	176.7	173.7	172.3	174.0	177.0	177.9	177.6	178.6	177.2	177.8	177.8
Unit profits	135.6	103.1	114.4	124.0	132.9	139.1	134.3	135.9	138.3	139.1	150.2	143.1	143.1
Unit nonlabor payments	161.4	151.0	154.9	156.3	158.5	161.8	162.1	163.2	163.8	164.8	167.7	165.7	165.7
Implicit price deflator	158.1	153.2	154.2	155.3	156.0	157.4	158.9	160.3	161.3	162.6	163.6	164.4	164.4
Manufacturing:													
Output per hour of all persons	118.5	111.9	114.5	114.7	116.7	117.8	119.8	119.5	119.9	121.7	122.7	122.3	122.3
Compensation per hour	169.1	162.6	163.3	164.4	166.7	168.1	169.9	171.8	174.3	176.1	177.3	178.8	178.8
Real compensation per hour	98.7	99.4	98.8	98.5	98.6	98.6	98.7	98.9	99.5	99.5	99.6	99.4	99.4
Unit labor costs	142.8	145.4	142.6	143.4	142.8	142.7	141.9	143.7	145.4	144.7	144.5	146.2	146.2

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

(1977=100)

Item	1960	1970	1973	1974	1976	1977	1979	1980	1981	1982	1983	1984
Private business												
Productivity:												
Output per hour of all persons	64.8	86.1	94.8	92.5	97.6	100.0	99.3	98.7	100.6	100.8	103.7	107.1
Output per unit of capital services	98.4	98.5	103.0	96.5	96.1	100.0	100.3	95.6	94.1	89.5	92.3	97.4
Multifactor productivity	75.4	90.2	97.5	93.8	97.1	100.0	99.7	97.6	98.3	96.8	99.6	103.7
Output	53.3	78.3	91.8	89.9	93.7	100.0	107.9	106.4	109.2	106.3	111.1	121.0
Inputs:												
Hours of all persons	82.2	90.8	96.8	97.2	95.9	100.0	108.6	107.8	108.5	105.4	107.2	113.0
Capital services	54.1	79.4	89.1	93.1	97.5	100.0	107.5	111.4	116.0	118.8	120.4	124.3
Combined units of labor and capital input	70.7	86.7	94.1	95.8	96.5	100.0	108.2	109.0	111.0	109.9	111.6	116.8
Capital per hour of all persons	65.9	87.4	92.0	95.9	101.6	100.0	98.9	103.3	106.9	112.7	112.3	109.9
Private nonfarm business												
Productivity:												
Output per hour of all persons	68.0	86.8	95.3	92.9	97.8	100.0	99.0	98.2	99.6	99.9	103.5	106.3
Output per unit of capital services	98.4	98.6	103.2	96.5	96.1	100.0	100.1	95.2	93.2	88.7	91.9	96.6
Multifactor productivity	77.6	90.7	97.9	94.1	97.2	100.0	99.4	97.2	97.4	95.9	99.4	102.9
Output	52.3	77.8	91.7	89.7	93.6	100.0	108.0	106.4	108.7	105.9	111.3	121.0
Inputs:												
Hours of all persons	77.0	89.7	96.2	96.5	95.7	100.0	109.1	108.4	109.1	106.0	107.6	113.8
Capital services	53.2	78.9	88.8	93.0	97.4	100.0	107.9	111.7	116.6	119.4	121.1	125.2
Combined units of labor and capital input	67.4	85.9	93.6	95.3	96.3	100.0	108.7	109.5	111.6	110.4	112.0	117.5
Capital per hour of all persons	69.1	88.0	92.4	96.3	101.8	100.0	98.9	103.1	106.8	112.6	112.6	110.1
Manufacturing												
Productivity:												
Output per hour of all persons	60.0	79.2	93.0	90.8	97.6	100.0	101.6	101.7	104.9	107.1	111.6	115.6
Output per unit of capital services	87.9	91.8	108.2	99.6	96.1	100.0	99.5	90.7	89.9	82.9	87.6	96.0
Multifactor productivity	67.0	82.3	96.8	93.1	97.1	100.0	101.0	98.8	100.8	100.3	104.9	110.4
Output	50.7	77.0	95.9	91.9	93.6	100.0	108.2	103.5	106.1	99.3	104.4	115.3
Inputs:												
Hours of all persons	84.4	97.3	103.1	101.2	95.9	100.0	106.5	101.7	101.1	92.7	93.5	99.8
Capital services	57.6	83.9	88.6	92.2	97.4	100.0	108.8	114.1	118.0	119.8	119.2	120.2
Combined units of labor and capital inputs	75.6	93.5	99.0	98.7	96.3	100.0	107.1	104.8	105.2	99.0	99.5	104.5
Capital per hour of all persons	68.3	86.2	85.9	91.1	101.6	100.0	102.1	112.2	116.7	129.2	127.5	120.4

44. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

(1977=100)

Item	1960	1970	1973	1974	1976	1977	1979	1980	1981	1982	1983	1984	1985
Business:													
Output per hour of all persons	67.5	88.3	95.9	93.9	98.3	100.0	99.6	99.2	100.7	100.3	103.2	105.2	105.3
Compensation per hour	33.6	57.7	70.9	77.6	92.8	100.0	119.1	131.5	143.7	154.9	161.9	168.2	175.0
Real compensation per hour	68.8	90.1	96.7	95.4	98.7	100.0	99.4	96.7	95.7	97.3	98.5	98.2	98.6
Unit labor costs	49.8	65.4	73.9	82.7	94.3	100.0	119.6	132.6	142.7	154.5	157.0	159.9	166.2
Unit nonlabor payments	46.3	59.4	72.5	76.4	93.4	100.0	112.5	118.8	134.7	136.8	145.4	156.5	157.7
Implicit price deflator	48.5	63.2	73.4	80.5	94.0	100.0	117.0	127.6	139.8	148.1	152.8	158.7	163.1
Nonfarm business:													
Output per hour of all persons	70.9	89.1	96.4	94.3	98.5	100.0	99.2	98.8	99.8	99.2	102.6	104.1	103.9
Compensation per hour	35.3	58.1	71.2	78.0	92.8	100.0	118.9	131.3	143.6	154.8	162.1	168.0	174.2
Real compensation per hour	72.2	90.7	97.1	95.9	98.8	100.0	99.2	96.6	95.7	97.2	98.6	98.0	98.1
Unit labor costs	49.8	65.2	73.9	82.7	94.2	100.0	119.8	132.9	144.0	156.0	158.0	161.4	167.7
Unit nonlabor payments	46.2	60.0	69.4	74.0	93.1	100.0	110.5	118.5	133.5	136.6	147.0	156.3	159.5
Implicit price deflator	48.5	63.4	72.3	79.7	93.8	100.0	116.5	127.8	140.3	149.2	154.1	159.6	164.8
Nonfinancial corporations:													
Output per hour of all employees	73.4	91.1	97.5	94.6	98.4	100.0	99.8	99.1	99.6	100.4	104.0	106.2	105.9
Compensation per hour	36.9	59.2	71.6	78.2	92.9	100.0	118.7	131.1	143.3	154.3	160.6	166.1	171.3
Real compensation per hour	75.5	92.4	97.6	96.1	98.9	100.0	99.1	96.4	95.5	96.9	97.7	96.9	96.5
Unit labor costs	50.2	65.0	73.4	82.6	94.3	100.0	119.0	132.3	143.8	153.8	154.5	156.4	161.7
Unit nonlabor payments	51.5	60.1	68.9	73.1	93.8	100.0	108.4	118.6	137.8	142.1	152.2	161.4	165.5
Implicit price deflator	50.7	63.3	71.9	79.4	94.2	100.0	115.4	127.6	141.7	149.8	153.7	158.1	163.0
Manufacturing:													
Output per hour of all persons	62.2	80.8	93.4	90.6	97.1	100.0	101.4	101.4	103.6	105.9	112.9	118.5	121.6
Compensation per hour	36.5	57.3	68.8	76.2	92.1	100.0	118.6	132.4	145.2	157.5	163.2	169.1	176.6
Real compensation per hour	74.7	89.4	93.8	93.6	98.1	100.0	99.1	97.4	96.7	98.9	99.3	98.7	99.5
Unit labor costs	58.7	70.9	73.7	84.1	94.9	100.0	117.0	130.6	140.1	148.7	144.5	142.8	145.2
Unit nonlabor payments	60.2	64.3	70.7	67.7	93.5	100.0	98.9	97.8	111.8	114.0	132.4	140.5	-
Implicit price deflator	59.1	69.0	72.8	79.3	94.5	100.0	111.7	121.0	131.8	138.6	141.0	142.1	-

- Data not available.

45. Unemployment rates in nine countries, quarterly data seasonally adjusted

Country	Annual average		1984			1985			
	1984	1985	II	III	IV	I	II	III	IV
Total labor force basis									
United States	7.4	7.1	15.7	15.3	14.6	15.1	14.9	14.5	13.9
Canada	11.2	10.4	11.3	11.2	11.1	11.0	10.5	10.2	10.1
Australia	8.9	8.2	9.1	8.8	8.5	8.5	8.4	8.1	7.7
Japan	2.7	-	2.7	2.8	2.7	2.6	2.6	2.6	2.8
France	9.7	10.1	9.7	9.9	10.0	10.2	10.1	10.1	9.9
Germany	7.7	7.7	7.7	7.8	7.7	7.8	7.8	7.7	7.7
Great Britain	12.8	13.1	12.7	13.0	12.8	13.0	13.1	13.3	12.9
Italy ^{1, 2}	5.8	6.0	5.9	5.7	5.7	5.8	5.8	6.0	6.2
Sweden	3.1	2.8	3.1	3.0	3.0	3.0	2.9	2.7	2.7
Civilian labor force basis									
United States	7.5	7.2	15.9	15.5	14.8	15.3	15.1	14.7	14.1
Canada	11.3	10.5	11.4	11.3	11.1	11.1	10.6	10.2	10.1
Australia	9.0	8.3	9.2	8.8	8.6	8.5	8.5	8.2	7.8
Japan	2.8	-	2.7	2.8	2.7	2.6	2.6	2.7	2.9
France	10.0	10.3	9.9	10.1	10.3	10.4	10.3	10.4	10.1
Germany	7.8	7.9	7.9	7.9	7.8	7.9	8.0	7.9	7.8
Great Britain	13.0	13.3	12.9	13.2	13.0	13.1	13.3	13.4	13.1
Italy	5.9	6.1	6.0	5.8	5.8	5.9	5.9	6.2	6.3
Sweden	3.1	2.8	3.1	3.1	3.0	3.0	2.9	2.8	2.7

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 more than double the Italian unemployment rate

shown.

- Data not available.

NOTE: Quarterly figures for France, Germany, and Great Britain 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, ten countries

(Numbers in thousands)

Employment status and country	1976	1977	1978	1979	1980	1981	1982	1983	1984
Labor force									
United States	96,158	99,009	102,251	104,962	106,940	108,670	110,204	111,550	113,544
Canada	10,203	10,500	10,895	11,231	11,573	11,904	11,958	12,183	12,399
Australia	6,244	6,358	6,443	6,519	6,693	6,810	6,910	6,997	7,133
Japan	53,100	53,820	54,610	55,210	55,740	56,320	56,980	58,110	58,480
France	22,010	22,320	22,490	22,680	22,810	22,950	23,170	23,110	23,260
Germany	25,900	25,870	26,000	26,240	26,500	26,610	26,640	26,640	26,700
Great Britain	25,290	25,430	25,620	25,710	25,870	25,870	25,880	25,980	26,390
Italy	20,300	20,530	20,630	20,910	21,210	21,410	21,450	21,610	21,600
Netherlands	4,890	4,950	5,010	5,100	5,290	5,500	5,560	5,720	5,740
Sweden	4,149	4,168	4,203	4,262	4,312	4,326	4,350	4,369	4,385
Participation rate									
United States	61.6	62.3	63.2	63.7	63.8	63.9	64.0	64.0	64.4
Canada	61.1	61.6	62.7	63.4	64.1	64.8	64.1	64.4	64.8
Australia	62.7	62.7	62.0	61.7	62.2	62.0	61.8	61.5	61.5
Japan	62.4	62.5	62.8	62.7	62.6	62.6	62.7	63.1	62.7
France	57.4	57.6	57.6	57.5	57.2	57.1	57.1	56.5	56.6
Germany	53.8	53.4	53.3	53.3	53.2	52.9	52.5	52.8	53.1
Great Britain	63.2	63.2	63.3	63.2	63.2	62.2	61.9	62.2	62.7
Italy	47.8	48.0	47.7	47.8	48.0	48.0	47.4	47.2	47.5
Netherlands	49.1	49.0	48.8	49.0	50.0	51.3	51.2	52.4	52.3
Sweden	66.0	65.9	66.1	66.6	67.0	66.8	66.8	66.9	67.0
Employed									
United States	88,752	92,017	96,048	98,824	99,303	100,397	99,526	100,834	105,005
Canada	9,477	9,651	9,987	10,395	10,708	11,006	10,644	10,734	11,000
Australia	5,946	6,000	6,038	6,111	6,284	6,416	6,415	6,300	6,490
Japan	52,020	52,720	53,370	54,040	54,600	55,060	55,620	56,550	56,870
France	21,020	21,200	21,280	21,310	21,340	21,220	21,250	21,150	20,940
Germany	25,010	24,970	25,130	25,460	25,730	25,520	25,060	24,650	24,610
Great Britain	23,810	23,840	24,040	24,360	24,100	23,190	22,820	22,650	22,960
Italy	19,600	19,800	19,870	20,100	20,380	20,480	20,430	20,470	20,400
Netherlands	4,630	4,700	4,750	4,830	4,960	4,990	4,930	4,890	4,880
Sweden	4,083	4,093	4,109	4,174	4,226	4,218	4,213	4,218	4,249
Employment-population ratio									
United States	56.8	57.9	59.3	59.9	59.2	59.0	57.8	57.9	59.5
Canada	56.7	56.6	57.5	58.7	59.3	59.9	57.0	56.7	57.4
Australia	59.7	59.2	58.1	57.9	58.4	58.4	57.3	55.4	56.0
Japan	61.1	61.2	61.3	61.4	61.3	61.2	61.2	61.4	61.0
France	54.8	54.7	54.5	54.0	53.5	52.8	52.4	51.7	50.9
Germany	52.0	51.6	51.5	51.7	51.6	50.7	49.4	48.8	48.9
Great Britain	59.5	59.3	59.4	59.8	58.9	55.8	54.6	54.2	54.6
Italy	46.1	46.3	45.9	45.9	46.1	45.9	45.2	44.7	44.8
Netherlands	46.5	46.5	46.3	46.4	46.9	46.5	45.4	44.8	44.5
Sweden	64.9	64.8	64.6	65.3	65.6	65.1	64.7	64.4	64.7
Unemployed									
United States	7,406	6,991	6,202	6,137	7,637	8,273	10,678	10,717	8,539
Canada	726	849	908	836	865	898	1,314	1,448	1,399
Australia	298	358	405	408	409	394	495	697	642
Japan	1,080	1,100	1,240	1,170	1,140	1,260	1,360	1,560	1,610
France	990	1,120	1,210	1,370	1,470	1,730	1,920	1,960	2,320
Germany	890	900	870	780	770	1,090	1,580	1,990	2,090
Great Britain	1,480	1,590	1,580	1,350	1,770	2,680	3,060	3,330	3,430
Italy	700	740	760	810	830	920	1,020	1,140	1,200
Netherlands	260	250	260	270	330	510	630	830	860
Sweden	66	75	94	88	86	108	137	151	136
Unemployment rate									
United States	7.7	7.1	6.1	5.8	7.1	7.6	9.7	9.6	7.5
Canada	7.1	8.1	8.3	7.4	7.5	7.5	11.0	11.9	11.3
Australia	4.8	5.6	6.3	6.3	6.1	5.8	7.2	10.0	9.0
Japan	2.0	2.0	2.3	2.1	2.0	2.2	2.4	2.7	2.8
France	4.5	5.0	5.4	6.0	6.4	7.5	8.3	8.5	10.0
Germany	3.4	3.5	3.4	3.0	2.9	4.1	5.9	7.5	7.8
Great Britain	5.9	6.3	6.2	5.3	6.8	10.4	11.8	12.8	13.0
Italy	3.4	3.6	3.7	3.9	3.9	4.3	4.8	5.3	5.9
Netherlands	5.3	5.0	5.2	5.3	6.2	9.3	11.3	14.5	15.0
Sweden	1.6	1.8	2.2	2.1	2.0	2.5	3.1	3.5	3.1

47. Annual indexes of productivity and related measures, twelve countries

(1977=100)

Item and country	1960	1970	1973	1974	1976	1977	1979	1980	1981	1982	1983	1984	1985
Output per hour													
United States	62.2	80.8	93.4	90.6	97.1	100.0	101.4	101.4	103.6	105.9	112.9	118.5	-
Canada	50.3	76.8	91.3	93.4	96.2	100.0	104.2	101.9	104.0	101.0	107.6	111.5	-
Japan	23.2	64.8	83.1	86.5	94.3	100.0	114.8	122.7	127.2	135.0	142.3	152.2	-
Belgium	32.8	60.0	78.3	82.7	95.1	100.0	112.1	119.7	128.0	134.0	143.0	149.6	-
Denmark	36.4	65.3	82.8	85.5	98.0	100.0	108.3	114.3	116.2	115.3	119.4	120.4	-
France	36.4	69.6	82.2	85.2	95.0	100.0	110.3	112.0	116.4	123.5	128.6	135.9	-
Germany	40.5	71.5	84.2	87.6	96.6	100.0	107.8	108.3	110.6	112.4	119.3	124.8	-
Italy	36.5	72.7	90.9	95.3	98.9	100.0	110.5	116.9	121.0	123.4	126.4	134.7	-
Netherlands	32.4	64.3	81.5	88.1	95.8	100.0	112.3	113.9	116.9	119.8	126.1	139.3	-
Norway	54.6	81.7	94.6	97.7	99.7	100.0	107.1	109.3	109.7	112.7	119.0	121.4	-
Sweden	42.3	80.7	94.8	98.8	101.7	100.0	110.9	112.7	113.2	116.5	125.5	132.6	-
United Kingdom	53.9	77.7	93.1	95.5	99.5	100.0	101.9	99.7	105.9	110.6	118.7	124.3	-
Output													
United States	52.5	78.6	96.3	91.7	93.1	100.0	108.1	103.2	104.8	98.4	105.6	117.9	-
Canada	41.5	75.1	94.6	98.0	98.1	100.0	110.9	107.7	108.8	96.4	101.7	110.1	-
Japan	19.2	69.9	91.9	91.7	94.8	100.0	113.9	124.1	129.8	137.3	148.2	165.2	-
Belgium	41.7	78.1	95.8	99.6	99.5	100.0	104.2	107.2	105.9	109.1	110.7	112.8	-
Denmark	48.2	81.7	95.4	96.8	99.4	100.0	107.2	112.1	108.5	110.2	114.2	120.6	-
France	35.4	73.3	88.6	91.8	96.1	100.0	106.1	106.6	105.9	106.0	107.4	109.6	-
Germany	50.0	86.6	96.1	95.4	98.0	100.0	106.6	106.6	104.9	102.4	103.5	107.5	-
Italy	37.4	78.0	90.5	96.3	97.9	100.0	108.6	115.4	114.3	111.6	109.0	113.1	-
Netherlands	44.8	84.4	95.8	100.0	99.0	100.0	106.1	106.6	106.7	105.0	105.3	110.8	-
Norway	55.1	87.0	99.5	104.0	101.4	100.0	100.3	101.3	100.1	99.9	98.7	101.2	-
Sweden	52.6	92.5	100.3	105.7	106.1	100.0	103.6	104.0	100.6	100.1	105.2	112.4	-
United Kingdom	71.0	94.7	104.7	103.5	98.2	100.0	100.5	91.7	86.2	86.4	88.9	92.4	-
Total hours													
United States	84.4	97.3	103.1	101.2	95.9	100.0	106.5	101.7	101.1	92.9	93.5	99.5	-
Canada	82.6	97.7	103.6	105.0	102.0	100.0	106.4	105.7	104.6	95.4	94.6	98.7	-
Japan	82.7	107.9	110.7	106.1	100.6	100.0	99.3	101.2	102.0	101.7	104.2	108.5	-
Belgium	127.1	130.2	122.3	120.4	104.6	100.0	93.0	89.6	82.8	81.4	77.4	75.4	-
Denmark	132.4	125.1	115.2	113.2	101.4	100.0	99.0	98.0	93.4	95.6	95.6	100.2	-
France	97.2	105.3	107.8	107.8	101.2	100.0	96.2	95.2	91.0	85.9	83.5	80.7	-
Germany	123.4	121.2	114.2	108.9	101.5	100.0	98.9	98.4	94.9	91.1	86.8	86.2	-
Italy	102.3	107.4	99.6	101.0	99.0	100.0	98.2	98.7	94.5	90.5	86.2	83.9	-
Netherlands	138.4	131.2	117.6	113.5	103.3	100.0	94.4	93.6	91.2	87.7	83.5	79.5	-
Norway	101.0	106.4	105.1	106.5	101.7	100.0	93.6	92.6	91.3	88.6	82.9	83.4	-
Sweden	124.4	114.6	105.7	107.0	104.3	100.0	93.4	92.3	88.9	85.9	83.9	84.8	-
United Kingdom	131.8	121.9	112.4	108.4	98.7	100.0	98.6	92.0	81.5	78.1	74.9	74.3	-
Compensation per hour													
United States	36.5	57.3	68.8	76.2	92.1	100.0	118.6	132.4	145.2	157.5	163.2	169.1	-
Canada	27.1	46.5	59.2	68.5	89.9	100.0	118.3	130.6	151.5	167.1	179.3	181.8	-
Japan	8.9	33.9	55.1	72.3	90.7	100.0	113.4	120.7	129.8	136.6	140.7	144.8	-
Belgium	13.9	34.7	53.6	65.4	89.4	100.0	117.5	130.4	144.9	152.1	164.4	174.9	-
Denmark	12.6	36.3	56.1	67.9	90.4	100.0	123.2	135.9	149.7	161.1	174.3	184.0	-
France	15.1	36.6	52.3	62.0	88.9	100.0	129.3	147.5	170.3	200.8	225.0	244.0	-
Germany	18.9	48.4	67.9	77.4	91.7	100.0	116.0	125.7	134.6	141.3	149.4	155.0	-
Italy	8.3	26.1	43.7	54.5	84.1	100.0	134.7	160.2	197.1	237.3	277.0	306.9	-
Netherlands	12.5	39.0	60.5	71.9	91.9	100.0	117.0	123.6	129.1	138.0	144.7	152.8	-
Norway	15.8	37.9	54.5	63.6	88.8	100.0	116.0	128.0	142.8	156.0	173.4	185.6	-
Sweden	14.7	38.5	54.2	63.8	91.5	100.0	120.1	133.6	148.1	158.9	173.3	190.7	-
United Kingdom	14.8	30.8	44.9	57.1	88.8	100.0	137.3	163.3	185.4	202.6	217.8	233.6	-
Unit labor costs: National currency basis:													
United States	58.7	70.9	73.7	84.1	94.9	100.0	117.0	130.6	140.1	148.7	144.5	142.8	-
Canada	53.9	60.6	64.8	73.3	93.5	100.0	113.5	128.1	145.7	165.4	166.7	163.0	-
Japan	38.4	52.3	66.4	83.6	96.2	100.0	98.8	98.4	102.0	101.2	98.9	95.1	-
Belgium	42.3	57.9	68.5	79.0	94.1	100.0	104.8	108.9	113.2	113.5	114.9	116.9	-
Denmark	34.5	55.6	67.8	79.4	92.3	100.0	113.7	118.9	128.8	139.7	146.0	152.8	-
France	41.6	52.6	63.6	72.8	93.6	100.0	117.3	131.7	146.3	162.6	175.0	179.5	-
Germany	46.8	67.6	80.6	88.3	95.0	100.0	107.7	116.1	121.7	125.7	125.3	124.2	-
Italy	22.8	36.0	48.1	57.2	85.1	100.0	121.9	137.0	162.9	192.4	219.2	227.7	-
Netherlands	38.5	60.7	74.3	81.6	96.0	100.0	104.1	108.5	110.4	115.2	114.7	109.7	-
Norway	29.0	46.4	57.6	65.2	89.1	100.0	108.2	117.0	130.2	138.5	145.6	152.9	-
Sweden	34.8	47.7	57.2	64.6	90.0	100.0	108.3	118.6	130.9	136.3	138.1	143.8	-
United Kingdom	27.6	39.7	48.2	59.7	89.2	100.0	134.7	163.8	175.1	183.1	183.5	187.9	-
Unit labor costs: U.S. dollar basis:													
United States	58.7	70.9	73.7	84.1	94.9	100.0	117.0	130.6	140.1	148.7	144.5	142.8	-
Canada	59.0	61.7	68.8	79.7	100.7	100.0	103.0	116.4	129.1	142.3	143.7	133.7	-
Japan	28.5	39.1	65.6	76.8	86.9	100.0	121.3	116.8	123.8	108.8	111.5	107.2	-
Belgium	30.4	41.8	63.2	72.8	87.4	100.0	128.1	133.7	109.5	88.9	80.6	72.5	-
Denmark	30.1	44.5	67.6	78.4	91.7	100.0	129.7	126.8	108.4	100.5	95.8	88.6	-
France	41.7	46.8	70.4	74.5	96.3	100.0	135.5	153.4	132.2	121.5	112.9	101.0	-
Germany	26.0	43.1	70.7	79.4	87.6	100.0	136.4	148.5	125.3	120.2	113.9	101.3	-
Italy	32.5	50.6	73.1	77.6	90.5	100.0	129.5	141.4	126.3	125.4	127.4	114.5	-
Netherlands	25.1	41.2	65.6	74.6	89.1	100.0	127.4	134.2	108.9	105.8	98.6	83.9	-
Norway	21.7	34.5	53.4	62.8	86.9	100.0	113.8	126.2	120.6	114.1	106.2	99.7	-
Sweden	30.1	41.1	58.7	65.1	92.3	100.0	112.9	125.3	115.4	96.9	80.4	77.7	-
United Kingdom	44.4	54.4	67.7	80.1	92.3	100.0	163.9	218.3	203.1	183.5	159.4	143.9	-

- Data not available.

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								
	1977	1978	1979	1980	1981	1982	1983	1984	1985
PRIVATE SECTOR³									
Total cases	-	-	9.5	8.7	8.3	7.7	7.6	8.0	-
Lost workday cases	-	-	4.3	4.0	3.8	3.5	3.4	3.7	-
Lost workdays	-	-	67.7	65.2	61.7	58.7	58.5	63.4	-
Agriculture, forestry, and fishing³									
Total cases	-	-	11.7	11.9	12.3	11.8	11.9	12.0	-
Lost workday cases	-	-	5.7	5.8	5.9	5.9	6.1	6.1	-
Lost workdays	-	-	83.7	82.7	82.8	86.0	90.8	90.7	-
Mining									
Total cases	-	-	11.4	11.2	11.6	10.5	8.4	9.7	-
Lost workday cases	-	-	6.8	6.5	6.2	5.4	4.5	5.3	-
Lost workdays	-	-	150.5	163.6	146.4	137.3	125.1	160.2	-
Construction									
Total cases	-	-	16.2	15.7	15.1	14.6	14.8	15.5	-
Lost workday cases	-	-	6.8	6.5	6.3	6.0	6.3	6.9	-
Lost workdays	-	-	120.4	117.0	113.1	115.7	118.2	128.1	-
General building contractors:									
Total cases	-	-	16.3	15.5	15.1	14.1	14.4	15.4	-
Lost workday cases	-	-	6.8	6.5	6.1	5.9	6.2	6.9	-
Lost workdays	-	-	111.2	113.0	107.1	112.0	113.0	121.3	-
Heavy construction contractors:									
Total cases	-	-	16.6	16.3	14.9	15.1	15.4	14.9	-
Lost workday cases	-	-	6.7	6.3	6.0	5.8	6.2	6.4	-
Lost workdays	-	-	123.1	117.6	106.0	113.1	122.4	131.7	-
Special trade contractors:									
Total cases	-	-	16.0	15.5	15.2	14.7	14.8	15.8	-
Lost workday cases	-	-	6.9	6.7	6.6	6.2	6.4	7.1	-
Lost workdays	-	-	124.3	118.9	119.3	118.6	119.0	130.1	-
Manufacturing									
Total cases	-	-	13.3	12.2	11.5	10.2	10.0	10.6	-
Lost workday cases	-	-	5.9	5.4	5.1	4.4	4.3	4.7	-
Lost workdays	-	-	90.2	86.7	82.0	75.0	73.5	77.9	-
Durable goods									
Lumber and wood products:									
Total cases	-	-	20.7	18.6	17.6	16.9	18.3	19.6	-
Lost workday cases	-	-	10.8	9.5	9.0	8.3	9.2	9.9	-
Lost workdays	-	-	175.9	171.8	158.4	153.3	163.5	172.0	-
Furniture and fixtures:									
Total cases	-	-	17.6	16.0	15.1	13.9	14.1	15.3	-
Lost workday cases	-	-	7.1	6.6	6.2	5.5	5.7	6.4	-
Lost workdays	-	-	99.6	97.6	91.9	85.6	83.0	101.5	-
Stone, clay, and glass products:									
Total cases	-	-	16.8	15.0	14.1	13.0	13.1	13.6	-
Lost workday cases	-	-	8.0	7.1	6.9	6.1	6.0	6.6	-
Lost workdays	-	-	133.7	128.1	122.2	112.2	112.0	120.8	-
Primary metal industries:									
Total cases	-	-	17.3	15.2	14.4	12.4	12.4	13.3	-
Lost workday cases	-	-	8.1	7.1	6.7	5.4	5.4	6.1	-
Lost workdays	-	-	134.7	128.3	121.3	101.6	103.4	115.3	-
Fabricated metal products:									
Total cases	-	-	19.9	18.5	17.5	15.3	15.1	16.1	-
Lost workday cases	-	-	8.7	8.0	7.5	6.4	6.1	6.7	-
Lost workdays	-	-	124.2	118.4	109.9	102.5	96.5	104.9	-
Machinery, except electrical:									
Total cases	-	-	14.7	13.7	12.9	10.7	9.8	10.7	-
Lost workday cases	-	-	5.9	5.5	5.1	4.2	3.6	4.1	-
Lost workdays	-	-	83.6	81.3	74.9	66.0	58.1	65.8	-
Electric and electronic equipment:									
Total cases	-	-	8.6	8.0	7.4	6.5	6.3	6.8	-
Lost workday cases	-	-	3.4	3.3	3.1	2.7	2.6	2.8	-
Lost workdays	-	-	51.9	51.8	48.4	42.2	41.4	45.0	-
Transportation equipment:									
Total cases	-	-	11.6	10.6	9.8	9.2	8.4	9.3	-
Lost workday cases	-	-	5.5	4.9	4.6	4.0	3.6	4.2	-
Lost workdays	-	-	85.9	82.4	78.1	72.2	64.5	68.8	-
Instruments and related products:									
Total cases	-	-	7.2	6.8	6.5	5.6	5.2	5.4	-
Lost workday cases	-	-	2.8	2.7	2.7	2.3	2.1	2.2	-
Lost workdays	-	-	40.0	41.8	39.2	37.0	35.6	37.5	-
Miscellaneous manufacturing industries:									
Total cases	-	-	11.7	10.9	10.7	9.9	9.9	10.5	-
Lost workday cases	-	-	4.7	4.4	4.4	4.1	4.0	4.3	-
Lost workdays	-	-	67.7	67.9	68.3	69.9	66.3	70.2	-

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								
	1977	1978	1979	1980	1981	1982	1983	1984	1985
Nondurable goods									
Food and kindred products:									
Total cases	-	-	19.9	18.7	17.8	16.7	16.5	16.7	-
Lost workday cases	-	-	9.5	9.0	8.6	8.0	7.9	8.1	-
Lost workdays	-	-	141.8	136.8	130.7	129.3	131.2	131.6	-
Tobacco manufacturing:									
Total cases	-	-	9.3	8.1	8.2	7.2	6.5	7.7	-
Lost workday cases	-	-	4.2	3.8	3.9	3.2	3.0	3.2	-
Lost workdays	-	-	64.8	45.8	56.8	44.6	42.8	51.7	-
Textile mill products:									
Total cases	-	-	9.7	9.1	8.8	7.6	7.4	8.0	-
Lost workday cases	-	-	3.4	3.3	3.2	2.8	2.8	3.0	-
Lost workdays	-	-	61.3	62.8	59.2	53.8	51.4	54.0	-
Apparel and other textile products:									
Total cases	-	-	6.5	6.4	6.3	6.0	6.4	6.7	-
Lost workday cases	-	-	2.2	2.2	2.2	2.1	2.4	2.5	-
Lost workdays	-	-	34.1	34.9	35.0	36.4	40.6	40.9	-
Paper and allied products:									
Total cases	-	-	13.5	12.7	11.6	10.6	10.0	10.4	-
Lost workday cases	-	-	6.0	5.8	5.4	4.9	4.5	4.7	-
Lost workdays	-	-	108.4	112.3	103.6	99.1	90.3	93.8	-
Printing and publishing:									
Total cases	-	-	7.1	6.9	6.7	6.6	6.6	6.5	-
Lost workday cases	-	-	3.1	3.1	3.0	2.8	2.9	2.9	-
Lost workdays	-	-	45.1	46.5	47.4	45.7	44.6	46.0	-
Chemicals and allied products:									
Total cases	-	-	7.7	6.8	6.6	5.7	5.5	5.3	-
Lost workday cases	-	-	3.5	3.1	3.0	2.5	2.5	2.4	-
Lost workdays	-	-	54.9	50.3	48.1	39.4	42.3	40.8	-
Petroleum and coal products:									
Total cases	-	-	7.7	7.2	6.7	5.3	5.5	5.1	-
Lost workday cases	-	-	3.6	3.5	2.9	2.5	2.4	2.4	-
Lost workdays	-	-	62.0	59.1	51.2	46.4	46.8	53.5	-
Rubber and miscellaneous plastics products:									
Total cases	-	-	17.1	15.5	14.6	12.7	13.0	13.6	-
Lost workday cases	-	-	8.2	7.4	7.2	6.0	6.2	6.4	-
Lost workdays	-	-	127.1	118.6	117.4	100.9	101.4	104.3	-
Leather and leather products:									
Total cases	-	-	11.5	11.7	11.5	9.9	10.0	10.5	-
Lost workday cases	-	-	4.9	5.0	5.1	4.5	4.4	4.7	-
Lost workdays	-	-	76.2	82.7	82.6	86.5	87.3	94.4	-
Transportation and public utilities									
Total cases	-	-	10.0	9.4	9.0	8.5	8.2	8.8	-
Lost workday cases	-	-	5.9	5.5	5.3	4.9	4.7	5.2	-
Lost workdays	-	-	107.0	104.5	100.6	96.7	94.9	105.1	-
Wholesale and retail trade									
Total cases	-	-	8.0	7.4	7.3	7.2	7.2	7.4	-
Lost workday cases	-	-	3.4	3.2	3.1	3.1	3.1	3.3	-
Lost workdays	-	-	49.0	48.7	45.3	45.5	47.8	50.5	-
Wholesale trade:									
Total cases	-	-	8.8	8.2	7.7	7.1	7.0	7.2	-
Lost workday cases	-	-	4.1	3.9	3.6	3.4	3.2	3.5	-
Lost workdays	-	-	59.1	58.2	54.7	52.1	50.6	55.5	-
Retail trade:									
Total cases	-	-	7.7	7.1	7.1	7.2	7.3	7.5	-
Lost workday cases	-	-	3.1	2.9	2.9	2.9	3.0	3.2	-
Lost workdays	-	-	44.7	44.5	41.1	42.6	46.7	48.4	-
Finance, insurance, and real estate									
Total cases	-	-	2.1	2.0	1.9	2.0	2.0	1.9	-
Lost workday cases	-	-	.9	.8	.8	.9	.9	.9	-
Lost workdays	-	-	13.3	12.2	11.6	13.2	12.8	13.6	-
Services									
Total cases	-	-	5.5	5.2	5.0	4.9	5.1	5.2	-
Lost workday cases	-	-	2.5	2.3	2.3	2.3	2.4	2.5	-
Lost workdays	-	-	38.1	35.8	35.9	35.8	37.0	41.1	-

¹ Total cases include fatalities.

² The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as:

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

N = number of injuries and illnesses or lost workdays.

EH = total hours worked by all employees during calendar year.

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year.)

³ Excludes farms with fewer than 11 employees since 1976.

- Data not available.

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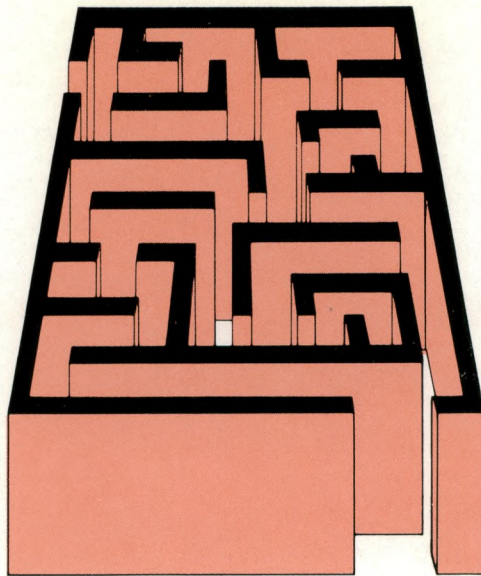
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