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In this issue:
A report on the 1881 convention of
the U.S. Labor Federation





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Raymond J. Donovan, Secretary

BUREAU OF LABOR STATISTICS
 Janet L. Norwood, *Commissioner*

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November cover:

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Labor Month In Review



CPI CHANGES. At a news conference on October 27, 1981, Commissioner of Labor Statistics Janet L. Norwood announced plans to change the way the Consumer Price Index measures homeownership costs. Excerpts from Dr. Norwood's statement:

I am today providing public notice to all users of the Consumer Price Index that the Bureau of Labor Statistics plans to change the homeownership component of the index to a rental equivalence measure. The Consumer Price Index for All Urban Consumers (CPI-U) will be changed with publication of data for January 1983; the Consumer Price Index for Wage Earners and Clerical Workers (CPI-W) will be changed with data for January 1985.

Background. Important changes have occurred in financial markets. The CPI does not reflect these changes. First, funds available for long-term mortgage commitments have declined sharply. New types of mortgage instruments involving variable rates, shorter financing terms, and other special arrangements have developed so that the standard long-term fixed rate mortgage used in the CPI no longer seems representative of the mortgage market. Second, because of high interest rates and difficulties faced by home buyers in securing bank mortgages, owners who wish to sell their homes are increasingly doing so by providing financing to buyers at rates below those of lending institutions. These kinds of financing arrangements are not captured at all in the CPI data collection process.

The Bureau of Labor Statistics obtains data on house prices from the Federal Housing Administration. This data base, which represents a relatively small and specialized segment of the housing market, continues to present BLS with increasingly serious estimation problems. BLS has had only very limited success in developing alternative sources of house price data.

The Economic Recovery Tax Act of 1981 (Public Law 97-34) requires use of the CPI for All Urban Consumers (CPI-U) for escalation of income tax brackets and the personal exemption amount. The law requires announcement of the new tax brackets in December 1984 based on CPI-U data in the 2 prior years. This is a major new use of the index, a use which will have a broad effect on total Federal Government revenues. In my view, this new use of the index underscores the importance of action to ensure that we have a CPI which reflects the experience of consumers to the fullest extent possible.

Increasingly, Members of Congress, the media, and the general public are becoming aware of the issues surrounding the measurement of homeownership costs in the CPI. A growing number of people feel that there is something wrong with the CPI and that it should be fixed. In light of the extensive use of the CPI in our economic system, it is essential that public confidence in it be maintained.

Action planned. These facts clearly indicate that the time for changing the CPI has come. At the same time, BLS recognizes that it has an obligation to all users to provide substantial advance notice of a major change in the concept and calculation procedure of any important component of the index. I have decided on the following actions:

1. Effective with data for January 1983, the homeownership component of the official CPI-U will be a rental equivalence measure, like the present CPI-U-X1 experimental measure, but with some refinements.

2. Effective with data for January 1985, the CPI-W will be revised to a rental equivalence measure.

3. The new homeownership component will be linked into each CPI at the end of the year preceding the change, i.e., December 1982 for the CPI-U and December 1984 for the CPI-W, in a

technical manner similar to that which has been used in previous major revisions of the CPI. In accordance with historical practice, BLS will make available to users after the change in the official indexes calculations based on the current treatment of homeownership for a 6-month overlap period.

4. BLS will continue its efforts to improve the rental equivalence measure through refinements in procedures and calculation methods and eventually through supplementation of the rent sample.

5. BLS will cease monthly publication of the CPI experimental alternative homeownership measures at the time the change is made in the official CPI-U.

6. In the interim period, until the CPI-U is officially changed, BLS will give greater prominence to analysis of the CPI-U-X1 in the narrative portion of the CPI press release.

Timing. There is work currently underway at BLS to improve the method of calculating the rental equivalence measure now used in the CPI-U-X1. The time required to do this work, the shorter history of the CPI-U, its special uses, together with the requirement for pre-notification of users of major CPI changes, determined the schedule for changing the CPI-U.

The CPI-W is used extensively in escalation agreements in both the private and public sectors, considerably more than is the CPI-U. Some major collective bargaining agreements which use the CPI-W run for as long as 3 years and specify that the parties to the agreements would, in the event the Bureau changed the CPI-W materially, request the BLS to continue to supply the index as it was calculated when the contract was made. In the light of such arrangements and the background of historical practice relating to the CPI-W, I believe that users must be publicly notified substantially in advance of changes planned for the CPI-W so that they have adequate time to adjust to the changes. □

The growth of fringe benefits: implications for social security

Official projections of long-range social security deficits assume continued worker preference for fringes in lieu of cash pay; sensitivity of the projections to the resulting erosion of the program's tax base is such that closer scrutiny of this assumption is warranted

YUNG-PING CHEN

Relative to cash pay, fringe benefits¹ have increased phenomenally during the past three decades. Although the official social security projections include the assumption that this phenomenal rate of growth will continue, no attention has been paid to the implications such growth is likely to have for long-range deficits in the social security trust fund.

The projections assume that employer costs for fringe benefits will increase faster than cash wages at an annual compound rate of 0.4 percent, the average annual rate during 1950–80, over the entire 75-year period after 1980. Thus, the ratio of fringes to total compensation would rise from 15.8 percent in 1980 to 37.8 percent in the year 2055, and conversely, cash pay would decline from 84.2 percent to 62.2 percent.² Any increase in fringes relative to workers' cash pay (taxable payroll) is very important because such pay is the tax base that finances social security. Fringes accepted in lieu of taxable pay reduce this base, and boost the percentage of taxable payroll required for paying benefits.

When scheduled social security taxes (as a percentage of taxable payroll) are less than scheduled benefit payments (also as a percentage of taxable payroll), a deficit results, which is the current situation. Ultimately, there-

fore, the estimated cost of benefits as a percentage of taxable payroll determines how high social security tax rates need to be for the program to be self-supporting. For this reason, the Trustees of the social security program use the percentage of taxable payroll figure in reporting to Congress on the long-range financial health of the system, and Congress, in turn, uses this percentage as a yardstick in considering changes in the program.

This article explains how assumptions about the future growth rate of fringes affect the projected long-range deficit of social security. While the following analysis raises questions about the validity of the official assumption that fringes will grow faster than cash wages by 0.4 percent a year (hereafter called the "faster growth rate assumption"), the author's intention is not to assert that the assumption is necessarily erroneous. Rather, the development herein of an alternative scenario in which fringes and wages grow at the same rate (henceforth labeled the "equal growth rate assumption") is but a means to demonstrate that changes in the assumption about the growth rate of fringes can make surprisingly significant differences in estimated long-range deficits. It is important to recognize the direct linkage between the growth in fringes relative to cash wages and the consequent social security deficits.

Furthermore, it is not the author's purpose to dispute the useful functions that many fringes perform, or to

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advocate that the further growth of fringes be checked. By calling attention to the importance of a heretofore unanalyzed and generally overlooked assumption, this article is intended primarily to arouse interest in additional studies of the implications of the growth in fringes for social security's long-range deficits. However, certain of the ideas presented may also stimulate further research into the design of fringe benefits with particular concern for their rising costs.

The first part of the article explains why the projected long-range actuarial position under social security is highly sensitive to the assumption about future growth of fringe benefits. The next section identifies two broad trends in the growth of fringes during 1950–79: a trend toward relatively more private fringes and another toward relatively more old-age protection. The third section explores the idea that there does not seem to be an *a priori* case for continued growth in fringes in the future. The final section discusses some of the implications of the assumption about the growth rate in fringes for the future financial status of social security.

The importance of assumptions

A worker's total compensation typically consists of cash pay and fringe benefits. The cash wages of covered workers and the earnings of self-employed persons (up to a statutory ceiling) are subject to social security taxes, while fringes are not. Thus, taxable payroll may be thought of as the part of cash earnings of workers and of self-employed persons that is subject to social security taxes.³

Table 1 shows that cash payroll as a percentage of total compensation declined steadily over the last 30 years, falling from 95 percent in 1950, to 92.2 percent in 1960, 89.7 percent in 1970, and 84.2 percent in 1980. The reason for the decline is that the growth rate of fringes exceeded that of wages by an average 0.4 percent per year during 1950–80. The "faster growth rate assumption" embodied in official actuarial projections for social security is an extrapolation of this trend.

Based on this assumption, the long-range deficit of the social security cash benefit program (OASDI) is estimated to average 1.52 percent of taxable payroll during 1980–2054, according to the intermediate-cost projection in the 1980 *Trustees Report*.⁴ But if the alternative "equal growth rate assumption" were used, the long-range deficit would be reduced to 1.03 percent of taxable payroll. In other words, the "equal growth rate assumption" results in a one-third smaller deficit as measured in terms of taxable payroll.

The difference between 1.52 percent and 1.03 percent is significant because these figures imply vastly different deficits to be met. The "faster growth rate" projection suggests that program expenditures will match revenues only if the social security tax rate were raised each year

by 1.52 percent of that year's taxable payroll, or social security benefits were reduced to that extent, or a combination of the two. The taxable payroll in 1980 was estimated at approximately \$1,145 billion; 1.52 percent of that amount is \$17.4 billion. By comparison, 1.03 percent of that amount—the deficit according to the "equal growth rate" estimate—would be \$11.8 billion, or \$5.6 billion less.

The "equal growth rate assumption" also affects the program's actuarial position during each of the 25-year subperiods of the 75-year projection, as indicated in table 2. Specifically, there would be a 24-percent greater surplus during 1980–2004, a 41-percent smaller deficit during 2005–29, and a 16-percent smaller deficit during 2030–54.

If the assumption that fringe benefits will continue to grow at a faster rate than cash pay proves to be correct, the percentage of taxable payroll required for paying benefits will rise. This is true even though benefit payments will be somewhat lower because the amount of cash wages credited toward social security benefits will be smaller.

For example, suppose that \$840 of every \$1,000 of employee compensation is taxable payroll, and that \$84 is required for paying social security benefits. The \$84 constitutes a 10-percent tax on the \$840 taxable payroll.

The 1981 projections

Since the completion of this article, which relates to estimates of social security long-range deficits presented in the 1980 *Trustees Report*, the 1981 *Report* has been released. However, the analysis and conclusions in this article are not altered by the new report.

In the 1980 *Trustees Report*, the 75-year deficit for the period 1980–2054 was estimated at 1.52 percent of taxable payroll according to the intermediate-cost projection, under the "faster growth rate assumption" (assuming fringes to grow faster than wages by 0.4 percent annually). The 1981 *Trustees Report* presents two intermediate-cost projections, II-A and II-B, instead of one as in previous years. According to the 1981 report, the 75-year deficit for the period 1981–2055 is estimated at 0.93 percent of taxable payroll under II-A, and 1.82 percent under II-B.

In response to the author's inquiry about the 1981 projections, the Office of the Actuary of the Social Security Administration has indicated the following:

- (1) Among the assumptions which vary between II-A and II-B is that concerning the growth rate of fringes versus that of wages. Although both projections use a "faster growth rate assumption," II-A assumes that fringes will grow faster than wages by an annual compound rate of 0.3 percent, while II-B assumes 0.4 percent (the same as in the 1980 projection).
- (2) If the "equal growth rate assumption" were used, the deficit would be reduced to 0.53 percent of taxable payroll under II-A, and to 1.20 percent under II-B. In other words, the long-range deficit under II-A falls by 46 percent, and that under II-B, by 34 percent.

Table 1. Actual and projected distribution of total compensation between cash payroll and fringe benefits, selected years, 1950-2055

[In percent]		
Year	Cash payroll	Fringe benefits
Actual:		
1950	95.0	5.0
1960	92.2	7.8
1970	89.7	10.3
1980	84.2	15.8
Projected:		
1990	80.6	19.4
2000	77.5	22.5
2020	71.5	28.5
2035	67.4	32.6
2055	62.2	37.8

Source: Actual distributions were calculated by the author from data provided on computer printouts by the U.S. Department of Commerce. Projections were furnished by the Office of the Actuary, Social Security Administration.

Now suppose, alternatively, only \$620 of \$1,000 of employee compensation is taxable payroll. With cash wages accounting for a smaller proportion of total compensation subject to social security taxes, social security benefits will also be relatively lower (although not proportionately so, because of the weighted formula used to calculate the benefits of individual workers, and, to a lesser extent, because some of the proportionate decline in cash pay would have occurred in wages already above the taxable ceiling). Taking these factors into account, suppose that \$74 would be needed to make the lowered social security benefit payments. The \$74 tax on \$620 cash pay means a tax rate of 12 percent of taxable payroll. In other words, the lower the taxable payroll as a percentage of total compensation, the higher the required social security tax rate.

Of course, if the assumed growth of fringes as a proportion of total compensation does not take place, expenditures under social security will represent a smaller percentage of taxable payroll. Again, the important point is that differing assumptions about the ratio of cash pay to total compensation can make a significant difference in the projected social security deficit.⁵

Two broad trends in fringe benefits

The following analysis of trends in fringe benefits is based on data relating to "supplements to wages and salaries" published by the U.S. Department of Commerce. These supplements (fringes), together with "wages and salaries," make up the total "compensation of employees." The discussion covers the years 1950, 1960, 1970, and 1979. (Comparable statistics for 1980 were not available at this writing.) In 1979, supplements (or fringes) amounted to 15.4 percent of total compensation of employees.⁶

The fringe benefit data published by the Commerce Department are divided into "employer contributions

for social insurance" and "other labor income," and are shown in table 3 as public fringes and private fringes, respectively. Two broad trends concerning fringes in the past three decades are readily discernible from these data. The first concerns the changing distribution of fringes between those sponsored by governmental units (public fringes), and those under the aegis of the private sector (private fringes). While the total dollar volume of fringes increased during 1950-79, a decreasing proportion was attributable to public fringes and a growing proportion to private fringes. (See table 4.) In 1950, the distribution was 53.3 percent for public fringes and 46.7 percent for private plans. By 1979, the direction was reversed: 47.3 percent of all fringes were public, and 52.7 percent were private.

Relative to the total, the individual components of public fringes (except medicare) declined slightly or stabilized, especially since 1960. By far the largest public fringe is OASDI, which grew from 16.7 percent in 1950 to 25.6 percent in 1970, and then declined to 22.3 percent in 1979. Medicare hospital insurance, enacted in 1965, increased from 3.7 percent of total fringes in 1970 to 4.7 percent in 1979.

With regard to private fringes, pension and profit sharing, group health insurance, and group life insurance as a category increased in relative importance, rising steadily from 35 percent of total fringes in 1950 to 45.6 percent in 1979. However, the individual items in this category showed somewhat different developments, as indicated in table 3: (1) private pension and profit sharing plans, the most important of all fringes in 1979 (accounting for 24.4 percent of all fringes, compared with 22.3 percent for OASDI), increased from a little over one-fifth of the total in 1950 to nearly one-quarter in 1979; (2) private group health insurance plans nearly

Table 2. OASDI surplus or deficit as a percentage of taxable payroll under different assumptions about the rate of fringe benefit growth, selected periods, 1980-2054

Period	Surplus (+) or deficit (-)		Change in surplus or deficit due to difference in assumption
	"Faster growth rate assumption" ¹	"Equal growth rate assumption" ²	
75-year annual average:			
1980-2054	-1.52	-1.03	+ .49 (32 percent smaller deficit)
25-year annual averages:			
1980-2004	+ 1.19	+ 1.47	+ .28 (24 percent greater surplus)
2005-2029	-1.17	-.69	+ .48 (41 percent smaller deficit)
2030-2054	-4.58	-3.86	+ .72 (16 percent smaller deficit)

¹ Data are from the 1980 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds (The 1980 Trustees Report), House Document No. 96-332, 96th Cong., 2d. Sess., p. 48.

² These data were provided by the Office of the Actuary, Social Security Administration, and are based on the same assumptions underlying the intermediate-cost projection in the 1980 Trustees Report, except for that concerning the rate of growth of fringes.

Table 3. Amount and percentage distribution of employer costs for fringe benefits by sponsoring sector, selected years, 1950-79

[Amounts in millions of dollars]

Type of benefit by sector	1950		1960		1970		1979	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Total fringe benefits	\$7,818	100.0	\$23,000	100.0	\$63,240	100.0	\$225,026	100.0
Total public fringes ¹	4,164	53.3	11,780	51.2	30,733	48.6	106,432	47.3
OASDI (social security cash benefits)	1,308	16.7	5,632	24.5	16,182	25.6	50,161	22.3
HI (Medicare hospital insurance: social security noncash benefits)	(²)	(²)	(²)	(²)	2,342	3.7	10,487	4.7
State and local employees' retirement	510	6.5	1,775	7.7	5,091	8.1	17,425	7.7
Federal civilian employees' retirement	316	4.0	838	3.6	2,215	3.5	6,785	3.0
Railroad retirement	282	3.6	297	1.3	517	0.8	1,671	0.7
Workers' compensation (Federal, State, and local governments)	188	2.4	413	1.8	872	1.4	3,949	1.8
Unemployment insurance (State, Federal, and railroad)	1,473	18.8	2,808	12.2	3,475	5.5	15,906	7.1
State cash sickness benefits	7	(³)	7	(³)	28	(³)	43	(³)
Total private fringes	3,654	46.7	11,220	48.8	32,507	51.4	118,596	52.7
Pension and profit sharing	1,713	21.9	4,866	21.2	13,050	20.6	54,899	24.4
Group health insurance	745	9.5	3,374	14.7	12,099	19.1	41,574	18.5
Group life insurance	285	3.6	1,080	4.7	2,891	4.6	6,009	2.7
Insurance for workers' compensation	791	10.1	1,529	6.6	3,786	6.0	13,943	6.2
Supplemental unemployment insurance	(²)	(²)	120	0.5	111	0.2	590	0.3
Other	120	1.5	251	1.1	570	0.9	1,581	0.7

¹ The total public fringes in the Commerce Department data also include insignificant amounts of veterans' life insurance which are not shown here because they are not an employer-paid fringe benefit.

² Program not in effect.

³ Less than 0.05 percent.

NOTE: Due to rounding, sums of individual items may not equal totals.

SOURCE: Computed from data furnished by the U.S. Department of Commerce.

doubled in relative importance over the same period, rising from 9.5 to 18.5 percent of all fringes; and, (3) private group life insurance declined relatively, from 3.6 percent of the total in 1950 to 2.7 percent in 1979.

The second broad trend pertains to the changing distributions of fringes that provide retirement benefits, primarily deferred compensation (old-age protection) and those that provide benefits only when contingencies such as illness, disability, or unemployment occur (current protection). During 1950-79, there was a clear movement toward relatively more old-age protection and less current protection. The distinction between

these two types of protection is not clear-cut, particularly in the case of social security, but an approximation may be achieved by assigning 80 percent of OASDI to the cost for retirement benefits (including benefits for surviving spouses age 60 and over) and the remaining 20 percent to benefits for persons below retirement age.⁷ Thus, old-age protection encompasses Federal civilian employees' retirement, State and local employees' retirement, railroad retirement, private pension and profit sharing plans, medicare hospital insurance, and the approximately 80 percent of OASDI paid to retirees, or to their surviving spouses age 60 and over. Current protection includes unemployment insurance, workers' compensation, group health and life insurance, supplementary unemployment insurance, and private insurance for workers' compensation, plus the remaining 20 percent of OASDI.

As indicated in table 5, fringes that provide old-age protection rose from 49.5 percent of the total in 1950 to 53.4 percent in 1960, 57.2 percent in 1970, and 58.4 percent in 1979. By contrast, those providing current protection declined from 50.5 percent in 1950 to 46.6 percent in 1960, 42.8 percent in 1970, and 41.6 percent in 1979.

Factors affecting growth of fringes

Fringe benefits provided by the private sector were rare prior to World War II. During the war, when the War Labor Board held down wages, employers seeking workers in a tight labor market offered some inducements in the form of noncash compensation. Largely a

Table 4. Employer costs for public and private fringe benefits as percent of total fringe benefits, selected years, 1950-79

Type of benefit	1950	1960	1970	1979
Total public fringes ¹	53.3	51.2	48.6	47.3
OASDI	16.7	24.5	29.3	27.0
State and local government employees' retirement, Federal civilian employees' retirement, and railroad retirement	14.1	12.6	12.4	11.4
Workers' compensation, and unemployment insurance	21.2	14.0	6.9	8.9
Total private fringes ²	46.7	48.8	51.4	52.7
Pension and profit sharing, group health insurance, and group life insurance	35.0	40.6	44.3	45.6
Private workers' compensation, private supplemental unemployment insurance	10.1	7.1	6.2	6.5

¹ Includes State cash sickness benefits, and veterans' life insurance, each of which amounted to minor percentages.

² Includes "others" which amount to minor percentages as shown in table 3.

NOTE: Due to rounding, sums of individual items may not equal totals.

post-World War II phenomenon, private pensions have grown significantly since 1950, having been ruled a proper issue for collective bargaining by the U.S. Supreme Court in the *Inland Steel Case* of 1949. Since the war, other health and welfare benefits have also developed rapidly.

The swift expansion in the scope and variety of fringes attests to the useful functions they serve for employers, workers, and unions. For employers, fringes are a tool for personnel management and for promoting efficiency by raising morale and reducing turnover. From the workers' point of view, group plan participation reduces the cost of fringes through administrative and other scale economies, and enables some workers to secure coverage or protection they could not otherwise afford. Pensions, and health and welfare benefits provide a sense of economic security to these workers and their families. And, workers may prefer at least some level of fringes to cash compensation because the former are not subject to taxes. (In fact, inflation and the resulting income-tax "bracket creep" may have contributed greatly to the growth of fringes, particularly for higher-paid workers.) Finally, inasmuch as negotiated fringes promote economic security for union members, adding new fringes and improving existing ones tend to strengthen unions as organizations.

Some have asserted that as long as tax laws give preferential treatment to fringes and inflation persists, workers will seek fringes instead of cash compensation. But how long will workers prefer more fringes to higher wages? Is there an *a priori* case for the contention that outlays for fringes will continue to rise faster than cash wages?

Because cash pay is income available to the worker to spend, and fringes are not, a shift to fringes deprives

workers of some freedom of choice.⁸ Intuitively, one might assume that there is a limit to people's willingness to have less and less discretion concerning their pay.

Although workers may value fringes for the benefit they yield, many fringes fall into the category of "current protection." There is probably a point at which people become reluctant to trade cash income for fringe benefits they may never have to use.

And, even when the growth in fringes is expected to yield deferred income—as in the case of greater "old-age protection"—there must be a limit to the tradeoff of current for future consumption. The desire to raise (or simply to maintain) one's current standard of living would be a powerful counter to continuation of past trends in growth of fringes. The traditionally low savings rate in this country is evidence of a general preference for current consumption over future security.

Inflation affects fringes in several conflicting ways. Inflation may cause higher-paid individuals to prefer fringes that are not subject to tax so as to avoid higher marginal income tax rates. Conversely, people who earn less may opt for more cash pay in order to meet the higher cost of living. And, finally, employers may resist the rising costs of fringes by curbing their growth, eliminating some fringes, or requiring cost-sharing by employees.⁹

To the extent that inflation has induced a strong demand for fringes, much of that stimulus might disappear if income tax brackets were indexed for inflation, or if income taxes were cut. And, workers might well prefer more cash pay to fringes if there were stronger income tax incentives for private savings for retirement. There are currently a number of legislative proposals to expand the Keogh Plan and Individual Retirement Accounts.¹⁰

Moreover, if fringes continue to rise as a proportion of total compensation, the Treasury Department might be increasingly active in questioning the tax-exempt status of employer contributions to benefit plans, except for those contributions traditionally exempted. Section 61 of the Internal Revenue Code and the regulations issued under that section define gross income as including "all income from whatever source derived," and define income as "compensation for services," whether in the form of services, meals, accommodations, stock, other property, or cash.

The last 30 years were a period in which fringes began to be developed, and much of their rapid growth could be attributable to the developmental stage of an emerging institution. By now many workers already have, to a greater or lesser extent, health plans, pensions, and the like. Even if these plans are improved, new kinds of fringes are added, and workers not now

Table 5. Composition of employer costs for fringe benefits by type of protection, selected years, 1950-79

[In percent]

Type of protection	1950	1960	1970	1979
Old age protection	49.5	53.4	57.2	58.4
OASDI (80 percent of OASDI)	13.4	19.6	20.5	17.8
HI (Medicare hospital insurance)	...	...	3.7	4.7
State and local government employees' retirement, Federal civilian employees' retirement, and railroad retirement	14.1	12.6	12.4	11.4
Private pension and profitsharing	21.9	21.2	20.6	24.4
Current protection ¹	50.5	46.6	42.8	41.6
OASDI (20 percent of OASDI)	3.3	4.9	5.1	4.5
Private group health and private group life insurance	13.1	19.4	23.7	21.2
Workers' compensation, and unemployment insurance (public)	21.2	14.0	6.9	8.9
Workers' compensation, and unemployment insurance (private)	10.1	7.1	6.2	6.5

¹ Includes State cash sickness compensation, veterans' life insurance, and "other," which amounted to minor percentages as indicated in table 3.

NOTE: Due to rounding, sums of individual items may not equal totals.

covered (or not adequately covered) are given first-time (or improved) coverage, there are no obvious reasons for fringes to increase faster than wages for the next 75 years.

The preceding discussion suggests that there is not an *a priori* case for the proposition that fringes will continue to grow faster than cash wages, particularly at rates observed over the last 30 years. It may be that factors tending to restrain the continued growth of fringes relative to wages will outweigh those tending to promote relative growth. If the future rate of growth in fringes stays the same as the rate of growth in wages, the 1980 ratio of cash pay to total compensation will persist for the next 75 years. What are the implications for the social security system should this so-called "equal growth rate assumption" prove correct? And, conversely, what might happen if the "faster growth rate assumption" is borne out by reality?

Implications of different assumptions

One consequence of an "equal growth rate" is that taxable payroll would constitute a greater proportion of total compensation than is now officially projected. As taxable payroll increases (up to the taxable earnings ceiling), so would social security benefit payments, because social security benefits are related to a worker's earnings history. As more wages become taxable for social security purposes, more wages would be credited toward social security benefits.

However, social security benefit payments would not rise as fast as the taxable payroll for two reasons. First, some of the increase in cash pay would not be subject to social security taxes at all (or be credited toward social security benefits) because it would exceed the taxable earnings ceiling. In other words, cash wages above the statutory limit for social security taxes are irrelevant for our purposes, because neither social security taxes nor social security benefits will be affected. It is well to recognize, however, that only about 10 percent of total payroll is currently above the taxable ceiling.

Second, and even more important, is the effect of the weighted formula for calculating workers' OASDI benefits. For example, consider an individual earning a cash salary of \$22,000 in 1981, and fringe benefits of \$5,000:

fringes amount to 18.5 percent of the total compensation of \$27,000. If the worker's salary had been \$24,000 and fringes, \$3,000 (or 11.1 percent of total compensation of \$27,000), social security tax payments would have been 9.1 percent greater; but the social security benefit accrual rate (based on the 1981-cohort formula) would have been only 4.1 percent higher.¹¹ In other words, social security taxes would increase more than social security benefits would.

Inattention to the effect of growing fringes on the size of social security deficits has the potential of exaggerating the concern over the financial health of the program. The above analysis clearly indicates that the long-range social security deficit would be smaller than is officially estimated if an "equal growth rate assumption" were used. But what if the "faster growth rate assumption" proves true?

It may be surprising, but social security's long-range deficit might still be overstated, if the following development takes place. Given the trends toward relatively more private fringes and old-age protection, increases in future benefits would most likely be for old-age protection sponsored by the private sector. This implies that, as private pension plans spread or are improved, the relative role of social security will diminish. The result would be a distribution of old-age protection between social security and private pensions that is different from that embodied in the official projection. With a reduced relative role for social security, program expenditures should fall, and the deficit would again be smaller than estimated.

OF COURSE, both the "faster growth rate assumption" and the "equal growth rate assumption" may be unrealistic, and the future growth rate of fringes may lie somewhere between or outside these assumptions. Given the linkage between future growth rate in fringes and the size of the projected deficit, any reduction in the rate of increase in fringes from that currently assumed will reduce the long-range social security deficits. And, even should the disproportionately high growth of fringes continue, or accelerate, deficits may not reach levels which would otherwise be expected because of shifts in the composition and sponsorship of benefits. □

FOOTNOTES

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The views presented in this article are the author's own, and are not necessarily shared by any of the aforementioned persons, or by the organizations with which the author is affiliated.

¹¹"Fringe benefits" refers to a large number of noncash forms of compensation that many workers receive as part of the total compensation package. In deference to common usage, the term "fringe benefits" or "fringes" will be used interchangeably with "employee benefits."

²Each of these percentages expresses fringe benefits as a ratio to to-

tal compensation. If fringes were expressed as a percentage of cash payroll, as is common in employee benefits parlance, the 15.8 percent of total compensation in 1980 would translate into 18.8 percent of payroll, and the 37.8 percent of total compensation being projected for the year 2055 by the Office of the Actuary becomes 60.8 percent of payroll. Moreover, the fringes being included in these percentage figures do not include "payments for time not worked" (lunch breaks, coffee breaks, paid holidays, and paid vacations).

³ The official definition of the taxable payroll is:

"the amount which, when multiplied by the combined employer-employee tax rates, yields the total amount of taxes that would be paid by employers, employees, and the self-employed. In this way expenditures, when expressed as percent of taxable payroll, can be compared directly to the combined employer-employee tax rate to determine whether the system is operating at a surplus or deficit. In practice, the taxable payroll is calculated as a weighted average of the earnings of employers, employees, and the self-employed, where the weighting is done to take into account the lower tax rates on self-employment income, on tips, and on multiple-employer 'excess wages' as compared to the combined employer-employee rates."

See Steven F. McKay, *Long-Range Cost Estimates for Old-Age, Survivors, and Disability Insurance System, 1980*, Actuarial Study No. 83 (Social Security Administration, Office of the Actuary, 1980), p. 10.

⁴ The shortfall of 1.52 percent of taxable payroll was the difference between expenditures and tax rates (both expressed as a percent of taxable payroll) that are scheduled in the law currently in effect; that is, the type and levels of benefits, as well as the combined tax rates now set forth in the law, are unchanged in all future years. Under the intermediate cost projection, annual expenditures for OASDI during 1980-2054 average 13.74 percent of taxable payroll, while the combined employer-employee tax rate for OASDI averages 12.22 percent. See *1980 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds (The Trustees Report)*, House Document No. 96-332, 96th Cong., 2d. Sess., p. 4.

⁵ Although the focus of this article is the long-range deficit, it should be emphasized that differing growth rates in fringes will have important effects on short- and medium-range deficits as well. For example, a decline in the proportion of total compensation going to fringes will have the effect of reducing deficits in the immediate future for at least two reasons: (1) There is a lag between the time workers pay higher social security taxes based on greater cash wages and the time they receive the social security benefits based on those greater wages; and, (2) although social security benefits paid to those coming on the rolls will increase somewhat because of the earnings indexing factor (that is, because they are based on average annual covered wages which will be higher as a result of the workers' greater cash earnings), increases in benefit payments due to this factor are much smaller in comparison to increases in social security taxes based on higher wages now prevailing. The data for the period 1980-2004 in table 2 illustrate the point.

⁶ The reader may be struck by this seemingly small percentage. For example, the widely quoted study by the Chamber of Commerce of the United States (*Employee Benefits, 1979* (Washington, 1980), p. 30) stated that total fringes amounted to 31.8 percent of payroll in 1979.

The Chamber's figure differs significantly from the 15.4 percent we computed from Commerce Department data for two major reasons: (1) the Chamber's figures include "payments for time not worked"; and, (2) the Chamber relates fringes to cash payroll, while this discussion relates fringes to total compensation in using the Commerce Department data. When the Chamber of Commerce data are adjusted (to remove payments for time not worked from fringes, and to relate fringes to total compensation), fringe benefits in 1979 amounted to 15.7 percent of total compensation, which is very close to the 15.4 percent figure based on the Department of Commerce data.

Another major source of data on fringes is the BLS Employment Cost Index (ECI). The first ECI publication presented wage and salary data for the fourth quarter of 1975. The program was subsequently expanded to include employee benefit costs, and recently published its first annual estimates of total compensation (wages plus fringes) relating to calendar 1980. The fringes covered in the index included payments for time not worked, such as paid holidays, and paid vacations.

⁷ The distinction between old-age protection and current protection is still not clear-cut even with the indicated 80-20 division of employer contributions for OASDI. Federal civilian employees' retirement, State and local employees' retirement, and railroad retirement systems also provide disability and survivors' benefits to some extent. Medicare hospital insurance is included in old-age protection because it is a program for the elderly, although it covers some disabled persons regardless of age. However, the main trend identified would not be affected by fine-tuning the data.

⁸ It is possible that the development of "cafeteria" or flexible benefit plans, under which workers are given a choice among different types and amounts of fringes (beyond certain basic benefits that every worker must have), will alleviate the problem of loss of freedom of choice. However, any conclusions must await widespread implementation of such plans.

⁹ Conventional designs for fringe benefits have not adapted to changing life-styles and work-styles (such as two-earner families) in recent years. Therefore, there are at present some duplicative, costly, and not-so-useful fringes. If cafeteria or flexible benefit plans described in the previous footnote were widely adopted, they might well result in cost saving or cost control in the future.

¹⁰ The recently enacted Economic Recovery Tax Act of 1981 provides for indexing of income taxes beginning in 1985, for overall tax rate reductions, and for expanded use of Keogh Plans and Individual Retirement Accounts.

¹¹ In 1981, the combined employer-employee social security tax rate for OASDI is 10.7 percent. The social security tax on the \$22,000 salary is \$2,354 and on \$24,000, \$2,568; \$2,568 is 9.1 percent larger than \$2,354.

In 1981, the primary insurance amount (PIA) is calculated by adding the products of the following three steps:

- (a) 90 percent of the first \$211 of the average indexed monthly earnings (AIME), plus
- (b) 32 percent of the AIME over \$211 and through \$1,274, plus
- (c) 15 percent of the AIME over \$1,274.

For \$22,000, AIME of \$1,833 gives PIA of \$614.00, and for \$24,000, AIME of \$2,000 gives PIA of \$639.00; \$639.00 is 4.1 percent larger than \$614.00.

APPENDIX: Impetus for this analysis

The author's curiosity about the effect on social security's deficits of the assumption concerning the growth rate of fringes was first aroused by the accompanying tabulation which he constructed from tables 14 and 15 of a September 1980 actuarial study published by the Social Security Administration.

Table 14 of that study presents OASDI expenditures as

a percentage of taxable payroll, while table 15 shows the same expenditures as a percent of gross national product. Each table provides data for selected years from 1980-2055, the 75-year annual average, and the averages for the three 25-year subperiods. According to the author's calculations, the rates of increase between 25-year periods are much larger when OASDI expendi-

Table A-1. Projected OASDI expenditures as a percent of taxable payroll and as a percent of gross national product, and changes between selected periods, 1980-2054

Period	Expenditures as percent of taxable payroll	Rate of increase between periods (in percent)	Expenditures as percent of gross national product	Rate of increase between periods (in percent)
25-year annual averages:				
1980-2004	10.66	...	4.58	...
2005-2029	13.57	27	5.32	16
2030-2054	16.98	25	6.08	14

NOTE: OASDI expenditures were based on the intermediate-cost projection.
 SOURCE: Calculated from Steven F. McKay, *Long-Range Cost Estimates for Old-Age, Survivors, and Disability Insurance System, 1980*, Actuarial Study No. 83 (Social Security Administration, Office of the Actuary, 1980), pp. 51-52.

tures are expressed as a percentage of taxable payroll than when the same expenditures are expressed as a percentage of gross national product. The actuarial study provides no discussion of the difference.

The author discovered that the reason for the discrepancy is the assumption embodied in the official actuarial procedure that fringes will grow faster than wages by 0.4 percent per year during 1980-2054. In response to his inquiry, the Office of the Actuary of the Social Security Administration indicated that the annual differential growth rate of 0.4 percent was chosen because it was the average experienced during 1951-80. Social security actuaries also noted that the rate was actually about 0.3 percent per year during the 1950's and 1960's, and about 0.7 percent annually during the 1970's.

The social security penalty

Secondary earners are dually entitled to primary benefits as workers and to secondary benefits as wives. But they often do not work long enough in paid employment to obtain primary benefits as workers which are higher than their secondary benefits as wives. The dual entitlement provision of social security guarantees them a minimum benefit, defined by the wife's benefit. That is, if the primary benefit based on her earnings record is less than her wife's benefit, she will receive a supplemental benefit equal to the difference. The existence of this minimum guaranteed benefit causes the appearance of an inequity. Since wives are guaranteed the wife's benefit as a minimum, wives who combine homemaking with part-time or intermittent work appear to get no return or a very low return for the social security taxes that they pay while in the labor force.

—JUDITH B. FINN

The Treatment of Women Under Social Security: A Critique of the Proposed Reforms (Washington, The Free Congress Research and Education Foundation, 1981), p. vi.

Agricultural employment: has the decline ended?

The long-term decrease in farm employment has moderated during recent years, although technological gains continue, and farmers often need to moonlight in nonfarm jobs in order to remain in the business

PATRICIA A. DALY

Although agricultural employment accounts for less than 4 percent of all jobs, it has an important place in the Nation's economy. The ability of such a small percentage of the labor force to provide for most of the country's food needs, as well as for exports, testifies to the skill and productivity of the agricultural sector.

Agriculture has received extensive media coverage in recent years, especially concerning parity prices, price supports, and grain exports and embargoes. Its employment has been affected by the transformations in farm number, size, and scale. As farm technology has improved, the more intensive use of capital equipment has shifted emphasis from people to machinery. During the last three decades these structural and technological changes have had a profound impact on jobs and have affected both the character of the agricultural labor force and its size. However, since 1970, these changes have slowed dramatically. (See table 1.)

During 1976–80, agricultural employment held about steady at an annual average of 3.3 million, the sharp declines of the 1950's and 1960's having virtually stopped. Since 1970, agricultural employment has only declined by 150,000 compared with losses of 1.7 and 2.0 million in the previous two decades. (See table 2.)

Because of the nature of agricultural employment, it is useful to examine two data series in order to obtain a more complete picture of the trends and composition of the labor force. The monthly Current Population Survey (CPS) provides information for those whose primary employment is in agriculture and who are age 16 or older. It comprises the self-employed and persons who work for wages or salaries, as well as those who put in 15 hours or more per week as unpaid workers on family farms. The Hired Farm Working Force data are obtained from supplementary questions to the CPS asked only in December and cover all persons age 14 or older who worked in agriculture at some point during that calendar year for wages or salaries. These two series overlap for those wage and salary workers whose primary occupation is in agriculture, but both are necessary to account for the many who combine work in agriculture with other pursuits. Both surveys confirm that recently the long-term decrease in farm employment has slowed.

In agriculture, the primary unit has historically been the family farm. In the past, land was abundant and labor rather than capital was the main input. Family members were the primary suppliers of the labor, and their goal was to provide enough food for their own consumption, as well as a surplus to sell. The impetus behind the development and adoption of technology on individual farms was the desire to raise more agricultur-

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al products or produce them at a lower cost, within the constraints of the family's fixed resources of land and labor. The immediate result was an increase in the income of the innovative farm family, but quite naturally production also rose for the agriculture industry as a whole, as the use of technology grew. So the supply of agricultural products increased more than demand, driving prices down. Many farming units could no longer make enough income and were forced out of business. Some displaced workers moved into nonfarm occupations, and others reverted to small-scale or subsistence farming, combined with nonagricultural employment when it was available.¹ Both moonlighting and nonfarm employment by family members have enabled families to stay in farming.

Worker characteristics

Sex, age, and race. Agricultural employment tends to be disproportionately male and white. In 1980, women accounted for only 20 percent of such employment, compared with 43 percent of other jobs. Furthermore, almost one-third of the women in agriculture were unpaid family workers. In contrast, more than half of the men were self-employed. About 40 percent of each sex were wage and salary workers. Both men and women tended to be older than their nonagricultural counterparts, as the percentages in the following tabulation for 1980 show:

	<i>Agricultural</i>	<i>Nonagricultural</i>
Men:		
16 to 24 years	23.7	20.0
25 to 54 years	49.3	65.0
55 years or older . . .	27.0	15.0
Women:		
16 to 24 years	21.8	24.1
25 to 54 years	61.5	62.5
55 years or older . . .	16.9	13.4

By race or ethnicity, whites make up 92 percent of agricultural employment, blacks 8 percent. Hispanics, who are included in the white total, make up 7 percent. Of the working age population, whites account for 88 percent, blacks 12 percent, and Hispanics 5 percent.² In the past, blacks made up a larger proportion of agricultural employment, 11 percent in 1970 and 16 percent in 1962, while representing 11 percent of the population in 1970 and 10 percent in 1962. A historical series of farm operators³ shows a long-term decline of blacks and other races as a proportion of total farm operators in the United States and the South since 1920.

Minorities are predominantly wage and salary workers and are less apt to be self-employed than are whites. Wage and salary jobs accounted for 39 percent of white, 74 percent of black, and 90 percent of Hispanic agricultural employment. Fifty-one percent of the white

Table 1. Employed agricultural workers by selected characteristics, annual averages, 1970 and 1980

[In thousands]

Worker	1970		1980	
	Number	Percent	Number	Percent
Total, 16 years and over	3,462	100.0	3,310	100.0
Men	2,861	82.6	2,664	80.5
Wage and salary workers	979	34.2	1,116	41.9
Self-employed workers	1,722	60.2	1,446	54.3
Unpaid family workers	160	5.6	101	3.8
Women	601	17.4	646	19.5
Wage and salary workers	174	29.0	267	41.3
Self-employed workers	88	14.6	182	28.2
Unpaid family workers	339	56.4	197	30.5
Whites	3,094	89.4	3,052	92.2
Blacks and others	368	10.6	258	7.8

workers were self-employed, compared with only 23 percent of blacks and 9 percent of Hispanics. Much smaller proportions were unpaid family workers: 9 percent of whites, 3 percent of blacks, and just 1 percent of Hispanics.

Region and residence. The South and North Central regions (as designated by the U.S. Bureau of Census) have always provided the largest share of the agricultural labor force. In 1980, more than 70 percent of those employed in this sector lived in 1 of these 2 regions. Nevertheless, there has been substantial growth in the Western region, which was the only area to record an increase in the level of agricultural employment. (See table 3.)

Agricultural employment once implied farm residence, but this is no longer the case. Thus, while 75 percent of agricultural workers lived on farms in 1960, this proportion dwindled to 63 percent in 1970, and 47 percent in 1980.⁴

Jobs decline, those remaining change

In 1870, almost 50 percent of employed persons worked in agriculture⁵ and one farmworker could only supply five people with farm products. By 1980, just 4 percent of the employed were in agriculture, and each one supplied food for nearly 70 others.⁶ As the need to commit a large percentage of the work force to agriculture diminished and its share of the Nation's jobs declined, some fundamental changes occurred in the nature of agricultural employment.

Occupation. The term "agricultural ladder" was once used to describe the desired progression from hired hand to tenant farmer to owner-operator. But as agriculture has changed—to consist of fewer, larger farms, which require large capital outlays—the likelihood of this type of advancement has diminished.

Most agricultural workers can be classified into two major groups of approximately equal size: farmers and farm managers, and farm laborers and supervisors.

They account for more than 80 percent of agricultural employment. As agriculture has become more specialized and as the individual farm involves more resources, the managerial function has grown. Occupational support services include cropdusting, animal breeding, and veterinary medicine, as well as a variety of other jobs, such as sales and office work. The percentage of those in this "other" category grew markedly during 1972-80, from 11.6 to 18.3 percent.⁷ This jump relates to the expanded use of agricultural services and the decline in the number of farms and farmers, as the following percentages suggest:

	1972	1980
Total	100	100
Farmers	48	44
Farm laborers (wage)	26	27
Farm laborers (unpaid family workers)	13	9
Farm managers	1	1
Supervisors	1	1
Other (cropdusters, veterinarians, and so forth)	12	18

Farms and farmers. The number of farms declined by 3.25 million since 1950, with the largest decrease—1.7 million—occurring between 1950 and 1960. A drop of 1 million occurred in the 1960's, followed by 0.5 million more in the 1970's. (See table 2.) As the number of farms decreased, their average size increased. This, combined with several sociological and economic factors has resulted in a different proportional makeup in the class of worker categories—wage or salary workers, self-employed, and unpaid family workers—in the industry.

Family farms still predominate, though there is an increase in the number of corporate farms, as family or individually owned farms incorporate for economic or legal reasons.⁸ Also, many family or individually owned farms are dominated by agribusiness because the producers contract with these firms before production begins.⁹

Since 1950, the number of wage and salary workers declined by 0.25 million, but the wage and salary share of total agricultural employment increased from 23 to

42 percent. Over the same period, the number of self-employed dropped by 2.7 million, from 61 to 49 percent of agricultural employment. Farm incorporations, in which farm owners are transformed into wage and salary workers, partially account for these changes.

The number of unpaid family workers in 1980 is about one-third of what it was in 1950, and these workers now constitute 9 percent of agricultural employment. The largest decline occurred in the last 10 years, as many women moved into paid occupations.

Hours of work. As is generally well-recognized, agricultural workers tend to put in more hours than other employees; in 1980, their workweek averaged 45.1 hours, versus 38.3 hours for nonagricultural workers. For those with full-time jobs, the comparable workweeks were 53.3 and 42.5 hours. As shown in the following tabulation, more than 40 percent of agricultural workers spend 49 hours or more at work in their primary job, compared with fewer than 15 percent of nonagricultural workers:

Workweek	Wage and salary		
	All agriculture	Agriculture	Non-agriculture
Total	100.0	100.0	100.0
1 to 34 hours	29.9	30.6	24.5
35 to 48 hours	28.1	36.6	62.7
49 hours or more	41.9	32.9	12.9

One reason for these differences is that agricultural workers are more likely to be self-employed, and the latter have always put in longer hours than wage and salary workers, a factor that skews the hours distribution. Nevertheless, even among wage and salary workers, full-time agricultural workers averaged 49.1 hours, compared with 42.1 hours for persons in nonagricultural jobs.

Multiple jobholding. An interesting characteristic of agricultural employment is the high incidence of multiple jobholding. In 1980, about 5 percent of all workers held two jobs or more, and of this group, 19 percent held one job or more in agriculture.

Farmers and farm managers reported a frequent need to moonlight. Because agricultural product prices fluctuate and consequently farm income varies, holding a second job stabilizes the income for those employed in agriculture and has allowed many to remain in agriculture when their farm income alone may have been inadequate. The median workweek, in May 1980, for moonlighting agricultural workers (60 hours) is substantially longer than that of workers in nonagricultural industries (49 hours). Moonlighters who are self-employed in agriculture work a particularly long week, averaging 68 hours, compared with 51 hours for wage and salary workers.

Table 2. Comparison of employed agricultural workers and the number of farms, annual averages, selected years, 1930-80

[In thousands]

Year	Workers ¹	Farms
1930	10,340	6,295
1940	9,540	6,102
1950	7,160	5,388
1960	5,458	3,962
1970	3,462	2,954
1980	3,310	2,428

¹ Data for 1950 forward relate to persons 16 years and over; all other data relate to persons 14 years and over.

Table 3. Comparison of employed agricultural workers and the hired farm working force by geographic region, annual averages, selected years, 1960-80

[In thousands]

Year	United States		Northeast		North Central region		South		West	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Employed agricultural workers										
1960 ¹	5,723	100.0	426	7.4	2,016	35.2	2,425	42.4	856	15.0
1970	3,462	100.0	299	8.6	1,377	39.8	1,248	36.0	538	15.5
1975	3,390	100.0	302	8.9	1,311	38.7	1,214	35.8	563	16.6
1979	3,298	100.0	261	7.9	1,209	36.6	1,202	36.4	627	19.0
1980	3,314	100.0	272	8.2	1,241	37.4	1,161	35.0	640	19.3
Hired farm working force¹										
1960	3,693	100.0	295	8.0	679	18.4	2,088	56.5	630	17.1
1970	2,488	100.0	241	9.7	590	23.7	1,093	43.9	564	22.7
1975	2,639	100.0	227	8.6	674	25.5	1,074	40.7	664	25.2
1979	2,651	100.0	188	7.1	785	29.6	1,071	40.4	607	22.9

¹Data relate to persons 14 years and over; all other data relate to persons 16 years and over. Data have been collected biennially since 1977.

Seasonality. The seasonal nature of agriculture and its dependence on weather, combined with the high perishability of the product, makes agriculture unique. Employment in agriculture varies from season to season and the difference in employment between summer and winter months is sharpest for farm laborers and supervisors, as chart 1 shows. As would be expected, employment of farmers and farm managers and of agricultural service workers is more stable.

Hired farm work force

Size decreases. The size of the hired farm working force declined from an average of 3.6 million in the 1950's to 3.2 million in the 1960's and has been fairly steady at 2.7 million in recent years.¹⁰

Contributing to the drop has been the slackening of demand for labor as mechanization has eliminated many harvesting tasks. Some estimates have been made of the number of jobs lost to certain labor-saving devices. For example, the National Rural Center reported that the mechanization of the cotton harvester displaced approximately 4 million people between 1945 and 1965, and similarly, there was an estimated loss of more than 30,000 tomato harvesting jobs between 1966 and 1970 because of mechanical harvesters. Substantial job losses have been predicted in the tobacco industry because of mechanization in the flu-cured tobacco belt.¹¹

There are many reasons for individual farmers to adopt new technology, with long-term cost savings being the primary motivating force. The uncertainty of the available supply of agricultural workers has also been a factor in the decision to mechanize, because farmers wish to minimize the risk of losing a crop because of a possible shortage of harvest workers. Thus, there can be a circular relationship between declines in agricultural employment and increased mechanization. When farmers invest in labor-saving technology, this reduces the aggregate number of available jobs, which in turn, in-

duces hired farmworkers to seek nonagricultural employment, diminishing the labor supply further and continuing the cycle.¹²

Job attachment. The hired farm work force includes many people who spend only a fraction of the year doing farmwork. The following tabulation classifies the percentage of hired farmworkers in 1979 by number of days worked:

	<i>Workers</i>
Total hired farm work force	100
Casual (25 days or less)	34
Seasonal (25 to 149 days)	37
Regular (150 to 249 days)	13
Permanent (250 days or more)	16

Seventy percent of the hired farm working force worked less than 150 days in 1979. This type of job may be ideal for those interested in part time, sporadic employment but frustrating for those who need to piece together several jobs to maintain a steady source of income.

Since the 1950's, there has been an increase in the number of casual workers, with slight declines recorded in the other categories.

The limited job attachment to the hired farm working force, in general, can be discerned through an examination of the primary labor force activities of this group. Almost half considered themselves to be out of the labor force. Less than 30 percent reported farmwork as their major activity of the year, and about 20 percent thought of nonfarm employment as their primary status. About three-fourths of those who did farmwork, but generally considered themselves out of the labor force, were students; most of the remainder were housewives.

Overall, Hispanics appear to have the strongest tie to farmwork. They tend to be less educated and less experienced in other work, so they are more dependent on

farmwork for employment opportunities.

The educational attainment of the hired farm working force is quite low compared with other workers. Educational levels are particularly low among minorities, as the median number of years of study completed was only 5.4 for Hispanics and 7.7 for blacks. Because education is a significant factor in occupational mobility, a lack of schooling often makes it difficult for minorities to leave this occupation. Thus, they spend a much longer time in hired farmwork, as the percent distribution for 1977 shows:

	All workers	Whites	Hispanics	Blacks and others
Less than 5 years . . .	53	60	36	35
5 to 10 years	22	21	19	20
11 to 20 years	11	10	17	17
20 years or more . . .	9	4	12	18
Not reported	6	5	10	10

The effects of time

The characteristics of the hired farm working force have changed over the years, with the most significant differences occurring in racial composition, regional distribution, and residence. In 1950, blacks and other races composed about 29 percent, this increased to 37 percent

in 1960, and then declined sharply to 22 percent in 1970 and to 13 percent in 1979. Hispanics have accounted for 11 to 12 percent of the hired farm working force since 1975, the first year data for Hispanics were tabulated.

The decline in the hired farm working force has been sharpest in the South, where the number dropped by 1 million between 1960 and 1970. Since 1970, the number of farmworkers in the South has stabilized, while there has been an increase in the North Central region. (See table 3.) The differences in the regional distribution of farmworkers between the Hired Farm Working Force series and annual averages from the Current Population Survey reflect dissimilarities in the crops grown and in the types of farming operations. The use of hired farmworkers tends to be more prevalent where irrigation is extensive, where fruits and vegetables are the leading crops, and in plantation and ranching areas where farming units have always been larger than can be handled by a single family.¹³

Another change has been the decline in the proportion who live on farms. In 1979, over 80 percent of the hired farm work force had nonfarm residences, compared with about 70 percent a decade earlier, and 35 percent more than 40 years ago.

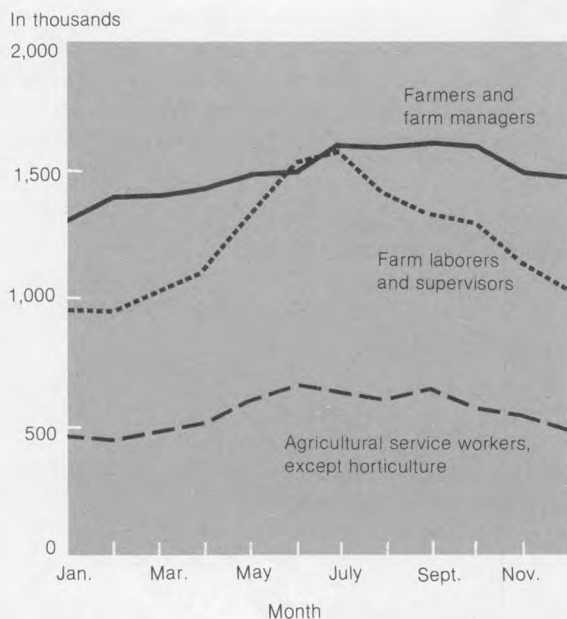
The percentage of women in the hired farm working force has ranged from 21 to 30 percent in the last 35 years and was 22 percent in 1979. Among women, there has been a sharp increase in the proportion of students and a decline among homemakers.¹⁴

The average age for hired farmworkers differs between races. Whites were the youngest, 63 percent were ages 14 to 24, compared with 37 percent for Hispanics, and 40 percent of blacks. This reflects the many white students who perform farmwork temporarily, while for minority members it remains a career.

Migrant workers. Migrant farmworkers, defined as those who leave their home county overnight and work in another one at some time during the year, are a small subset of the hired farm work force. These workers, though few numerically, attract considerable attention because of their living conditions.

The number of migrant workers was close to 200,000 throughout the 1970's, a decline from 400,000 in 1960. Although they accounted for only 7 to 8 percent of the work force in the 1970's, migrant workers have fulfilled a significant need in agriculture. Mechanization has not spread at an even rate across production, particularly in the harvesting phase and some crops will always have to be handpicked because of their delicate nature. The availability of migrant farmworkers is a factor which has allowed increased crop specialization. Without them, farmers would be limited to the local labor supply and might have to stagger the harvesting times of

Chart 1. Persons employed in agricultural occupations by month, 1980 (not seasonally adjusted)



crops, losing the economic advantages of specialization. It has also been suggested that the availability of migrant workers saves a large amount of U.S. agricultural production that would otherwise be lost in spoilage.¹⁵

The migrant labor force in 1979 was predominantly male; only one-fourth was female. The migrant men tend to be slightly older than the men in the total hired farm working force, whereas migrant women are somewhat younger. Blacks and Hispanics contribute disproportionately to the migrant labor supply, although the majority are white. The largest proportion of migrant workers have their home base in the South (40 percent), followed by the West (29 percent), and North Central (26 percent) regions. Fewer than 6 percent are found in the Northeast.

Many migrants travel long distances to work, though the extent varies by region of origin. Most of the migrants begin their travels in the South, and these migrants travel the farthest, as almost 40 percent record over 1,000 miles in a season. In the West and North Central regions, the majority of the workers travel less than 500 miles, as do nearly all the migrants from the Northeast. Thus, it appears that there is a sizable group of migrants, presumably originating in the South, who follow the crops over long distances, while other migrants remain relatively close to home.

The employment future

The U.S. agricultural system is considered to be the most efficient and productive in the world. Productivity continues to increase,¹⁶ although opinion varies as to whether the tremendous biological, chemical, and mechanical advances of the last few decades can persist. The complexity and scale of modern agriculture may pose prohibitive costs in realizing further substantial productivity gains.¹⁷

It is possible that some sort of lower limit on the number of agricultural workers is being approached.

The recent stabilization of the total agricultural labor force and the hired farm working force suggest this. Also, the decline in agricultural employment has been less than was projected by BLS in the early 1970's. It was then expected to drop at a rate of almost 5 percent annually between 1972 and 1980;¹⁸ the actual rate of decrease has been much less.

The decline was forecast because productivity was expected to rise more than demand. However, the former rose less than expected (3.7 percent actual versus 6.1 percent projected) and the latter increased more than anticipated (1.5 percent rather than the projected 0.5 percent annual increase). Rising exports, which have more than doubled in quantity in the past 10 years, partially account for the growth in demand.¹⁹ More recent projections of farm jobs anticipate an annual decline of 1.5 percent between 1980 and 1985 and a 2.3-percent decrease between 1985 and 1990 in a low-growth scenario; and an 0.7-percent increase between 1980 and 1985; followed by a drop of 2.1 percent annually between 1985 and 1990 in the high-growth model.²⁰

The questions now are whether the 1980's will bring another round of technological advances and whether the international demand for agricultural products will continue to rise. The effect of these two forces will determine in part the future size of the agricultural labor force.

Overall, it is difficult to predict what will happen in agriculture and its employment. There is a growing concern that all the changes in the structure of agriculture have not been positive. Some serious problems with erosion and soil depletion, debt burden, and obstacles to entry have surfaced. Research is being done on intermediate technology, organic farming, and small farm viability, and some data suggest that smaller farms are more efficient, productive, and innovative.²¹ As the fear of economic and environmental problems in agriculture increases, these options may become more important. □

FOOTNOTES

¹ James S. Holt, "Introduction to the Seasonal Farm Labor Problem" in Robert D. Emerson, ed., *Seasonal Agricultural Labor Markets in the United States*, preliminary report submitted to the Department of Labor, September 1980, pp. 4 and 5.

² The term "blacks" refers to all persons in the survey other than whites. In addition to blacks, the group includes American Indians, Alaskan natives, Asians, and Pacific Islanders. Data on persons of Hispanic ethnicity are collected independently of racial data. In the 1970 census, approximately 96 percent of their population was white.

³ *Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition, Part 2* (U.S. Bureau of the Census, 1975), p. 465. The term "farm operator" is used to designate a person who operates a farm, either doing the work himself or directly supervising the job. This person may be the owner, a member of the owner's household; a salaried manager; or a tenant, renter, or sharecropper.

⁴ *Farm Population of the United States: 1979*, Series P-27, No. 53

(U.S. Bureau of the Census, jointly with U.S. Department of Agriculture, 1980), p. 5; and later reports.

⁵ *Historical Statistics of the United States: 1979*, p. 127.

⁶ *Changes in Farm Production and Efficiency, 1978* (U.S. Department of Agriculture, Economics, Statistics, and Cooperative Service), Bulletin 628, p. 57 and later preliminary estimates.

⁷ 1972 was used for comparison, because consistent occupational data are not available for prior years.

⁸ B. Delworth Gardner and Rulon D. Pope, "How is Scale and Structure Determined in Agriculture?" *American Journal of Agricultural Economics*, May 1978, p. 299.

⁹ Al Krebs, "From Seedling to Supermarket: Vertical Integration in the Food Industry" in Kenneth M. Coughlin, ed., *Perspectives on the Structure of American Agriculture, Volume II: Federal Farm Policies* (Washington, D.C., Rural America, 1980), p. 44; and Ann

Crittenden, "More and More Conglomerate Links in U.S. Food Chain," *The New York Times*, February 1, 1981, p. E-3.

¹⁰ Data for the hired farm working force was obtained from the *Hired Farm Working Force of 1977* (U.S. Department of Agriculture, Economics, Statistics and Cooperative Service, 1979), Agricultural Economic Report No. 437, unpublished data from 1979 and earlier reports in the series. The data had been collected annually in December through 1977 but are now collected only every other year, that is 1979, 1981.

¹¹ Heather Tischbein, "Science in Whose Interest? A Look at the Beneficiaries of Agricultural Research," *Federal Farm Policies*, p. 41.

¹² For a technical discussion of this relationship, see David Zillerman and Richard A. Just, "Labor Supply Uncertainty and Technology Adoption" in Robert D. Emerson, ed., *Seasonal Agricultural Labor Markets in the United States*, preliminary report submitted to the Department of Labor, September 1980.

¹³ Holt, "Seasonal Farm Labor," pp. 9-10.

¹⁴ Benjamin N. Matta, "Employment and Earnings Outcomes in the Hired Farmworker Market" (prepared for the U.S. Department of Labor, Employment and Training Administration, 1980).

¹⁵ Alice Larson, "Last and Still Least: Migrant and Seasonal Farmworkers in U.S. Agriculture" in Kenneth M. Coughlin, ed., *Perspectives on the Structure of American Agriculture, Volume I: The View From the Farm*, p. 22.

¹⁶ *Changes in Farm Production and Efficiency*, and later preliminary estimates.

¹⁷ Willard W. Cochrane, *The Development of American Agriculture: A Historical Analysis* (Minneapolis, University of Minnesota Press, 1979), p. 329.

¹⁸ Ronald E. Kutscher, "Projections of GNP, income, output, and employment," *Monthly Labor Review*, December 1973, pp. 27-42.

¹⁹ *Agricultural Statistics*, U.S. Department of Agriculture, 1980, p. 561, and later preliminary estimates.

²⁰ The farm jobs projections are based on productivity and output projections for agriculture. For more detail, see Valerie A. Personick, "The outlook for industry output and employment through 1990," *Monthly Labor Review*, August 1981, pp. 28-41.

²¹ Frances Moore Lappé and Joseph Collins with Cary Fowler, *Food First: Beyond the Myth of Scarcity* (Boston, Houghton Mifflin Company, 1977), pp. 155-8, 162.

A note on communications

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

Employed but not at work: a review of unpaid absences

During a typical week, about 5 million workers are absent from their jobs and more than 2 million of them receive no pay for the week; these numbers have grown as the work force has increased and as vacations—both paid and unpaid—have become more prevalent

CAROL BOYD LEON

Most public attention focuses on the total count of the employed and the unemployed. But there is a large segment of workers whose status invites special inquiry because, while counted as employed, they were not actually working. During a typical week, about 5 million workers are absentees¹—with a job but not at work for the entire week because of vacations, illnesses, and other reasons and, thus, are removed from the economic stream for that period. For the more than 2 million workers who receive no pay² for the missed week of work, that absence may have unwelcome personal costs as well.

This article focuses on the worker group to which most employees belong at some time during the year—that is, persons with a job but not at work.³ The analysis covers such issues as who these persons are, their reasons for not working, the industries in which they are employed, and differences between men and women in this status.

Monthly changes in the number of unpaid week-long absences are discussed briefly in this article. These absences ranged from nearly 4 million in August 1980 to 1.4 million during the survey week in November. The data used here are derived from the Current Population Survey (CPS) and refer to nonagricultural wage and salary workers.⁴

Absences and reasons for not working

The total number of week-long absentees (including paid and unpaid) at a given time increased substantially between 1950 and 1980, rising from 2.0 to 5.1 million. While employment grew during this period, absences grew more. Absentees as a percentage of the employed increased from 4.2 to almost 6 percent. Most of this advance occurred in the 1950's and late 1960's. A slight rise in absenteeism in the early 1970's has been largely offset by a decline in the latter part of the decade. This decline was due to a slight reduction in the incidence of absences because of illnesses and other reasons except vacations.

Throughout the period, the major reason for week-long absences was vacations. As the following tabulation shows, vacations have become an even more important reason for not working:

<i>Reason for absence</i>	<i>1950</i>	<i>1980</i>
With a job, but not at work	1,954,000	5,057,000
Percent	100.0	100.0
Vacation	54.2	59.6
Illness	28.2	24.7
Bad weather	2.9	1.5
Labor dispute	4.3	2.0
Other reasons	10.4	12.2

The tabulation also shows that illness, the second most important reason for absences in 1980, now accounts

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for only a quarter of all absences. In the early 1970's, there was concern about an increase in "unscheduled personal absence"—that is, absences caused by illnesses and "other" reasons, some of which may be called "avoidable."⁵ Since that time, however, the incidence of full-week absences for such reasons has declined among women and has held steady for men.⁶ In addition, no increases in the incidence of part-week absences have been registered for men or women.⁷

Women are twice as likely as men to miss a week of work for "other" reasons (excluding bad weather and labor dispute),⁸ such as taking care of children who are ill. It should be noted, however, that even among women, only a small portion of absences can be attributed to these "other" reasons, as the following tabulation of employed nonagricultural wage and salary workers shows (data are 1980 annual averages):

<i>Incidence of absences</i>	<i>Men</i>	<i>Women</i>
Number	48,324,000	37,215,000
Percent	100.0	100.0
With a job, but not at work . . .	5.3	6.6
Vacation	3.1	4.1
Illness	1.4	1.5
Bad weather	0.1	(¹)
Labor dispute	0.2	(¹)
Other reasons	0.5	0.9

¹ Less than .05.

Vacations and illnesses are the major reasons for absences regardless of the worker's sex. Among women, only a smattering miss a week or more of work at a time because of bad weather or labor disputes, principally because relatively few women work in occupations requiring outside work or in industries which are subject to protracted labor-management disputes. Incidence rates of absences for workers in various industries are examined later in this article; these will help explain the facts just stated.

Paid or unpaid?

Although a majority of persons with a job but not at work receive pay, about 43 percent of full-week absences were unpaid. On average, about 2.2 million workers were unpaid during a typical week in 1980. This number has doubled since 1957, the first year for which these data were collected. The incidence of unpaid absences also rose between 1957 and 1980—from 2.1 to 2.6 percent—despite a slight decline in the 1970's. The ratio of paid-to-unpaid absences—1.3 to 1 in 1980—has shown little change over time. Since 1960, this ratio has remained in the range of about 1.2–1.4 to 1. There have, however, been substantial differences in the ratio of paid to unpaid absences by sex over time.

Men are much more likely to be paid for weeks taken

off than women. The paid-to-unpaid ratio for men has been substantially above that for women since the data were first collected in 1957. In 1980, women were paid for about half of their full-week absences, while men were paid for close to two-thirds of their absences.

Whether a worker is paid or unpaid during an absence is often related to the reason for not working. Persons on vacation are quite likely to be paid during their absence and the incidence of paid vacations has risen over time. Within each major industry group, the amount of time provided for paid vacations has been increasing over the years.⁹ The ratio of paid-to-unpaid vacations, however, has fallen substantially—from 4.4 to 1 in 1960 to 2.5 to 1 in 1980—as the incidence of unpaid vacations has grown even more rapidly than that of paid vacations. The decline in the paid-unpaid ratio can be mainly attributed to faster employment growth in those industries which are less apt to provide paid vacations and to an increase in the number of persons willing to take vacations without pay—that is, an increased desire for leisure.

Persons absent from work for reasons other than vacation are more likely to be unpaid. Workers who are ill are somewhat more likely to be paid for time off than are those with "other" reasons for not working. Of course, included among persons with "other" reasons are those directly involved in labor-management disputes, who are never paid by their employer during their absence. (Some persons unable to work because of a labor-management dispute, though not on strike themselves—they may be supervisory workers—may be paid for missed work, however. Such persons are to be distinguished from those laid off as a result of a strike, who are numbered among the unemployed.) The ratio of unpaid workers absent because of illness showed an increase through the mid-1970's, but has shown almost no change thereafter. The ratio for persons absent because of "other" reasons has remained consistently low over the two-decade span.

Unpaid absences by industry

There are substantial variations among industries¹⁰ in their incidences of full-week absences, the reasons for those absences, and the likelihood that the worker is absent without pay. Furthermore, the industries with the highest incidence of full-week absence are not necessarily those with the highest incidence of unpaid absences.

The industry with the highest incidence of unpaid absences in 1980 was construction (table 1). Construction workers were generally absent for reasons other than vacations or illnesses, with bad weather playing an important role in keeping them away from their jobs. Construction workers are not absent more than other workers, so their high incidence of unpaid absences

Table 1. Private wage and salary workers with a job but not at work by industry, reason for absence, and pay status, 1980 annual averages

[Numbers in thousands]

Industry	Employed	Total absent from work	Percent of employed absent due to								Ratio of paid to unpaid			
			All reasons		Vacation		Illness		Other reasons		All reasons	Vacation	Illness	Other reasons
			Total	Unpaid	Total	Unpaid	Total	Unpaid	Total	Unpaid				
Total ¹	69,915	3,732	5.3	2.4	2.9	0.7	1.5	0.9	1.0	0.8	1.2	3.0	0.6	0.2
Mining	909	70	7.7	3.7	3.6	.8	2.0	1.3	2.1	1.7	1.0	3.7	.5	.3
Construction	4,373	235	5.4	3.9	1.6	.7	1.4	1.1	2.4	2.1	0.4	1.3	.3	.1
Manufacturing	21,088	1,227	5.8	2.2	3.0	.4	2.0	1.2	.9	.6	1.6	5.8	.7	.3
Durable goods	12,670	738	5.8	2.2	3.0	.4	2.0	1.1	.8	.6	1.7	6.5	.8	.3
Nondurable goods	8,418	489	5.8	2.4	3.1	.5	1.9	1.2	.9	.7	1.5	5.0	.6	.3
Transportation and public utilities	5,300	348	6.6	2.0	4.2	.8	1.3	.4	1.2	.8	2.2	3.9	2.2	.5
Wholesale and retail trade	17,581	788	4.5	2.4	2.5	.9	1.3	.9	.7	.6	.9	1.8	.4	.5
Wholesale trade	3,514	149	4.2	1.5	2.4	.3	1.2	.7	.7	.5	1.9	6.2	.6	.5
Retail trade	14,066	640	4.5	2.7	2.5	1.0	1.3	1.0	.7	.6	.7	1.5	.3	.2
Finance, insurance, and real estate	5,257	238	4.5	1.6	2.8	.6	1.0	.4	.7	.6	1.8	3.5	1.4	.3
Miscellaneous services	15,407	826	5.4	2.6	3.2	1.1	1.1	.8	1.0	.8	1.1	2.0	.6	.2

¹ Excludes workers in agriculture and private households.

means that they simply are not paid for most of their absences. It is generally accepted that many construction workers are paid relatively high hourly wages in part to compensate for unpaid absences. Moreover, these workers tend to have looser attachments to employers than do most other workers, which further explains the tendency for their absences not to be financed.

Persons employed in mining were next in terms of incidence of unpaid absences, with a ratio nearly as high as construction workers. They also registered a relatively large number of unpaid absences for reasons other than illnesses and vacations. The majority of persons not at work because of "other" reasons are not paid during their absences, and mining employees were no exception. Workers in mining also had a high likelihood of being on leave without pay because of illness.

Retail trade workers had a higher-than-average incidence of unpaid absences, although they took fewer full-week absences than did most workers. About 40 percent of retail trade workers' vacations involved leave without pay compared with 25 percent for total nonagricultural wage and salary workers. Services industry workers, whose incidence of unpaid absences was nearly as high as that for retail trade workers, also were likely to take a larger-than-average number of unpaid vacations. Their incidence of unpaid absences owing to illness and other reasons was about average. Both services and retail trade have higher concentrations of casual, short-term, and part-time workers who generally must report to work to be paid.

Although manufacturing workers posted a slightly higher than average number of total full-week absences, unpaid absences were about average. Manufacturing employees registered more weeks of leave mainly because of illnesses—especially paid time off for illnesses.

The proportions of manufacturing workers absent because of vacations and "other" reasons were in line with those for total workers. However, compared with workers in all other industries, manufacturing employees were the most likely to be paid for their vacations, as only about 15 percent of all week-long vacations were unpaid. Widespread union coverage undoubtedly contributed to their high incidence of paid time off.

Workers in transportation and public utility industries—who also tend to be unionized—posted a unique record of absences, both paid and unpaid. Unpaid absences were slightly below average because of the small number of workers on unpaid sick leave. More unusual is the high incidence of total absences, which results from a large number of paid full-week absences for vacations. Because of the high incidence of total absences among workers in transportation and public utilities and their low incidence of unpaid absences, the overall proportion of unpaid absences among these employees was the lowest of all industries—about 30 percent compared with an average of 45 percent for all nonagricultural industries.

Persons employed in finance, insurance, and real estate posted a low incidence of unpaid absences mainly because these workers took off relatively few weeks for illness. Total absences on account of illness were lower for these workers than for those in other industries, perhaps because of the preponderance of white-collar workers in the industry, who, like other white-collar employees, generally are less apt to have illnesses lasting a week or more.

The smallest incidence of unpaid absences was registered among workers in wholesale trade; these workers also posted the smallest incidence of total week-long absences. The incidence of paid absences for persons who were ill, on vacation, or had other reasons for not being

at work were the same as the average for total industries, but unpaid absences were substantially lower among wholesale trade workers for each of the three major reasons for absences.

Industry absences over time. The pattern of increasing and then slightly decreasing incidence of unpaid absences was evident in most, but not all, industry groups. (See table 2.) Private wage and salary workers in finance, insurance, and real estate exhibited an increase in the incidence of unpaid absence only between the latter two dates, while most other major industry groups showed a rise in the first decade and a slight decline or leveling off in the second. All industry groups had a higher incidence of unpaid absences in 1980 than in 1960.

Monthly count of unpaid absentees

The number of persons on week-long leave without pay varies greatly from month to month. The smallest number of unpaid absences does not occur every year in the same month or even the same season, whereas the largest number of workers consistently takes unpaid leave in July or August. In 1980, the number of unpaid week-long absences was highest during the survey week in July and lowest in December (numbers are in thousands).

Month	Unpaid absences	Change from previous month
January	2,120	643
February	1,929	-191
March	1,830	-99
April	2,127	297
May	1,648	-479
June	2,549	901
July	4,054	1,505
August	3,949	-105
September	1,785	-2,164
October	1,591	-194
November	1,404	-187
December	1,353	-51

The comparatively low level of unpaid December absences is largely related to the early timing of the survey week, because persons wait to take their leave during the Christmas period.

Table 2. Employed persons on unpaid absences from work by industry, annual averages, selected years, 1960-80

Industry	Numbers in thousands			As a percent of industry employment		
	1960	1970	1980	1960	1970	1980
Total, private wage and salary workers ¹	904	1,522	1,696	2.1	2.8	2.4
Mining	14	14	34	2.5	2.8	3.7
Construction	101	154	172	3.4	4.4	3.9
Manufacturing	338	573	473	2.0	2.8	2.2
Durable goods	190	343	275	2.1	2.9	2.2
Nondurable goods	148	230	199	2.0	2.8	2.4
Transportation and public utilities	78	111	108	1.9	2.5	2.0
Wholesale and retail trade	193	331	424	1.9	2.6	2.4
Wholesale trade	26	35	52	1.2	1.4	1.5
Retail trade	167	295	373	2.1	2.8	2.7
Finance, insurance, and real estate	36	55	84	1.0	1.0	1.6
Miscellaneous services	147	284	402	2.2	2.8	2.6

¹ Excludes workers in agriculture and private households. Data for 1960 include 14 and 15 year olds.

Rarely is the entire over-the-month movement due solely to seasonal factors. Changes which have no seasonal pattern, such as increases in strike activity, unseasonably bad weather, or certain epidemics, influenza for example, help make up the month-to-month variations. The nonseasonal components of the number of unpaid absences often contain the largest portion of an over-the-month change in unpaid absenteeism. And, as the word "nonseasonal" implies, a large increase (or decrease) in absences may occur in any month of any year—even in a month generally characterized by a small number of absences. For example, the number of unpaid absences during the December survey week has ranged from 1.3 to 1.7 million over the last 5 years, and the count during the January survey week has been between 1.6 and 2.4 million. Accordingly, there has been much volatility in the size of the December-January increases in unpaid absences; the rise from December 1975 to January 1976 was only about 125,000, while the over-the-month increase the following year was about 875,000. The advance posted in January 1980 was 650,000 while the January 1981 rise measured less than 250,000. The high degree of volatility in the monthly series of unpaid absences makes the calculation of a series adjusted for seasonality a difficult task which yields results of uncertain reliability. □

FOOTNOTES

¹ These data are derived from the Current Population Survey (CPS), a monthly survey of about 60,000 households conducted by the Bureau of the Census for the Bureau of Labor Statistics. Private household workers are excluded from the data presented here on absences among nonagricultural wage and salary workers. In 1980, there were, on average, 60,000 full-week absences among agricultural wage and salary workers, about 60,000 among private household workers, and more than 600,000 among the self-employed. These groups of workers were excluded from this analysis because detailed information by pay status and industry are not available. Private household workers are, however, included in the data shown for 1950.

² In this report, unpaid workers are nonagricultural wage and salary workers who were with a job but not at work for the entire survey week. Such persons are not to be confused with "unpaid family workers," who are defined as working 15 hours or more during the survey week as unpaid workers in an enterprise operated by a family member.

³ The data on absences used in this report are from the monthly CPS. The count of absences from this source is different from the numbers derived from the more commonly used source of data on absences, the May supplement to the CPS. Among the differences are:

(1) The universe for the monthly CPS consists of all workers, both full and part time, while the May supplement is restricted to nonfarm wage and salary workers who hold one job and usually work at least 35 hours per week; (2) the monthly CPS counts as absences those resulting from vacations, industrial disputes, bad weather, illness, or other voluntary, noneconomic reasons, while the May supplement excludes those resulting from vacations, industrial disputes, and bad weather; and (3) the monthly CPS data on absences provide information on workers who had a week-long absence, while the May supplement includes persons who normally work full time but actually worked fewer than 35 hours during the survey week—that is, the supplement includes part-week, as well as full-week, absences. Most important, for purposes of this article, only the monthly CPS provides data on the pay status of persons on leave. For analysis of data from the May CPS supplement, see Daniel E. Taylor, "Absences from work among full-time employees," *Monthly Labor Review*, March 1981, pp. 68–70.

⁴ An important reason to look into the issue of unpaid absences has to do with the contrasting ways in which unpaid workers are treated in the Nation's two major monthly employment series, the Current Population Survey and the Current Employment (or establishment) Statistics Program. Data from the establishment survey are based on establishment records compiled monthly from mail questionnaires by the Bureau of Labor Statistics in cooperation with State agencies. Such payroll reports on nonagricultural wage and salary employees are from a sample of establishments employing more than 30 million such workers.

Because of different employment concepts—as well as variations in sampling, collection, and estimation methodology—the employment levels registered by these two surveys are dissimilar. In 1980, nonagricultural wage and salary employment as measured by the establishment survey was 90.6 million, compared with 86.7 million from the CPS. Although it is not possible to quantify all of the differences between the surveys, the differential can be narrowed by taking into account data series such as unpaid absences. Thus, by subtracting the number of such absences from the CPS nonagricultural employment level (or adding the same number to payroll employment), the 1980 annual average differential can be reduced by 2.2 million.

For more information on the differences between the employment estimates from the CPS (household survey) and the Current Employment Statistics Program, see Gloria Peterson Green, "Comparison of Nonagricultural Employment Estimates from Two Surveys," *Employment and Earnings*, March 1981, pp. 6–8, and "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9–20. It should be noted that little suc-

cess has been achieved by accounting for unpaid absences when measuring the differences in the over-the-month movements of the CPS and establishment employment estimates, partly because of the great volatility in unpaid absences. Moreover, a 1976 Bureau of Labor Statistics working paper by Joseph R. Antos and others, entitled "Why Employment Estimates Differ: A Study of Discrepancies Between BLS Household and Payroll Estimates" found that simply subtracting the entire number of unpaid absences from the CPS estimate is not always an optional method of reconciling the two surveys for trend analysis. The reasons for this are not possible to determine conclusively, but may include sampling and survey response biases and the quality of the data.

⁵ See Janice Neipert Hedges, "Absence from work: a look at some national data," *Monthly Labor Review*, July 1973, pp. 24–30.

⁶ It should be noted that data for years prior to 1968 are not strictly comparable with data for more recent periods. A change in the CPS questionnaire in mid-1967 resulted in a small increase in the number of persons classified as employed but absent from work. Currently, all persons who have a job from which they are absent are considered employed; before the questionnaire revision, persons who were absent from work and looking for a new job were counted as unemployed.

⁷ For further information on total absences (both full- and part-week), see Taylor, "Absences from work."

⁸ "Other" reasons include maternity, school, sickness of other family members, personal business, and various other responses. A study conducted by the Bureau of Labor Statistics in 1978 showed that, in addition to including the categories just named, the count of full-week absences for "other" reasons also includes a similar number of misclassified responses. The misclassified group of persons not at work because of "other" reasons is comprised mainly of persons who should have been classified according to the standard reasons—that is, illness, vacation, or bad weather—and those who should have been grouped with the unemployed or with persons not in the labor force. The 1980 data, however, are apt to contain fewer misclassifications because of improvements made in survey procedures.

⁹ Industries also have increased the number of weeks of paid absences for which workers are eligible. See *Handbook of Labor Statistics, Bulletin 2070* (Bureau of Labor Statistics, 1980), tables 112 and 113, pp. 275–82.

¹⁰ The data on unpaid workers by industry presented in this report refer only to *private* nonagricultural wage and salary workers, excluding private household industry workers, as more comprehensive data do not exist for 1960. (See section on industry absences over time.)

Birth of a federation: Mr. Gompers endeavors 'not to build a bubble'

Contemporary account notes the role of the longtime AFL president in the founding 100 years ago of an earlier federation of unions, to which the AFL-CIO traces its origin

STUART BRUCE KAUFMAN

The centennial celebration this year by the AFL-CIO, marking the founding in 1881 of the AFL's immediate predecessor, the Federation of Organized Trades and Labor Unions of the United States and Canada, comes in the seventh year of a scholarly research project known as the Samuel Gompers Papers. The project's staff is gathering the papers of Samuel Gompers (1850-1924), the cigarmaker who became the AFL's first president in 1886 and continued in office, with the exception of one year, until his death 38 years later. This collection now includes almost a million pages of Gompers' correspondence, writings, and speeches, and other important documents drawn from unions, repositories, and private individuals, and is located at the University of Maryland and Pace University. The project's editors plan to produce a comprehensive microfilm for scholars, students, and researchers, and to publish 12 volumes of the most important papers for general readers. The first series of microfilm appeared in 1979.¹

A hundred years ago a reporter from the *Pittsburgh Commercial Gazette* witnessed the 4-day founding convention, in that city, of the Federation of Organized Trades and Labor Unions of the United States and Canada. Although the reporter's interpretation of events on the first day did not please Samuel Gompers, by the end of the convention the *Gazette* must have felt satis-

faction as Gompers himself led the assembly in thanking the paper for its fair reporting of the proceedings. The excerpts from the *Gazette's* coverage that follow give a good sense of the range of federation concerns in 1881, and of the reaction of one representative of the daily press to the convention and what it portended. They are adapted from the first volume of the Gompers Papers, which the University of Illinois Press will publish in 1983. For the most part, the text is rendered as it appeared in the original.

Pittsburgh Commercial Gazette

WEDNESDAY, NOVEMBER 16, 1881

At two o'clock yesterday afternoon the delegates to the National Labor Congress assembled . . . from Massachusetts, New York, Pennsylvania, Ohio, Michigan, Illinois, Missouri, California, Maryland, West Virginia, Indiana and Wisconsin. . . short speeches advancing ideas to be discussed at some future time, were made by a number of gentlemen. All were conservative in tone, and, while the difference between labor and capital was referred to as a conflict that was irrepressible, none of the speeches were in the slightest degree communistic. On the contrary, the intelligence and moderation displayed was remarkable. All the speakers expressed themselves as being in favor of the greatest moderation. Mr. Gompers, the representative of the International Cigar Makers' Union, said he had come to Pittsburgh, not to air his opinions, but to work, not to build a bub-

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ble, but to lay the foundation for a superstructure that would be solid, and that would be a true federation of trade unions. He was in favor of progressing slowly, and wanted the organization to be emphatically a workingmen's organization; one that is not defiled by money, but which will in itself contain the elements of strength

Among the delegates mentioned for permanent Chairman . . . [is] Mr. Gompers, of the International Cigar Makers' Union. The latter is the leader of the Socialistic element, which is pretty well represented in the Congress, and one of the smartest men present. It is thought that an attempt will be made to capture the organization for Mr. Gompers, as the representative of the Socialists, and if such an attempt is made, whether it succeeds or not, there will likely be some lively work, as the delegates opposed to Socialism are determined not to be controlled by it. If the Socialists do not have their own way, they may bolt, as they have always done in the past. If they do bolt, the power of the proposed organization will be so seriously crippled as to almost destroy its usefulness.

The majority of the delegates realize the importance of effecting an organization that will harmonize all differences likely to arise, and last evening seemed hopeful that this could be accomplished. They think that the Committee on Organization will present the name of Mr. Rankin² of this city, or some western man, for permanent Chairman, and that the Socialistic element will be prevented not only from capturing the organization, but from introducing any of their peculiar ideas into the declaration of principles to be prepared.

THURSDAY, NOVEMBER 17, 1881

Mr. Gompers took occasion to deny the statement that he was a leader of the Socialistic element, and that the committee had been captured for him, saying that he had attended the Congress only for the purpose of assisting in the federation of labor organizations. A number of delegates differed with him, however

. . . For a time it looked as if the chairmanship would be hotly contested, but Mr. Gompers poured oil on the troubled waters by stating that he was thoroughly devoted to trade unionism, and in order to facilitate the work of completing the organization, would withdraw his name. Mr. Powers³ gracefully followed suit, and Mr. Jarrett⁴ was unanimously chosen Permanent Chairman. Messrs. Powers and Gompers were chosen vice presidents

FRIDAY, NOVEMBER 18, 1881

. . . it was four o'clock, and the whole day had been consumed in the discussion of four or five subjects.⁵ President Jarrett took the chair, however, and by a little

ruse succeeded in expediting business wonderfully. At a previous meeting a rule had been adopted making it imperative for a vote to be taken on any questions whenever seven members called for the "question." This rule had not been enforced by Mr. Gompers, but when President Jarrett took the chair he enforced it in a manner that made it resemble a self-inflicted gag law. As soon as a motion had been stated, he would ask, "Are you ready for the question?" Immediately the "question" would be called for by a number of delegates, who thought that by so doing they would place the motion in proper shape for debate. But Mr. Jarrett was not of the same mind, and the last three sections of the "plan" were railroaded through with a speed that was highly creditable to Mr. Jarrett's conception of the rule, but not entirely satisfactory to those delegates who thought they should be permitted to air their opinions on every question that came before the house

The chairman of the committee appointed to prepare a declaration of principles, then read their report, which, as adopted, is as follows: . . .

Whereas, a Struggle is going on in the nations of the civilized world, between the oppressors and the oppressed of all countries, a struggle between capital and labor which must grow in intensity from year to year and work disastrous results to the toiling millions of all nations, if not combined for mutual protection and benefits. The history of the wage workers of all countries is but the history of constant struggle and misery, engendered by ignorance and disunion, whereas the history of the non-producers of all countries proves that a minority thoroughly organized may work wonders for good or evil. It behooves the representatives of the workers of North America in congress assembled, to adopt such measures and disseminate such principles among the people of our country as will unite them for all time to come, to secure the recognition of the rights to which they are justly entitled. Conforming to the old adage, "In union there is strength," a formation embracing every trade and labor organization in North America, a union founded upon the basis as broad as the land we live in, is our only hope. The past history of trade unions proves that small organizations, well conducted, have accomplished great good, but their efforts have not been of that lasting character which a thorough unification of all the different branches of industrial workers is bound to secure.

Conforming to the spirit of the times, and the necessities of the industrial classes, we declare the following:

Resolved, That all organizations of workingmen into what is known as a Trade or Labor Union should have the right to the protection of their property in like manner as the property of all other persons and societies is protected, and to accomplish this purpose we insist upon the passage of laws in the State Legislatures and

in Congress for the incorporation of trade unions and similar labor organizations.

Resolved, That we are in favor of the passage of such legislative enactments as will enforce by compulsion the education of children; that if the State has the right to exact certain compliance [with] its^b demands, then it is also the right of the [State to e]ducate its people to the proper under[standing of such] demands.

[*Resolved*, That we] are in favor of the passage of [laws in the several States] forbidding the employ[ment of children under the age] of fourteen in any capacity under the penalty of fine and imprisonment.

Resolved, That necessity demands the enactment of uniform apprentice laws throughout the country; that the apprentice to a mechanical trade may be made to serve a sufficient term of apprenticeship, from three to five years, and that he be provided by his employer in his progress to maturity with proper and sufficient facilities to finish him as a competent workman.

Resolved, That the "national eight-hour law" is one intended to benefit labor and to relieve it partly of its heavy burdens; that the evasion of its true spirit and intent is contrary to the best interests of the nation. We therefore demand the enforcement of said law in the spirit of its design.

Resolved, That it is hereby declared the sense of this congress that convict or prison labor as applied to the contract system in several of the States is a species of slavery in its worst form; that it pauperizes labor, demoralizes the honest manufacturer and degrades the very criminal whom it employs; that as many articles of use and consumption made in our prisons under the contract system come directly and detrimentally in competition with the products of honest labor, we demand that the laws providing for labor under the contract system herein complained [of], be repealed, so as to discontinue the manufacture of all articles which will compete with those of the honest workingman or mechanic.

Resolved, That what is known as the "truck" system of payment, instead of lawful currency as a value for labor performed, is not only a gross imposition, but a downright swindle to the honest laborer and mechanic, and calls for entire abolition; and we recommend that active measures shall be enforced to eradicate the evil by the passage of laws imposing fine and imprisonment upon all individual firms or corporations who continue to practice the same.

Resolved, That we favor the passage of such laws as will secure to the mechanic and workingman the first lien, upon property, the product of his labor, sufficient in all cases to justify his legal and just claims, and that proper provision be made for legally recording the same.

Resolved, That we demand the repeal and erasure from the statute books of all acts known as conspiracy

laws, as applied to organizations of labor in the regulation of wages which shall constitute a day's work.

Resolved, That we recognize the wholesome effects of a Bureau of Labor Statistics as created in several States, and urge upon our friends in Congress the passage of an act establishing a National Bureau of Statistics, and recommend for its management the appointment of a proper person, identified with the laboring classes of the country.

Resolved, That railroad land grants forfeited by reason of non-fulfillment of contract should be immediately reclaimed by the government, and henceforth the public domain reserved exclusively as homes for actual settlers.

Resolved, That we recommend to the Congress of the United States the adoption of such laws as shall give to every American industry full protection from the cheap labor of foreign countries.

Resolved, That we demand the passage of a law by the United States Congress to prevent the importation of foreign laborers under contract.

Resolved, That we recommend to all trades and labor organizations to secure proper representation in all law-making bodies by means of the ballot, and to use all honorable measures by which this result can be accomplished.

The preamble and first and second resolutions were adopted without dispute, but the third, which related to the employment of children under fourteen years of age, excited a protracted discussion . . . if these stories, coming from men who knew what they were talking about, and which were pathetic enough to bring tears to most eyes, could be published in full, they would form a powerful argument in favor of keeping the little ones out of the work shops and sending them to school where they belong. The resolution as it appears above was adopted unanimously.

The other resolutions were adopted with very little debate, until one was read which declared in favor of all the railroads and telegraph lines being purchased and controlled by the government. This was [dis?] approved by a number of delegates, on the ground that if the government obtained the control favored, it would make the power of the ascendant political party perpetual, by reason of the vast numbers of employees which would be placed at its mercy. President Jarrett ruled the resolution out of order, as having no relation to the objects of the congress. An appeal was taken from his decision, but the Chair was sustained and the resolution left out.

The next discussion was on that plank declaring in favor of the protection of American industries. It was a fight of Pittsburgh pride against Western principles, and the debate was warm . . . Mr. Crawford,⁷ of Chicago, thought it was a mistake to force the resolution through, as it would only cause dissension. As long as

the east and west were situated as they are at present they would not agree on the subject. Therefore he was in favor of not making any reference to the tariff, promising at the same time that if the East offered no tariff resolutions, none advocating free trade would come from the West An attempt was then made to lay the resolution on the table, but it was voted down, and after another strong argument by Mr. Jarrett in favor of the resolution it was adopted

SATURDAY, NOVEMBER 19, 1881

. . . Mr. Brant,⁸ of Detroit, offered a series of resolutions declaring that the bill introduced in Congress in 1880, as part of the report of the Public Land Commission would have the effect, if passed, to place the bulk of the public lands at the disposal of Western cattle kings and other capitalists at a nominal figure; that those lands in a few years would be found very valuable for farming purposes, and that persons wishing to cultivate them would have to do so in the capacity of tenant farmers or hirelings in competition with Chinese labor. In view of these facts the resolutions urged that all labor assemblies pass resolutions, giving their Congressional representatives to understand that if they voted for the measure, they would be punished by the political opposition of the workingmen. After a short discussion the resolutions were adopted, as were also the following, which were presented by Mr. Rodgers⁹ [sic] of Pennsylvania:

Resolved, That we demand strict laws for the inspection and ventilation of mines, factories and workshops, and sanitary supervision of all food and dwellings.

Resolved, That strict laws be enacted making employers liable for all accidents resulting from their negligence or incompetence to the injury of their employees

The Legislative Committee will meet for organization to-day. It is hard to predict who will be chairman, as all are good men and equally popular. The Secretary,

Mr. Foster,¹⁰ is employed as a compositor on the Cincinnati *Enquirer*, and although a young man, is President of the Trades Assembly of Cincinnati. Mr. Gompers is organizer of the International Cigar Makers Union, of New York. Mr. Powers is General President of the Lake Seamen's Union, and is considered one of the best organizers in the West. Mr. Bergman¹¹ [sic] is Treasurer of the Trades Assembly of San Francisco and President of the Tailors' Union of that city. Mr. A. W. Rankin is a member of the Iron Moulders' Union of this city, and is well known. All the officers are men of more than ordinary intelligence, conservative in their disposition, and their choice gives general satisfaction to the delegates.

While the reporter for the *Gazette* speculated about the chairmanship, the new organization's predominant official was in fact the secretary, William H. Foster. Out of the five officers of the Legislative Committee, the executive body of the Federation, only the secretary was designated by the convention. The committee itself elected the remaining officers—the chairman (Richard Powers in 1881), first and second vice chairmen, and treasurer. Even in 1883, when the Federation changed the title "chairman" to "president," enlarged the Legislative Committee to nine, and provided for the designation of all officers by the convention, the constitution still specified that the election of the secretary was to take precedence. So although Samuel Gompers was a member of the committee in four of the five years that the early Federation existed (first vice chairman in 1881–82, chairman in 1882–83, first vice president in 1883–84, and president in 1885–86), he was never the leading official of this organization, as he became of its successor. Gompers played an active role throughout these years, but prior to the founding of the American Federation of Labor in 1886, the Federation was guided by its secretaries: the printers' William H. Foster (1881–83, 1885–86) and Frank K. Foster (1883–84), the carpenters' Gabriel Edmonston (1884–85), and the cigar-makers' John S. Kirchner (1886). □

—FOOTNOTES—

¹ *American Federation of Labor Records: The Samuel Gompers Era* (Microfilming Corporation of America, 1979).

² Alexander C. Rankin (b. 1849?) represented Iron Molders' local 14 of Pittsburgh at this convention.

³ Richard Powers (1850–1929), president of the Chicago Lake Seamen's Union from 1878 to 1887.

⁴ John Jarrett (1843–1918), president of the National Amalgamated Association of Iron and Steel Workers.

⁵ These included discussions on the name of the organization and the basis of representation.

⁶ Bracketed material supplied by the Samuel Gompers Papers edi-

tors where text of original was obliterated.

⁷ Mark L. Crawford (1848–1932), a Chicago printer and president in 1883–84 of the International Typographical Union.

⁸ Lyman A. Brant (1848–95), a printer and president of the Detroit Trade and Labor Council.

⁹ Daniel Rogers represented the Amalgamated Association of Pittsburgh Miners and Drivers.

¹⁰ William Henry Foster (1848?–86).

¹¹ Charles F. Burgman, a tailor and treasurer of the Representative Assembly of Trades and Labor Unions of San Francisco.

Cyclical behavior of productivity in the machine tool industry

Productivity growth was slow during 1958–80, partly because of the industry's tendency to retain skilled workers during cyclical downturns; computers and other electronic equipment aided production, but diffusion of such innovations has been slow

JOHN DUKE AND HORST BRAND

Output per employee-hour in the machine tool industry rose at an average annual rate of 1.1 percent over the 1958–80 period—significantly below the 2.8-percent rate for manufacturing.¹ A combination of factors slowed productivity in the machine tool industry, including the tendency of machine tool firms to keep highly skilled workers on the payroll, even when output fell during cyclical slowdowns, and the slackened demand for capital goods after the mid-sixties. However, the slowdown was moderated by technological advances in the manufacture of machine tools, as well as by high rates of productivity improvement in periods of cyclical recovery.

Until 1966, productivity in the machine tool industry rose at a high annual rate, but thereafter the rate declined for several years. Its subsequent recovery remained incomplete—the high levels of the mid-sixties were not reattained. The recovery was again interrupted by a slump in 1974; it resumed in 1977, continuing to 1979, but even then productivity did not top its 1966 peak. (See table 1.) The cyclical behavior of productivity in the industry and in manufacturing is shown in the following tabulation (average annual changes in percent):

	<i>Machine tools</i>	<i>Manufacturing</i>
Upswings:		
1958–59	23.1	4.8
1961–66	5.6	4.4
1971–74	7.8	2.9
1976–80	2.4	0.9
Downswings:		
1959–61	-2.0	1.7
1966–71	-4.2	2.0
1974–76	-5.2	3.7

Productivity in both the metal cutting and metal forming segments of the industry paralleled the cyclical patterns shown above, although amplitudes differed. Productivity improvement averaged 1.5 percent annually in metal cutting (which accounts for three-fourths of total industry employment), and 0.1 percent in metal forming. Upswings in productivity were more pronounced in metal cutting than in metal forming; downswings were more pronounced in metal forming. In metal cutting, productivity dropped in 8 of the 22 years examined (table 2); in metal forming, in 12 (table 3). The drops were only in part associated with general business cycles; they occurred in years of economic expansion as well as during contractions.

Output recovery slow in the seventies

The machine tool industry manufactures cutting tools for boring, drilling, gear cutting, grinding, and milling

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machines and lathes, as well as forming tools such as punching, shearing, bending, and forming presses. These tools are usually shipped as units, that is, as single-purpose machines, but their basic features may also be combined into "machining centers." The machine tools may be equipped with manual controls or with programmed numerical controls which require little labor by users. Machine tools are not mass produced, although they may make mass production processes possible in user industries. Rather, the parts and components of a finished machine tool are usually made in relatively small batches, and require comparatively large amounts of labor.

Output in the machine tool industry rose at an average annual rate of 1.6 percent between 1958 and 1980, compared with 3.8 percent for manufacturing. Underlying the long-term trend were cyclical swings of considerable amplitude. The metal cutting and metal forming segments of the industry traced similar cyclical patterns. (See table 4.)

The following tabulation shows the cyclical behavior of output in the machine tool industry and in manufacturing, 1958-80 (average annual changes in percent):

Machine tools Manufacturing

Upswings:

1958-59	25.7	11.7
1961-66	14.6	8.2
1971-74	17.2	5.9
1976-80	9.1	2.9

Downswings:

1959-61	-1.1	0.2
1966-71	-11.1	1.0
1974-76	-14.1	0.9

Recoveries in machine tool output during the seventies were less vigorous than they had been in the 1958-59 and 1961-66 upswings. Slumps were deep. Long-term factors contributing to the comparative weakening of output included the volatility in the demand for producers' durable equipment. Following 12 percent annual increases in the 1961-66 period, growth in demand for producers durable equipment contracted to 2 percent a year for 1966-71. Demand rebounded at an 11-percent annual rate in the early seventies, declined by 3 percent annually over the 1974-75 period, then recovered to a 10-percent annual growth rate in 1976-79. Even so, the long-term growth in the demand for producers' durable equipment slackened in the seventies (compared with the demand in the sixties) from an average annual growth rate of 8.1 percent in 1958-68 to 4.8 percent in 1968-79. However, the levels of the sixties were consistently exceeded subsequently—contrary to the situation in machine tool output and productivity. Thus, the relation between producers' durable output and machine tool output clearly weakened.

Table 1. Productivity and related indexes for the machine tool industry, 1958-80

[1977 = 100]

Year	Output per employee-hour	Output	Employee-hours
1958	71.5	63.0	88.1
1959	88.0	79.2	90.0
1960	84.7	82.8	97.8
1961	84.5	77.4	91.6
1962	88.5	88.0	99.4
1963	90.1	93.0	103.2
1964	99.9	112.3	112.4
1965	101.4	125.3	123.6
1966	111.7	156.1	139.8
1967	101.8	149.9	147.3
1968	97.9	137.6	140.5
1969	100.1	137.8	137.7
1970	91.7	112.0	122.1
1971	87.9	81.4	92.6
1972	98.0	91.2	93.1
1973	107.3	116.3	108.4
1974	109.4	127.4	116.5
1975	103.0	109.1	105.9
1976	98.4	93.9	95.4
1977	100.0	100.0	100.0
1978	102.6	111.8	109.0
1979	107.0	125.9	117.7
1980	106.9	129.1	120.8
Average annual rates of change (in percent)			
1958-80	1.1	1.6	0.5
1975-80	1.3	5.4	4.0

During the seventies, a number of metalworking industries representing key markets for machine tools registered comparatively slower growth or actual declines in output. For example, production of motor vehicles after the mid-sixties rose at only about one-half the rate for 1959-66. Similarly, output growth of construction machinery contracted. Steel output, which had advanced at more than 5 percent a year until 1966, became stagnant thereafter, then fell, as did output of electric motors and generators, nonferrous metals, household appliances, and household furniture.²

Furthermore, expenditures for machine tools dropped as a proportion of total equipment expenditures by manufacturing firms. In the sixties, such expenditures accounted for 11 percent of the total, in the seventies, for only 9 percent. Moreover, imports increasingly displaced domestic machine tools. In the sixties and up to 1973, machine tool imports averaged well under 10 percent of total U.S. machine tool units purchased; thereafter, the volume of machine tool imports soared, and by 1978, they accounted for 21 percent of total units purchased.³ In contrast, exports did not rise markedly relative to output—exports represented 8 percent of machine tool units purchased in the sixties and about 10 percent in the seventies.

Still another factor underlying slackened output of machine tools has been the rapid rise in their productive capacity. (This factor will be explained more fully later in this article.) A study of more than 350 companies

showed that reduced machining time for numerically controlled (or programmed) machine tools ranged from 35 percent to 50 percent.⁴ According to the *American Machinist's* periodic inventories of metalworking equipment, the "population" of machine tools in use did not change significantly between 1963 and 1976-78, but the output of the metalworking industries using them generally increased, indicating rising productive capabilities of the machine tools, particularly those equipped with numerical controls.⁵ Some engineering authorities maintain that numerically controlled machine tools permit "drastically reduced" handling time because they eliminate the separate operations of transferring and clamping and unclamping.⁶

The relative importance of all categories of machine tools lessened during 1958-80, except lathes, drilling machines, and machining centers. (Machining centers combine the separate operations of boring, drilling, and milling units.) Most of the shift toward machining centers occurred after 1968, when the diffusion of numerical control, an essential component of machining centers, began to accelerate. In 1978, the number of machining centers shipped was half again as high as in 1968. During that decade, the number of numerically controlled metal cutting machine tools shipped more than doubled and the number of metal forming machine tools rose by 14 percent.

The diffusion of numerically controlled machine tools has remained limited, however. According to the *Amer-*

Table 2. Productivity and related indexes for metal cutting, 1958-80
[1977 = 100]

Year	Output per employee-hour	Output	Employee-hours
1958	67.6	58.1	85.9
1959	83.2	74.2	89.2
1960	81.5	81.0	99.4
1961	80.0	72.7	90.9
1962	83.2	83.0	99.7
1963	84.3	88.4	104.9
1964	94.9	109.2	115.1
1965	98.7	124.8	126.4
1966	107.8	154.7	143.5
1967	98.0	150.6	153.6
1968	95.7	139.8	146.1
1969	97.5	139.0	142.5
1970	89.5	107.2	119.8
1971	85.5	75.2	88.0
1972	94.8	83.9	88.5
1973	105.5	108.6	102.9
1974	108.9	122.3	112.3
1975	102.9	107.5	104.5
1976	97.3	92.5	95.1
1977	100.0	100.0	100.0
1978	103.6	113.7	109.7
1979	109.7	130.6	119.0
1980	111.2	138.3	124.4
Average annual rates of change (in percent)			
1958-80	1.5	1.9	* 0.5
1975-80	2.3	7.2	4.8

Table 3. Productivity and related indexes for metal forming, 1958-80

[1977 = 100]

Year	Output per employee-hour	Output	Employee-hours
1958	83.6	78.4	93.8
1959	102.8	95.1	92.5
1960	94.5	88.9	94.1
1961	98.0	91.9	93.8
1962	105.7	104.3	98.7
1963	108.4	107.5	99.2
1964	115.5	122.2	105.8
1965	109.3	127.1	116.3
1966	123.1	160.8	130.6
1967	112.7	147.9	131.2
1968	103.9	131.7	126.8
1969	107.0	134.3	125.5
1970	98.5	126.2	128.1
1971	95.7	99.6	104.1
1972	107.5	112.1	104.3
1973	114.1	139.2	122.0
1974	111.9	142.5	127.4
1975	104.0	114.1	109.7
1976	101.7	98.1	96.5
1977	100.0	100.0	100.0
1978	99.9	107.2	107.3
1979	100.4	114.8	114.3
1980	95.2	106.1	111.5
Average annual rates of change (in percent)			
1958-80	0.1	0.7	0.6
1975-80	-1.4	0.5	1.9

ican Machinist's 1976-78 inventory of metalworking equipment, only 2 percent of the machine tools in the United States were numerically controlled, and only 7 percent of machine tools 10 years old or less were numerically controlled.⁷

The output capacity of metal forming machine tools, like that of metal cutting tools, significantly increased during 1958-80, tending to retard demand and, hence, output growth. For example, the size of presses used in the automotive and appliance industries—which account for the lion's share of the demand for presses—has increased such that, in the past 15 years, it tended to be four times greater than that in the preceding 35 years.⁸ Changes of dies, which used to require 30 to 40 minutes, now take only 90 seconds—hence, long production runs are no longer needed to justify die changes.⁹ Numerical controls have been applied to operations such as bending—now tube benders perform more than 30 types of bends.¹⁰

Employment concentrated in metal cutting

In 1980, employment in the machine tool industry numbered about 108,000 persons, with about one-quarter of them in metal forming establishments. Employee-hours rose quite slowly over the 1958-80 period (0.5 percent, compared with 1 percent in manufacturing) but, like productivity and output, were characterized by pronounced cyclical swings. The cyclical volatility of employee-hours in the machine tool industry, compared

with manufacturing, is illustrated in the following tabulation (average annual change in percent):

	<i>Machine tools</i>	<i>Manufacturing</i>
Upswings:		
1958-59	2.2	6.6
1961-66	8.5	3.6
1971-74	8.8	2.9
1976-80	6.6	1.9
Downswings:		
1959-61	0.9	-1.4
1966-71	-7.3	-1.0
1974-76	-9.5	-2.6

Although recoveries in employee-hours in the seventies were about as strong as in the sixties, the levels of the mid-sixties were not reached. In 1980, employee-hours were one-fifth below those of the sixties. Employment was less affected by cyclical swings and was 17 percent lower in 1980 than in 1967, the peak year of the 22-year period. The metal cutting and metal forming segments of the industry displayed comparable cyclical patterns in employee-hours. (See table 4.)

The cyclical declines in output and, hence, in employee-hours, probably aggravated the industry's perennial shortages of skilled help when business picked up again. In part, these shortages were met through overtime work. Following are relatives of overtime hours in the metal cutting and metal forming segments of the machine tool industry (overtime hours in manufacturing = 100):

Metal cutting:			
1958	60	1969	150
1959	122	1970	110
1960	144	1971	55
1961	113	1972	117
1962	143	1973	168
1963	157	1974	191
1964	181	1975	138
1965	175	1976	103
1966	203	1977	154
1967	206	1978	178
1968	131	1979	188
		1980	211
Metal forming:			
1972	134	1976	129
1973	189	1977	140
1974	206	1978	172
1975	154	1979	191
		1980	161

In only 2 years (1958 and 1971) of the review period did overtime in metal cutting fall below the manufacturing average. In all other years it was above, and often was half again to twice as high. Metal forming (for which pertinent data exist only since 1972) showed the same overtime pattern.

The number of nonproduction workers in metal cutting rose more rapidly than that of production workers,

0.9 percent per year versus 0.3 percent. There were 43 percent more nonproduction workers in 1980 than in 1958, and 38 percent more production workers, although employment of both groups was below the 1967 peak. In metal cutting, the proportion of nonproduction workers remained above 30 percent of total employment during the period, reflecting the continued importance of engineers, designers, and other leading personnel. The proportion of women also rose, from 9 to 13 percent of total employment, but was still far below the manufacturing average of 31 percent.

In metal forming, the number of production workers showed no change on average; in contrast, nonproduction workers rose 2.6 percent—from 31 percent of total employment in 1958 to 34 percent in 1980. Occupational data are not available for the machine tool industry, but are available for the metal working machinery group of industries, of which the machine tool industry accounts for about 30 percent of employment. The occupational mix in the machine tool industry is unlikely to differ very much from that in metalworking.

In 1978, metalworking machinery had an unusually high percentage of craft and kindred workers—nearly one-third of its employment, compared with just under one-fifth for manufacturing. As might be expected, the proportion of metal craftworkers and machinists considerably exceeded the manufacturing average. Operatives accounted for a smaller proportion of employment in metalworking than in manufacturing (33 percent versus 43 percent), although the proportion of semiskilled workers in metalworking was nearly three times higher (15 percent versus 6 percent). As for professional and technical workers, the employment differences were small between the metalworking and all manufacturing industries—9 percent versus 10 percent—and this was true for other white-collar categories. However, from 1970 forward, the rise in the number of professional and technical workers was almost three times greater in metalworking than in manufacturing—14 percent versus 5 percent—reflecting the growing relative importance of electronic technicians and computer and numerical control specialists and programmers.

Technology diffused gradually

A number of important innovations have been adopted in the manufacture of metal cutting and metal forming machine tools, but diffusion among machine tool producers has been slow—slower than among industries which apply the innovations in mass production. As will be documented, this slowness is related to the predominance of small firms which produce small batches of frequently complex machinery and components. The machine tool industry is labor-intensive, relative to most manufacturing industries, as indicated by the high ratio of payroll to value added. Over the 1958-77 period, this ratio averaged 58 percent for metal cut-

Table 4. Cyclical behavior of productivity in the machine tool industry and its components, 1958-80

[Average annual rates in percent]

Period	Output per employee-hour			Output			Employee hours		
	Machine tools	Metal cutting	Metal forming	Machine tools	Metal cutting	Metal forming	Machine tools	Metal cutting	Metal forming
1958-80	1.1	1.5	0.1	1.6	1.9	0.7	0.5	0.5	0.6
Upswings:									
1958-59	23.1	23.1	23.0	25.7	27.7	21.3	2.2	3.8	-1.4
1961-66	5.6	6.3	3.8	14.6	16.1	10.6	8.5	9.2	6.5
1971-74	7.8	8.7	5.4	17.2	18.7	13.8	8.8	9.2	7.9
1976-80	2.4	3.7	-1.3	9.1	11.3	3.0	6.6	7.4	4.3
Downswings:									
1959-61	-2.0	-1.9	-2.4	-1.1	-1.0	-1.7	0.9	0.9	0.7
1966-71	-4.2	-4.0	-4.6	-11.1	-12.4	-7.8	-7.3	-8.8	-3.4
1974-76	-5.2	-5.5	-4.7	-14.1	-13.0	-17.0	-9.5	-8.0	-13.0

ting establishments, and 60 percent for metal forming establishments, compared with 52 percent for non-electrical machinery, 52 percent for transportation equipment, and 47 percent for all manufacturing. The mass production techniques made possible by machine tools generally cannot be used in building them, although significant improvements in small-batch production processes have resulted from some basic technological advances.

By far the most important development in machine tool technology has been the evolution of numerical control. In fact, numerical control has reshaped machine tool technology, and continues to transform it. Essentially, numerical control made multifunction machine tools possible (exemplified by the machining center, discussed earlier). According to *Iron Age*, numerical control tools have been decisive in achieving "the critical balance . . . in machine construction and rigidity, horsepower, speed and feed ranges, standard tooling and management control over the machine cycle and operation."¹¹ Numerical control was first applied in the manufacture of machine tools in the mid-fifties, but certain innovations were required to lower its cost and, thus, spur adoption by the smaller machine tool firms. Although these innovations have occurred, their impact on productivity was retarded by the severe cyclical downturns in the industry's business in the early and middle seventies.

Numerical control is a method whereby metal cutting (and to some extent metal forming) machine tools are controlled by instructions which are programmed and then punched on a tape. Information from the tape is converted into instructions which position the tools with respect to the workpiece; no templates, drill jigs, or stops are used and manual operation is not necessary. (The operator can service more than one numerically controlled machine tool.) A feedback mechanism adjusts (or stops) the tool's movement if programmed distance does not adhere to commanded tolerance, and stops it when the process is completed.¹²

Numerical control has always required drives which

would ensure that performance followed command. Hydraulic servomechanisms are still used for this purpose. In the late sixties, however, silicon-controlled rectifiers (which are solid-state devices) were introduced; these, together with improvements in the control motor, made possible much higher degrees of accuracy in machining work. Also, tool life was extended as gear transmission, hand wheels, and clutches were eliminated.¹³ Perhaps most important, the substitution of transistors, and later of integrated circuits, for electric relays reduced the number of control components by up to 90 percent, and the amount of wiring by up to 80 percent.¹⁴ These developments slashed costs, and also allowed less highly trained personnel to program the machines. Thus, improved control mechanisms gave impetus to the diffusion of numerical controls.

Numerical controls accelerated the consolidation of machine tool production—as well as the production of metalworking equipment—into machining centers. Machining centers are basically milling machines which also drill, ream, bore, tap, and so forth. In machining centers, complex shapes may be made by mounting cutting tools of varying sizes and power configurations on a single spindle. The cutting tools then are automatically changed by transfer arms, which also store the tool. These automatic tool changes take only a few seconds; formerly several minutes of an operator's time were required.¹⁵ Machining centers also eliminate the need to design, build, and store the jigs and fixtures needed by single-purpose machines.¹⁶

Single-purpose machines also have been much improved by numerical controls. For example, numerically controlled boring machines have reduced downtime for loading and unloading by up to 30 percent.¹⁷ Numerical control applied to grinding machines often halves layout time; programmable electronic wheel feed and wheel retraction have been developed which reduce labor time and enhance precision. The design of hobs for gear cutting has been subjected to computer calculation, saving cutting time.¹⁸

Cutting tool materials have become harder, permit-

ting increased cutting speeds (albeit at the cost of requiring heavier, more powerful machines). Tungsten carbide which replaced high-speed steel in 1929 was in turn supplanted by ceramic materials and polycrystalline diamond-tipped tools. Until 1900, cutting speeds ran up to 25 feet per minute; high-speed steel tools averaged 90 feet per minute; tungsten carbide, 150 feet per minute; ceramic materials, 650 feet per minute; and polycrystalline diamond-tipped tools can cut several thousand feet per minute. Meanwhile, the older cutting materials have been improved—for example, steel tools are hardened by cobalt and continue to be widely used. Naturally, the high speeds enlarge the machine tool's output capacity.¹⁹

Metal cutting tools predominate over the use of metal forming tools in the manufacture of either type of machine tool. Thus, technological improvements in metal forming tools and increases in their output capacity have, of course, greatly benefited those who use the tools intensively, but have only marginally affected productivity of those who produce the tools.²⁰

Computers are used in tandem with or incorporated into numerically controlled machine tools where reliability or control is crucial (as in the machining of frames for aircrafts), or where minimizing of downtime is essential. The recent trend has been toward relatively small computers interfacing with individual machines, rather than a single computer controlling a number of machines.²¹ The computer has also been used in production management, as well as in the design of machine tools, significantly reducing labor requirements of engineering and drafting personnel. Conventionally, engineers and aides graphed the design for a machine tool on drawing boards, according to a customer's specifications; corrections usually required redrawing of all or most of the design to preserve proportionalities. Now, computers do the corrected redrawing, cutting the time required for such corrections. This so-called interactive graphics has permitted a 4-fold increase in the designer's productivity. Memory storage of given designs further aids productivity.²²

Relatively old capital stock

The machine tool industry, although vital for the expansion and modernization of industrial machinery, has spent relatively little for its own plant and equipment. During the review period, the long-term growth in such spending was significantly below that for all industries. One of the results has been that the average age of equipment in the machine tool industry is well above that in all other metalworking industries.²³

According to 1977 census data, plant and equipment expenditures per employee in metal cutting machine tools represented only 52 percent of the comparable fi-

gures for all manufacturing; for metal forming machine tools, the ratio was 40 percent. Fixed assets per worker in metal cutting and metal forming were 77 percent and 81 percent of the manufacturing average in 1976. Moreover, the long-term growth in the industry's expenditures for new plant and equipment, expressed in constant dollars, averaged 2.7 percent annually between 1958 and 1978—compared with 4.6 percent for all manufacturing industries. However, these long-term trend indicators obscure significant cyclical changes. Following are average annual rates of change in expenditures (in constant dollars) for new plant and equipment in the machine tool industry and in all industries, 1958–78:²⁴

	<i>Machine tools</i>	<i>All industries</i>
Upswings:		
1958–59	2.3	7.3
1961–66	29.5	10.2
1971–74	28.0	7.3
1976–78	16.7	10.5
Downswings:		
1959–61	-9.5	2.4
1966–71	-18.0	1.4
1974–76	-9.6	-3.8

Cyclical patterns in the real value of the industry's capital outlays parallel those for productivity, output, and employee-hours. Even though capital outlays were strong during the upswings of the seventies, they did not reattain the levels of the sixties. In the 1976–78 upswing, the outlays were nearly one-third below those of the mid-sixties, while outlays for all industries were nearly a third higher.

The machine tool industry's low levels of expenditures for plant and equipment are reflected in the relatively high average age of its equipment. According to the *American Machinist*, 23 percent of the industry's machine tools were less than 10 years old in 1976–78, compared with 31 percent for all metalworking industries; 37 percent were 10 to 19 years old, compared with 35 percent for all metalworking and 40 percent were more than 20 years, compared with 34 percent.

The *American Machinist's* periodic inventories suggest that user industries tend to delay replacement of aging machine tools. On average, only 31 percent of machine tools in service in all metalworking industries were less than 10 years old in 1976–78, compared with 36 percent in 1968 and in 1963; 34 percent were more than 20 years old in 1976–78, compared with 23 percent in 1968 and 21 percent in 1963.²⁵

The rising average age of machine tools may have been offset to some degree by the high proportion of parts and rebuilt machine tools shipped by toolmakers. Parts for metal cutting tools and rebuilt machine tools accounted for 19 percent of total shipments in 1976,

compared with 14 percent in the late sixties. Parts for metal forming tools and rebuilt machinery constituted 33 percent of shipments in 1976, compared with 20 percent in the late sixties. The proportion rises in periods of slack business, but the rise may, in part, indicate intensified efforts to retrofit and upgrade aging machine tools, in lieu of purchasing new machines.

However, the high average age of equipment in the machine tool industry may have been partially offset through the replacement of worn-out parts, or by the rebuilding of machines along more up-to-date lines. Furthermore, the industry has an above-average proportion of numerically controlled machine tools—nearly 4 percent of its tools are numerically controlled, compared with 2 percent for all metalworking industries. Because numerically controlled machine tools are generally under 15 years old, they probably represent at least 6 percent of the industry equipment that has been in service less than 20 years, and surely a much larger proportion of its total output capacity.

Industry structure. The structure of the machine tool industry does not differ much from that of manufacturing as a whole. In 1972, the latest year for which data are available, the four largest of the nearly 900 companies making metal cutting machine tools accounted for 25 percent of the industry's total employment, 22 percent of its value of shipments, and 30 percent of its capital expenditures. In metal forming, concentration was slightly less. The 50 largest metal cutting companies, representing 10 percent of all establishments in the industry, accounted for three-quarters of employment, value of shipments, and capital expenditures. Trends in value added per employee by employment size class of establishment suggest that productivity has risen at a somewhat higher rate in establishments with 100 or more employees than in smaller establishments.

Accelerated demand may aid diffusion

Industry observers generally expect that demand for machine tools will remain strong. Whether this means that skilled labor shortages will persist is arguable. Skilled workers who have been laid off because of slow business in key metalworking industries such as automobiles may be available. But, because average hourly wages in these industries are often higher than those in machine tools, it may be difficult for the machine tool industry to attract such workers. Hence, incentives for technological advances in the machine tool establishments may remain fairly strong. Therefore, unless the machine tool industry also suffers from slow business, productivity should improve at somewhat higher rates than the long-term rates reported here.

Continued high levels of demand for machine tools

are anticipated from automotive and aircraft manufacturers, and from manufacturers in other metalworking industries requiring more "flexible" technology for small-batch production.²⁶

For the next several years, the automotive industry will be retooling for the production of smaller, more energy-efficient vehicles, at an estimated cost of \$60 billion. Undoubtedly, this will strain machine tool manufacturing capacity. However, in the long run, demand for machine tools from the automotive industry is likely to slacken because of the prospective reduction in the number of automobile models.²⁷ Similarly, the aircraft industry may replace about one-half of its 6,000 commercial air carriers, some of which were placed in service 20 years earlier. New configurations of air frames will be needed which conform with mandated requirements to reduce noise levels and fuel consumption. Therefore, the aircraft industry will need more cost-effective machine tools.²⁸ Metalworking firms generally have become concerned with more efficient production of small batches of parts and components; their interest in automated batch manufacturing systems is likely to intensify. In such systems, electronically-controlled assemblages of machine tools are linked by material-handling equipment so as to convert a system of discrete parts manufacturing into one of continuous (or nearly continuous) processing.²⁹ Automatic-batch manufacturing systems have been increasingly used in the construction machinery industry.³⁰

The building of craftworkers skills into the machine began when Eli Whitney constructed musket-making machines in the early 19th century.³¹ The need "to build the skill in the machine" arose partly from the perennial shortage of craftworkers (which often resulted in unskilled workers operating complex equipment) and partly from the increased precision demanded of machine tools. Quite possibly, the diffusion of numerically controlled machine tools will accelerate the trend "to build the skill in the machine" in the eighties. As noted in the discussion on occupational patterns, this trend has affected the machine tool industry less than most other industries. This occupational pattern has been projected to persist: in 1990, the Bureau of Labor Statistics projects that 31 percent of metalworking machinery industry employees will be skilled craftworkers (only slightly below the 1980 proportion), compared with 20 percent for all manufacturing. Thus, the Bureau's projections implicitly assume that skill needs in the metalworking industry will change little; and that in the machine tool industry, it will continue to be difficult, at times even infeasible, to build the skill of craftworkers into machine tools.

Nevertheless, the diffusion of numerically controlled machine tools will probably accelerate under the spur of

strong demand (which justifies the investment) and recurrent labor shortages. Also, as new generations of managers, engineers, and technicians enter the industry, numerical control and other computer-related methods will be more widely applied. The costs of these systems are likely to fall; hence, they will become more widely diffused.³²

Although some manufacturing industries use unmanned machining systems,³³ demand is likely to be small for them. It would not be feasible financially for the machine tool industry to use such complex systems

—downtime being very expensive.³⁴ Thus, the “unmanned factory” cannot be envisioned for the machine tool industry; its manufacture by this industry, however, can be.

It is said that automotive engine plants rely heavily on the machine tool industry for advances in their production equipment.³⁵ In turn, the machine tool industry increasingly relies on electronics and the computer for its technological advances. Electronics and computers will likely be dominant in machine tool production in the years ahead. □

— FOOTNOTES —

¹ The machine tool industry consists of machine tools, metal cutting types (SIC 3541) and machine tools, metal forming types (SIC 3542) as designated in the Office of Management and Budget's 1972 *Standard Industrial Classification Manual*.

² In this article, metalworking industries conform with those included in the *American Machinist* inventory of metalworking equipment and include the furniture industry (SIC 25); primary metals industry (SIC 33); fabricated metal products industry (SIC 34); nonelectrical and electrical machinery industries (SIC 35 and 36); transportation equipment industry (SIC 37); precision instrument industry (SIC 38); and miscellaneous manufactures industry (SIC 39).

According to BLS data, average annual rates of change of the output of some major metalworking or other major machine tool using industries moved as follows:

Industry and SIC number	Output		
	1959-66	1966-73	1973-79
Household furniture, 251 . . .	4.8	4.5	1.9
Steel, 331	5.1	0.7	-0.8
Copper rolling and drawing, 3351	7.2	-0.1	-0.5
Aluminum rolling and drawing, 3353,4,5	9.4	6.7	2.2
Metal cans, 3411	2.8	3.9	¹ 0.7
Construction machinery, 3531	5.8	3.3	1.5
Electric motors and generators, 3621	7.4	-1.2	1.4
Household appliances, 3631,2,3,9	7.6	2.8	2.7
Motor vehicles, 371	9.1	4.8	4.8

¹ 1973-78

³ *Metalworking Machinery*, Current Industrial Reports, Series MQ 35-W (U.S. Department of Commerce, various issues).

⁴ Donald N. Smith and Larry Evans, *Management Standards for Computers and Numerical Controls* (University of Michigan, 1977).

⁵ “Fewer, more productive machines: The 12th American Machinist Inventory of Metalworking Equipment, 1976-78.” *American Machinist*, December 1978, pp. 133-43.

⁶ L. Mackay, and R. Leonard, “NC and Conventional Manufacturing Systems—A General Comparison.” *Proceedings of the 18th International Machine Tool Design and Research Conference* (London, The Macmillan Press, 1978), pp. 651 ff.

⁷ *American Machinist*, December 1978.

⁸ “The Machine Tools That Are Building America,” *Iron Age*, Aug. 8, 1976, p. 269.

⁹ *Iron Age*, Aug. 8, 1976, p. 271.

¹⁰ *Iron Age*, Aug. 8, 1976, p. 274.

¹¹ *Iron Age*, Aug. 8, 1976, p. 165.

¹² *McGraw-Hill Encyclopedia of Science and Technology*, vol. 13, (McGraw Hill, 1977), p. 692.

¹³ *Iron Age*, Aug. 8, 1976, p. 166.

¹⁴ *Machine Design*.

¹⁵ *Iron Age*, Aug. 8, 1976, p. 200.

¹⁶ *Iron Age*, Aug. 8, 1976, p. 174.

¹⁷ *Iron Age*, Aug. 8, 1976, p. 189.

¹⁸ *Iron Age*, Aug. 8, 1976, p. 256.

¹⁹ L.T.C. Rolt, *A Short History of Machine Tools* (Cambridge, The M.I.T. Press, 1965), p. 223. *American Machinist*, Sept. 2, 1974.

²⁰ Information obtained from an industry representative.

²¹ Agis Salpukas, “Computerizing machine tools,” *The New York Times*, June 5, 1980, p. D2.

²² Information obtained from industry representatives.

²³ *American Machinist*, December 1978.

²⁴ Expenditure data for the machine tool industry available to 1978 only. Data are from the *1980 Economic Report of the President*. Deflators are for private nonresidential fixed investment.

²⁵ Of the leading industrial countries, the United States has the smallest percentage of machine tools in service less than 10 years. Even so, the actual number of such tools in the United States was 803,000 in 1976-78, nearly half again as many as in Germany and Japan. (See *American Machinist*, December 1978.)

²⁶ *Manufacturing Technology—A Changing Challenge to Improve Productivity* (Washington, General Accounting Office, 1976).

²⁷ “A paucity of new models means layoffs and toolmaking plant closings, while continual changes, such as those that occurred during the mid-sixties, signal exciting mechanical challenges, full work force utilization, and extended overtime premiums . . .” H.E. Arnett and D.N. Smith, *The Tool and Die Industry, Problems and Prospects* (Ann Arbor, The University of Michigan Graduate School of Business Administration, 1975), p. 18. Estimated retooling cost from *Facts and Figures 1980*, (Detroit, Motor Vehicle Manufacturers Association 1980), p. 5.

²⁸ *Iron Age*, Mar. 17, 1980, p. 37.

²⁹ *Iron Age*, Nov. 20, 1978, p. 75 ff.

³⁰ John Duke, “Construction machinery industry posts slow rise in productivity,” *Monthly Labor Review*, July 1980, pp. 33-36.

³¹ *A Short History of Machine Tools*. See especially pp. 147-48, and 223. See also David F. Noble, “Social Choice in Machine Design: The Case of Automatically Controlled Machine Tools,” in Andrew Zimbalist, ed., *Case Studies on the Labor Process* (New York, Monthly Review Press, 1979), pp. 18-50.

³² A. Harvey Belitsky, “Metalworking Machinery,” in *Technology and Labor in Five Industries* (Bureau of Labor Statistics, forthcoming).

³³ *Iron Age*, Dec. 17, 1979.

³⁴ *American Machinist*, December 1979, p. 82.

³⁵ William J. Abernathy, *The Productivity Dilemma, Roadblock to Innovation in the Automobile Industry* (Baltimore, The Johns Hopkins Press, 1978), p. 61.

Transformer industry productivity slows

Annual productivity increases averaged 2.4 percent during 1963–79, slowing since 1972 to 1.5 percent; computer-assisted design and product standardization aided growth in output per employee-hour

PHYLLIS FLOHR OTTO

Productivity in the transformer industry increased at an average annual rate of 2.4 percent from 1963 to 1979, about the same as the 2.5 percent-rate shown by all manufacturing establishments.¹ The growth in productivity in the transformer industry was the result of output gains averaging 3.7 percent and advances in employee-hours, averaging 1.3 percent. (See table 1.)

This growth occurred because of many factors, most importantly the change to a straight-line production process incorporating assembly line techniques because of the expanding use of computers. Another reason for the rise in productivity was a rapid increase in capital expenditures per employee in the mid-1960's. These purchases of new plant and equipment, coupled with output growth, produced operating efficiencies.

The long-term productivity trend can be broken into two distinct periods: from 1963 to 1972, productivity increased an average of 3.8 percent; from 1972, it rose only 1.5 percent a year.

An expansive period, 1963–72

As productivity grew in the transformer industry from 1963 to 1972, output per employee-hour for all manufacturing increased too, but at only a 2.3-percent rate. Output in the industry showed gains averaging 7.7 percent annually; employee-hours advanced only 3.7 percent.

Short-term changes in productivity are frequently linked to changes in output levels. Very large increases in transformer industry output occurred in 1964 (13.7 percent) and 1965 (18 percent). These jumps in output were associated with large gains in productivity, 8.6 and 9.0 percent. Output rose every year during 1963–72, and productivity fell only twice.

During this extended period of output growth there were significant changes in technology and production flow leading to a higher rate of productivity gain than in the more current period. The sustained output growth enabled companies in the industry to invest in more efficient plant and equipment and to hold on to experienced, productive employees.

There were several reasons for this rapid output growth. Demand from electric utilities grew because they were making extensive additions to their generating capacities, requiring more transformers. Furthermore, regional pool formation required interconnections between power companies, also increasing demand for transformers. Installed generating capacity in the United States increased 83 percent between 1963 and 1972; and additions to this capacity rose an average of 9.3 percent a year.² Overall economic growth aided transformer markets during this period. For example, distribution transformers were increasingly needed as new electrical lines were extended into undeveloped neighborhoods. Permits for new housing were issued at a rate of 4.8 percent annually from 1963–72. (For the entire period, 1963 to 1979, they were issued at a rate of 0.9

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Table 1. Productivity and related indexes for transformers

[1977 = 100]

Year	Output per employee-hour			Output	Employee-hours		
	All employees	Production workers	Non-production workers		All employees	Production workers	Non-production workers
1963	67.5	67.6	67.1	51.9	76.9	76.8	77.3
1964	73.3	71.9	77.0	59.0	80.5	82.1	76.6
1965	79.9	77.0	87.4	69.6	87.1	90.4	79.6
1966	75.8	72.9	83.7	74.1	97.7	101.7	88.5
1967	75.5	73.0	82.1	79.5	105.3	108.9	96.8
1968	80.2	77.5	87.1	85.5	106.6	110.3	98.2
1969	88.6	85.1	97.7	92.3	104.2	108.5	94.5
1970	89.1	84.9	100.6	96.7	108.5	113.9	96.1
1971	94.4	90.1	105.8	97.8	103.6	108.5	92.4
1972	98.1	94.1	109.1	104.5	106.5	111.1	95.8
1973	96.9	91.5	112.4	115.7	119.4	126.5	102.9
1974	92.7	88.5	104.2	113.0	121.9	127.7	108.4
1975	89.3	92.0	83.9	85.5	95.7	92.9	101.9
1976	90.1	92.0	85.9	86.2	95.7	93.7	100.3
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	103.4	102.1	106.7	106.7	103.2	104.5	100.0
1979	108.3	105.7	114.6	112.5	103.9	106.4	98.2
Average annual rates of change (in percent)							
1963-79	2.4	2.6	2.1	3.7	1.3	1.1	1.6
1963-72	3.8	3.4	4.9	7.7	3.7	4.1	2.7
1972-79	1.5	2.1	(¹)	-0.3	-1.8	-2.3	0.3

¹ Less than 0.05 percent.

percent). Demand from industry grew. Industry uses transformers to step down distribution voltages for the operation of machinery. Industrial production advanced 4.6 percent a year.³ Growth in output of specialty transformers, such as fluorescent lamp ballasts, is tied to new industrial and commercial construction. This construction was done at a rate of 3.7 percent annually. Increased demand for such specialty products aids productivity growth because long runs of similar items reduce downtime for such operations as resetting machines for differing models.

Another reason for industry output increases during 1963-72 was growth in the replacement market for distribution transformers. The capacity of these transformers improved during this period. Replacing transformers with upgraded units tended to increase electrical system network reliability.

While the output of the transformer industry was increasing at nearly 8 percent a year, employee-hours grew at the lower rate of 3.7 percent. Production worker-hours advanced more rapidly than the all-employee average, 4.1 percent annually. Nonproduction worker-hours increased at only 2.7 percent. This lower rate of growth in nonproduction worker-hours can be attributed to increased use of computer-assisted design, which sharply reduced the number of engineering hours required to design power transformers.

Despite the general growth trend of the period, there were 2 years of productivity declines—5.1 percent in 1966 and 0.4 percent in 1967. Output showed healthy

increases in both of these years (6.5 and 7.3 percent); however, employee-hours increased more than output (12.2 and 7.8 percent). This was the result of strained capacity in the industry. By 1966, there had been several years of large output increases (in 1964, 13.7 percent, and in 1965, 18 percent) and the industry was experiencing shortages of skilled labor, materials, and components, resulting in productivity falloffs.⁴

Industry capacity began expanding in mid-1967, relieving some of these constraints on productivity growth.

A jump in productivity of 10.5 percent in 1969 was the result of a fairly sizable increase in output of 8 percent, while employee-hours fell 2.3 percent. One of the largest companies in the industry had a major and lengthy strike that year, resulting in the decrease in employee-hours. However, competitors were able to take up the slack without major increases in their own work forces.

Slow-up in the 1970's

As noted, productivity increased only 1.5 percent a year in the more recent period, 1972-79. Output decreased an average of 0.3 percent annually, heavily influenced by the 1974-75 recession. A small decline in output in 1974 of 2.3 percent was followed by a much larger output drop in 1975, 24.3 percent. Demand from major markets for transformers showed deterioration in 1974 and 1975. Industrial and commercial construction dropped 8.6 percent in 1974 and 17.6 percent in 1975. The number of new housing permits issued began decreasing in 1973, falling 18.3 percent. This decline continued during the recession of 1974-75. The number of permits issued fell 40.5 percent in 1974 and 12.7 percent in 1975. Industrial production also dropped, 0.4 percent in 1974 and 8.9 percent in 1975. Although electrical capacity continued to increase, the amount of the gains in both these years was lower than in 1973.

The 1974-75 recession hit the industry sharply. In 1975, at least three large establishments were closed and most manufacturers cut back on their work force. Despite this, employee-hours declined less than output, and productivity fell 3.7 percent. On the other hand, the economic slowdown of 1970-71 did not cause any actual decline in either productivity or output. Although the latter increased only 1.1 percent in 1971, the industry cut back employee-hours 4.5 percent; productivity rose 5.9 percent.

Most of the markets for transformers have shown declines or slowdowns in the more recent period, resulting in the overall falloff in output of 0.3 percent per year. Additions to installed generating capacity decreased at an average of 8.4 percent a year between 1972 and 1978. The number of new housing permits authorized fell at a rate of 2.0 percent. Industrial and commercial

construction also declined, by 0.3 percent. The only positive indicator was industrial production which increased 3.1 percent annually, substantially slower than the earlier 4.6-percent rate.

Other factors which adversely affected demand and productivity during this period included the shortage and increased price of petroleum products. The rate of increase in electrical energy sold has slowed considerably. Utilities have required fewer additional transformers. Also, many of the insulating fluids used by the industry are petroleum based, and spot shortages occurred during the oil boycott, adversely affecting the production process.

Some shifts in use of materials which increased labor requirements temporarily in the industry included a changeover from copper to aluminum windings used in transformers. For low-voltage applications, this occurred in the mid-1960's. Later, aluminum began to be used in high-voltage applications. This changeover did not begin until the early 1970's; it required modifying design libraries in the computer. Also, different types of connectors had to be designed to connect the copper terminations to the aluminum windings.

Employment rises faster than hours

Employment in the transformer industry has been increasing more quickly than hours. Although employee-hours rose 1.3 percent between 1963 and 1979, employment advanced slightly more, 1.4 percent. Average weekly hours of production workers decreased 0.3 percent a year.

The number of production workers has increased an average of 1.4 percent annually, and their hours, 1.1 percent. At the same time, nonproduction workers and their hours have shown advances of 1.3 and 1.6 percent. The net result is that output per production worker-hour, at 2.6 percent, has been rising faster than output per all employee-hour. The opposite is true of output per nonproduction worker-hour, which shows an average annual gain of 2.1 percent.

Industry structure

The transformer was invented in the late 1800's. Since then, the industry has been dominated by a few large companies. However, many small firms have managed to succeed by specializing in one product rather than offering a complete array. The concentration ratio for the industry (the proportion of shipments accounted for by the four largest companies) fell from 68 percent in 1963 to 59 percent in 1972.

The products made in this industry cover a broad spectrum of sizes and markets. Power and distribution transformers, used by utilities and industry, made up 62 percent of transformer shipments in 1979. Fluorescent lamp ballasts, most of which are installed in new com-

mercial and industrial buildings, accounted for 13 percent of these shipments; other specialty transformers made up 17 percent. This latter category consists of toy and doorbell transformers, machine tool control transformers, and other miscellaneous items. The fourth category; power regulators, boosters, reactors, and other transformers; accounted for 8 percent of 1979 shipments.

About half of the manufacturing facilities are located in the Middle Atlantic and East North Central parts of the country. There has been growth in the number of plants in the South and South Central States. Combined, they accounted for 15 percent of the establishments in 1963 and 25 percent in 1977.

The average number of workers in a transformer plant, 155, is about three times that for total U.S. manufacturing, 53. In 1977, 41 percent of the industry's employees worked in establishments with 1,000 employees or more. At the total U.S. manufacturing level, this was true for only 29 percent of the employees.

Technology and capital expenditures

Capital expenditures per employee in the transformer industry increased at a lower rate than the all-manufacturing average between 1963 and 1979. While these expenditures rose an average 8.8 percent a year at the total manufacturing level, the transformer industry has had gains of only 5.9 percent.

The number and hours of nonproduction workers had a lower rate of growth than those of production workers in the 1960's because of the increased use of computer-assisted design. Power transformers must be custom designed and are generally sold by bid. Custom designing is necessary because each individual community or plant has its own specific electrical needs and standards. These include the size of the transformer and the capacity which will be needed. In addition, visibility and noise levels must be considered.

Because of the need for custom design, orders for these types of transformer units must be submitted up to a year in advance. In the late 1950's, the industry began to use computers to do routine engineering work. Manual transformer design required an engineer and several assistants and took months. Once the computers were programmed, they could do the same job in a few days.

In the process of preparing a bid for power transformers, a company must complete about 50 percent of the design work. Although several bids will be submitted, only one firm will receive the contract. Prior to the computerization of the design work, many months of engineering time went into every contract. Computers reduced this effort substantially.

Most of the larger firms in the industry had already made the changeover to computer-assisted design by

1963. However, some of the productivity gain came about as the smaller companies began adopting the procedure. In addition, productivity growth was realized throughout the industry during this period because the technology became more efficient as the design libraries were expanded to cover additional variables. Also, the computers were more fully utilized to handle larger numbers of tasks related to transformer design. In designing a transformer, the computer chooses the parts. It was possible to program the computer to go one step further and do the cost estimates for parts. It can also be programmed to make drawings for the shop floor, decreasing the amount of labor required to draft them by hand.

An important by-product of computer design was that, in order to make the system work, it was necessary to standardize the product. Standardization allowed the industry to change from job shop procedures to assembly line manufacture, using a more efficient factory layout. This was the primary force behind accelerated productivity growth during the late 1960's.

In the job shop, each item was designed and built individually. Because there was little standardization of the product, manufacturing machinery was not automated. However, following standardization, the use of more automatic equipment became possible. Transformer tanks, the metal enclosures which hold the transformer and insulating oil, could be made in a few basic styles. This fabrication was done using increasingly available numerically controlled machinery to cut, bend, punch, and drill the metal. This same machinery is also used to cut strips of metal to the size needed to make the transformer core, which is composed of layers of thin metal pieces that form the central functioning part of the transformer.

As the industry's manufacturing machinery became more complex, more automatic controls were built in, leading to less operator setup and running time. For example, use of punched tape on numerically controlled machines freed the operators to run more machines in the same amount of time.

Bushings, the insulators used to protect the power lines where they enter the transformers, were originally made of porcelain. In the late 1960's, there was a switch to epoxy. Because of this change in material, greater design flexibility in transformers was possible. Also, labor requirements were reduced because fewer parts needed to be assembled.

Additional technological advancement

More recent changes in technology have included equipment to improve the impregnation and dryout of transformer insulation systems and assemblies. There has also been the introduction of machinery for the automatic coating and drying of laminations.

In addition to their contribution in design and accounting work, computers are also being used on the factory floor to monitor work as it flows through the workplace. Having been used to design the product and produce the drawings, computers are also used to set up the machinery for production. They schedule work, load machinery, and make sure that necessary materials are on hand. The inventory control functions of computers have reduced the need for clerical workers. Computers keep track of inventory, estimate the needs for materials, and initiate orders for materials which are in short supply by printing purchase orders.

The changeover to new factories which use straight-line production flow has enabled transformer manufacturers to install material handling systems which have increased productivity considerably. Power transformers are heavy; they are carried through the workplace by mobile and bridge cranes, roller and belt conveyors, fork trucks, and monorail systems. Drag chain systems, installed in the floor, carry transformer assemblies on dollies. One spokesman claimed that straightening the assembly line can reduce the number of times each transformer must be moved during assembly by 75 percent, and total manufacturing time by 25 percent.⁵

There have also been a few changes in fluorescent lamp ballasts which have contributed to productivity growth. Many of these changes were small. Because of frequent design changes, it has not been feasible to mechanize the entire ballast manufacturing operation. By 1963, core winding was mechanized. The innovation was the introduction of multiple winding machines which enabled one worker to handle many more coils than before.

Changes have been made in transformer electrical connections which have lowered labor requirements. Originally, connections were hand-soldered. Now, most are either brazed, in which the copper pieces are placed together and run under a torch, or wave-soldered, which eliminates cleaning operations and is semiautomatic.

Looking ahead

Offsetting trends in demand for transformers and possible changes in product design will probably lead to continued modest advances in productivity. Electric utilities, by far the largest customer of the industry, are making less investment in transmission and distribution. As consumers and industry attempt to save on the use of electricity in the face of rapid rate increases, utilities have experienced over-capacity and low growth in peak demand. Housing starts in the near future are also uncertain, affecting the market for distribution transformers.

The market for specialty transformers poses other problems, with a resultant impact on output growth.

Because of increasing costs and spot shortages of these items, equipment manufacturers have become disenchanted. Many have begun to either make their own transformers or design their equipment to eliminate or cut down the number of transformers needed, or both.

Offsetting this trend to some extent, a new type of fluorescent lamp ballast has been designed using solid state technology and transistors. The cost of this type of unit is currently much higher than a conventional unit, resulting in little use of it.

One major technological revolution in the industry, already in the testing phase, is the use of metallic glass in transformers. This material, which could replace con-

ventional steel in many applications, has many advantages in transformer operation. Metallic glass is a special type of steel which would operate at significantly lower temperature than present types of transformers, leading to their complete change. If the use of metallic glass becomes feasible and the industry shifts over to it, the short-term effect could be a drop in productivity. Its use would require complete redesign of transformers, new machinery, and retraining of the work force. However, in the longer run, if manufacturers invest heavily in new equipment which would tend to be more automatic, the use of this material could lead to productivity growth. □

—FOOTNOTES—

¹ Average annual rates of change are based on the linear least squares trends of the logarithms of the index numbers. The transformer industry is designated industry 3612 in the *Standard Industrial Classification Manual 1972*, issued by the Office of Management and Budget. The industry comprises establishments primarily engaged in the manufacture of power, distribution, instrument, and specialty transformers. The indexes for this industry will be updated and included in the annual BLS bulletin, *Productivity Indexes for Selected Industries*. A technical note describing them is available upon request.

² Based on data from the Federal Power Commission as cited in the *Statistical Year Book of the Electric Utility Industry*, various issues, put out by the Edison Electric Institute. In addition to electric utilities,

the numbers include the capabilities of industrial, mine, and railway electric power plants.

³ *Industrial Production 1976 Revision* (Washington, Board of Governors of the Federal Reserve System, Division of Research and Statistics, Business Conditions Section, December 1977). This has been updated with press releases, which were also used.

⁴ Howard E. Way, "Power, Distribution and Specialty Transformers," *U.S. Industrial Outlook 1966* (U.S. Department of Commerce, Business and Defense Services Administration, December 1965), Ch. 19, pp. 129-131.

⁵ "GE Dedicates Major Facility for Power Transformer Work," *Electronic News*, June 24, 1968, p. 37.

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 which require more labor time to produce are given more importance in the index.

In the absence of adequate physical quantity data, the output index for this industry was constructed by a deflated value technique. The value of shipments of each of the various product classes was adjusted for price changes by appropriate Producer Price Indexes to de-

rive real output measures. These, in turn, were combined with employee-hour weights to obtain the overall output measure. These procedures result in a final output index that is conceptually close to the preferred output measure.

Employment and employee-hour indexes were derived from BLS data. 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 the specific contributions of individual factors, such as that of labor or capital. Rather, they reflect the joint effect of many factors; for example, changes in technology, capital investment, capacity utilization, plant design and layout, skill and effort of the work force, managerial ability, and labor-management relations.

Technical Note



BLS job cross-classification system relates information from six sources

JOHN THOMPSON

The Bureau of Labor Statistics has developed a cross-classification system designed to make occupational information more useful in career guidance and job placement (exhibit 1).¹ It enables researchers to integrate and compare data from six sources and represents a major step toward completing a coordinated system now being developed by the National Occupational Information Coordinating Committee (NOICC). Although the crosswalk itself offers no data, it provides a comparison of job-content information, permitting users to combine occupational data from the six sources. The "crosswalk" was built by using previous cross-classification efforts, not only from the Bureau of Labor Statistics, but also from the Employment and Training Administration, the Department of Commerce, and the Department of Education.

The crosswalk contains cross-classified codes for the Dictionary of Occupational Titles, 4th Edition; Occupational Employment Statistics Survey (OES); OES industry-occupational matrix; 1977 and 1980 Standard Occupational Classification system (SOC); 1970 Census of Population; and the Office (now Department) of Education's Instructional Programs Classification categories.

Dictionary of Occupational Titles

The Dictionary of Occupational Titles is the largest and most comprehensive system of classifying occupations. It contains titles and descriptive information for purposes of job placement, employment counseling, occupational guidance and career guidance, and other labor market information services. Its need was recognized in the mid-1930's with the establishment of the Federal-State Public Employment Service system. As one facet of public employment services operations, an occupational research program was initiated, using analysts in field stations throughout the country to collect job information. Based on the field centers' work, the

first edition of the Dictionary was published in 1939.

The first edition contained job definitions that were assigned a 5-digit or 6-digit code, placing them in one of 550 occupational groups and indicating if the jobs were skilled, semiskilled, or unskilled. Subsequent editions reflected continued field-center work and changes in occupations and the economy, including scientific and technical developments.

The latest dictionary (fourth edition, 1977) defines 12,099 occupations, organized according to their similarities. Definitions are based on studies of how similar jobs are performed throughout the Nation. The dictionary's occupational structure contains 9 broad occupational categories, 82 divisions, and 559 groups. Each occupation in the Dictionary has a 9-digit code that reflects the kind and level of work performed.

For example, the job "cloth printer" has the code 652.382.010. The first digit (6) is the occupational category and indicates that the job is a machine trade. The second digit (5) is the division level and indicates the job is in printing. The third digit (2) is the occupational group and indicates the job involves a printing machine. The middle three digits are the worker function ratings of the tasks performed. They indicate the degree of the job's relationship to data, people, and things. In this example, the digits indicate that the job has an average relationship to data (3), a lower relationship to people (8), and a strong relationship to things (2). The last three digits of the code have no special significance; they indicate the alphabetical order of the defined job titles within the first six digits. A number of defined occupations may have the same first six digits, but no two can have the same nine digits.

Occupational Employment Statistics Survey

The Occupational Employment Statistics Survey is the most detailed survey that gathers data on occupational employment. Its classification system, developed especially for it by the Bureau of Labor Statistics, is composed of specifically defined occupations.

The need for current, reliable, national and local data on job skills in industry was realized when the President's Committee to Appraise Employment and Unemployment Statistics (the Gordon Committee, 1962) evaluated all the available data collected at that time. The committee concluded that relatively little is known

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about current changes in the number of workers employed in each important occupation, and in the economy's occupational structure as a whole.

In addition, legislation calls for programs to train workers, enhancing the need for gathering detailed job data by industry. The Manpower Development and Training Act of 1962 directed the Secretary of Labor to develop, compile, and make available information regarding skill requirements, job outlook, job opportunities, labor supply in various skills, and employment trends. This was to be done on a national, State, area, or other basis for purposes of education, training, counseling, and job placement. Also, the Vocational Education Act of 1963, as amended, called for the development of State vocational education plans that consider projections of occupational requirements. The Comprehensive Employment and Training Act of 1973 called for development of a comprehensive system of labor market information.

Because of these laws, and to meet the needs of government planners and researchers in the field of employment and industrial management, the Bureau of Labor Statistics and the Employment and Training Administration initiated the OES Survey program. OES has been adopted as the primary source of occupational demand data for NOICC purposes.

Since 1971, in cooperation with the State employment agencies, OES has conducted yearly surveys of nonfarm establishments to obtain estimates of wage and salary employment by occupation and industry. The survey is conducted by industry sector on a 3-year cycle and consists of specially prepared lists of jobs for each industry. The occupations were derived primarily from the Dictionary of Occupational Titles. In general, however, specific OES occupations represent groups of the Dictionary's occupations and are more broadly defined. In addition to the Dictionary, the OES occupations reflect input from the 1970 Census of Population and Housing. The OES Survey currently provides national, State, and area occupational employment estimates for nearly 1,650 job categories in more than 300 industries.

The OES classification structure provides for seven major occupational divisions that are common to all segments of the economy. These consist of (1) managers and administrators; (2) professionals; (3) technicians; (4) service workers; (5) production, maintenance, construction, repair, material handling, and powerplant workers; (6) clerical workers; and (7) sales workers. These divisions are further divided into 24 subdivisions and minor job groups. Each occupation has been given a 5-digit code.

For example, the job of "statistician" has the code 22104. The first digit, 2, indicates the job is grouped in the major occupational division of professional worker. The second digit, 2, indicates the subdivision of natural

and mathematical scientist. The third digit, 1, indicates the minor group of mathematical scientist. The last two digits identify the specific job and have no special classification significance.

Industry-occupation matrix system

The OES industry-occupation matrix is a system of occupational staffing patterns cross-classified by industry. It provides the foundation of the BLS national occupational projections efforts. The staffing patterns are used with industry employment estimates and projections to estimate national occupational employment and future occupational requirements. Like the OES Survey, the concept of a matrix system was partly the result of the Manpower Development and Training Act of 1962, which stressed the need for such information.

Originally, the industry-occupation matrix was based on data from the Census Bureau's 1950 and 1960 censuses adjusted by BLS annual data for total U.S. employment by industry. This census-based matrix contained a cross-relationship of employment for 173 occupations in 124 industries. In subsequent years, it was expanded to cover approximately 400 occupations in 200 industries and was based on data from the 1970 census. In the late 1970's, the primary occupational employment data source for the matrix was changed to the new OES Survey, although the census is still used for supplemental data. The current survey-based matrix contains approximately 1,700 occupations in more than 375 industries. BLS is considering revising the classification structure and the number of occupations in the matrix.

The current matrix classification structure is a 4-level system: major group, division, subdivision, and detailed job category. The structure contains nine major groups, and 226 divisions and subdivisions. Each OES survey-based matrix code contains eight digits that allow for aggregation at intermediate levels. The older census-based matrix code uses a similar but distinct 8-digit coding scheme.

For example, in the current OES survey-based matrix, the occupation of physical therapist is coded 10101804. The first two digits, the major group (10), indicate a professional category. The second two digits, the division (10), indicate medical worker other than technician. The third set of two digits, the subdivision (18), indicate therapist. The last two digits, the occupational category (04), identify the specific job.

Standard Occupational Classification system

In 1977, the first SOC manual was published by the Office of Federal Statistical Policy and Standards, U.S. Department of Commerce. It was similar to the Standard Industrial Classification system and established a new governmentwide standard for occupational classifi-

Exhibit 1. Description of data sources in the Bureau of Labor Statistics occupational cross-classification system

Data	Source	Frequency	Occupational structure	Coverage	Reference	Contact
Occupational Employment Statistics Survey	Occupational demand information derived from a sample survey of wage and salary employees. Survey provides estimates of current occupational employment by industry	One-third of economy annually	7 major occupational groups, 13 minor occupational groups, Approximately 1,650 occupations	Wage and salary employees in nonagricultural establishments. Excluded are proprietors, self-employed, unpaid volunteer or family workers, private household workers, and active duty military personnel	Occupational Employment Statistics <i>Dictionary of Occupations</i>	U.S. Department of Labor, Bureau of Labor Statistics, Division of Occupational and Administrative Statistics
Occupational Employment Statistics Matrix	An occupation by industry data base using OES and Census employment estimates showing current and projected occupational demand	Biennially updated	9 major occupational groups, 36 divisions, 190 subdivisions (approximately 1,700 occupations)	All occupations and industries, except active duty military personnel	<i>Tomorrow's Manpower Needs</i>	U.S. Department of Labor, Bureau of Labor Statistics, Office of Economic Growth and Employment Projections
Dictionary of Occupational Titles	Classification system of occupations and definitions developed by the U.S. Employment Service to classify job openings and job applications	Periodically updated	9 occupational categories, 82 occupational divisions, 559 occupational groups, 12,099 occupations	All occupations and industries	<i>Dictionary of Occupational Titles, 1977</i>	U.S. Department of Labor, Employment and Training Administration, U.S. Employment Service, Office of Technical Support, Division of Occupational Analysis
Standard Occupational Classification	Classification system of occupations and definitions developed by the Office of Federal Statistical Policy and Standards as a model for Federal occupational classification	Periodically updated	22 occupational divisions, 60 major occupational groups, 214 minor occupational groups, 538 unit occupational groups, 649 occupations	All occupations and industries	<i>Standard Occupational Classification Manual</i>	U.S. Department of Commerce, Office of Federal Statistical Policy and Standards
Bureau of the Census	Occupational demand information from the decennial sample survey of households. Survey yields estimates of current occupational employment, by industry	Entire economy surveyed once every 10 years	12 major groups, 27 minor groups	All industries, except active duty military personnel	<i>Alphabetical Index of Industries and Occupations</i> <i>Classified Index of Industries and Occupations</i>	U.S. Department of Commerce, Bureau of Census, Population Division
Department of Education	Classification system of enrollments and completions in courses of instruction. Data provides supply information relative to enrollments and completions in courses of instruction	Classification system periodically updated. Data collection annually	22 subjects	Vocational education programs at the secondary and post-secondary levels	<i>Standard Terminology for Curriculum and Instruction in Local School Systems, State Education Record and Report Series, Handbook VI</i>	U.S. Department of Education, National Center for Education Statistics, Division of Post-secondary and Vocational Education Statistics

cation. The SOC issuance generated a great deal of interest and much comment among persons involved in job classification. Accordingly, a revised edition of the SOC was published in 1980.

Lack of comparability among occupational statistics classification systems used by different government agencies has been a recurrent problem. In 1938, the Central Statistical Board (now the Office of Federal Statistical Policy and Standards) and the American Statistical Association established the Joint Committee on Occupational Classification to develop a standard classification system. By 1940, the committee developed the Convertibility List of Occupations with Conversion Tables and Industrial Classification for Reports for Individuals. The primary purpose for the convertibility list and conversion table was to make it possible to compare the data collected by the U.S. Employment Service (using the Dictionary of Occupational Titles system) with the 1940 census data.

By 1966, however, the convertibility list was obsolete because both the Dictionary of Occupational Titles and the census classification system had been extensively modified. The development of a SOC system began in 1966 on the recommendation of the Government's Interagency Committee on Occupational Classification. In addition to the lack of consistency between the Dictionary of Occupational Titles and census classification systems, several government agencies had created unique job classification systems for their own specific purposes. Yet, demands for more comparable occupational data had increased. The 1977 edition and the subsequent 1980 SOC are a response to those demands. The 1980 SOC contains approximately 650 occupations based on a 4-level system: division, major group, minor group, and unit group. Each level represents occupations grouped in successively finer detail.

For example, the occupation "welding machine operator" has the code 7532. The division can only be determined by referring to the SOC manual. In this example, the occupation is grouped within the 18th division—"production working occupations." The first two digits (75), represent the major group, "machine operating and tending." The third digit (3), is the minor group. It indicates that the job involves metal fabricating by machine. The fourth digit (2), is the unit group, and identifies the specific occupation.

Census Occupational Classification system

Census occupational data result from two sample survey efforts, the decennial Census of Population and Housing and the monthly Current Population Survey (CPS). The most currently available decennial census occupational data are from the 1970 census, which collected data from about 20 percent of households, using two types of questionnaires. The responses were classified

into 417 occupations in 215 industries. The monthly CPS collects occupational data from about 60,000 of the approximately 82 million households (0.7 percent) in the United States. The CPS data provide national occupational trend information. However, the limited sample does not support State or State subdivision occupational estimates. The CPS uses the decennial census classification structure of occupational coding.

For many years, the only comprehensive occupational data source was from the decennial census sample. The Bureau of the Census began collecting occupational data in 1850. However, during 1870-1930 the classification was primarily of employment in large industrial divisions and did not represent occupational classification systems structured around common worker tasks. In 1940, the census classification scheme began to change direction, moving toward an occupational classification structure that categorized workers by job duties and not solely on the basis of the industries where workers were employed. Since 1940, the occupational structure has been revised and expanded with each decennial census.

The 1970 census classification structure is arranged into 12 major occupational groups and contains 417 occupational categories, each of which is assigned a 3-digit code. For example, the occupation "dental hygienist" has the code 081. However, the major group can only be determined by referring to the classification manual; in this case it is within the first major group—"professional, technical, and kindred workers."

Department of Education program

In 1966, the Office (now Department) of Education developed a classification system of instructional programs to identify, classify, and describe information about subject matter and curriculum. For planning purposes, the system categorizes enrollments and completions in various vocational education programs, and it provides information relative to the supply of trained applicants in various fields. This classification system is distinct from the other five in the crosswalk because it pertains primarily to a classification of instructional programs, not to occupations. However, users often need to relate instructional programs to occupational data, so instructional program codes are included in the crosswalk.

The Department of Education's classification system and definitions were developed by a Federal-State task force that studied education records, reporting forms, and professional literature; and that conducted numerous conferences with educators. Twenty subjects are defined, plus one area for co-curricular activities and one for general education, both elementary and secondary. The OES crosswalk currently uses the seven subjects that specifically identify vocational-technical instruction-

al programs. The coding system provides a distinct, 2-digit identification code for each educational program area and more detailed codes for a classified programs within each area. The codes for a specific program usually are limited to six digits. However, in a few cases, 8-digit codes are assigned. The classification structure is based on a 4-level system: subject, principal segment of subject, division of principal segment, and first-level detail of division of principal segment. Each level represents programs grouped in successively finer detail.

An example of an instructional program in the crosswalk is that of heavy equipment maintenance, coded 17.100301. The first 2-digit position, the subject, is 17, and indicates the program concerns trade and industrial occupations. The second 2-digit position, the principal segment of the subject matter, is 10, and indicates the program concerns construction and maintenance trades. The third 2-digit position, division of principal segment, is 03, and indicates the program involves heavy construction equipment. The last 2-digit position, first-level detail, is 01, and indicates maintenance of heavy equipment.

Future directions

The 1981 OES crosswalk allows occupational data users to draw from many diverse sources. Although the crosswalk greatly facilitates cross-classification analysis, users should note that many compatibility problems remain. The future, however, is brighter, because some of the programs are undergoing classification changes. In

many cases, the new Standard Occupational Classification has provided the much needed focus for these changes, which will greatly reduce, although not eliminate, cross-classification problems.

The Occupational Employment Statistics Survey program is currently doing conversion work that will make the survey classification system generally compatible with the 1980 SOC. The 1980 Census of Population data are being coded to a revised classification system that is also generally compatible with the 1980 SOC. In addition, the National Occupational Information Coordinating Committee has adopted the 1980 SOC as its principal classification structure. The Department of Education has recently completed a change in its basic classification structure that, when implemented, will organize the classification of all educational programs into a single unified system, called Classification of Instructional Programs (CIP). Work is now underway to cross-classify the new CIP codes to the Dictionary of Occupational Titles and the 1980 SOC.

The OES crosswalk will be expanded to include the new information when any occupational data program becomes cross-classified with any program already in the crosswalk. These additions and updates to the crosswalk system will increase its utility for users. □

— FOOTNOTE —

¹ For more information about the OES crosswalk, contact the Division of Occupational and Administrative Statistics, Office of Employment Structure and Trends, Bureau of Labor Statistics, 441 G Street, N.W., Washington, D.C. 20212.

Family Budgets



Autumn 1980 retired couple budgets: increase is largest in 6 years

Rising transportation and medical costs contributed to the largest increases since 1973-74 in the three hypothetical budgets for a retired couple. In autumn 1980, urban average budgets were \$6,644 at the lower level, \$9,434 at the intermediate level, and \$13,923 at the higher level (table 1). From autumn 1979 to autumn 1980, the lower level budget rose 10.3 percent, the intermediate, 10.2 percent, and the higher 9.9 percent (table 2).

Consumption costs for the three budgets rose by the same percentages as for the total budget: 10.3 for the lower, 10.2 for the intermediate, and 9.9 for the higher. Among the components, the largest increase was in transportation, which rose 16 percent for the lower and intermediate budgets, and 14 percent for the higher budget. Transportation in the lower and intermediate budgets contains a larger proportion of public transportation than in the higher budget. Therefore, the two lower levels were affected more by the large increases in public transportation charges during the period. Prices for medical care also rose sharply, increasing costs by 13 percent at each budget level. Total costs in the medical care component for autumn 1980 contain a preliminary estimate of out-of-pocket costs for medicare.

Table 1. Summary of annual budgets for an urban retired couple at three levels of living, autumn 1980

Component	Budget		
	Lower	Intermediate	Higher
Total budget ¹	\$6,644	\$9,434	\$13,923
Total family consumption	6,358	8,866	12,885
Food	2,082	2,772	3,482
Housing	2,169	3,106	4,860
Transportation	487	950	1,748
Clothing	236	396	609
Personal care	184	269	394
Medical care	944	950	956
Other family consumption	255	424	837
Other items	286	568	1,037

¹ Beginning with the autumn 1973 updating of the budgets, the total budget is defined as the sum of "total family consumption" and "other items."

NOTE: Because of rounding, sums of individual items may not equal totals.

Table 2. Percentage changes in budgets for an urban retired couple, autumn 1979 to autumn 1980

Component	Budget		
	Lower	Intermediate	Higher
Total budget	10.3	10.2	9.9
Total family consumption	10.3	10.2	9.9
Food	10.6	10.6	10.6
Housing	8.7	8.5	8.5
Transportation	16.0	15.9	14.4
Clothing	4.9	4.8	4.8
Personal care	8.9	8.9	8.8
Medical care	12.8	12.8	12.7
Other family consumption	9.0	8.7	8.7
Other items	10.4	10.3	9.2

The housing component includes costs for shelter, furnishings, and household operations, and assumes that retired couples either rent or own their homes free of mortgage and interest payments. Renter costs include average contract rent plus heating fuel, gas, electricity, water, specified equipment, and insurance on household contents. Homeowner costs include property taxes, water, refuse disposal, heating fuel, gas, electricity, specified equipment, home repair and maintenance, and insurance on house and contents.

The "other family consumption" component includes costs for reading materials, recreation, tobacco, alcoholic beverages, and miscellaneous items.

The budgets represent the costs of hypothetical lists of goods and services that were specified in the mid-1960's to portray three relative levels of living. They are designed for a precisely defined retired couple—a husband age 65 or over, and wife. The couple is assumed to be self-supporting, residing in an urban area, in good health, and able to care for themselves. The different budget levels provide different qualities and quantities of goods and services. They do not include personal income taxes. The lower budget was not designed as a subsistence or poverty level, but simply as a level somewhat lower than the intermediate.

The 1980 budgets were estimated by applying price changes for individual areas from autumn 1979 to autumn 1980, as reported in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W), to the appropriate autumn 1979 budget costs for each main class of goods and services. As a result of the revi-

Table 3. Indexes of comparative costs based on an intermediate budget for a retired couple, autumn 1980

[U.S. urban average cost = 100]

Area	Total budget	Family consumption										
		Total consumption	Food		Housing			Transportation ¹	Clothing	Personal care	Medical care	Other family consumption
			Total	At home	Total	Renter	Home-owner					
Urban United States	100	100	100	100	100	100	100	100	100	100	100	100
Metropolitan areas ²	103	103	101	101	107	108	106	101	102	98	101	107
Nonmetropolitan areas ³	90	90	96	98	80	77	83	96	94	107	98	78
Northeast:												
Boston, Mass.	117	117	106	106	141	129	170	105	110	88	97	117
Buffalo, N.Y.	106	106	103	105	109	101	115	115	116	88	94	105
New York-Northeastern N.J.	113	113	112	109	136	121	163	71	93	102	100	109
Philadelphia, Pa.-N.J.	104	104	112	107	109	103	117	89	72	84	100	105
Pittsburgh, Pa.	102	102	104	104	99	88	102	114	102	88	99	105
Nonmetropolitan areas ³	101	101	103	104	101	102	123	107	102	100	97	77
North Central:												
Chicago, Ill.-Northwestern Ind.	98	98	100	101	96	104	89	92	94	90	102	117
Cincinnati, Ohio-Ky.-Ind.	98	98	102	103	91	82	89	100	116	84	100	106
Cleveland, Ohio	104	104	101	99	107	106	112	107	106	118	96	110
Detroit, Mich.	101	101	99	100	102	107	105	107	98	98	99	107
Kansas City, Mo.-Kans.	99	99	99	100	91	80	85	109	107	115	103	109
Milwaukee, Wis.	103	103	97	95	106	105	110	110	111	94	100	108
Minneapolis-St. Paul, Minn.	100	100	98	98	100	116	85	106	104	98	94	112
St. Louis, Mo.-Ill.	100	100	105	105	93	87	84	113	98	92	97	101
Nonmetropolitan areas ³	92	92	96	98	85	89	89	93	107	115	97	79
South:												
Atlanta, Ga.	93	93	96	94	79	79	58	114	109	91	98	107
Baltimore, Md.	99	99	97	96	98	98	78	108	103	104	97	104
Dallas, Tex.	95	95	94	93	88	96	76	112	96	101	103	101
Houston, Tex.	98	98	98	96	91	81	87	104	104	113	106	100
Washington, D.C.-Md.-Va.	109	109	106	107	112	114	107	110	101	118	104	115
Nonmetropolitan areas ³	86	86	95	97	72	61	70	95	80	103	99	77
West:												
Denver, Colo.	98	98	94	94	93	84	79	110	130	99	98	107
Los Angeles-Long Beach, Calif.	99	99	97	95	94	128	69	119	93	94	109	98
San Diego, Calif.	97	97	95	92	90	113	74	112	92	92	105	103
San Francisco-Oakland, Calif.	107	107	101	101	106	133	81	124	110	117	108	109
Seattle-Everett, Wash.	109	109	100	99	118	146	99	111	112	110	103	114
Honolulu, Hawaii	116	116	128	131	110	154	76	123	104	110	102	116
Nonmetropolitan areas ³	92	92	96	97	82	85	81	96	113	118	100	81
Anchorage, Alaska	130	130	120	121	144	179	131	127	129	177	123	89

¹ The average costs of automobile owners and nonowners in the intermediate budget were weighted by the following proportions of families: New York, 25 percent for owners, 75 percent for nonowners; Boston, Chicago, Philadelphia, 40 percent for owners, 60 percent for nonowners; all other metropolitan areas, 60 percent for owners, 40 percent for nonowners; nonmetropolitan areas, 68 percent for owners, 32 percent for nonowners.

² As defined in 1960-61. For a detailed description of current and previous geographical boundaries, see the 1967 edition of *Standard Metropolitan Statistical Areas*, prepared by the Office of Management and Budget.

³ Places with populations of 2,500 to 50,000. Data for some previously shown are no longer available.

sion of the CPI program in January 1978, individual area price changes from autumn 1979 to autumn 1980 were available for only 25 family budget areas. Comparative indexes for the intermediate budget in these areas are shown in table 3. The urban U.S. average includes estimates for the areas previously shown, however, using price data for the appropriate region and population size classes, which are available from the CPI. Nonmetropolitan areas have always been shown as a separate class, and their costs have been similarly updated. Indexes of comparative costs for the three retired couple budgets, by metropolitan area and nonmetropolitan area, and by region are available from the Bureau of

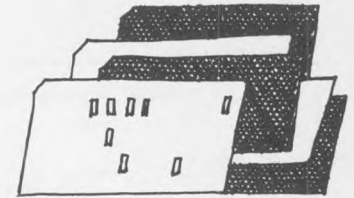
Labor Statistics upon request.

A comprehensive revision of the Family Budgets Program, in line with past revisions, is being considered by the Bureau. A committee of experts has completed an indepth study of the family budget methodology and has recommended a new approach.¹ Its report is being reviewed by the Bureau staff and by other concerned persons. □

— FOOTNOTE —

¹ See Harold W. Watts, "Special panel suggests changes in BLS Family Budget Program," *Monthly Labor Review*, December 1980, pp. 3-10.

Research Summaries



White-collar workers open 1980's with record salary increases

The Bureau of Labor Statistics' most recent survey of white-collar pay found that increases ranged from 9 to 11 percent during the year ended in March 1981.¹ The 1980-81 advances in the national survey of professional, administrative, technical, and clerical pay surpassed average annual gains recorded for the preceding decade; commonly 7 to 8 percent a year from 1975 to 1980 and 6 to 7 percent from 1970 to 1975. (See table 1.)

Compared to yearly increases during the 1960's and 1970's, the 1980-81 gains were a record for half of the surveyed occupations permitting comparisons. These occupations were accountants, auditors, directors of personnel, attorneys, buyers, engineers, accounting clerks, and typists—each experiencing salary increases of 9.6 percent or more during 1980-81. The largest salary hike

Table 2. Percent increases in average salaries by work level category, 1970-81

Period	Group A (GS grades 1-4)	Group B (GS grades 5-9)	Group C (GS grades 11-15)
1970-81	119.1	112.4	122.3
1970-71	6.2	6.3	6.2
1971-72 ¹	6.3	5.2	5.6
1972-73	5.5	4.4	5.7
1973-74	6.2	5.7	6.2
1974-75	9.1	8.6	8.8
1975-76	7.6	6.4	6.5
1976-77	6.9	6.3	7.7
1977-78	7.5	8.0	8.8
1978-79	7.2	7.5	8.0
1979-80	9.1	10.1	9.3
1980-81	9.8	9.6	10.2

¹ Actual survey-to-survey increases have been prorated to a 12-month period.

Table 1. Percent increases in average salaries, selected occupations, 1970 to 1981

Occupation	Annual average:		
	1970 to 1975	1975 to 1980	1980 to 1981
Professional, administrative, and technical support:			
Accountants	6.6	7.9	10.0
Chief accountants	6.9	8.8	9.5
Auditors	5.9	7.2	10.3
Public accountants	...	...	7.9
Job analysts	6.7	7.3	7.6
Directors of personnel	6.5	9.1	11.4
Attorneys	6.2	7.8	9.8
Buyers	6.7	7.3	9.8
Chemists	6.3	8.0	9.4
Engineers	6.0	8.1	10.9
Engineering technicians	6.3	8.2	10.2
Drafters	6.7	8.1	10.9
Clerical:			
Accounting clerks	6.2	7.3	9.6
File clerks	6.5	7.3	8.0
Key entry operators	7.3	7.3	8.2
Messengers	6.8	6.6	9.7
Stenographers	7.4	9.3	12.1
Typists	6.5	7.7	10.2

NOTE: Dashes indicate that average was not computed when increases were available for fewer than 4 years. Increases for computer operators, secretaries, and personnel clerks/assistants are not shown because of changes in the survey definitions for 1981.

(12.1 percent) was posted by stenographers, equaling their record raise in 1978-79. Two technical support occupations which had record gains during 1978-79—drafters (11.8 percent) and engineering technicians (11.0 percent)—chalked up salary increases of over 10 percent during 1980-81.

Salary increases varied for different levels of occupations. Table 2 shows these levels grouped into three broad categories: Group A—equates to grades 1-4 of the Federal Government's General Salary Schedule (GS); Group B—GS grades 5-9; and Group C—GS grades 11-15.² (See table 3 for identification of the survey classifications that equate to each GS grade for use in the Federal pay setting process³.) Generally, the highest occupational levels (Group C) in the survey experienced the largest salary increase since the 1970-71 survey. In 1980-81, this group experienced a 10.2 percent increase—highest among the three categories.

Average monthly salaries for occupations studied (table 3) ranged from \$702 for routine file clerks to \$5,580 for top level attorneys. These extremes reflect the wide range of duties and responsibilities represented by the 96 work levels published for the survey. In contrast, the typical salary spread among jobs of equivalent levels of work is relatively narrow. Thus, monthly averages for the six work levels that equate to Federal GS grade 13 ranged from \$3,493 for chemists VI to \$3,738 for attorneys IV⁴—a difference of only 7 percent. Salary

Table 3. Average monthly salaries of employees in selected white-collar occupations in private establishments, March 1981

Occupational level and Federal GS grade equivalent	All establishments ¹		Large establishments ¹		Large establishment salaries as a percent of all establishment salaries	Occupational level and Federal GS grade equivalent	All establishments ¹		Large establishments ¹		Large establishment salaries as a percent of all establishment salaries
	Number of employees ²	Monthly salaries ³ (means)	Number of employees ²	Monthly salaries ³ (means)			Number of employees ²	Monthly salaries ³ (means)			
Accountants and Auditors						Personnel Management					
Accountants I (GS-5)	13,290	\$ 1,377	3,377	\$1,500	109	Job Analysts I (GS-5)	181	\$1,412	—	—	—
Accountants II (GS-7)	21,975	1,679	7,352	1,880	112	Job Analysts II (GS-7)	424	1,525	168	1,670	110
Accountants III (GS-9)	34,450	1,962	8,969	2,098	107	Job Analysts III (GS-9)	666	1,900	352	1,976	104
Accountants IV (GS-11)	21,326	2,402	6,650	2,480	103	Job Analysts IV (GS-11)	448	2,393	325	2,413	101
Accountants V (GS-12)	8,488	2,928	2,997	2,999	102	Directors of Personnel I (GS-11)	1,267	2,321	—	—	—
Accountants VI (GS-13)	1,539	3,646	722	3,675	101	Directors of Personnel II (GS-12)	2,053	2,933	—	—	—
Chief Accountants I (GS-11)	680	2,631	—	—	—	Directors of Personnel III (GS-13)	812	3,574	117	3,899	109
Chief Accountants II (GS-12)	938	2,963	—	—	—	Directors of Personnel IV (GS-14)	352	4,493	162	4,846	108
Chief Accountants III (GS-13)	672	3,708	113	3,562	96	Chemists and Engineers					
Chief Accountants IV (GS-14)	163	4,668	—	—	—	Chemists I (GS-5)	3,491	1,508	607	1,702	113
Auditors I (GS-5)	1,849	1,364	561	1,433	105	Chemists II (GS-7)	6,131	1,757	1,891	1,870	106
Auditors II (GS-7)	3,251	1,651	1,020	1,781	108	Chemists III (GS-9)	11,686	2,120	3,524	2,251	106
Auditors III (GS-9)	4,313	2,033	1,672	2,142	105	Chemists IV (GS-11)	11,221	2,567	3,832	2,700	105
Auditors IV (GS-11)	2,649	2,456	1,154	2,581	105	Chemists V (GS-12)	8,708	3,055	3,161	3,125	102
Public Accountants I (GS-7)	8,443	1,344	—	—	—	Chemists VI (GS-13)	3,788	3,493	1,564	3,597	103
Public Accountants II (GS-9)	8,721	1,500	—	—	—	Chemists VII (GS-14)	1,622	4,070	693	4,153	102
Public Accountants III (GS-11)	7,868	1,786	—	—	—	Engineers I (GS-5)	28,233	1,809	13,596	1,842	102
Public Accountants IV (GS-12)	3,875	2,146	—	—	—	Engineers II (GS-7)	48,312	1,972	21,536	2,022	103
Attorneys						Engineers III (GS-9)	108,063	2,229	49,462	2,283	102
Attorneys I (GS-9)	1,586	1,873	329	2,138	114	Engineers IV (GS-11)	134,180	2,613	70,265	2,667	102
Attorneys II (GS-11)	2,410	2,338	689	2,520	108	Engineers V (GS-12)	97,379	3,060	56,684	3,090	101
Attorneys III (GS-12)	3,135	3,031	989	3,144	104	Engineers VI (GS-13)	45,433	3,552	27,270	3,564	100
Attorneys IV (GS-13)	2,535	3,738	904	3,861	103	Engineers VII (GS-14)	14,450	4,107	10,269	4,124	100
Attorneys V (GS-14)	1,587	4,566	696	4,707	103	Engineers VIII (GS-15)	2,785	4,736	1,795	4,790	101
Attorneys VI (GS-15)	666	5,580	323	5,759	103	Technical Support					
Buyers						Engineering Technicians I (GS-3)	5,898	1,137	2,502	1,206	106
Buyers I (GS-5)	6,664	1,350	1,054	1,534	114	Engineering Technicians II (GS-4)	18,803	1,307	7,384	1,379	106
Buyers II (GS-7)	19,057	1,689	4,803	1,826	108	Engineering Technicians III (GS-5)	31,017	1,527	13,919	1,572	103
Buyers III (GS-9)	17,235	2,100	6,282	2,213	105	Engineering Technicians IV (GS-7)	35,540	1,803	18,867	1,829	101
Buyers IV (GS-11)	5,539	2,549	3,117	2,612	102	Engineering Technicians V (GS-9)	19,056	2,051	13,559	2,062	101

relationships produced by the survey are evidence that companies recognize equivalent duties and responsibilities among a wide range of occupations within broad categories, such as professional and administrative workers.

Average salaries developed by the survey do not necessarily correspond to pay structures within individual firms. However, published averages often reflect the impact of industry mix and of high or low paying firms on the survey data, in addition to the range of rate plans used by many establishments to recognize merit or seniority among white-collar workers. Table 3 presents the occupational employment and average salaries of all establishments covered by the survey and of large establishments (2,500 employees or more). It indicates that large establishments, as a group, generally have higher pay levels than the all-establishment averages. However, the differences between the two sets of averages tend to

vanish, of course, for those work levels where large establishments dominate the employment.

Firm size, industry, geographical location and rate ranges also contribute to the pronounced variation in earnings within each of the work levels surveyed. (Minor variations in duties and responsibilities of workers classified in the same survey work level contribute, to a lesser degree, to dispersed salaries.) Salaries of the highest paid employees in a single work level were commonly more than twice those of the lowest paid employees. The absolute money spread between the highest and lowest paid workers tended to widen with each rise in work level for most occupations.⁵

Similar to pay structures in many firms (with rate ranges), individual salaries recorded in the survey often overlapped substantially among work levels of a given occupation; for example, 11 percent of engineers III, 22 percent of engineers IV, and 11 percent of engineers V

Table 3.—Continued Average monthly salaries of employees in selected white-collar occupations in private establishments, March 1981

Occupational level and Federal GS grade equivalent	All establishments ¹		Large establishments ¹		Large establishment salaries as a percent of all establishment salaries	Occupational level and Federal GS grade equivalent	All establishments ¹		Large establishments ¹		Large establishment salaries as a percent of all establishment salaries
	Number of employees ²	Monthly salaries ³ (means)	Number of employees ²	Monthly salaries ³ (means)			Number of employees ²	Monthly salaries ³ (means)	Number of employees ²	Monthly salaries ³ (means)	
Technical Support—Continued						Clerical—Continued					
Drafters I (GS-2)	2,854	\$ 923	648	\$1,009	109	Key Entry Operators I (GS-2)	68,883	\$ 886	11,362	\$1,075	121
Drafters II (GS-3)	12,494	1,075	3,033	1,185	110	Key Entry Operators II (GS-3)	41,251	1,079	11,540	1,213	112
Drafters III (GS-4)	24,399	1,301	6,074	1,445	111	Messengers (GS-1)	15,609	783	4,725	854	109
Drafters IV (GS-5)	26,580	1,611	7,934	1,705	106	Personnel Clerks/Assistants I (GS-3)	2,556	898	275	1,043	116
Drafters V (GS-7)	20,034	2,011	9,179	2,081	103	Personnel Clerks/Assistants II (GS-4)	5,096	1,058	1,053	1,190	112
Computer Operators I (GS-4)	6,135	906	1,827	1,005	111	Personnel Clerks/Assistants III (GS-5)	3,999	1,192	549	1,381	116
Computer Operators II (GS-5)	12,849	1,049	3,254	1,203	115	Personnel Clerks/Assistants IV (GS-6)	1,866	1,400	—	—	—
Computer Operators III (GS-6)	29,299	1,220	7,919	1,386	114	Personnel Clerks/Assistants V (GS-7)	416	1,673	—	—	—
Computer Operators IV (GS-7)	16,671	1,475	6,071	1,632	111	Purchasing Assistants I (GS-4)	5,135	1,002	741	1,219	122
Computer Operators V (GS-8)	3,545	1,733	1,843	1,860	107	Purchasing Assistants II (GS-5)	4,322	1,274	1,282	1,458	114
Photographers II (GS-5)	528	1,425	224	1,544	108	Purchasing Assistants III (GS-6)	1,904	1,641	1,182	1,774	108
Photographers III (GS-7)	698	1,704	371	1,731	102	Secretaries I (GS-4)	63,923	1,079	17,949	1,230	114
Photographers IV (GS-9)	450	1,932	333	1,904	99	Secretaries II (GS-5)	61,171	1,147	20,886	1,226	107
Clerical						Secretaries III (GS-6)	106,881	1,298	40,909	1,418	109
Accounting Clerks I (GS-2)	30,466	798	—	—	—	Secretaries IV (GS-7)	43,624	1,406	14,680	1,535	109
Accounting Clerks II (GS-3)	86,720	953	14,782	1,106	116	Secretaries V (GS-8)	23,515	1,635	8,591	1,782	109
Accounting Clerks III (GS-4)	59,797	1,121	13,056	1,266	113	Stenographers I (GS-3)	17,422	1,099	8,982	1,122	102
Accounting Clerks IV (GS-5)	23,179	1,407	8,166	1,584	113	Stenographers II (GS-4)	14,725	1,311	7,720	1,375	105
File Clerks I (GS-1)	27,925	702	2,762	751	107	Typists I (GS-2)	38,236	830	8,558	924	111
File Clerks II (GS-2)	11,773	820	2,502	924	113	Typists II (GS-3)	21,551	1,030	8,681	1,125	109
File Clerks III (GS-3)	3,833	974	1,188	1,047	107						

¹ The survey covers establishments employing a minimum of either 50, 100 or 250 employees, depending upon the private-sector industry. Large establishments are defined as having at least 2,500 employees.

² Occupational employment estimates relate to the total in all establishments within scope of the survey and not to the number actually surveyed.

³ Salaries reported relate to the standard salaries that were paid for standard work schedules; i.e., the straight-time salary corresponding to employee's normal work schedule excluding overtime hours. Nonproduction bonuses are excluded, but cost-of-living bonuses and incentive earnings are included.

NOTE: The following occupational levels were surveyed but insufficient data were obtained to warrant publication: chief accountant V; director of personnel V; chemist VIII; computer operator VI; and photographer I and V. In addition, dashes indicate levels not publishable for large establishments.

earned between \$2,500 and \$2,700 monthly in March 1981. Because of the survey's broad coverage, this overlapping was larger than that generally found within individual establishments.

A more detailed analysis of white-collar salaries and complete survey results are contained in BLS Bulletin 2108, *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1981*. It includes salary distributions by occupational work level and relative employment and salary levels by industry division for the 23 occupations studied. □

—FOOTNOTES—

¹ The survey is conducted annually with a March reference period in metropolitan areas and nonmetropolitan counties in the United States, except Alaska and Hawaii. Metropolitan areas accounted for nine-tenths of the employees in occupations for which salary data were developed.

² The number of work levels for the 23 survey occupations varied from one for messengers to eight for engineers. In 1981, a total of 96 work levels produced publishable data out of the 102 levels within scope of the survey. Of these 96 work levels, 85 were sufficiently unchanged in definition between the 1980 and 1981 surveys to be used in computing the 1980-81 increases shown in table 2. Widely varying duties and responsibilities may be embodied in work levels within each of the broad categories of table 2; for example, Group B includes journeyman, clerical, and technical levels, such as accounting clerk IV and engineering technicians III through IV, as well as the entry and developmental levels of professional occupations.

³ See George L. Stelluto, "Federal pay comparability: facts to temper the debate," *Monthly Labor Review*, June 1979, pp. 18-28.

⁴ In the survey coding structure, the level designations among various occupations are not synonymous: For example, the first level of attorneys equates to the third levels of accountants, chemists, and most other professional and administrative occupations. See table 3 for more details on job level equivalents. Classification of employees in the occupations and work levels surveyed is based on factors detailed in definitions which are available upon request.

⁵ See the 1981 bulletin for a more detailed analysis of salary variation.

Major Agreements Expiring Next Month



This list of collective bargaining agreements expiring in December is based on contracts on file in the Bureau's Office of Wages and Industrial Relations. The list includes agreements covering 1,000 workers or more.

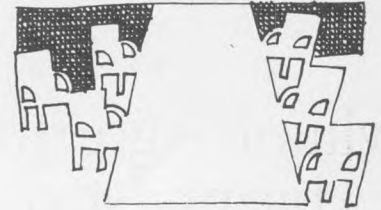
Employer and location	Industry	Union	Number of workers
Amana Refrigeration, Inc. (Fayetteville, Tenn.)	Machinery	Machinists	1,100
Atlantic City Electric Co. (New Jersey)	Utilities	Electrical Workers (IBEW)	1,000
Bic Pen Corp. (Milford, Conn.)	Miscellaneous manufacturing	Rubber Workers	1,100
Campbell Soup, Inc. (Paris, Tex.)	Food products	Food and Commercial Workers	1,300
Cemeteries (New York and New Jersey) ²	Real estate	Service Employees	2,000
Chicago Residential Hotel Association (Illinois)	Hotels	Service Employees	1,500
Continental Airlines (Interstate) ¹	Air transportation	Machinists	2,100
Dupont E. I. De Nemours & Co., Seaford Nylon Plant (Delaware)	Chemicals	Seaford Nylon Employees' Council, Inc. (Ind.)	2,350
Eastern Airlines, Ground Service (Interstate) ¹	Air transportation	Machinists	11,500
Egyptian Contractors Association and 2 others (Illinois)	Construction	Operating Engineers (IUOE)	1,000
Florida Power Corp.	Utilities	Electrical Workers (IBEW)	1,900
GTE Lenkurt, Inc. (Albuquerque, N. Mex.)	Electrical products	Electrical Workers (IBEW)	1,500
Illinois Association of Health Care Facilities	Hospitals	Service Employees	3,200
Indianapolis Power & Light Co. (Indiana)	Utilities	Electrical Workers (IBEW)	1,150
Metropolitan Detroit Hotel and Motor Hotel Association (Michigan)	Hotels	Hotel and Restaurant Employees	3,600
New York Lamp & Shade Manufacturers Association, Inc.	Electrical products	Electrical Workers (IBEW)	2,000
Ozark Airlines, Clerical Employees (Interstate) ¹	Air transportation	Machinists	1,800
Pan American World Airlines (Interstate) ¹	Air transportation	Teamsters (Ind.)	10,000
Pennsylvania Heavy and Highway Contractors Bargaining Association (Pennsylvania)	Construction	Steelworkers	2,500
Public Service Co. of Colorado (Denver, Colo.)	Utilities	Electrical Workers (IBEW)	2,550
Realty Advisory Board on Labor Relations, Inc. (New York, N.Y.)	Real estate	Operating Engineers (IUOE)	1,700
San Mateo County Restaurant Hotel Owners Association (California)	Hotels	Hotel and Restaurant Employees	5,400
Southern California Edison Co., 2 agreements	Utilities	Utility Workers; and Electrical Workers (IBEW)	6,500
Stop & Shop Companies, Inc. (Interstate)	Retail trade	Food and Commercial Workers	1,600
Timex Corp. (Little Rock, Ark.)	Instruments	Machinists	2,150
West Bend Co., West Bend Division (West Bend, Wis.)	Fabricated metal products	Allied Industrial Workers	1,500
Western Airlines, Flight Attendants (Interstate) ¹	Air transportation	Teamsters (Ind.)	2,200
West Virginia Contractors Bargaining Association, Inc.	Construction	Steelworkers	2,000
	Government activity	Union or employee organization	
Colorado: Boulder Board of Education, Teachers	Education	National Education Association (Ind.)	1,300
New York: Dutchess County Municipal Employees	Multidepartments	Civil Service Employees Association, Inc.	1,500
Thompkins County Municipal Employees	Multidepartments	American Federation of State, County and Municipal Employees	1,050
Ohio: Montgomery County Board of Commissioners, Municipal Employees	Multidepartments	American Federation of State, County and Municipal Employees	1,100
Pennsylvania: Pittsburgh Blue Collar Employees	Multidepartments	Pittsburgh Joint Collective Bargaining Committee (Ind.)	1,000
Pittsburgh Police Department	Law enforcement	Fraternal Order of Police	1,500

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

² Industry area (group of companies signing same contract).

³ Information is from newspaper reports.

Developments in Industrial Relations



Teamsters, trucking industry start talks early

Continuing economic difficulties in the trucking industry were reflected in the Teamsters' decision to begin bargaining early with employers on a new contract. The early start was requested by Trucking Employers Inc., the industry's bargaining arm. There is a possibility that any resulting new agreement would be put into effect early, superseding the balance of the current agreement negotiated in 1979 and scheduled to expire March 31, 1982.

In recent months, the Teamster's leaders have indicated increasing concern about the industry's problems, suggesting the union might accept a "moderate" settlement. The union attributed much of the economic ills to the influx of lower cost operators after the deregulation of the industry in 1980. When the decision to bargain early was announced in September, the Teamsters estimated that 117,000 members were on layoff in the industry, compared with about 60,000 in September 1980, when the union turned down a carriers' request to reopen negotiations (*Monthly Labor Review*, November 1980, p. 51), although later a number of Teamsters' locals did agree to wage cuts or changes in work schedules to aid employers (*Monthly Labor Review*, April 1981, p. 69).

Shipyard workers negotiate 'gain-sharing' plan

A settlement between Bethlehem Steel Corp.'s Shipbuilding Department and the Marine and Shipbuilding Workers featured provisions for experimental "gain sharing" and "employee involvement" programs. The bargainers said the gain-sharing plan "endorses the concept that employees should share in the benefits of their contributions to increase productivity and efficiency." A target date of April 1, 1982, was set for gain sharing to be implemented at one or more of the four shipyards covered by the 3-year contract.

The intent of the employee involvement program is to

set up union-management groups throughout each yard to improve morale and working conditions by discussing and resolving problems. Although details of the program remain to be worked out, the overall approach is similar to the negotiated "labor management participation teams" in the steel industry and to the "quality of worklife" plan at General Motors Corp.

Other contract provisions included set wage increases of 40 cents an hour in August 1981 and 30 cents in August of 1982 and 1983. The automatic cost-of-living adjustment clause was continued, with each of the 12 quarterly adjustments not to exceed 11 cents an hour or a combined total of \$1.26.

Benefit changes included a 13th annual holiday and a \$2 increase in pension rates, bringing the formula to \$14 a month for each of the first 15 years of service, \$15 for each of the next 15 years of service, and \$16 a month for each year of service in excess of 30.

The four shipyards are located in Baltimore and Sparrows Point, Md.; Boston, Mass.; and Hoboken, N.J.

TVA, unions compromise, end 3-month talks

Three months of difficult negotiations between the Tennessee Valley Authority and five unions representing 17,000 white-collar employees ended when the parties agreed on a compromise accord. The utility had been pressing for a reduction of as much as 26 percent in the salaries of clerical employees, contending that a regional survey showed that the clerical workers were paid more than their counterparts in the private economy and government. This was disputed by the unions, which initiated an unsuccessful attempt to prevent TVA from using the survey results in the negotiations.

Under the compromise settlement, workers already on the payroll received a wage increase of at least 3.75 percent retroactive to June 1981 and will receive an increase of at least 3 percent in October 1982. Reduced pay rates will apply to some workers hired in the future. The immediate increase ranged up to 10 percent for engineers, who, according to the survey, were underpaid.

Other contract terms included increased TVA financing of medical and dental benefits, increased shift

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

differentials, and a provision for reopening of wage and benefit negotiations in October 1982. In a departure from past practice, the parties set an expiration date (September 30, 1983) for the contract. The original contract, negotiated in 1950, was subject to termination only if either party served 90 days notice of such intent, which never occurred.

Public employee agreements

The 1981-82 school year led off with fewer teachers' strikes than the preceding school year, but there were several notable disputes.

In Philadelphia, 18,000 members of the American Federation of Teachers struck after the school board laid off 3,500 of the system's 26,000 employees and rescinded a 10-percent deferred salary increase scheduled for September 1981 under a contract negotiated in 1980. The school board said the layoff—which apparently violated a no-layoff provision of the contract—and the withdrawal of the salary increase were necessary because of a \$223-million budget deficit. State law prohibits the board from operating the school system on a deficit.

Chicago's public schoolteachers negotiated a 1-year contract that called for the system to assume the teachers' share of pension financing, which had been 7 percent of their salaries. The teachers are represented by the American Federation of Teachers.

There also were a number of collective bargaining settlements for other public employees throughout the Nation:

- The first major strike against the State of Minnesota ended when Council 6 of the State, County, and Municipal Employees union agreed to a 2-year contract. About 14,000 of the 18,000 workers represented by the council participated in the walkout. State employees, except those providing police, fire protection, and other essential services, had gained the right to strike under a law effective this year. The only previous walkouts against the State occurred in 1979 and involved two small units of workers that already had the right to strike. Employees in all six of the units covered by the accord received an immediate wage increase ranging from 9 to 11 percent for employees in the top pay grades, and from 11 to 13.3 percent for those in the lowest grades. Three of the units will receive two pay increases in the second contract year—6 percent on July 1, 1982, and 3 percent on January 1, 1983. The other units will receive two cost-of-living pay adjustments in the second year.
- A contract between the State of New Hampshire and the State Employees Association, covering 10,000 workers, provided for 9 percent wage increases at the

beginning of both contract years.

- A 2-year agreement between the State of Massachusetts and the National Association of Government Employees provided for a 4.3-percent pay increase retroactive to July 1, 1980, a 5-percent increase retroactive to February 1, 1981, and for 7 percent increases in November 1981 and August 1982. About 10,000 workers were affected by the settlement, which also provided for special pay adjustments to eliminate inequities among job grades.
- In Los Angeles, a 1-year contract between the city and the Police Protective League gave 6,500 officers a 10-percent salary increase and called for the city to increase its financing of medical and dental benefits.
- A 3-year accord between Milwaukee County, Wisconsin, and the State, County, and Municipal Employees provided for a 9-percent salary increase retroactive to December 21, 1980, a 1-percent increase retroactive to June 21, 1981, and a 9-percent increase on December 20, 1981. A dental plan also was established.

Service, department store unions may merge

Efforts to organize health care workers will be intensified if members of the Service Employees Union and the Retail, Wholesale and Department Store Union approve a planned mid-1982 merger of the two organizations. Jerry Shea, health care coordinator for the Service Employees, said that the merger would increase the political strength of health care workers and end costly competition between the two unions for the right to represent the same workers. Shea estimated that the two unions currently represent a total of 143,000 of the 2.5 million employees of private hospitals. Both unions already have members in a variety of other occupations, such as store employees, building cleaners, taxi drivers, and guards. The merger of the 650,000 members of the Service Employees with the 300,000 members of the Retail, Wholesale, and Department Store Union would create the fifth largest union in the AFL-CIO.

Textile workers reject union representation

The Clothing and Textile Workers' organizing efforts in the textile industry suffered a blow when employees of a J.P. Stevens & Co. denim manufacturing plant in Rock Hill, S.C., decided against giving the union the right to represent them. The tally was 433 votes for "no union" and 299 for the Clothing and Textile Workers.

The election loss came about a year after the union gained a breakthrough in its long and bitter representation struggle with Stevens by winning initial contracts for 10 of the company's 70 plants. The wage and benefit settlement was part of a broader accord in which the union agreed to end its consumer boycott efforts in ex-

change for a company obligation to accept the same wage and benefit terms for any other plants that the union was able to organize within 18 months. (See *Monthly Labor Review*, December 1980, p. 66.)

Clothing and Textile Workers' secretary-treasurer Jacob Sheinkman attributed the defeat to "election irregularities" on Stevens' part and indicated that charges would be filed with the National Labor Relations Board.

Company spokesman James Franklin denied Sheinkman's charges and attributed the workers' decision to particularly difficult economic conditions in the denim market, indicating that more than 200 employees were on layoff from the plant out of a normal complement of 986.

Harvester gets \$500 million contract

Employees of International Harvester Co.'s Indianapolis, Ind., plant accepted cost-reducing changes in work schedules that aided the company in winning a \$500-million contract to manufacture diesel engines for Ford Motor Co. Harvester said that the bargaining committee of Auto Workers Local 98, "aware of the necessity for the (engine) to be as cost competitive as possible, worked with the company to gain membership approval" of the contract changes. The changes permit Harvester to more fully utilize the Indianapolis plant by arranging work schedules so that employees will be available to operate the plant's \$35 million worth of new tooling seven days a week.

In 1980, Harvester had negotiated a similar scheduling change with another union for employees on a new truck body production line at its Columbus, Ohio, plant. There were no reports that Harvester, which lost \$353.8 million in the 9 months ended July 31, 1981, would seek similar changes at other plants. The Auto Workers Union represents more than 30,000 Harvester employees at plants in nine States, including 800 at the Indianapolis plant. The parties' last collective bargaining settlement, in April 1980, was preceded by a 172-day strike that centered on company demands for restrictions on job transfers and provisions enabling it to require employees to work overtime. (See *Monthly Labor Review*, July 1980, p. 58.)

Work rules changed at some airlines

At United Air Lines, a few pilots will earn as much as \$160,000 a year by the end of a 26-month contract negotiated by the Air Line Pilots Association. The average salary for all 6,000 pilots covered by the accord will rise to \$60,000 a year as a result of a total pay increase of 29 percent, with the \$160,000 scale applying to about 140 captains of Boeing 747 jets who fly the maximum 85 hours a month.

In exchange for the higher pay, the union agreed to a number of operating changes to improve productivity. Included were an increase of 7.5 hours in maximum credited monthly flying hours, bringing the total to 85; changes to reduce the percentage of nonflying time that is credited as flying time; and use of two pilots, rather than three, on Boeing 737 aircraft.

In a major departure from the practice that has prevailed at United since 1938, pilots will be paid straight salary, rather than under a complex formula based on such factors as the speed and weight of the aircraft and whether the flight is at night or over water. Such pay formulas are still in effect at other major carriers. In another aspect of the contract, United agreed not to open any nonunion subsidiary airlines and to shift the 250 pilots made surplus by the productivity gains to routes scheduled to be opened or expanded.

There were a number of moves at other carriers to cut labor costs in face of operating deficits attributed to the deregulation of the industry, high fuel costs, and cutbacks in flights in the aftermath of the strike by air traffic controllers. Generally, the cost concession was in the form of a 10-percent pay cut extending for a specific period. At the end of the period, pay scales will be restored to the prereduction level and raised by the amount of any general increase that had been scheduled to go into effect during the period. Employees will not be retroactively reimbursed for the earnings lost during the pay reduction period.

One example of this approach was at Pan American World Airways, where the Transport Workers 10 percent pay cut will extend from September 15, 1981, to January 1, 1983. In addition, a 4-percent deferred wage increase and a 25-cent-an-hour cost-of-living adjustment scheduled for January 1982 and a 4-percent deferred increase scheduled for July 1982 will not be effective until January 1, 1983. The cost concessions for Pan American workers represented by other unions differed somewhat from those for the Transport Workers, depending on the amounts and scheduled effective dates of deferred wage increases and cost-of-living adjustments and on the termination dates of current contracts.

Among the other carriers where wage cuts or changes in work rules were negotiated were Braniff International, American Airlines, Trans World Airlines, Western Airlines, and Hawaiian Airlines.

Shipworkers accept work rule changes

Employees of American Ship Building Co.'s Lorain and Toledo, Ohio, yards have agreed to changes in work rules and pay grades to improve efficiency. The Lorain accord reduced the 35 pay grades to 14; added a provision requiring workers to perform "incidental" work related to their primary duties; and allows the

company to temporarily transfer employees into particular grades, even if some employees in the grades are on layoff. The Lorain settlement, covering 1,000 members of six unions, was negotiated under a reopening provision of a contract scheduled to expire in September 1983. There were no changes in other contract terms.

The similar changes in work rules and pay grades at Toledo were part of a new contract that also provides for wage and benefit changes. The new contract, also expiring in September 1983, supersedes the balance of a contract scheduled to expire in November 1981.

Woodworkers' local accepts pay cut

A shutdown of International Paper Co.'s Longview, Wash., cabinet operations was averted when the 235 employees accepted the 20-percent pay cut that Long-Bell Cabinets had set as a condition for purchasing the plant. Long-Bell is a subsidiary of Thor Industries, Inc., a diversified holding company.

Duane Wend, president of Local 536 of the Woodworkers Union, called the 3-year contract "lousy", saying that "what it came down to was that people took a look and decided at least they had jobs to go to." According to a company official, International Paper had spent \$6 million since 1975 to improve productivity at the plant, but its rejuvenation efforts were hurt when the housing industry slumped.

Guild members agree to moratorium on raises

Members of the Newspaper Guild employed by the *St. Louis Globe-Democrat* followed the lead of 11 unions at the *St. Louis Post-Dispatch* and accepted a 42-month contract that deferred the initial 7-percent wage increase until March 1, 1983. The 218 Newspaper Guild members also will receive a 7-percent increase on March 1, 1984, and a 2-percent increase on September 1, 1984, plus automatic cost-of-living adjustments and improvements in benefits.

The contracts for the *Post-Dispatch* employees were negotiated with the parent Pulitzer Publishing Co., which prints both newspapers. Both newspapers indicated that the 18-month moratorium on pay increases was necessary to help counter operating losses.

Cost-reducing plan fails, company may close

The board of directors of Gulf Resources and Chemical Co. announced plans to close a lead, zinc, and silver mining and smelting subsidiary in Kellogg, Idaho, after the collapse of a plan to reduce operating costs by roll-

ing back wages to the December 31, 1980, level. Officials of the subsidiary, the Bunker Hill Co., said that even if the seven unions involved had all approved the rollback, there would have been no assurance that Gulf Resources would have continued the operations, in view of the \$7.7-million loss that Bunker Hill sustained in the first half of 1981.

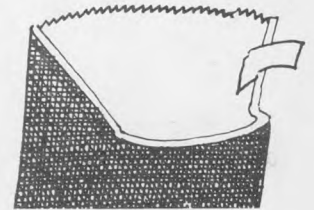
The Steelworkers and six of the seven craft unions approved the 85-cent-an-hour rollback, which would have saved Bunker Hill nearly \$4 million over the one year it would have been in effect, but a small local of the International Brotherhood of Electrical Workers rejected it. A dispute then occurred among the local unions over whether this amounted to a rejection by all of the locals, after which Bunker Hill withdrew the proposal. The shutdown would affect more than 2,100 workers. A Bunker Hill official said that efforts were being made to avert the closing by selling the operations.

In a later development, the Occupational Safety and Health Administration exempted Bunker Hill for 5 years from meeting a tighter limit on employee exposure to lead. (The limit became effective May 15 for some companies.) The unions had asked for the delay to minimize the amount a purchaser would have to spend to meet the new standard on lead exposure. Union officials indicated that as part of a settlement of a complaint filed by OSHA, Bunker Hill had agreed to seal lounges and lunchrooms against lead contamination, to provide more frequent medical examinations for employees, and to transfer employees to other jobs if a doctor finds an unusually high level of lead in their blood.

Hotel strike averted in Washington, D.C.

A last-minute settlement between Hotel and Restaurant Employees Local 25 and the Hotel Association of Washington, D.C., averted a scheduled strike that would have been the first in 35 years. The 3-year contract, which covered more than 6,000 employees of 24 hotels, provided for tipped employees to receive a 30-cent-an-hour wage increase in September of 1981, 1982, and 1983, and for nontipped employees to receive a 50-cent-an-hour increase in the same months. The shift differential was raised to 20 cents an hour, from 15 cents.

Other provisions included a 10th paid holiday; 4 weeks of paid vacation beginning in the 12th year of employment (formerly the 16th); vacation pay for tipped employees to be calculated at twice their weekly pay rate (previously, vacation pay was a minimum of \$120 a week); and increased employer financing of dental, legal, and optical plans. □



Book Reviews

An indictment of capitalism

Capitalism and Human Obsolescence: Corporate Control Versus Individual Survival in Rural America. By John A. Young and Jan M. Newton. Montclair, N.J., Allanheld, Osmun and Universe Books, 1980. 253 pp. \$21.50.

The purpose of this book is to persuade its readers that the American economic system causes workers, operators of small businesses, and their families, grave economic difficulties that could be avoided if only a system of "economic democracy" were substituted for the capitalist system. The book offers only one viewpoint, and it is critical of capitalism.

While normative analysis is extensively employed by the authors, the five chapters that study five rural communities suffering economic hardship contain a substantial degree of positive analysis. Whether one agrees with the repeated indictments of capitalism or not, the in-depth qualitative description of the economic problems of declining areas, and the occasional quantitative data will be of interest to many social scientists.

John A. Young and Jan M. Newton have chosen five "exploited" groups for inclusion in their study. These are the lumberjacks and lumbermill workers of the Pacific Northwest, the copper miners of Bisbee, Ariz., the rural pineapple workers in Hawaii, small farmers in California, and small businessmen in a small town in Washington State. It is notable that ethnic minorities make up the bulk of a group in only two cases: the miners, who are often Mexican-American, and the pineapple workers who are mostly Philippine-American. The accusation of racism is not the major indictment against big business in this book. Rather, it is that corporations create a wide range of social problems including unemployment, underemployment, lack of educational opportunities, age discrimination, poverty and other personal financial problems, health problems, personal alienation, family problems, feelings of worthlessness, and resentment against big government, big business, and big labor. The root cause of these economic and personal insecurities is human obsolescence created by the single-minded pursuit of profit.

Why do workers not rebel against this system? According to the book, it is because of "ideological hegemony"—the "beliefs, and cultural traditions inculcated

by schools, churches, family, state, and community which cultivate working-class submission to capitalist rule." In essence, ordinary people are perceived by the authors to be almost totally powerless as they cling to the illusion of power.

In the authors' view, everyone must share power in order for economic democracy to work and problems to be overcome. The keystone will be a strong working-class party, along with worker ownership and control of the means of production. Public ownership of banking and finance, drastic changes in the tax laws, community-based development, consumer cooperatives, and strong neighborhood organizations are also important elements in their scheme to wrest control of work from big business. Currently, successful instances of worker ownership and self-management are presented as evidence that such schemes should be adopted economywide. Readers of the book may not be convinced of the worth of these ideas because of the lack of meaty discussion of any drawbacks to them.

The level of documentation supportive of the author's conclusions is often quite superficial. For example, there are several instances where remarks made by interviewees provide the only evidence for a sweeping generalization. Also, the authors' biases show clearly. At one point, their antitechnological prejudice is clearly revealed when harvesting machines of the last century are described as "incredibly grotesque." Furthermore, the book never addresses the possibility that human obsolescence is a problem for all modern economies, not just capitalist ones.

That capitalism produces personal circumstances that most of us would find extremely unpleasant does not necessarily lead to the conclusion reached in this book that capitalism is evil and that a superior system can be devised to replace it. Many of the economic changes discussed in the book will undoubtedly provide longrun benefits that will far outweigh the shortrun costs. The authors' approach is to resist changes, thus figuratively throwing the baby out with the bath water. The issue I would like to see addressed is how to retain the strengths of capitalism while correcting its faults.

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Labor relations in the 'real' world

Collective Bargaining and Labor Relations. By E. Edward Herman and Alfred Kuhn. Englewood Cliffs, N.J., Prentice-Hall, Inc., 1981. 572 pp. \$19.95.

This reviewer has been asked on several occasions to suggest a "good" labor relations/collective bargaining textbook for either undergraduate or graduate level university students. This is not an easy task, for there have been several textbooks published recently, each with its unique style and contribution. In keeping with the times, various authors have characterized their work in innovative ways such as a diagnostic approach, a systems approach, a conceptual approach, collective bargaining by objectives, or other such modern day language.

E. Edward Herman and Alfred Kuhn took a different approach. Their objective was to write a textbook that was truly different from the typical textbook in the labor relations field. They were not interested in a new approach to considering the same body of knowledge and experience. Their goal was to write a text that was more complete in scope and coverage of truly significant areas than others in the field.

The major area in this text that differentiates it from others has to do with the costing of labor contracts. Most textbook authors ignore this area completely or cover it superficially. In *Collective Bargaining and Labor Relations*, the authors contend that more indepth knowledge of computers, finance, and costing methodology will reduce the need for "outsiders" such as actuaries, accountants, economists, and financial experts. A well-informed labor relations professional would be better able to make important decisions that are now entrusted to individuals outside the labor relations field.

Other areas given special attention are preparation for negotiations, power relationships and tactics in bargaining, the art of negotiating, with an excellent negotiation simulation, and the often ignored area of management security.

Two chapters could benefit from additional coverage and a more current perspective. One is chapter 19 which deals with "The Issues of the Eighties." This brief chapter concentrates almost entirely on technological change/robots, flexitime, and other alternative work patterns. While these are interesting issues with technological change being, as always, particularly significant, a third area, codetermination, was given short shrift. True, codetermination on the European model might never become a major factor in the United States. On the other hand, the key word for the 1980's might well be *participation*. Worker participation as reflected through labor-management committees, quality circles, mutual goal and standard setting at the workplace, and sharing of productivity gains, are and will continue to

be major issues facing labor and management in the years ahead.

Chapter 20 concerns the future of the labor movement. Almost half the chapter is devoted to union mergers or the potential for such in the years ahead. Considerable attention is also given to a rising trend in the antiunion activity, both overt and covert. Needless to say, the mood of this Administration and the public at large regarding the air traffic controllers is an example of change in attitude with an antiunion flavor.

In this chapter, the authors also discuss changes in the labor force and the industrial mix in the United States. The shift from blue-collar to white-collar occupations, more women workers, better educated workers, more blacks striving for their place in the sun, and so forth, have had, and will continue to have, a great effect on union organizing. Further, the decline in manufacturing, construction, and other industries—the areas of greatest union strength and growth over the years—can greatly affect the growth and health of organized labor. This is particularly true as public-sector employment and union membership has slowed, no longer offsetting the losses which labor has experienced in the private sector.

What is not discussed, however, is the ability of the labor movement to adapt to the new labor force and new industries. Are the old organizing methods and techniques effective today? Can the older leaders of the labor movement from more traditional backgrounds understand and relate to today's worker whose value systems may be different and for whom the quality of worklife might be foremost? These questions might be as important to an understanding of the future of the American labor movement as any other covered by the authors; perhaps more important.

The text is modular and can be adapted to a semester of study, a quarter system, a trimester arrangement, or even a year's course. A 1-year course should probably include a casebook to enable students to deal with real world National Labor Relations Board or grievance arbitration situations. There is no better way to understand the U.S. industrial relations system than to study a well-written, well-documented textbook and then analyze and discuss real-life situations that interesting cases can provide.

Finally, while this textbook does have some material not found in most texts in the field, and does a good job of expanding on several areas often covered lightly in others, these are not its major contribution. Its strongest feature is that it is a readable, practical text that draws heavily on the broad work-a-day experiences of the authors. They not only provide historic, conceptual, academic materials, they provide insights as to how the system really works.

This book is an excellent addition to those available

for the teaching of unionism, collective bargaining, and labor relations at the college level. It has many positive features which will undoubtedly make it a popular choice for faculty selecting textbooks, and for students.

—BEN BURDETSKY

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Problems of international finance

Debt and the Less Developed Countries. Edited by Jonathan David Aronson. Boulder, Colo., Westview Press, 1979. 359 pp.

International Lending, Risk and the Euromarkets. By Anthony Angelini, Maximo Eng, and Francis A. Lees. New York, Halstead Press, 1979. 213 pp.

These two books could be read by anyone considering a study of the issues surrounding financial transactions among nontraditional parties (for example, private banks and less-developed countries) in new transnational financial markets (the Euromarkets), or for newly critical purposes (for example, petrodollar recycling). Some of the issues addressed in one or both of these volumes include debts of the less developed countries, both as a development issue and as a matter of international banking stability; petrodollar recycling, both as a debt issue and as a financial intermediation problem; and the regulation of the Euromarkets, as both a diplomatic issue and an international economic concern.

The book edited by Jonathan David Aronson is a collection of essays on the international debt of the Third World and is divided into three parts. The first four contributions cover the history and current dimension of the debt burden. Susan Strange's essay is valuable in its concise delineation of the issues and its discussion of the major policy approaches to the less developed countries' debt as a financial stability problem.

The discussion of debt as a development issue is found in the second four essays. This section is well balanced in that it presents two essays, each in support of opposite viewpoints of the utility of international debt in economic development. Clark R. Reynolds' presentation in support of debt as a tool of development is the more convincing of the two pieces in that camp, and W. Ladd Hollist is the better advocate for the position that foreign debt increases dependence of the less developed countries on the industrial world and tends to perpetuate inequality between and within countries. Reynolds emphasizes the potential role of banks in channeling economic resources, domestic and foreign, into the most

productive sectors. He does have to assume that governments would have enough wisdom and power to match their investment planning targets for consistency with the availability of foreign and domestic savings flows. International debt in his model is the mechanism through which foreign savings are mobilized for domestic investment. Hollist's more negative assessment is based on a case study of Brazil which concludes that the Brazilian government has concentrated foreign development credits in sectors that will lead to repayment difficulties in the future. Hollist also speculates that these difficulties may have to be solved at a terrible social cost.

The final section, which includes a fine chapter by Aronson on political aspects of the private banks' involvement in lending to less developed countries, concerns itself with suggestions for public and private policymaking concerned with negotiating debt situations in the Third World. The point of view taken by most of the authors struck me as being somewhat aloof from the problem; that is, it seemed that they were taking the parts of central monetary authority or banking regulators as distinct from direct participants in a credit market operation.

The book by Anthony Angelini, Maximo Eng, and Francis A. Lees is somewhat more useful to the practitioner than the Aronson book and a less interesting work for the scholar to review. The reason for this contradiction, if there is one, is in the different qualities of the two books. *Debt and the Less Developed Countries* is a detailed, scholarly look at several facets of one issue from several points of view. *International Lending*, on the other hand, is a well-integrated survey of the broad field of international banking and lending and is a very good primer for persons who plan to be actively involved in the international lending field. As one might expect from a recruit's field manual, there are some sacrifices in depth for the sake of wide scope. The sections on the less developed countries' government debt and risk analysis in such lending were good but each of these topics could take a volume to cover in detail. Indeed, that is the value of collections such as Aronson's on debt.

This review should not be construed as harsh criticism of Angelini, Eng, and Lees. Indeed, it is my recommendation that anyone wishing to make a start in the area of international banking and the Euromarkets should make a thorough reading of *International Lending, Risk and the Euromarkets*, and then hope there is a volume of the depth and quality of *International Debt and the Less Developed Countries* to move on to in their field of special interest.

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Publications received

Health and safety

- Drummond, M. F., "Welfare Economics and Cost Benefit Analysis in Health Care," *Scottish Journal of Political Economy*, June 1981, pp. 125-45.
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Industrial relations

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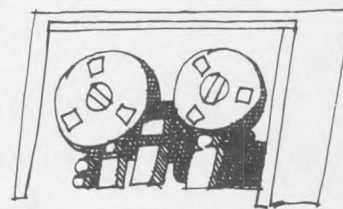
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NOTES ON CURRENT LABOR STATISTICS

This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics. A brief introduction to each group of tables provides definitions, notes on the data, sources, and other material usually found in footnotes.

Readers who need additional information are invited to consult the BLS regional offices listed on the inside front cover of this issue of the *Review*. Some general notes applicable to several series are given below.

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might otherwise mask short-term movements of the statistical series. Tables containing these data are identified as "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 labor force data in tables 2-7 were revised in the February 1981 issue of the *Review* to reflect the preceding year's experience. 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. A detailed description of the procedure appears in *The X-11 ARIMA Seasonal Adjustment Method* by Estela Bee Dagum (Statistics Canada Catalogue No. 12-564E, February 1980). The second change is that seasonal factors are 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. Revisions of historical data continue to be made only at the end of each calendar year.

Annual revision of the seasonally adjusted payroll data in tables 11, 13, 16, and 18 begins with the August 1980 issue using the X-11 ARIMA seasonal adjustment methodology. New seasonal factors for productivity data in tables 33 and 34 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 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 resulting values are described as "real," "constant," or "1967" dollars.

Availability of information. Data that supplement the tables in this section are published by the Bureau of Labor Statistics 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 given below. The *BLS Handbook of Labor Statistics*, Bulletin 2070, provides more detailed data and greater historical coverage for most of the statistical series presented in the *Monthly Labor Review*. More information from the household and establishment surveys is provided in *Employment and Earnings*, a monthly publication of the Bureau, and in two comprehensive data books issued annually—*Employment and Earnings, United States* and *Employment and Earnings, States and Areas*. More detailed information on wages and other aspects of collective bargaining appears in the monthly periodical, *Current Wage Developments*. More detailed price information is published each month in the periodicals, the *CPI Detailed Report* and *Producer Prices and Price Indexes*.

Symbols

p = preliminary. To improve 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.

Schedule of release dates for major BLS statistical series

Series	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	November 6	October	December 4	November	1-11
Producer Price Index	November 10	October	December 8	November	26-30
Consumer Price Index	November 24	October	December 22	November	22-25
Real earnings	November 24	October	December 22	November	14-20
Productivity and costs:					
Nonfinancial corporations	November 25	3d quarter	...	...	31-34
Labor turnover in manufacturing	November 30	October	December 29	November	12-13
Work stoppages	November 30	October	December 30	November	37

EMPLOYMENT DATA FROM THE HOUSEHOLD SURVEY

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 60,000 households beginning in May 1981, 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 are (1) those 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. 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 **unemployment rate** represents the number unemployed as a percent of the civilian labor force.

The **civilian labor force** consists of all employed or unemployed persons in the civilian noninstitutional population; the **total labor force** includes military personnel. Persons **not in the labor force** are

those not classified as employed or unemployed; this group includes persons retired, those engaged in their own housework, those not working while attending school, those unable to work because of long-term illness, those discouraged from seeking work because of personal or job market factors, and those who are voluntarily idle. The **noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy.

Full-time workers are those employed at least 35 hours a week; **part-time workers** are those who work fewer hours. Workers on part-time schedules for economic reasons (such as slack work, terminating or starting a job during the week, material shortages, or inability to find full-time work) are among those counted as being on full-time status, under the assumption that they would be working full time if conditions permitted. The survey classifies unemployed persons in full-time or part-time status by their reported preferences for full-time or part-time work.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the preceding years. These adjustments affect the comparability of historical data presented in table 1. 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 2-7 are seasonally adjusted, based on the seasonal experience through December 1980.

Year	Total non-institutional population	Total labor force		Total	Civilian labor force					Not in labor force
		Number	Percent of population		Employed			Unemployed		
					Total	Agriculture	Nonagricultural industries	Number	Percent of labor force	
1950	106,645	63,858	59.9	62,208	58,918	7,160	51,758	3,288	5.3	42,787
1955	112,732	68,072	60.4	65,023	62,170	6,450	55,722	2,852	4.4	44,660
1960	119,759	72,142	60.2	69,628	65,778	5,458	60,318	3,852	5.5	47,617
1964	127,224	75,830	59.6	73,091	69,305	4,523	64,782	3,786	5.2	51,394
1965	129,236	77,178	59.7	74,455	71,088	4,361	66,726	3,366	4.5	52,058
1966	131,180	78,893	60.1	75,770	72,895	3,979	68,915	2,875	3.8	52,288
1967	133,319	80,793	60.6	77,347	74,372	3,844	70,527	2,975	3.8	52,527
1968	135,562	82,272	60.7	78,737	75,920	3,817	72,103	2,817	3.6	53,291
1969	137,841	84,240	61.1	80,734	77,902	3,606	74,296	2,832	3.5	53,602
1970	140,182	85,903	61.3	82,715	78,627	3,462	75,165	4,088	4.9	54,280
1971	142,596	86,929	61.0	84,113	79,120	3,387	75,732	4,993	5.9	55,666
1972	145,775	88,991	61.0	86,542	81,702	3,472	78,230	4,840	5.6	56,785
1973	148,263	91,040	61.4	88,714	84,409	3,452	80,957	4,304	4.9	57,222
1974	150,827	93,240	61.8	91,011	83,935	3,492	82,443	5,076	5.6	57,587
1975	153,449	94,793	61.8	92,613	84,783	3,380	81,403	7,830	8.5	58,655
1976	156,048	96,917	62.1	94,773	87,485	3,297	84,188	7,288	7.7	59,130
1977	158,559	99,534	62.8	97,401	90,546	3,244	87,302	6,855	7.0	59,025
1978	161,058	102,537	63.7	100,420	94,373	3,342	91,031	6,047	6.0	58,521
1979	163,620	104,996	64.2	102,908	96,945	3,297	93,648	5,963	5.8	58,623
1980	166,246	106,821	64.3	104,719	97,270	3,310	93,960	7,448	7.1	59,425

2. Employment status by sex, age, and race, seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
TOTAL															
Total noninstitutional population ¹	163,620	166,246	166,789	167,005	167,201	167,396	167,585	167,747	167,902	168,071	168,272	168,480	168,685	168,855	169,049
Total labor force	104,996	106,821	107,101	107,288	107,404	107,191	107,668	107,802	108,305	108,851	109,533	108,307	108,603	108,762	108,401
Civilian noninstitutional population ¹	161,532	164,143	164,667	164,884	165,082	165,272	165,460	165,627	165,774	165,941	166,145	166,349	166,546	166,695	166,884
Civilian labor force	102,908	104,719	104,980	105,167	105,285	105,067	105,543	105,681	106,177	106,722	107,406	106,176	106,464	106,602	106,236
Employed	96,945	97,270	97,180	97,206	97,339	97,282	97,696	97,927	98,412	98,976	99,235	98,392	98,962	98,944	98,270
Agriculture	3,297	3,310	3,399	3,319	3,340	3,394	3,403	3,281	3,276	3,463	3,353	3,265	3,258	3,370	3,310
Nonagricultural industries	93,648	93,960	93,781	93,887	93,999	93,888	94,294	94,646	95,136	95,513	95,882	95,127	95,704	95,574	94,959
Unemployed	5,963	7,448	7,800	7,961	7,946	7,785	7,847	7,754	7,764	7,746	8,171	7,784	7,502	7,657	7,966
Unemployment rate	5.8	7.1	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3	7.0	7.2	7.5
Not in labor force	58,623	59,425	59,687	59,717	59,797	60,205	59,917	59,946	59,598	59,219	58,739	60,173	60,082	60,093	60,648
Men, 20 years and over															
Civilian noninstitutional population ¹	68,293	69,607	69,864	69,987	70,095	70,198	70,320	70,413	70,481	70,574	70,687	70,788	70,894	70,978	71,086
Civilian labor force	54,486	55,234	55,475	55,495	55,539	55,470	55,443	55,445	55,816	56,013	56,395	55,876	55,957	56,045	56,063
Employed	52,264	51,972	51,823	51,963	52,007	52,045	52,091	52,134	52,511	52,750	52,849	52,451	52,811	52,724	52,808
Agriculture	2,350	2,355	2,389	2,351	2,372	2,331	2,378	2,289	2,296	2,409	2,349	2,320	2,329	2,402	2,343
Nonagricultural industries	49,913	49,617	49,434	49,612	49,635	49,714	49,713	49,844	50,215	50,342	50,500	50,131	50,482	50,323	50,264
Unemployed	2,223	3,261	3,652	3,532	3,532	3,425	3,352	3,312	3,305	3,262	3,546	3,425	3,147	3,321	3,455
Unemployment rate	4.1	5.9	6.6	6.4	6.4	6.2	6.0	6.0	5.9	5.8	6.3	6.1	5.6	5.9	6.2
Not in labor force	13,807	14,373	14,389	14,492	14,556	14,728	14,877	14,968	14,665	14,561	14,292	14,912	14,937	14,933	15,023
Women, 20 years and over															
Civilian noninstitutional population ¹	76,860	78,295	78,598	78,723	78,842	78,959	79,071	79,175	79,271	79,377	79,498	79,617	79,739	79,848	79,968
Civilian labor force	38,910	40,243	40,317	40,486	40,629	40,570	40,942	41,090	41,293	41,481	41,852	41,743	41,879	41,857	41,395
Employed	36,698	37,696	37,804	37,754	37,909	37,820	38,191	38,410	38,567	38,760	39,014	39,011	39,082	39,155	38,576
Agriculture	591	575	592	576	574	665	621	615	606	603	583	562	575	601	603
Nonagricultural industries	36,107	37,120	37,212	37,178	37,335	37,155	37,570	37,794	37,961	38,157	38,431	38,449	38,507	38,554	37,973
Unemployed	2,213	2,547	2,513	2,732	2,720	2,750	2,680	2,725	2,721	2,838	2,731	2,797	2,701	2,819	2,819
Unemployment rate	5.7	6.3	6.2	6.7	6.7	6.8	6.7	6.5	6.6	6.6	6.8	6.5	6.7	6.5	6.8
Not in labor force	37,949	38,052	38,281	38,237	38,213	38,389	38,129	38,085	37,978	37,896	37,646	37,874	37,860	37,991	38,573
Both sexes, 16 to 19 years															
Civilian noninstitutional population ¹	16,379	16,242	16,205	16,174	16,145	16,114	16,069	16,039	16,022	15,991	15,961	15,944	15,913	15,869	15,831
Civilian labor force	9,512	9,242	9,188	9,186	9,117	9,027	9,158	9,146	9,068	9,228	9,159	8,558	8,628	8,700	8,778
Employed	7,984	7,603	7,553	7,489	7,423	7,417	7,414	7,384	7,334	7,465	7,372	6,930	7,069	7,065	7,086
Agriculture	356	380	418	392	394	398	404	376	374	451	421	383	354	368	364
Nonagricultural industries	7,628	7,223	7,135	7,097	7,029	7,019	7,010	7,008	6,960	7,014	6,951	6,547	6,715	6,697	6,722
Unemployed	1,528	1,640	1,635	1,697	1,694	1,610	1,744	1,762	1,734	1,763	1,787	1,628	1,559	1,635	1,692
Unemployment rate	16.1	17.7	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0	18.1	18.8	19.3
Not in labor force	6,867	7,000	7,017	6,988	7,028	7,087	6,911	6,893	6,954	6,763	6,802	7,386	7,285	7,169	7,053
White															
Civilian noninstitutional population ¹	141,614	143,657	144,051	144,211	144,359	144,500	144,651	144,774	144,882	145,006	145,160	145,316	145,464	145,575	145,715
Civilian labor force	90,602	92,171	92,317	92,516	92,562	92,383	92,832	93,035	93,313	93,860	94,506	93,464	93,767	93,789	93,355
Employed	86,025	86,380	86,307	86,371	86,409	86,377	86,620	86,940	87,291	87,791	88,083	87,500	87,979	88,046	87,329
Unemployed	4,577	5,790	6,010	6,145	6,153	6,006	6,213	6,095	6,022	6,069	6,422	5,964	5,787	5,743	6,026
Unemployment rate	5.1	6.3	6.5	6.6	6.6	6.5	6.7	6.6	6.5	6.5	6.8	6.4	6.2	6.1	6.5
Not in labor force	51,011	51,486	51,734	51,695	51,797	52,117	51,819	51,739	51,569	51,146	50,654	51,852	51,697	51,786	52,360
Black and other															
Civilian noninstitutional population ¹	19,918	20,486	20,617	20,673	20,723	20,771	20,809	20,853	20,892	20,936	20,985	21,033	21,081	21,120	21,169
Civilian labor force	12,306	12,548	12,677	12,686	12,706	12,668	12,684	12,598	12,765	12,899	12,895	12,741	12,658	12,793	12,872
Employed	10,920	10,890	10,894	10,884	10,922	10,895	11,051	10,942	11,020	11,193	11,138	10,928	10,939	10,877	10,924
Unemployed	1,386	1,658	1,783	1,802	1,784	1,773	1,634	1,655	1,745	1,706	1,757	1,813	1,719	1,916	1,948
Unemployment rate	11.3	13.2	14.1	14.2	14.0	14.0	12.9	13.1	13.7	13.2	13.6	14.2	13.6	15.0	15.1
Not in labor force	7,612	7,938	7,940	7,987	8,017	8,103	8,125	8,255	8,127	8,037	8,090	8,292	8,423	8,327	8,297

¹As in table 1, population figures are not seasonally adjusted.

c = corrected.

3. Selected employment indicators, seasonally adjusted

[Numbers in thousands]

Selected categories	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
CHARACTERISTIC															
Total employed, 16 years and over	96,945	97,270	97,180	97,206	97,339	97,282	97,696	97,927	98,412	98,976	99,235	98,392	98,962	98,944	98,270
Men	56,499	55,988	55,754	55,881	55,897	55,920	56,012	56,045	56,383	56,688	56,718	56,026	56,494	56,368	56,349
Women	40,446	41,283	41,426	41,325	41,442	41,362	41,684	41,882	42,029	42,288	42,517	42,366	42,467	42,577	41,920
Married men, spouse present	39,090	38,302	38,027	38,142	38,167	38,231	38,182	38,113	38,365	38,510	38,498	38,216	38,283	38,315	38,169
Married women, spouse present	22,724	23,097	23,027	22,993	23,065	23,063	23,352	23,356	23,513	23,529	23,831	23,763	23,820	23,683	23,174
OCCUPATION															
White-collar workers	49,342	50,809	51,074	51,101	51,148	51,065	51,594	51,698	51,746	51,801	51,967	51,959	51,857	52,123	51,826
Professional and technical	15,050	15,613	15,540	15,780	15,863	15,810	15,965	15,813	15,827	15,754	15,688	16,057	15,966	16,299	16,254
Managers and administrators, except farm	10,516	10,919	11,007	10,979	11,016	11,009	11,363	11,488	11,565	11,444	11,260	11,174	11,418	11,217	11,341
Salesworkers	6,163	6,172	6,316	6,277	6,155	6,175	6,265	6,271	6,220	6,145	6,461	6,440	6,220	6,369	6,295
Clerical workers	17,613	18,105	18,211	18,065	18,114	18,071	18,001	18,125	18,135	18,457	18,557	18,288	18,254	18,238	17,937
Blue-collar workers	32,066	30,800	30,436	30,521	30,550	30,373	30,338	30,446	30,594	31,156	31,373	30,922	31,038	31,113	30,637
Craft and kindred workers	12,880	12,529	12,490	12,485	12,424	12,337	12,306	12,386	12,605	12,624	12,743	12,482	12,575	12,508	12,202
Operatives, except transport	10,909	10,346	10,202	10,210	10,247	10,194	10,331	10,390	10,189	10,524	10,609	10,550	10,567	10,501	10,334
Transport equipment operatives	3,612	3,468	3,434	3,443	3,429	3,402	3,322	3,361	3,363	3,411	3,390	3,425	3,481	3,499	3,453
Nonfarm laborers	4,665	4,456	4,310	4,383	4,450	4,440	4,380	4,309	4,437	4,596	4,632	4,466	4,415	4,605	4,649
Service workers	12,834	12,958	12,943	12,891	12,888	12,982	12,946	13,070	13,279	13,255	13,213	12,930	13,284	13,002	13,093
Farmworkers	2,703	2,704	2,757	2,735	2,729	2,804	2,737	2,662	2,679	2,834	2,707	2,648	2,689	2,732	2,717
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,413	1,384	1,417	1,363	1,417	1,411	1,465	1,336	1,338	1,524	1,464	1,377	1,457	1,472	1,416
Self-employed workers	1,580	1,628	1,688	1,640	1,612	1,655	1,615	1,610	1,615	1,648	1,644	1,657	1,568	1,629	1,649
Unpaid family workers	304	297	309	325	324	305	284	325	312	290	231	258	235	250	254
Nonagricultural industries:															
Wage and salary workers	86,540	86,706	86,395	86,587	86,643	86,513	87,125	87,236	87,870	88,195	88,877	87,734	88,291	88,189	87,457
Government	15,369	15,624	15,575	15,597	15,651	15,653	15,738	15,589	15,685	15,628	15,512	15,460	15,349	15,140	15,111
Private industries	71,171	71,081	70,820	70,990	70,992	70,860	71,387	71,647	72,185	72,567	73,365	72,274	72,942	73,048	72,346
Private households	1,240	1,166	1,125	1,144	1,148	1,110	1,197	1,176	1,235	1,241	1,164	1,146	1,211	1,236	1,052
Other industries	69,931	69,915	69,695	69,846	69,844	69,750	70,190	70,471	70,949	71,327	72,201	71,128	71,731	71,812	71,294
Self-employed workers	6,652	6,850	6,977	7,005	6,943	6,973	6,839	6,923	6,896	7,021	6,761	7,005	6,886	6,942	7,093
Unpaid family workers	455	404	416	417	405	396	422	371	354	306	338	369	389	378	392
PERSONS AT WORK ¹															
Nonagricultural industries	88,133	88,325	88,246	88,488	88,694	88,468	89,499	89,441	89,583	89,202	89,870	89,625	90,837	89,823	88,886
Full-time schedules	72,647	72,022	71,929	72,071	72,265	72,131	72,807	72,945	72,875	72,761	73,375	73,115	74,232	72,932	72,192
Part time for economic reasons	3,281	3,965	4,183	4,220	4,176	4,218	4,474	4,145	4,227	4,044	4,143	3,798	4,225	4,187	4,537
Usually work full time	1,325	1,669	1,701	1,685	1,620	1,647	1,698	1,622	1,638	1,517	1,630	1,367	1,632	1,654	1,675
Usually work part time	1,956	2,296	2,482	2,535	2,556	2,571	2,776	2,523	2,589	2,527	2,513	2,431	2,593	2,533	2,862
Part time for noneconomic reasons	12,205	12,338	12,134	12,197	12,253	12,119	12,218	12,351	12,481	12,397	12,352	12,713	12,380	12,704	12,157

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

4. Selected unemployment indicators, seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
CHARACTERISTIC															
Total, 16 years and over	5.8	7.1	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3	7.0	7.2	7.5
Men, 20 years and over	4.1	5.9	6.6	6.4	6.4	6.2	6.0	6.0	5.9	5.8	6.3	6.1	5.6	5.9	6.2
Women, 20 years and over	5.7	6.3	6.2	6.7	6.7	6.8	6.7	6.5	6.6	6.6	6.8	6.5	6.7	6.5	6.8
Both sexes, 16 to 19 years	16.1	17.7	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0	18.1	18.8	19.3
White, total	5.1	6.3	6.5	6.6	6.6	6.5	6.7	6.6	6.5	6.5	6.8	6.4	6.2	6.1	6.5
Men, 20 years and over	3.6	5.2	5.8	5.7	5.7	5.5	5.5	5.4	5.4	5.2	5.6	5.3	4.9	5.1	5.3
Women, 20 years and over	5.0	5.6	5.5	5.8	5.8	5.9	6.0	5.7	5.6	5.7	6.0	5.7	5.8	5.4	5.7
Both sexes, 16 to 19 years	13.9	14.8	15.1	16.0	16.4	15.4	16.8	17.4	16.9	17.2	18.0	16.5	16.1	15.6	17.0
Black and other, total	11.3	13.2	14.1	14.2	14.0	14.0	12.9	13.1	13.7	13.2	13.6	14.2	13.6	15.0	15.1
Men, 20 years and over	8.4	11.4	13.2	12.1	12.0	11.6	10.5	10.8	10.8	10.6	11.8	12.5	11.6	12.4	13.0
Women, 20 years and over	10.1	11.1	10.6	12.3	12.2	12.3	11.0	11.9	12.6	11.8	12.0	12.0	12.0	12.8	13.7
Both sexes, 16 to 19 years	33.5	35.8	37.8	37.4	36.6	37.5	36.5	35.4	37.3	36.1	33.6	38.6	36.4	45.7	37.5
Married men, spouse present	2.7	4.2	4.7	4.6	4.4	4.3	4.2	4.1	4.1	3.8	4.1	4.2	3.9	3.9	4.3
Married women, spouse present	5.1	5.8	5.7	6.0	5.9	5.8	6.2	5.8	6.0	5.9	5.9	5.6	5.6	5.3	5.9
Women who head families	8.3	9.1	9.0	10.2	9.9	10.4	10.5	9.6	9.4	9.8	10.3	10.6	11.5	9.8	10.6
Full-time workers	5.3	6.8	7.3	7.3	7.4	7.3	7.1	7.1	7.1	6.9	7.3	7.0	6.7	6.7	7.2
Part-time workers	8.7	8.7	8.7	9.1	8.6	8.2	9.2	9.1	9.0	9.0	9.7	9.2	9.3	9.7	9.6
Unemployed 15 weeks and over	1.2	1.7	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.2	2.0	2.1	2.1
Labor force time lost ¹	6.3	7.9	8.2	8.4	8.3	8.2	8.2	8.1	8.1	8.2	8.6	8.0	7.9	7.9	8.5
OCCUPATION															
White-collar workers	3.3	3.7	3.8	3.9	3.9	4.0	3.9	3.7	3.9	4.0	4.1	3.8	4.1	3.9	4.1
Professional and technical	2.4	2.5	2.5	2.6	2.5	2.6	2.8	2.6	2.7	3.2	2.9	2.8	2.8	2.4	2.8
Managers and administrators, except farm	1.9	2.4	2.4	2.5	2.4	2.5	2.4	2.4	2.6	2.4	2.7	2.8	2.7	2.8	2.7
Salesworkers	3.9	4.4	4.3	4.6	4.8	4.7	4.4	4.0	3.8	4.0	4.6	4.1	5.1	4.7	5.2
Clerical workers	4.6	5.3	5.4	5.6	5.6	5.8	5.7	5.3	5.9	5.6	5.6	5.3	5.7	5.6	5.7
Blue-collar workers	6.9	10.0	10.8	10.8	10.7	10.5	10.2	10.1	9.8	9.6	10.0	9.8	9.4	9.3	10.2
Craft and kindred workers	4.5	6.6	7.4	7.1	7.1	7.1	6.8	7.2	7.1	6.8	7.7	7.2	6.7	6.9	7.6
Operatives, except transport	8.4	12.2	13.0	13.2	13.0	12.9	12.1	11.9	11.3	11.5	11.9	11.0	11.1	11.0	11.5
Transport equipment operatives	5.4	8.8	10.4	10.6	10.6	8.8	9.1	8.3	9.3	8.1	8.2	8.4	6.9	7.9	8.9
Nonfarm laborers	10.8	14.6	15.2	15.3	15.0	14.8	15.0	14.9	14.1	13.8	13.1	14.8	14.2	12.9	14.4
Service workers	7.1	7.9	8.1	8.3	8.3	7.8	8.0	8.7	8.1	8.5	9.4	9.0	8.0	8.9	8.9
Farmworkers	3.8	4.4	4.3	4.4	4.0	4.0	5.0	4.7	5.1	3.7	5.4	6.0	4.5	5.6	3.7
INDUSTRY															
Nonagricultural private wage and salary workers ²	5.7	7.4	7.8	7.8	7.8	7.7	7.5	7.5	7.3	7.2	7.8	7.4	7.2	7.2	7.6
Construction	10.2	14.2	15.9	14.6	14.8	13.8	13.3	13.2	14.7	14.4	16.3	16.6	15.0	16.7	16.3
Manufacturing	5.5	8.5	9.2	9.2	8.9	8.8	8.4	8.4	8.0	7.4	7.9	7.6	7.3	7.0	7.8
Durable goods	5.0	8.9	10.0	9.5	9.0	9.0	8.3	8.5	7.9	7.3	7.3	7.4	7.3	6.4	7.6
Nondurable goods	6.4	7.9	7.9	8.9	8.6	8.5	8.5	8.2	8.3	7.6	8.9	7.8	7.3	7.9	8.0
Transportation and public utilities	3.7	4.9	5.3	5.3	4.9	4.9	5.8	5.5	6.4	5.7	5.9	4.7	4.0	4.8	4.0
Wholesale and retail trade	6.5	7.4	7.7	7.8	8.2	8.3	7.6	7.6	7.3	7.3	8.4	7.5	7.9	7.8	8.6
Finance and service industries	4.9	5.3	5.4	5.6	5.5	5.5	5.8	6.0	5.6	5.9	5.9	5.8	5.6	5.6	5.9
Government workers	3.7	4.1	4.1	4.4	4.2	4.1	4.4	4.3	4.6	4.9	4.8	4.5	4.5	4.4	4.6
Agricultural wage and salary workers	9.1	10.8	10.7	11.1	10.1	10.6	11.5	12.1	11.9	9.1	11.1	13.1	10.3	12.6	10.6

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

² Includes mining, not shown separately.
 c = corrected.

5. Unemployment rates, by sex and age, seasonally adjusted

Sex and age	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Total, 16 years and over	5.8	7.1	7.4	7.6	7.5	7.4	7.4	7.3	7.3	7.3	7.6	7.3	7.0	7.2	7.5
16 to 19 years	16.1	17.7	17.8	18.5	18.6	17.8	19.0	19.3	19.1	19.1	19.5	19.0	18.1	18.8	19.3
16 to 17 years	18.1	20.0	20.1	20.9	21.4	19.9	21.0	21.4	21.3	22.0	21.6	22.6	19.3	20.5	21.2
18 to 19 years	14.6	16.1	16.0	16.7	16.5	16.4	17.5	17.9	17.7	17.2	18.2	17.3	17.7	17.4	18.1
20 to 24 years	9.0	11.5	12.0	12.3	12.1	11.7	11.9	11.8	11.7	12.1	12.9	12.1	11.3	11.8	12.1
25 years and over	3.9	5.0	5.4	5.4	5.4	5.3	5.3	5.1	5.2	5.0	5.3	5.2	5.1	5.1	5.4
25 to 54 years	4.1	5.4	5.9	5.9	5.9	5.8	5.7	5.5	5.5	5.4	5.6	5.6	5.4	5.4	5.8
55 years and over	3.0	3.3	3.4	3.4	3.3	3.5	3.5	3.6	3.7	3.3	3.3	3.4	3.5	3.5	3.8
Men, 16 years and over	5.1	6.9	7.6	7.4	7.4	7.2	7.2	7.1	7.0	6.9	7.4	7.1	6.6	7.0	7.2
16 to 19 years	15.8	18.2	18.9	19.8	19.8	19.0	20.3	20.1	19.5	19.3	20.2	19.8	18.4	19.7	19.3
16 to 17 years	17.9	20.4	21.2	21.8	22.3	20.5	23.0	22.1	21.1	22.7	22.7	24.4	19.8	21.5	21.2
18 to 19 years	14.2	16.7	16.9	18.1	17.8	17.8	18.5	18.7	18.6	17.0	18.3	18.1	17.8	18.1	18.1
20 to 24 years	8.6	12.5	13.5	13.8	13.2	12.5	12.8	12.7	13.0	13.2	14.2	12.8	11.3	12.7	12.9
25 years and over	3.3	4.7	5.4	5.1	5.1	4.9	4.9	4.8	4.7	4.6	4.8	5.0	4.7	4.8	5.0
25 to 54 years	3.4	5.1	6.0	5.6	5.6	5.4	5.2	5.2	5.1	4.9	5.1	5.3	4.9	5.0	5.5
55 years and over	2.9	3.3	3.5	3.3	3.3	3.3	3.4	3.4	3.2	3.1	3.4	3.5	3.4	3.4	3.5
Women, 16 years and over	6.8	7.4	7.2	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.9	7.6	7.7	7.5	7.9
16 to 19 years	16.4	17.2	16.6	17.0	17.2	16.5	17.5	18.4	18.7	18.9	18.7	18.2	17.7	17.8	19.3
16 to 17 years	18.3	19.5	18.8	19.8	20.3	19.3	18.7	20.5	21.6	21.1	20.4	20.6	18.7	19.5	21.1
18 to 19 years	15.0	15.6	15.1	15.1	15.1	14.8	16.4	17.0	16.5	17.4	18.2	16.4	17.5	16.8	18.1
20 to 24 years	9.6	10.3	10.2	10.6	10.8	10.8	10.8	10.8	10.1	10.9	11.4	11.2	11.3	10.8	11.2
25 years and over	4.8	5.5	5.4	5.9	5.8	5.9	5.8	5.6	5.9	5.6	5.9	5.6	5.7	5.5	5.9
25 to 54 years	5.2	5.9	5.9	6.4	6.2	6.3	6.3	5.9	6.2	6.0	6.4	6.0	6.1	5.9	6.3
55 years and over	3.2	3.2	3.3	3.4	3.4	3.9	3.6	3.9	4.5	3.7	3.3	3.3	3.7	3.6	4.4

6. Unemployed persons, by reason for unemployment, seasonally adjusted

[Numbers in thousands]

Reason for unemployment	1980				1981									
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
NUMBER OF UNEMPLOYED														
Lost last job	4,387	4,240	4,229	4,226	3,847	3,896	3,846	3,819	4,084	4,219	3,691	3,929	4,338	
On layoff	1,744	1,692	1,453	1,470	1,258	1,267	1,299	1,280	1,368	1,367	1,178	1,205	1,412	
Other job losers	2,643	2,548	2,776	2,756	2,590	2,629	2,547	2,539	2,715	2,852	2,513	2,724	2,925	
Left last job	855	870	897	813	907	884	863	854	1,009	863	898	838	889	
Reentered labor force	1,844	2,013	1,896	1,869	2,039	1,970	2,040	2,017	2,126	1,955	2,022	1,939	1,949	
Seeking first job	862	880	890	868	1,000	928	986	987	938	956	873	944	953	
PERCENT DISTRIBUTION														
Total unemployed	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Job losers	55.2	53.0	53.5	54.3	49.4	50.7	49.7	49.7	50.1	52.8	49.3	51.4	53.4	
On layoff	21.9	21.1	18.4	18.9	16.1	16.5	16.8	16.7	16.8	17.1	15.7	15.7	17.4	
Other job losers	33.3	31.8	35.1	35.4	33.2	34.2	32.9	33.1	33.3	35.7	33.6	35.6	36.0	
Job leavers	10.8	10.9	11.3	10.5	11.6	11.5	11.2	11.1	12.4	10.8	12.0	11.0	10.9	
Reentrants	23.2	25.2	24.0	24.0	26.2	25.7	26.4	26.3	26.1	24.5	27.0	25.4	24.0	
New entrants	10.8	11.0	11.2	11.2	12.8	12.1	12.7	12.9	11.5	12.0	11.7	12.3	11.7	
UNEMPLOYED AS A PERCENT OF THE CIVILIAN LABOR FORCE														
Job losers	4.2	4.0	4.0	4.0	3.6	3.7	3.6	3.6	3.8	4.0	3.5	3.7	4.1	
On layoff	.8	.8	.9	.8	.9	.8	.8	.8	.9	.8	.8	.8	.8	
Other job losers	1.8	1.9	1.8	1.8	1.9	1.9	1.9	1.9	2.0	1.8	1.9	1.8	1.8	
Job leavers	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	
Reentrants	2.3	2.5	2.4	2.4	2.7	2.6	2.7	2.7	2.6	2.4	2.7	2.5	2.4	
New entrants	1.1	1.1	1.1	1.1	1.3	1.2	1.3	1.3	1.1	1.2	1.1	1.2	1.1	

7. Duration of unemployment, seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Less than 5 weeks	2,869	3,208	3,042	3,186	3,108	3,115	3,259	3,203	3,209	3,074	3,369	3,172	3,187	3,161	3,383
5 to 14 weeks	1,892	2,411	2,586	2,500	2,524	2,217	2,264	2,324	2,356	2,462	2,581	2,360	2,196	2,345	2,489
15 weeks and over	1,202	1,829	2,295	2,292	2,329	2,378	2,358	2,250	2,192	2,105	2,168	2,315	2,100	2,194	2,212
15 to 26 weeks	684	1,028	1,366	1,256	1,213	1,231	1,079	992	1,013	1,001	1,022	1,205	1,068	1,059	1,151
27 weeks and over	518	802	929	1,036	1,116	1,147	1,279	1,257	1,179	1,104	1,146	1,110	1,032	1,135	1,061
Average (mean) duration, in weeks	10.9	11.9	13.0	13.3	13.6	13.5	14.4	14.4	14.0	13.7	13.2	14.2	13.9	14.5	13.7

EMPLOYMENT, HOURS, AND EARNINGS DATA FROM ESTABLISHMENT SURVEYS

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 166,000 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.

LABOR TURNOVER DATA in this section are compiled from personnel records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies. A sample of 40,000 establishments represents all industries in the manufacturing and mining sectors of the economy.

Definitions

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 14-20 include production workers in manufacturing and mining; construction workers in construction; and nonsupervisory workers in transportation and public utilities, in wholesale and retail trade, in finance, insurance, and real estate, and in services industries. 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 eliminate the effects of price change. 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. **Spendable earnings** are earnings from which estimated social security and Federal income taxes have been deducted. The

Bureau of Labor Statistics computes spendable earnings from gross weekly earnings for only two illustrative cases: (1) a worker with no dependents and (2) a married worker with three dependents.

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.

Labor turnover is the movement of all wage and salary workers from one employment status to another. **Accession rates** indicate the average number of persons added to a payroll in a given period per 100 employees; **separation rates** indicate the average number dropped from a payroll per 100 employees. Although month-to-month changes in employment can be calculated from the labor turnover data, the results are not comparable with employment data from the employment and payroll survey. The labor turnover survey measures changes during the calendar month while the employment and payroll survey measures changes from midmonth to midmonth.

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 June 1981 data, published in the August 1981 issue of the *Review*. Consequently, data published in the *Review* prior to that issue are not necessarily comparable to current data. Complete comparable historical unadjusted and seasonally adjusted data are published in a Supplement to Employment and Earnings (unadjusted data from April 1977 through March 1981 and seasonally adjusted data from January 1974 through March 1981) and in *Employment and Earnings, United States, 1909-78*, BLS Bulletin 1312-11 (for prior periods).

Data on recalls were shown for the first time in tables 12 and 13 in the January 1978 issue of the *Review*. For a detailed discussion of the recalls series, along with historical data, see "New Series on Recalls from the Labor Turnover Survey," *Employment and Earnings*, December 1977, pp. 10-19.

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. See also *BLS Handbook of Methods for Surveys and Studies*, Bulletin 1910 (Bureau of Labor Statistics, 1976).

The formulas used to construct the spendable average weekly earnings series reflect the latest provisions of the Federal income tax and social security tax laws. For the spendable average weekly earnings formulas for the years 1979-81, see *Employment and Earnings*, March 1981, pp. 10-11. Real earnings data are adjusted using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

8. Employment by industry, 1951-80

[Nonagricultural payroll data, in thousands]

Year	Total	Mining	Construction	Manufacturing	Transportation and public utilities	Wholesale and retail trade	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services	Government		
											Total	Federal	State and local
1951	47,819	929	2,637	16,393	4,226	9,742	2,727	7,015	1,956	5,547	6,389	2,302	4,087
1952	48,793	898	2,668	16,632	4,248	10,004	2,812	7,192	2,035	5,699	6,609	2,420	4,188
1953	50,202	866	2,659	17,549	4,290	10,247	2,854	7,393	2,111	5,835	6,645	2,305	4,340
1954	48,990	791	2,646	16,314	4,084	10,235	2,867	7,368	2,200	5,969	6,751	2,188	4,563
1955	50,641	792	2,839	16,882	4,141	10,535	2,926	7,610	2,298	6,240	6,914	2,187	4,727
1956	52,369	822	3,039	17,243	4,244	10,858	3,018	7,840	2,389	6,497	7,278	2,209	5,069
1957	52,853	828	2,962	17,174	4,241	10,886	3,028	7,858	2,438	6,708	7,616	2,217	5,399
1958	51,324	751	2,817	15,945	3,976	10,750	2,980	7,770	2,481	6,765	7,839	2,191	5,648
1959 ¹	53,268	732	3,004	16,675	4,011	11,127	3,082	8,045	2,549	7,087	8,083	2,233	5,850
1960	54,189	712	2,926	16,796	4,004	11,391	3,143	8,248	2,629	7,378	8,353	2,270	6,083
1961	53,999	672	2,859	16,326	3,903	11,337	3,133	8,204	2,688	7,620	8,594	2,279	6,315
1962	55,549	650	2,948	16,853	3,906	11,566	3,198	8,368	2,754	7,982	8,890	2,340	6,550
1963	56,653	635	3,010	16,995	3,903	11,778	3,248	8,530	2,830	8,277	9,225	2,358	6,868
1964	58,283	634	3,097	17,274	3,951	12,160	3,337	8,823	2,911	8,660	9,596	2,348	7,248
1965	60,765	632	3,232	18,062	4,036	12,716	3,466	9,250	2,977	9,036	10,074	2,378	7,696
1966	63,901	627	3,317	19,214	4,158	13,245	3,597	9,648	3,058	9,498	10,784	2,564	8,220
1967	65,803	613	3,248	19,447	4,268	13,606	3,689	9,917	3,185	10,045	11,391	2,719	8,672
1968	67,897	606	3,350	19,781	4,318	14,099	3,779	10,320	3,337	10,567	11,839	2,737	9,102
1969	70,384	619	3,575	20,167	4,442	14,705	3,907	10,798	3,512	11,169	12,195	2,758	9,437
1970	70,880	623	3,588	19,367	4,515	15,040	3,993	11,047	3,645	11,548	12,554	2,731	9,823
1971	71,214	609	3,704	18,623	4,476	15,352	4,001	11,351	3,772	11,797	12,881	2,696	10,185
1972	73,675	628	3,889	19,151	4,541	15,949	4,113	11,836	3,908	12,276	13,334	2,684	10,649
1973	76,790	642	4,097	20,154	4,656	16,607	4,277	12,329	4,046	12,857	13,732	2,663	11,068
1974	78,265	697	4,020	20,077	4,725	16,987	4,433	12,554	4,148	13,441	14,170	2,724	11,446
1975	76,945	752	3,525	18,323	4,542	17,060	4,415	12,645	4,165	13,892	14,686	2,748	11,937
1976	79,382	779	3,576	18,997	4,582	17,755	4,546	13,209	4,271	14,551	14,871	2,733	12,138
1977	82,471	813	3,851	19,682	4,713	18,516	4,708	13,808	4,467	15,303	15,127	2,727	12,399
1978	86,697	851	4,229	20,505	4,923	19,542	4,969	14,573	4,724	16,252	15,672	2,753	12,919
1979	89,823	958	4,463	21,040	5,136	20,192	5,204	14,989	4,975	17,112	15,947	2,773	13,147
1980	90,564	1,020	4,399	20,300	5,143	20,386	5,281	15,104	5,168	17,901	16,249	2,866	13,383

¹Data include Alaska and Hawaii beginning in 1959.

9. Employment by State

[Nonagricultural payroll data, in thousands]

State	Aug. 1980	July 1981	Aug. 1981 ^P	State	Aug. 1980	July 1981	Aug. 1981 ^P
Alabama	1,348.0	1,350.2	1,344.5	Montana	284.1	285.3	285.8
Alaska	182.6	192.0	190.3	Nebraska	621.6	629.0	628.7
Arizona	967.0	995.7	991.4	Nevada	403.9	418.1	421.9
Arkansas	738.6	745.7	750.0	New Hampshire	389.4	389.8	392.9
California	9,729.0	9,882.4	9,901.0	New Jersey	3,084.2	3,138.0	3,131.5
Colorado	1,254.6	1,273.7	1,276.2	New Mexico	462.6	465.2	468.9
Connecticut	1,406.0	1,427.9	1,419.3	New York	7,234.0	7,264.4	7,263.1
Delaware	258.9	262.8	258.8	North Carolina	2,350.7	2,348.0	2,357.7
District of Columbia	629.2	629.4	623.1	North Dakota	246.7	248.1	248.7
Florida	3,502.8	3,709.6	3,685.5	Ohio	4,336.2	4,365.4	4,359.0
Georgia	2,134.3	2,148.7	2,155.7	Oklahoma	1,137.0	1,175.6	1,185.5
Hawaii	408.2	407.5	404.6	Oregon	1,030.1	1,012.4	1,012.8
Idaho	329.8	325.6	324.6	Pennsylvania	4,714.9	4,688.2	4,684.0
Illinois	4,918.3	4,870.3	4,846.3	Rhode Island	399.3	391.0	391.1
Indiana	2,109.9	2,106.5	2,112.9	South Carolina	1,181.8	1,183.6	1,183.6
Iowa	1,065.9	1,062.9	1,058.8	South Dakota	237.7	234.1	233.3
Kansas	931.7	945.8	944.4	Tennessee	1,711.3	1,706.1	1,713.7
Kentucky	1,195.5	1,188.7	1,187.1	Texas	5,868.9	6,149.9	6,152.9
Louisiana	1,575.0	1,637.3	1,640.1	Utah	544.8	550.6	550.7
Maine	432.1	428.0	431.8	Vermont	198.8	201.3	201.1
Maryland	1,688.9	1,702.3	1,681.0	Virginia	2,124.1	2,150.2	2,151.5
Massachusetts	2,646.2	2,632.1	2,658.4	Washington	1,602.2	1,581.8	1,576.1
Michigan	3,370.4	3,454.9	3,418.1	West Virginia	640.8	640.6	629.5
Minnesota	1,769.9	1,752.3	1,772.2	Wisconsin	1,943.8	1,955.9	1,964.8
Mississippi	816.4	817.1	811.0	Wyoming	211.1	213.4	214.8
Missouri	1,958.8	1,963.2	1,968.0	Virgin Islands	36.7	37.3	36.7

10. Employment by industry division and major manufacturing group

[Nonagricultural payroll data, in thousands]

Industry division and group	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
TOTAL	89,823	90,564	90,638	91,244	91,599	91,750	89,988	90,138	90,720	91,337	91,848	92,481	91,600	91,586	92,026
MINING	958	1,020	1,030	1,034	1,051	1,060	1,066	1,071	1,084	941	957	1,132	1,155	1,170	1,167
CONSTRUCTION	4,463	4,399	4,613	4,619	4,533	4,343	3,995	3,901	4,048	4,246	4,356	4,477	4,554	4,575	4,495
MANUFACTURING	21,040	20,300	20,212	20,235	20,293	20,238	20,075	20,065	20,160	20,253	20,342	20,531	20,337	20,486	20,665
Production workers	15,068	14,223	14,131	14,141	14,190	14,126	13,975	13,971	14,049	14,127	14,195	14,325	14,108	14,241	14,463
Durable goods	12,760	12,181	11,990	12,061	12,156	12,147	12,072	12,042	12,120	12,197	12,235	12,334	12,198	12,192	12,330
Production workers	9,110	8,438	8,244	8,304	8,391	8,374	8,305	8,279	8,345	8,412	8,438	8,500	8,347	8,327	8,487
Lumber and wood products	766.9	690.3	693.6	691.4	687.9	685.9	674.6	674.5	678.3	686.9	703.4	711.0	708.6	701.9	690.4
Furniture and fixtures	497.8	468.8	461.6	465.0	468.6	470.5	469.6	471.7	472.1	478.0	479.0	480.5	472.0	481.6	486.7
Stone, clay, and glass products	708.7	665.6	665.5	663.5	665.2	652.3	635.0	630.6	639.5	652.6	659.7	671.0	666.7	668.9	666.3
Primary metal industries	1,253.9	1,144.1	1,092.0	1,103.7	1,123.3	1,136.3	1,136.7	1,137.7	1,141.3	1,149.9	1,147.5	1,155.5	1,135.5	1,139.8	1,148.9
Fabricated metal products	1,717.7	1,609.0	1,576.4	1,586.6	1,597.6	1,596.4	1,580.2	1,578.1	1,585.4	1,593.7	1,596.1	1,606.8	1,584.5	1,590.9	1,610.4
Machinery, except electrical	2,484.8	2,497.0	2,453.4	2,461.2	2,479.6	2,496.8	2,496.9	2,498.4	2,504.3	2,506.1	2,508.6	2,531.3	2,517.4	2,512.1	2,534.1
Electric and electronic equipment	2,116.9	2,103.2	2,079.6	2,094.8	2,109.6	2,118.0	2,114.0	2,112.3	2,119.5	2,129.7	2,134.7	2,152.7	2,138.9	2,146.9	2,169.7
Transportation equipment	2,077.2	1,875.3	1,842.4	1,869.0	1,894.6	1,871.4	1,854.9	1,824.8	1,860.4	1,874.3	1,877.4	1,882.7	1,840.3	1,802.4	1,869.1
Instruments and related products	691.2	708.5	705.6	706.3	711.2	713.8	712.4	710.1	712.1	714.4	715.2	723.2	722.1	726.1	727.3
Miscellaneous manufacturing	444.8	419.3	419.8	419.2	417.9	405.9	398.0	403.3	406.7	411.3	413.4	419.5	412.3	421.6	426.6
Nondurable goods	8,280	8,118	8,222	8,174	8,137	8,091	8,003	8,023	8,040	8,056	8,107	8,197	8,139	8,294	8,335
Production workers	5,958	5,786	5,887	5,837	5,799	5,752	5,670	5,692	5,704	5,715	5,757	5,825	5,761	5,914	5,976
Food and kindred products	1,732.5	1,710.8	1,823.5	1,765.2	1,719.3	1,688.5	1,645.2	1,639.2	1,632.5	1,631.0	1,648.1	1,673.4	1,714.8	1,777.5	1,778.9
Tobacco manufactures	70.0	69.2	74.9	75.9	75.3	74.4	72.0	70.6	68.3	66.2	65.2	66.4	66.3	75.8	79.0
Textile mill products	885.1	852.7	843.3	845.4	847.8	846.1	841.0	841.1	840.9	841.6	844.3	851.0	836.5	848.0	853.0
Apparel and other textile products	1,304.3	1,265.8	1,274.3	1,270.5	1,262.3	1,241.1	1,222.8	1,238.7	1,250.2	1,255.2	1,265.9	1,283.9	1,231.1	1,277.3	1,295.2
Paper and allied products	706.8	694.0	688.6	690.6	691.4	691.5	687.7	687.7	688.6	690.9	693.1	701.0	696.4	701.0	704.5
Printing and publishing	1,235.1	1,258.3	1,255.1	1,259.1	1,268.2	1,278.3	1,269.0	1,273.6	1,278.2	1,280.4	1,281.8	1,286.2	1,286.5	1,289.1	1,295.3
Chemicals and allied products	1,109.3	1,107.4	1,100.9	1,099.5	1,100.1	1,101.2	1,100.1	1,102.9	1,106.8	1,106.2	1,110.3	1,121.1	1,116.6	1,114.5	1,115.2
Petroleum and coal products	209.8	196.6	210.2	209.7	209.5	206.8	206.5	205.7	207.0	209.5	212.9	215.4	216.1	215.4	213.1
Rubber and miscellaneous plastics products	781.6	730.7	718.0	725.7	730.6	733.2	731.8	734.2	737.2	743.5	749.2	759.0	747.0	756.4	764.2
Leather and leather products	245.7	232.6	232.7	232.1	232.5	229.4	226.9	229.5	230.4	231.7	235.9	239.1	227.5	239.4	236.8
TRANSPORTATION AND PUBLIC UTILITIES	5,136	5,143	5,159	5,166	5,147	5,150	5,063	5,076	5,095	5,120	5,148	5,195	5,177	5,173	5,215
WHOLESALE AND RETAIL TRADE	20,192	20,386	20,495	20,533	20,761	21,138	20,366	20,196	20,290	20,513	20,672	20,795	20,735	20,820	20,912
WHOLESALE TRADE	5,204	5,281	5,293	5,315	5,312	5,315	5,276	5,273	5,293	5,317	5,335	5,381	5,376	5,389	5,375
RETAIL TRADE	14,989	15,104	15,202	15,218	15,449	15,823	15,090	14,923	14,997	15,196	15,337	15,414	15,359	15,431	15,537
FINANCE, INSURANCE, AND REAL ESTATE	4,975	5,168	5,201	5,211	5,223	5,237	5,235	5,245	5,263	5,295	5,326	5,384	5,408	5,408	5,351
SERVICES	17,112	17,901	18,087	18,115	18,118	18,149	17,972	18,126	18,287	18,512	18,633	18,764	18,847	18,841	18,795
GOVERNMENT	15,947	16,249	15,841	16,331	16,473	16,435	16,216	16,458	16,493	16,457	16,414	16,203	15,387	15,113	15,426
Federal	2,773	2,866	2,754	2,774	2,776	2,782	2,773	2,774	2,769	2,773	2,782	2,825	2,833	2,763	2,730
State and local	13,174	13,383	13,087	13,557	13,697	13,653	13,443	13,684	13,724	13,684	13,632	13,378	12,554	12,350	12,696

11. Employment by industry division and major manufacturing group, seasonally adjusted

[Nonagricultural payroll data, in thousands]

Industry division and group	1980				1981								
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
TOTAL	90,461	90,668	90,844	90,949	91,091	91,258	91,347	91,458	91,564	91,615	91,880	91,889	91,875
MINING	1,023	1,032	1,052	1,069	1,083	1,091	1,098	950	957	1,110	1,132	1,152	1,160
CONSTRUCTION	4,362	4,379	4,389	4,387	4,390	4,389	4,416	4,418	4,334	4,284	4,272	4,272	4,253
MANUFACTURING	20,060	20,110	20,188	20,175	20,174	20,177	20,191	20,332	20,414	20,424	20,535	20,517	20,536
Production workers	13,992	14,024	14,081	14,059	14,053	14,053	14,074	14,187	14,247	14,245	14,327	14,305	14,350
Durable goods	11,968	12,013	12,090	12,077	12,084	12,074	12,099	12,207	12,254	12,278	12,333	12,336	12,326
Production workers	8,229	8,259	8,320	8,301	8,306	8,297	8,325	8,412	8,442	8,455	8,491	8,488	8,495
Lumber and wood products	680	679	683	687	689	691	692	702	710	699	702	687	677
Furniture and fixtures	462	462	463	464	464	466	467	478	484	486	488	488	487
Stone, clay, and glass products	656	655	658	655	654	654	651	656	658	658	658	660	656
Primary metal industries	1,092	1,108	1,126	1,137	1,137	1,140	1,141	1,145	1,142	1,144	1,140	1,148	1,149
Fabricated metal products	1,575	1,578	1,582	1,581	1,579	1,577	1,581	1,595	1,604	1,604	1,614	1,610	1,609
Machinery, except electrical	2,463	2,481	2,489	2,490	2,487	2,481	2,480	2,491	2,511	2,521	2,533	2,543	2,544
Electric and electronic equipment	2,078	2,087	2,096	2,103	2,110	2,110	2,117	2,134	2,143	2,148	2,163	2,166	2,168
Transportation equipment	1,843	1,848	1,874	1,839	1,840	1,833	1,849	1,878	1,872	1,886	1,886	1,890	1,888
Instruments and related products	709	709	712	712	713	711	712	714	716	717	723	727	731
Miscellaneous manufacturing	410	406	407	409	411	411	409	414	414	415	426	417	417
Nondurable goods	8,092	8,097	8,098	8,098	8,090	8,103	8,092	8,125	8,160	8,146	8,202	8,181	8,210
Production workers	5,763	5,765	5,761	5,758	5,747	5,756	5,749	5,775	5,805	5,790	5,836	5,817	5,855
Food and kindred products	1,712	1,711	1,705	1,701	1,696	1,705	1,691	1,697	1,703	1,673	1,691	1,672	1,672
Tobacco manufactures	68	69	71	71	71	72	72	72	71	71	71	73	72
Textile mill products	843	845	844	842	841	839	838	842	843	846	856	850	852
Apparel and other textile products	1,261	1,256	1,253	1,250	1,244	1,243	1,243	1,250	1,258	1,264	1,278	1,272	1,281
Paper and allied products	689	691	692	692	691	691	689	691	694	695	696	699	705
Printing and publishing	1,261	1,262	1,265	1,269	1,269	1,272	1,276	1,280	1,283	1,284	1,290	1,294	1,302
Chemicals and allied products	1,101	1,102	1,103	1,105	1,106	1,109	1,108	1,107	1,109	1,111	1,110	1,109	1,116
Petroleum and coal products	208	208	209	209	211	210	210	211	213	212	212	212	211
Rubber and miscellaneous plastics products	717	722	725	729	730	731	734	744	753	757	760	763	763
Leather and leather products	232	231	231	230	231	231	231	231	233	232	238	237	236
TRANSPORTATION AND PUBLIC UTILITIES	5,124	5,129	5,114	5,118	5,124	5,135	5,139	5,161	5,148	5,149	5,167	5,168	5,179
WHOLESALE AND RETAIL TRADE	20,450	20,461	20,464	20,470	20,529	20,600	20,635	20,636	20,714	20,717	20,796	20,871	20,866
WHOLESALE TRADE	5,290	5,296	5,296	5,300	5,305	5,313	5,316	5,333	5,346	5,349	5,360	5,378	5,375
RETAIL TRADE	15,160	15,165	15,168	15,170	15,224	15,287	15,319	15,303	15,368	15,368	15,436	15,493	15,491
FINANCE, INSURANCE, AND REAL ESTATE	5,206	5,221	5,235	5,254	5,268	5,283	5,293	5,316	5,326	5,331	5,344	5,354	5,356
SERVICES	18,043	18,087	18,160	18,240	18,300	18,343	18,371	18,475	18,540	18,560	18,642	18,673	18,757
GOVERNMENT	16,193	16,249	16,242	16,236	16,223	16,240	16,204	16,170	16,131	16,040	15,992	15,882	15,768
Federal	2,784	2,795	2,796	2,800	2,799	2,795	2,781	2,767	2,779	2,781	2,777	2,730	2,760
State and local	13,409	13,454	13,446	13,436	13,424	13,445	13,423	13,403	13,352	13,259	13,215	13,152	13,008

12. Labor turnover rates in manufacturing, 1977 to date

[Per 100 employees]

Year	Annual average	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total accessions													
1977	4.0	3.7	3.7	4.0	3.8	4.6	4.9	4.3	5.3	4.6	3.9	3.1	2.4
1978	4.1	3.8	3.2	3.8	4.0	4.7	4.9	4.4	5.4	4.9	4.3	3.3	2.4
1979	4.0	4.0	3.4	3.8	3.9	4.7	4.8	4.3	5.0	4.5	4.1	3.0	2.2
1980	3.5	3.8	3.3	3.5	3.1	3.4	3.9	3.8	4.5	4.3	3.6	2.7	2.2
1981	...	3.4	3.0	3.4	3.3	3.5	4.0	3.6	P3.9	...	...	...	...
New hires													
1977	2.8	2.2	2.1	2.6	2.7	3.5	3.7	3.0	4.0	3.5	3.0	2.2	1.6
1978	3.1	2.5	2.2	2.7	2.9	3.6	3.9	3.3	4.2	3.9	3.5	2.6	1.7
1979	2.9	2.8	2.5	2.8	2.9	3.6	3.8	3.1	3.7	3.4	3.1	2.2	1.5
1980	2.1	2.4	2.2	2.3	2.0	2.1	2.4	2.1	2.5	2.6	2.2	1.6	1.2
1981	...	1.8	1.8	2.0	2.0	2.3	2.8	2.4	P2.6	...	...	...	...
Recalls													
1977	.9	1.2	1.3	1.1	.9	.8	.8	.9	1.0	.8	.6	.6	.6
1978	.7	1.0	.7	.8	.8	.8	.7	.8	.9	.7	.6	.5	.5
1979	.7	.9	.7	.7	.7	.8	.7	.9	.9	.8	.7	.6	.5
1980	1.1	1.1	.9	.9	.8	1.0	1.2	1.5	1.7	1.4	1.1	.9	.8
1981	...	1.3	1.0	1.1	1.1	1.0	1.0	1.0	P1.0	...	...	...	...
Total separations													
1977	3.8	3.9	3.4	3.4	3.4	3.5	3.5	4.3	5.1	4.9	3.8	3.4	3.4
1978	3.9	3.6	3.1	3.5	3.6	3.7	3.8	4.1	5.3	4.9	4.1	3.5	3.4
1979	4.0	3.8	3.2	3.6	3.7	3.8	3.9	4.3	5.7	4.7	4.2	3.8	3.5
1980	4.0	4.1	3.5	3.7	4.7	4.8	4.4	4.2	4.8	4.1	3.8	3.0	3.1
1981	...	3.6	3.1	3.2	3.1	3.1	3.2	3.6	P4.3	...	...	...	...
Quits													
1977	1.8	1.4	1.3	1.6	1.7	1.9	1.9	1.9	3.1	2.8	1.9	1.5	1.2
1978	2.1	1.5	1.4	1.8	2.0	2.1	2.2	2.1	3.5	3.1	2.3	1.7	1.3
1979	2.0	1.8	1.6	1.9	2.0	2.1	2.1	2.0	3.3	2.7	2.1	1.6	1.1
1980	1.5	1.6	1.5	1.6	1.5	1.5	1.4	1.4	2.2	1.9	1.4	1.1	.9
1981	...	1.2	1.1	1.2	1.3	1.3	1.4	1.5	P2.1	...	...	...	...
Layoffs													
1977	1.1	1.7	1.4	1.0	.9	.8	.8	1.5	1.0	1.1	1.1	1.1	1.5
1978	.9	1.2	.9	.9	.8	.7	.7	1.1	.8	.8	.9	1.0	1.4
1979	1.1	1.1	.8	.8	.9	.7	.9	1.4	1.3	1.1	1.2	1.5	1.7
1980	1.7	1.6	1.2	1.3	2.3	2.5	2.2	2.0	1.7	1.4	1.5	1.3	1.6
1981	...	1.6	1.2	1.2	1.0	1.0	1.1	1.3	P1.4	...	...	...	...

13. Labor turnover rates in manufacturing, by major industry group

[Per 100 employees]

Major industry group	Accession rates									Separation rates								
	Total			New hires			Recalls			Total			Quits			Layoffs		
	Aug. 1980	July 1981	Aug. 1981 P	Aug. 1980	July 1981	Aug. 1981 P	Aug. 1980	July 1981	Aug. 1981 P	Aug. 1980	July 1981	Aug. 1981 P	Aug. 1980	July 1981	Aug. 1981 P	Aug. 1980	July 1981	Aug. 1981 P
MANUFACTURING	4.5	3.6	3.9	2.5	2.4	2.6	1.7	1.0	1.0	4.8	3.6	4.3	2.2	1.5	2.1	1.7	1.3	1.4
Seasonally adjusted	3.6	3.4	3.1	2.0	2.3	2.0	1.4	.9	.8	4.0	3.2	3.5	1.4	1.5	1.3	1.8	1.0	1.5
Durable goods	4.0	2.9	3.3	1.9	1.9	2.1	1.7	.8	.9	4.5	3.3	4.1	1.7	1.2	1.7	1.9	1.2	1.5
Lumber and wood products	6.9	4.8	4.3	4.2	3.3	3.4	2.4	1.3	.7	6.2	4.8	6.6	3.2	2.5	3.1	1.8	1.3	2.5
Furniture and fixtures	4.9	4.5	4.9	3.3	3.3	3.5	1.5	1.0	1.3	5.4	4.6	4.7	2.8	2.3	2.7	1.5	1.4	1.1
Stone, clay, and glass products	4.5	3.5	3.6	2.3	2.2	2.2	1.8	1.1	1.2	5.0	3.8	4.6	2.0	1.3	2.0	2.0	1.6	1.6
Primary metal industries	4.3	2.4	2.7	.8	1.0	1.1	3.2	1.2	1.2	4.6	3.1	3.5	.9	.6	1.0	2.7	1.5	1.7
Fabricated metal products	4.7	3.4	3.6	2.2	2.2	2.3	2.2	1.0	1.1	4.7	3.7	4.2	1.9	1.4	1.9	1.9	1.5	1.5
Machinery, except electrical	2.6	2.4	2.7	1.5	1.5	1.8	.9	.7	.7	3.5	2.6	3.3	1.4	1.0	1.4	1.3	.9	1.1
Electric and electronic equipment	3.2	2.5	3.0	1.6	1.7	2.0	1.1	.5	.6	3.7	2.9	3.5	1.7	1.1	1.5	1.1	.8	1.1
Transportation equipment	4.4	2.6	...	1.4	1.4	...	2.4	.8	...	5.9	3.1	...	1.1	.9	...	3.9	1.4	...
Instruments and related products	2.6	2.2	2.6	1.8	1.7	2.1	.6	.3	.4	3.2	2.2	2.9	1.9	1.1	1.8	.6	.5	.5
Miscellaneous manufacturing	5.3	4.7	6.5	3.7	3.2	4.7	1.3	1.3	1.5	5.7	4.8	6.0	3.3	1.9	3.0	1.4	1.9	1.9
Nondurable goods	5.3	4.6	4.9	3.4	3.1	3.4	1.7	1.3	1.2	5.3	4.2	4.7	2.9	2.0	2.7	1.4	1.5	1.1
Food and kindred products	9.2	8.3	8.1	6.2	5.0	5.2	2.7	3.1	2.7	7.3	5.9	6.3	4.1	2.4	3.5	2.1	2.6	2.0
Tobacco manufacturers	9.6	6.6	...	3.8	1.6	...	5.2	3.6	...	3.4	2.1	...	1.2	.5	...	1.3	1.1	...
Textile mill products	3.9	3.8	4.2	2.8	2.9	3.3	.9	.6	.6	4.8	4.3	4.4	2.7	2.3	2.7	1.0	1.0	.7
Apparel and other products	6.7	6.0	6.6	3.9	4.0	4.5	2.4	1.7	1.8	6.8	6.5	5.9	3.8	3.1	3.7	2.0	2.4	1.3
Paper and allied products	2.9	2.5	2.6	1.7	1.7	1.8	1.0	.7	.6	4.0	2.6	3.6	1.9	1.0	1.9	1.3	.9	.9
Printing and publishing	3.3	3.0	3.1	2.7	2.5	2.6	.5	.4	.4	4.2	2.9	3.6	2.8	1.7	2.3	.8	.5	.6
Chemicals and allied products	1.6	1.6	1.6	1.0	1.2	1.2	.4	.2	.3	2.6	1.7	2.7	1.4	.7	1.4	.6	.5	.5
Petroleum and coal products	2.1	2.2	2.1	1.7	1.8	1.8	.3	.3	.2	3.2	2.1	3.2	1.3	.6	1.2	1.1	.7	1.2
Rubber and miscellaneous plastics products	5.7	3.9	4.3	2.9	2.9	3.1	2.4	.8	.8	5.4	4.0	4.6	2.6	1.8	2.5	1.7	1.1	1.0
Leather and leather products	8.6	6.8	7.5	5.2	4.7	5.1	3.1	1.9	2.0	7.4	7.1	7.2	4.5	3.3	4.1	1.9	2.8	2.1

14. Hours and earnings, by industry division, 1950-80

[Gross averages, production or nonsupervisory workers on nonagricultural payrolls]

Year	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings	Average weekly earnings	Average weekly hours	Average hourly earnings
	Total private			Mining			Construction			Manufacturing		
1950	\$53.13	39.8	\$1.335	\$67.16	37.9	\$1.772	\$69.68	37.4	\$1.863	\$58.32	40.5	\$1.440
1951	57.86	39.9	1.45	74.11	38.4	1.93	76.96	38.1	2.02	63.34	40.6	1.56
1952	60.65	39.9	1.52	77.59	38.6	2.01	82.86	38.9	2.13	66.75	40.7	1.64
1953	63.76	39.6	1.61	83.03	38.8	2.14	86.41	37.9	2.28	70.47	40.5	1.74
1954	64.52	39.1	1.65	82.60	38.6	2.14	88.91	37.2	2.39	70.49	39.6	1.78
1955	67.72	39.6	1.71	89.54	40.7	2.20	90.90	37.1	2.45	75.30	40.7	1.85
1956	70.74	39.3	1.80	95.06	40.8	2.33	96.38	37.5	2.57	78.78	40.4	1.95
1957	73.33	38.8	1.89	98.25	40.1	2.45	100.27	37.0	2.71	81.19	39.8	2.04
1958	75.08	38.5	1.95	96.08	38.9	2.47	103.78	36.8	2.82	82.32	39.2	2.10
1959 ¹	78.78	39.0	2.02	103.68	40.5	2.56	108.41	37.0	2.93	88.26	40.3	2.19
1960	80.67	38.6	2.09	105.04	40.4	2.60	112.67	36.7	3.07	89.72	39.7	2.26
1961	82.60	38.6	2.14	106.92	40.5	2.64	118.08	36.9	3.20	92.34	39.8	2.32
1962	85.91	38.7	2.22	110.70	41.0	2.70	122.47	37.0	3.31	96.56	40.4	2.39
1963	88.46	38.8	2.28	114.40	41.6	2.75	127.19	37.3	3.41	99.23	40.5	2.45
1964	91.33	38.7	2.36	117.74	41.9	2.81	132.06	37.2	3.55	102.97	40.7	2.53
1965	95.45	38.8	2.46	123.52	42.3	2.92	138.38	37.4	3.70	107.53	41.2	2.61
1966	98.82	38.6	2.56	130.24	42.7	3.05	146.26	37.6	3.89	112.19	41.4	2.71
1967	101.84	38.0	2.68	135.89	42.6	3.19	154.95	37.7	4.11	114.49	40.6	2.82
1968	107.73	37.8	2.85	142.71	42.6	3.35	164.49	37.3	4.41	122.51	40.7	3.01
1969	114.61	37.7	3.04	154.80	43.0	3.60	181.54	37.9	4.79	129.51	40.6	3.19
1970	119.83	37.1	3.23	164.40	42.7	3.85	195.45	37.3	5.24	133.33	39.8	3.35
1971	127.31	36.9	3.45	172.14	42.4	4.06	211.67	37.2	5.69	142.44	39.9	3.57
1972	136.90	37.0	3.70	189.14	42.6	4.44	221.19	36.5	6.06	154.71	40.5	3.82
1973	145.39	36.9	3.94	201.40	42.4	4.75	235.89	36.8	6.41	166.46	40.7	4.09
1974	154.76	36.5	4.24	219.14	41.9	5.23	249.25	36.6	6.81	176.80	40.0	4.42
1975	163.53	36.1	4.53	249.31	41.9	5.95	266.08	36.4	7.31	190.79	39.5	4.83
1976	175.45	36.1	4.86	273.90	42.4	6.46	283.73	36.8	7.71	209.32	40.1	5.22
1977	189.00	36.0	5.25	301.20	43.4	6.94	295.65	36.5	8.10	228.90	40.3	5.68
1978	203.70	35.8	5.69	332.88	43.4	7.67	318.69	36.8	8.66	249.27	40.4	6.17
1979	219.91	35.7	6.16	365.07	43.0	8.49	342.99	37.0	9.27	269.34	40.2	6.70
1980	235.10	35.3	6.66	396.14	43.2	9.17	367.04	37.0	9.92	288.62	39.7	7.27
	Transportation and public utilities			Wholesale and retail trade			Finance, insurance, and real estate			Services		
1950				\$44.55	40.5	\$1.100	\$50.52	37.7	\$1.340			
1951				47.79	40.5	1.18	54.67	37.7	1.45			
1952				49.20	40.0	1.23	57.08	37.8	1.51			
1953				51.35	39.5	1.30	59.57	37.7	1.58			
1954				53.33	39.5	1.35	62.04	37.6	1.65			
1955				55.16	39.4	1.40	63.92	37.6	1.70			
1956				57.48	39.1	1.47	65.68	36.9	1.78			
1957				59.60	38.7	1.54	67.53	36.7	1.84			
1958				61.76	38.6	1.60	70.12	37.1	1.89			
1959 ¹				64.41	38.8	1.66	72.74	37.3	1.95			
1960				66.01	38.6	1.71	75.14	37.2	2.02			
1961				67.41	38.3	1.76	77.12	36.9	2.09			
1962				69.91	38.2	1.83	80.94	37.3	2.17			
1963				72.01	38.1	1.89	84.38	37.5	2.25			
1964	\$118.78	41.1	\$2.89	74.66	37.9	1.97	85.79	37.3	2.30	\$70.03	36.1	\$1.94
1965	125.14	41.3	3.03	76.91	37.7	2.04	88.91	37.2	2.39	73.60	35.9	2.05
1966	128.13	41.2	3.11	79.39	37.1	2.14	92.13	37.3	2.47	77.04	35.5	2.17
1967	130.82	40.5	3.23	82.35	36.6	2.25	95.72	37.1	2.58	80.38	35.1	2.29
1968	138.85	40.6	3.42	87.00	36.1	2.41	101.75	37.0	2.75	83.97	34.7	2.42
1969	147.74	40.7	3.63	91.39	35.7	2.56	108.70	37.1	2.93	90.57	34.7	2.61
1970	155.93	40.5	3.85	96.02	35.3	2.72	112.67	36.7	3.07	96.66	34.4	2.81
1971	168.82	40.1	4.21	101.09	35.1	2.88	117.85	36.6	3.22	103.06	33.9	3.04
1972	187.86	40.4	4.65	106.45	34.9	3.05	122.98	36.6	3.36	110.85	33.9	3.27
1973	203.31	40.5	5.02	111.76	34.6	3.23	129.20	36.6	3.53	117.29	33.8	3.47
1974	217.48	40.2	5.41	119.02	34.2	3.48	137.61	36.5	3.77	126.00	33.6	3.75
1975	233.44	39.7	5.88	126.45	33.9	3.73	148.19	36.5	4.06	134.67	33.5	4.02
1976	256.71	39.8	6.45	133.79	33.7	3.97	155.43	36.4	4.27	143.52	33.3	4.31
1977	278.90	39.9	6.99	142.52	33.3	4.28	165.26	36.4	4.54	153.45	33.0	4.65
1978	302.80	40.0	7.57	153.64	32.9	4.67	178.00	36.4	4.89	163.67	32.8	4.99
1979	325.58	39.9	8.16	164.96	32.6	5.06	190.77	36.2	5.27	175.27	32.7	5.36
1980	351.25	39.6	8.87	176.46	32.2	5.48	209.24	36.2	5.78	190.71	32.6	5.85

¹ Data include Alaska and Hawaii beginning in 1959.

15. Weekly hours, by industry division and major manufacturing group

[Gross averages, production or nonsupervisory workers on private nonagricultural payrolls]

Industry division and group	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
TOTAL PRIVATE	35.7	35.3	35.3	35.3	35.3	35.6	35.1	35.0	35.2	35.2	35.2	35.4	35.6	35.6	35.0
MINING	43.0	43.2	43.5	43.6	43.6	44.1	43.6	42.8	42.3	43.6	43.8	42.1	43.5	44.0	43.2
CONSTRUCTION	37.0	37.0	38.0	37.9	36.8	37.2	36.4	35.0	37.2	36.9	36.9	37.2	37.7	37.4	35.6
MANUFACTURING	40.2	39.7	39.8	39.8	40.2	40.8	39.9	39.5	39.9	39.7	40.1	40.2	39.6	39.8	39.3
Overtime hours	3.3	2.8	3.0	2.9	3.1	3.3	2.9	2.8	2.8	2.6	2.9	3.0	2.8	3.0	2.8
Durable goods	40.8	40.1	40.2	40.3	40.7	41.5	40.4	39.9	40.5	40.3	40.6	40.6	39.9	40.2	39.6
Overtime hours	3.5	2.8	2.9	2.9	3.1	3.4	2.9	2.8	2.9	2.7	3.0	3.0	2.8	2.9	2.7
Lumber and wood products	39.4	38.6	39.3	39.2	39.2	39.7	38.8	38.5	39.0	39.1	39.6	39.5	38.7	39.0	38.2
Furniture and fixtures	38.7	38.1	38.3	38.5	38.4	39.6	38.1	38.3	38.8	38.2	38.5	38.9	37.8	38.7	38.3
Stone, clay, and glass products	41.5	40.8	41.1	41.3	41.4	41.6	40.3	39.6	40.6	40.9	41.1	41.2	40.8	41.0	39.9
Primary metal industries	41.4	40.1	39.9	39.9	40.8	41.6	41.1	40.7	41.1	41.2	40.9	40.9	40.3	40.4	39.8
Fabricated metal products	40.7	40.4	40.5	40.5	40.9	41.6	40.4	40.0	40.6	40.2	40.7	40.8	39.9	40.3	39.6
Machinery except electrical	41.8	41.0	41.0	40.7	41.3	42.2	41.2	40.8	41.2	40.8	41.2	41.1	40.4	40.7	39.9
Electric and electronic equipment	40.3	39.8	39.7	39.8	40.4	41.0	40.1	39.6	40.2	39.8	40.1	40.2	39.7	39.9	39.6
Transportation equipment	41.1	40.6	40.7	41.1	41.7	43.1	40.9	40.1	41.1	41.0	41.6	41.3	40.7	40.5	39.8
Instruments and related products	40.8	40.5	40.1	40.3	40.9	41.2	40.6	40.5	40.6	39.9	40.3	40.4	39.9	40.2	39.8
Miscellaneous manufacturing	38.8	38.7	39.1	38.9	39.1	39.5	38.6	38.4	38.9	38.6	38.9	39.0	38.5	38.8	38.7
Nondurable goods	39.3	39.0	39.1	39.1	39.4	39.9	39.2	38.9	39.1	38.9	39.4	39.5	39.1	39.4	39.0
Overtime hours	3.1	2.8	3.1	2.9	3.0	3.1	2.9	2.8	2.7	2.6	2.9	2.9	2.8	3.0	3.1
Food and kindred products	39.9	39.7	40.3	39.7	40.1	40.3	40.0	39.3	39.2	39.3	39.8	39.8	39.6	40.0	39.4
Tobacco manufactures	38.0	38.1	38.2	40.0	40.1	38.1	38.6	38.5	37.2	37.2	38.6	38.5	38.6	40.5	40.4
Textile mill products	40.4	40.1	39.8	39.9	40.3	40.9	39.9	39.9	40.1	39.4	40.3	40.4	39.7	39.9	38.7
Apparel and other textile products	35.3	35.4	35.2	35.5	35.4	35.9	35.2	35.3	35.8	35.2	36.0	36.4	36.0	36.3	35.2
Paper and allied products	42.6	42.3	42.3	42.2	42.8	43.7	42.7	42.2	42.4	42.3	42.5	42.7	42.4	42.4	43.0
Printing and publishing	37.5	37.1	37.2	37.2	37.2	38.1	37.1	36.9	37.1	37.0	37.3	37.2	37.2	37.5	37.5
Chemicals and allied products	41.9	41.5	41.3	41.5	42.0	42.1	41.6	41.5	41.6	41.6	41.6	41.6	41.5	41.4	42.2
Petroleum and coal products	43.8	41.8	43.4	43.7	43.6	43.3	42.6	42.5	42.6	43.9	43.6	43.5	43.7	43.0	44.0
Rubber and miscellaneous plastics products	40.5	40.1	40.3	40.7	41.1	41.6	41.0	40.2	40.7	40.4	40.9	40.9	40.0	40.4	39.8
Leather and leather products	36.5	36.7	36.3	36.6	36.3	36.9	36.5	36.7	36.8	36.3	37.4	38.1	36.6	37.1	35.8
TRANSPORTATION AND PUBLIC UTILITIES	39.9	39.6	39.7	39.8	39.7	40.0	39.4	39.5	39.4	39.3	39.3	39.8	39.8	39.8	38.9
WHOLESALE AND RETAIL TRADE	32.6	32.2	32.2	32.1	32.1	32.5	31.7	31.7	31.9	32.1	32.0	32.3	32.8	32.7	32.1
WHOLESALE TRADE	38.8	38.5	38.5	38.7	38.5	38.9	38.5	38.3	38.5	38.5	38.5	38.6	38.8	38.6	38.5
RETAIL TRADE	30.6	30.2	30.2	30.0	30.0	30.5	29.5	29.6	29.8	30.0	29.9	30.4	30.9	30.9	30.2
FINANCE, INSURANCE, AND REAL ESTATE	36.2	36.2	36.1	36.3	36.3	36.3	36.4	36.4	36.4	36.3	36.1	36.1	36.3	36.4	36.1
SERVICES	32.7	32.6	32.6	32.6	32.6	32.6	32.5	32.6	32.6	32.6	32.5	32.7	33.0	32.9	32.4

16. Weekly hours, by industry division and major manufacturing group, seasonally adjusted

[Gross averages, production or nonsupervisory workers on private nonagricultural payrolls]

Industry division and group	1980				1981								
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
TOTAL PRIVATE	35.3	35.3	35.3	35.3	35.3	35.2	35.3	35.4	35.3	35.2	35.3	35.2	34.9
MANUFACTURING	39.6	39.7	39.8	39.9	40.1	39.8	39.9	40.2	40.3	40.1	40.0	40.0	39.1
Overtime hours	2.7	2.8	3.0	3.0	3.0	2.8	2.8	2.9	3.2	3.0	3.0	3.0	2.6
Durable goods	40.1	40.1	40.4	40.4	40.6	40.1	40.4	40.8	40.8	40.5	40.5	40.5	39.4
Overtime hours	2.7	2.8	3.0	3.1	3.0	2.8	2.8	3.0	3.2	3.0	3.0	3.0	2.5
Lumber and wood products	38.7	38.6	39.1	39.3	39.8	39.1	39.1	39.6	39.8	39.0	38.8	38.6	37.6
Furniture and fixtures	38.1	38.0	38.0	38.4	38.5	38.6	38.6	38.8	39.0	38.9	38.5	38.7	38.1
Stone, clay, and glass products	40.8	40.8	40.9	41.0	41.3	40.6	40.7	41.2	41.0	40.8	40.9	40.8	39.6
Primary metal industries	39.7	40.1	40.8	41.2	41.1	40.7	41.0	41.2	41.0	40.8	40.5	40.8	39.6
Fabricated metal products	40.4	40.4	40.5	40.4	40.5	40.2	40.4	40.9	40.9	40.7	40.5	40.5	39.5
Machinery, except electrical	40.9	40.8	41.0	40.9	41.1	40.8	40.9	41.3	41.4	41.1	41.1	41.2	39.8
Electric and electronic equipment	39.6	39.8	39.9	40.0	40.1	39.6	40.0	40.2	40.4	40.2	40.5	40.3	39.5
Transportation equipment	40.7	40.7	41.2	41.0	41.3	40.5	40.9	42.0	41.8	41.4	41.2	41.3	39.8
Instruments and related products	40.2	40.3	40.4	40.4	40.6	40.5	40.5	40.1	40.4	40.4	40.5	40.6	39.9
Miscellaneous manufacturing	38.8	38.6	38.6	38.9	38.8	38.6	38.7	38.9	39.2	39.1	39.2	38.9	38.4
Nondurable goods	38.9	39.0	39.1	39.2	39.5	39.2	39.2	39.3	39.6	39.4	39.3	39.3	38.8
Overtime hours	2.8	2.8	2.9	2.9	3.0	2.9	2.8	2.9	3.1	3.0	2.9	2.9	2.8
Food and kindred products	39.7	39.6	39.8	39.7	40.3	39.9	39.7	40.1	40.0	39.8	39.4	39.4	38.8
Textile mill products	39.8	39.8	39.9	40.1	40.0	40.0	39.9	39.8	40.5	40.2	40.4	40.2	38.7
Apparel and other textile products	35.2	35.4	35.2	35.5	36.1	35.6	35.7	35.5	36.0	36.1	35.9	36.1	35.2
Paper and allied products	42.2	42.2	42.4	42.8	42.6	42.4	42.4	42.6	42.8	42.7	42.7	42.6	42.9
Printing and publishing	36.9	37.1	36.8	37.4	37.5	37.3	37.1	37.3	37.6	37.4	37.3	37.3	37.2
Chemicals and allied products	41.4	41.5	41.6	41.6	41.6	41.6	41.5	41.5	41.7	41.7	41.8	41.7	42.3
Petroleum and coal products	42.4	42.8	42.9	43.2	43.8	43.8	43.5	44.1	43.8	43.4	43.1	42.8	42.9
Rubber and miscellaneous plastics products	40.2	40.5	40.8	40.8	40.9	40.3	40.5	40.7	41.3	41.0	40.5	40.6	39.6
Leather and leather products	36.4	36.7	36.3	36.6	36.8	37.0	37.1	36.6	37.1	37.4	36.5	37.1	35.9
WHOLESALE AND RETAIL TRADE	32.1	32.1	32.2	32.1	32.2	32.2	32.2	32.3	32.1	32.1	32.2	32.1	32.1
WHOLESALE TRADE	38.5	38.5	38.5	38.6	38.8	38.6	38.6	38.6	38.5	38.5	38.7	38.5	38.5
RETAIL TRADE	30.1	30.1	30.2	30.0	30.1	30.2	30.2	30.3	30.1	30.1	30.1	30.1	30.1
SERVICES	32.6	32.6	32.7	32.7	32.7	32.8	32.8	32.8	32.7	32.5	32.5	32.4	32.4

NOTE: The industry divisions of mining, construction, tobacco manufactures (a major manufacturing group, nondurable goods); transportation and public utilities; and finance, insurance, and real estate are no longer shown. This is because the seasonal component in these

is small relative to the trend-cycle, or irregular components, or both, and consequently cannot be precisely separated.

17. Hourly earnings, by industry division and major manufacturing group

[Gross averages, production or nonsupervisory workers on private nonagricultural payrolls]

Industry division and group	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P
TOTAL PRIVATE	\$6.16	\$6.66	\$6.79	\$6.85	\$6.92	\$6.94	\$7.03	\$7.06	\$7.10	\$7.13	\$7.17	\$7.20	\$7.24	\$7.30	\$7.37
MINING	8.49	9.17	9.31	9.36	9.49	9.57	9.77	9.86	9.85	9.70	9.68	9.94	10.11	10.15	10.25
CONSTRUCTION	9.27	9.92	10.18	10.24	10.24	10.33	10.42	10.41	10.44	10.43	10.53	10.60	10.74	10.87	10.97
MANUFACTURING	6.70	7.27	7.42	7.49	7.60	7.70	7.73	7.75	7.80	7.88	7.92	7.97	8.02	8.02	8.15
Durable goods	7.13	7.75	7.92	8.01	8.11	8.23	8.23	8.26	8.32	8.40	8.45	8.52	8.55	8.57	8.68
Lumber and wood products	6.07	6.53	6.76	6.73	6.76	6.74	6.79	6.81	6.79	6.83	6.92	7.10	7.16	7.14	7.15
Furniture and fixtures	5.06	5.49	5.59	5.60	5.63	5.70	5.71	5.74	5.76	5.78	5.83	5.89	5.91	5.98	5.99
Stone, clay, and glass products	6.85	7.50	7.69	7.74	7.81	7.83	7.87	7.89	7.94	8.11	8.20	8.31	8.39	8.40	8.50
Primary metal industries	8.98	9.77	9.96	10.10	10.29	10.36	10.36	10.56	10.52	10.76	10.68	10.76	10.79	10.99	11.20
Fabricated metal products	6.85	7.45	7.63	7.69	7.77	7.88	7.89	7.91	8.01	8.05	8.17	8.23	8.22	8.27	8.33
Machinery, except electrical	7.32	8.00	8.21	8.30	8.38	8.50	8.53	8.56	8.62	8.67	8.75	8.81	8.85	8.85	9.00
Electric and electronic equipment	6.32	6.95	7.12	7.18	7.27	7.38	7.41	7.43	7.47	7.51	7.55	7.60	7.69	7.76	7.83
Transportation equipment	8.53	9.32	9.54	9.75	9.87	10.09	9.96	9.93	10.08	10.14	10.25	10.36	10.35	10.30	10.46
Instruments and related products	6.17	6.80	6.91	6.94	7.01	7.13	7.19	7.20	7.23	7.25	7.31	7.34	7.44	7.48	7.54
Miscellaneous manufacturing	5.03	5.47	5.53	5.56	5.62	5.73	5.82	5.85	5.91	5.93	5.93	5.93	5.98	5.97	6.05
Nondurable goods	6.01	6.56	6.71	6.74	6.82	6.89	6.97	6.98	7.01	7.08	7.11	7.14	7.23	7.24	7.38
Food and kindred products	6.27	6.86	6.94	6.95	7.09	7.13	7.21	7.24	7.29	7.37	7.43	7.43	7.47	7.50	7.60
Tobacco manufactures	6.67	7.73	7.53	7.69	7.86	8.10	8.50	8.56	8.61	8.90	9.03	9.33	9.43	8.63	8.53
Textile mill products	4.66	5.08	5.25	5.27	5.31	5.34	5.35	5.35	5.36	5.36	5.40	5.42	5.51	5.64	5.66
Apparel and other textile products	4.23	4.57	4.69	4.73	4.75	4.81	4.89	4.87	4.94	4.96	4.98	5.00	4.94	4.98	5.04
Paper and allied products	7.13	7.84	8.06	8.09	8.18	8.27	8.27	8.28	8.30	8.37	8.42	8.55	8.73	8.68	8.99
Printing and publishing	6.94	7.53	7.73	7.74	7.79	7.88	7.92	7.96	8.02	8.04	8.10	8.13	8.22	8.27	8.45
Chemicals and allied products	7.60	8.30	8.47	8.53	8.60	8.69	8.74	8.80	8.84	8.94	8.99	9.07	9.16	9.17	9.34
Petroleum and coal products	9.36	10.09	10.33	10.38	10.52	10.38	11.06	11.33	11.23	11.40	11.28	11.29	11.41	11.28	11.48
Rubber and miscellaneous plastics products	5.97	6.56	6.72	6.79	6.88	6.97	7.06	7.04	7.07	7.15	7.22	7.23	7.28	7.33	7.41
Leather and leather products	4.22	4.58	4.62	4.65	4.69	4.74	4.86	4.88	4.90	4.93	4.95	4.98	4.96	4.96	5.07
TRANSPORTATION AND PUBLIC UTILITIES	8.16	8.87	9.02	9.19	9.27	9.30	9.33	9.45	9.42	9.54	9.59	9.63	9.69	9.86	9.98
WHOLESALE AND RETAIL TRADE	5.06	5.48	5.56	5.59	5.64	5.62	5.80	5.84	5.85	5.87	5.89	5.89	5.91	5.93	5.99
WHOLESALE TRADE	6.39	6.96	7.07	7.09	7.19	7.23	7.32	7.38	7.42	7.47	7.51	7.51	7.59	7.65	7.66
RETAIL TRADE	4.53	4.88	4.95	4.98	5.02	4.99	5.18	5.20	5.20	5.22	5.23	5.23	5.24	5.25	5.32
FINANCE, INSURANCE, AND REAL ESTATE	5.27	5.78	5.87	5.91	6.02	6.00	6.10	6.21	6.19	6.20	6.24	6.24	6.27	6.37	6.35
SERVICES	5.36	5.85	5.93	6.00	6.09	6.12	6.21	6.27	6.29	6.30	6.33	6.33	6.34	6.41	6.48

18. Hourly Earnings Index for production or nonsupervisory workers on private nonagricultural payrolls, by industry division

[Seasonally adjusted data: 1977=100]

Industry	1980				1981									Aug. 1981 to Sept. 1981	Sept. 1980 to Sept. 1981
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. ^P	Sept. ^P		
TOTAL PRIVATE (in current dollars) ..	129.4	130.6	132.1	132.6	133.8	135.0	135.8	136.7	137.7	138.4	139.0	140.6	141.0	0.3	9.0
Mining ¹	136.7	137.5	139.2	139.8	142.1	143.2	144.0	145.7	145.6	147.2	148.9	149.3	150.4	.8	10.1
Construction	123.1	124.4	125.2	126.2	127.6	128.0	128.6	129.0	129.4	130.4	131.8	132.6	132.4	-.1	7.5
Manufacturing	132.3	133.5	134.6	135.4	136.5	137.5	138.5	139.9	140.7	141.6	142.5	143.5	145.1	1.1	9.6
Transportation and public utilities ..	128.1	130.9	132.6	132.8	133.7	135.4	136.1	137.3	138.9	139.8	139.3	141.2	141.6	.3	10.5
Wholesale and retail trade	129.9	130.8	132.3	132.4	133.7	135.0	135.8	136.4	137.4	137.8	138.4	139.7	139.9	.1	7.7
Finance, insurance, and real estate ..	129.1	129.9	132.4	131.9	133.2	135.0	136.0	135.4	136.8	137.1	137.4	140.4	139.9	-.4	8.3
Services	127.3	128.5	130.5	131.1	132.0	133.2	134.0	134.8	136.0	136.6	136.9	139.5	139.1	-.3	9.2
TOTAL PRIVATE (in constant dollars) ..	93.3	93.2	93.3	92.7	92.8	92.7	92.8	93.0	93.1	92.9	92.2	92.6	...	...	...

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

19. Weekly earnings, by industry division and major manufacturing group

[Gross averages, production or nonsupervisory workers on private nonagricultural payrolls]

Industry division and group	Annual average		1980				1981								
	1979	1980	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug. P	Sept. P
	TOTAL PRIVATE	\$219.91	\$235.10	\$239.69	\$241.81	\$244.28	\$247.06	\$246.75	\$247.10	\$249.92	\$250.98	\$252.38	\$254.88	\$257.74	\$259.88	$257.95
MINING	365.07	396.14	404.99	408.10	413.76	422.04	425.97	422.01	416.66	422.92	423.98	418.47	439.79	446.60	442.80
CONSTRUCTION	342.99	367.04	386.84	388.10	376.83	384.28	379.29	364.35	388.37	384.87	388.56	394.32	404.90	406.54	390.53
MANUFACTURING	269.34	288.62	295.32	298.10	305.52	314.16	308.43	306.13	311.22	312.84	317.59	320.39	317.59	319.20	320.30
Durable goods	290.90	310.78	318.38	322.80	330.08	341.55	332.49	329.57	336.96	338.52	343.07	345.91	341.15	344.51	343.73
Lumber and wood products	239.16	252.06	265.67	263.82	264.99	267.58	263.45	262.19	264.81	267.05	274.03	280.45	277.09	278.46	273.13
Furniture and fixtures	195.82	209.17	214.10	215.60	216.19	225.72	217.55	219.84	223.49	220.80	224.46	229.12	223.40	231.43	229.42
Stone, clay, and glass products	284.28	306.00	316.06	319.66	323.33	325.73	317.16	312.44	322.36	331.70	337.02	342.37	342.31	344.40	339.15
Primary metal industries	371.77	391.78	397.40	402.99	419.83	430.98	425.80	429.79	432.37	443.31	436.81	440.08	434.84	444.00	445.76
Fabricated metal products	278.80	300.98	309.02	311.45	317.79	327.81	318.76	316.40	325.21	323.61	332.52	335.78	327.98	333.28	329.87
Machinery except electrical	305.98	328.00	336.61	337.81	346.09	358.70	351.44	349.25	355.14	353.74	360.50	362.09	357.54	360.20	359.10
Electric and electronic equipment	254.70	276.61	282.66	285.76	293.71	302.58	297.14	294.23	300.29	298.90	302.76	305.52	305.29	309.62	310.07
Transportation equipment	350.58	378.39	388.28	400.73	411.58	434.88	407.36	398.19	414.29	415.74	426.40	427.87	421.25	417.15	416.31
Instruments and related products	251.74	275.40	277.09	279.68	286.71	293.76	291.91	291.60	293.54	289.28	294.59	296.54	296.86	300.70	300.09
Miscellaneous manufacturing	195.16	211.69	216.22	216.28	219.74	226.34	224.65	223.87	227.57	228.13	230.68	231.27	230.23	231.64	234.14
Nondurable goods	236.19	255.84	262.36	263.53	268.71	274.91	273.22	271.52	274.09	275.41	280.13	282.03	282.69	285.26	287.82
Food and kindred products	250.17	272.34	279.68	275.92	284.31	287.34	288.40	284.53	285.77	289.64	295.71	295.71	295.81	300.00	299.44
Tobacco manufactures	253.46	294.51	287.65	307.60	315.19	308.61	328.10	329.56	320.29	331.08	348.56	359.21	364.00	349.52	344.61
Textile mill products	188.26	203.71	208.95	210.27	213.99	218.41	213.47	213.47	214.94	211.18	217.62	218.97	218.75	225.04	219.04
Apparel and other textile products	149.32	161.78	165.09	167.92	168.15	172.68	172.13	171.91	176.85	174.59	179.28	182.00	177.84	180.77	177.41
Paper and allied products	303.74	331.63	340.94	341.40	350.10	361.40	353.13	349.42	351.92	354.05	357.85	365.09	370.15	368.03	386.57
Printing and publishing	260.25	279.36	287.56	287.93	289.79	300.23	293.83	293.72	297.54	297.48	302.13	302.44	305.78	310.13	316.88
Chemicals and allied products	318.44	344.45	349.81	354.00	361.20	365.85	363.58	365.20	367.74	371.90	373.98	377.31	380.14	379.64	394.15
Petroleum and coal products	409.97	421.76	448.32	453.61	458.67	449.45	471.16	481.53	478.40	500.46	491.81	491.12	498.62	485.04	505.12
Rubber and miscellaneous plastics products	241.79	263.06	270.82	276.35	282.77	289.95	289.46	283.01	287.75	288.86	295.30	295.71	291.20	296.13	294.92
Leather and leather products	154.03	168.09	167.71	170.19	170.25	174.91	177.39	179.10	180.32	178.96	185.13	189.74	181.54	184.02	181.51
TRANSPORTATION AND PUBLIC UTILITIES	325.58	351.25	358.09	365.76	368.02	372.00	367.60	373.28	371.15	374.92	376.89	383.27	385.66	392.43	388.22
WHOLESALE AND RETAIL TRADE	164.96	176.46	179.03	179.44	181.04	182.65	183.86	185.13	186.62	188.43	188.48	190.25	193.85	193.91	192.28
WHOLESALE TRADE	247.93	267.96	272.20	274.38	276.82	281.25	281.82	282.65	285.67	287.60	289.14	289.89	294.49	295.29	294.91
RETAIL TRADE	138.62	147.38	149.49	149.40	150.60	152.20	152.81	153.92	154.96	156.60	156.38	158.99	161.62	162.23	160.66
FINANCE, INSURANCE, AND REAL ESTATE	190.77	209.24	211.91	214.53	218.53	217.80	222.04	226.04	225.32	225.06	225.26	225.26	227.60	231.87	229.24
SERVICES	175.27	190.71	192.32	195.60	198.53	199.51	201.83	204.40	205.05	205.38	206.73	206.99	209.22	210.89	209.95

20. Gross and spendable weekly earnings, in current and 1977 dollars, 1961 to date

[Averages for production or nonsupervisory workers on private nonagricultural payrolls]

Year and month	Private nonagricultural workers						Manufacturing workers					
	Gross average weekly earnings		Spendable average weekly earnings				Gross average weekly earnings		Spendable average weekly earnings			
			Worker with no dependents		Married worker with 3 dependents				Worker with no dependents		Married worker with 3 dependents	
	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars	Current dollars	1977 dollars
1961	\$82.60	\$167.21	\$67.08	\$135.79	\$74.48	\$150.77	\$92.34	\$186.92	\$74.60	\$151.01	\$82.18	\$166.36
1962	85.91	172.16	69.56	139.40	76.99	154.29	96.56	193.51	77.86	156.03	85.53	171.40
1963	88.46	175.17	71.05	140.69	78.56	155.56	99.23	196.50	79.51	157.45	87.25	172.77
1964	91.33	178.38	75.04	146.56	82.57	161.27	102.97	201.11	84.40	164.84	92.18	180.04
1965	95.45	183.21	79.32	152.25	86.63	166.28	107.53	206.39	89.08	170.98	96.78	185.76
1966	98.82	184.37	81.29	151.66	88.66	165.41	112.19	209.31	91.45	170.62	99.33	185.32
1967	101.84	184.83	83.38	151.32	90.86	164.90	114.49	207.79	92.97	168.73	100.93	183.18
1968	107.73	187.68	86.71	151.06	95.28	165.99	122.51	312.43	97.70	170.21	106.75	185.98
1969	114.61	189.44	90.96	150.35	99.99	165.27	129.51	214.07	101.90	168.43	111.44	184.20
1970	119.83	186.94	96.21	150.09	104.90	163.65	133.33	208.00	106.32	165.87	115.58	180.31
1971	127.31	190.58	103.80	155.39	112.43	168.31	142.44	213.23	114.97	172.11	124.24	185.99
1972	136.90	198.41	112.19	162.59	121.68	176.35	154.71	224.22	125.34	181.65	135.57	196.48
1973	145.39	198.35	117.51	160.31	127.38	173.78	166.46	227.09	132.57	180.86	143.50	195.77
1974	154.76	190.12	124.37	152.79	134.61	165.37	176.80	217.20	140.19	172.22	151.56	186.19
1975	163.53	184.16	132.49	149.20	145.65	164.02	190.79	214.85	151.61	170.73	166.29	187.26
1976	175.45	186.85	143.30	152.61	155.87	166.00	209.32	222.92	167.83	178.73	181.32	193.10
1977	189.00	189.00	155.19	155.19	169.93	169.93	228.90	228.90	183.80	183.80	200.06	200.06
1978	203.70	189.31	165.39	153.71	180.71	167.95	249.27	231.66	197.40	183.46	214.87	199.69
1979	219.91	183.41	178.00	148.46	194.82	162.49	269.34	224.64	212.70	177.40	232.38	193.81
1980	235.10	172.74	188.82	138.74	206.06	151.65	288.62	212.06	225.79	165.90	247.01	181.49
1980: September	239.69	172.69	192.03	138.35	209.88	151.21	295.32	212.77	230.33	165.94	252.09	181.62
October	241.81	172.72	193.51	138.22	211.49	151.06	298.10	212.93	232.22	165.87	254.20	181.57
November	244.28	172.88	195.24	138.17	213.37	151.00	305.52	216.22	237.26	167.91	259.83	183.89
December	247.06	173.38	197.18	138.37	215.47	151.21	314.16	220.46	242.86	170.43	266.14	186.76
1981: January	246.75	171.83	195.68	136.27	213.96	149.00	308.43	214.78	237.60	165.46	260.36	181.31
February	247.10	170.18	195.92	134.93	214.22	147.53	306.13	210.83	236.08	162.59	258.70	178.17
March	249.92	171.06	197.88	135.44	216.34	148.08	311.22	213.02	239.37	163.84	262.38	179.59
April	250.98	170.73	198.61	135.11	217.14	147.71	312.84	212.82	240.39	163.53	263.55	179.29
May	252.38	170.18	199.59	134.59	218.20	147.13	317.59	214.15	243.40	164.13	266.99	180.03
June	254.88	170.49	201.32	134.66	220.08	147.21	320.39	214.31	245.18	164.00	269.01	179.94
July	257.74	170.35	203.30	134.37	222.24	146.89	317.59	209.91	243.40	160.87	266.99	176.46
August	259.88	170.64	204.79	134.46	223.85	146.98	319.20	209.59	244.42	160.49	268.15	176.07
September	257.95	(1)	205.45	(1)	222.40	(1)	320.30	(1)	245.12	(1)	268.95	(1)

¹ Not available.

NOTE: The earnings expressed in 1977 dollars have been adjusted for changes in price level as measured by the Bureau's Consumer Price Index for Urban Wage Earners and Clerical Workers. These series are described in "The Spendable Earnings Series: A Technical Note on its Cal-

culational," **Employment and Earnings and Monthly Report on the Labor Force**, February 1969, pp. 6-13. See also "Spendable Earnings Formulas, 1979-81," **Employment and Earnings**, March 1981, pp. 10-11.

UNEMPLOYMENT INSURANCE DATA

NATIONAL UNEMPLOYMENT INSURANCE DATA are compiled monthly by the Employment and Training Administration of the U.S. Department of Labor from monthly records of unemployment insurance activity prepared by State agencies. Railroad unemployment insurance data are prepared by the U.S. Railroad Retirement Board.

Definitions

Data for all programs represent an unduplicated count of insured unemployment under State programs, Unemployment Compensation for Ex-Servicemen, and Unemployment Compensation for Federal Employees, and the Railroad Insurance Act.

Under both State and Federal unemployment insurance programs for civilian employees, insured workers must report the completion of at least 1 week of unemployment before they are defined as unem-

ployed. Persons not covered by unemployment insurance (about one-third of the labor force) and those who have exhausted or not yet earned benefit rights are excluded from the scope of the survey. **Initial claims** are notices filed by persons in unemployment insurance programs to indicate they are out of work and wish to begin receiving compensation. A claimant who continued to be unemployed a full week is then counted in the insured unemployment figure. The **rate of insured unemployment** expresses the number of insured unemployed as a percent of the average insured employment in a 12-month period.

An **application** for benefits is filed by a railroad worker at the beginning of his first period of unemployment in a benefit year; no application is required for subsequent periods in the same year. **Number of payments** are payments made in 14-day registration periods. The **average amount of benefit payment** is an average for all compensable periods, not adjusted for recovery of overpayments or settlement of underpayments. However, **total benefits** paid have been adjusted.

21. Unemployment insurance and employment service operations

[All items except average benefits amounts are in thousands]

Item	1980					1981							
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
All programs:													
Insured unemployment	3,911	3,961	3,661	3,726	4,085	4,621	4,264	3,948	3,453	3,111	2,949	3,012	2,874
State unemployment insurance program: ¹													
Initial claims ²	1,829	1,702	1,808	1,673	2,544	2,653	1,806	1,684	1,647	1,417	1,741	2,111	....
Insured unemployment (average weekly volume)	3,408	3,087	2,903	2,983	3,321	3,844	3,669	3,382	2,988	2,691	2,596	2,743	2,656
Rate of insured unemployment	3.9	3.6	3.3	3.4	3.8	4.4	4.2	3.9	3.4	3.1	3.0	3.1	3.0
Weeks of unemployment compensated	12,786	11,689	11,443	9,524	12,603	14,228	12,882	13,504	11,871	9,790	9,928	10,464	....
Average weekly benefit amount for total unemployment	\$99.68	\$99.86	\$92.32	\$101.96	\$101.43	\$102.34	\$101.89	\$105.63	\$105.96	\$105.49	\$99.02	\$103.47	....
Total benefits paid	\$1,249,782	\$1,144,885	\$1,125,416	\$1,055,065	\$1,242,957	\$1,416,513	\$1,313,507	\$1,393,612	\$1,226,815	\$1,006,341	\$1,012,764	\$1,061,738	....
Unemployment compensation for ex-servicemen: ³													
Initial claims ¹	23	25	23	17	21	19	17	18	16	15	19	22	....
Insured unemployment (average weekly volume)	55	56	56	54	55	57	54	51	46	43	42	44	44
Weeks of unemployment compensated	244	245	255	216	261	257	221	234	214	183	192	203	....
Total benefits paid	\$24,560	\$24,804	\$25,880	\$21,024	\$27,015	\$26,646	\$22,517	\$24,668	\$23,048	\$19,965	\$21,145	\$22,762	....
Unemployment compensation for Federal civilian employees: ⁴													
Initial claims	15	19	21	14	18	22	13	12	12	11	13	15	....
Insured unemployment (average weekly volume)	25	29	32	35	37	41	40	36	31	27	25	25	25
Weeks of unemployment compensated	93	105	130	118	150	160	148	156	135	107	105	104	....
Total benefits paid	\$8,707	\$9,699	\$11,917	\$11,365	\$14,184	\$15,432	\$14,573	\$15,561	\$13,701	\$11,023	\$10,705	\$10,788	....
Railroad unemployment insurance:													
Applications	13	10	9	7	11	13	5	5	6	6	26	41	13
Insured unemployment (average weekly volume)	39	40	38	38	39	53	50	44	41	35	30	28	29
Number of payments	86	89	84	70	83	118	104	115	94	79	86	32	63
Average amount of benefit payment	\$211.87	\$211.99	\$208.49	\$209.00	\$212.27	\$209.38	\$214.56	\$214.93	\$201.12	\$199.43	\$201.06	\$199.63	\$202.53
Total benefits paid	\$17,336	\$18,809	\$17,789	\$14,269	\$18,046	\$20,303	\$22,049	\$23,233	\$19,239	\$15,428	\$16,206	\$11,541	\$7,071
Employment service: ⁵													
New applications and renewals	15,431	16,831	....	....	4,476	....	....	8,778	....	....	12,868	....	....
Nonfarm placements	3,445	3,896	....	....	871	....	....	1,595	....	....	2,446	....	....

¹ Initial claims and State insured unemployment include data under the program for Puerto Rican sugarcane workers.

² Includes interstate claims for the Virgin Islands. Excludes transition claims under State programs.

³ Excludes data on claims and payments made jointly with other programs.

⁴ Includes the Virgin Islands. Excludes data on claims and payments made jointly with State programs.

⁵ Cumulative total for fiscal year (October 1-September 30). Data computed quarterly.

NOTE: Data for Puerto Rico included. Dashes indicate data not available.

r = revised.

PRICE DATA

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).

Definitions

The **Consumer Price Index** is a monthly statistical measure of the average change in prices in a fixed market basket of goods and services. Effective with the January 1978 index, the Bureau of Labor Statistics began publishing CPI's for two groups of the population. One index, a new CPI for All Urban Consumers, covers 80 percent of the total noninstitutional population; and the other index, a revised CPI for Urban Wage Earners and Clerical Workers, covers about half the new index population. The All Urban Consumers index includes, in addition to wage earners and clerical workers, 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, doctor's and dentist's fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items is kept essentially unchanged between major revisions so that only price changes will be measured. Prices are collected from over 18,000 tenants, 24,000 retail establishments, and 18,000 housing units for property taxes in 85 urban areas across the country. All taxes directly associated with the purchase and use of items are included in the index. Because the CPI's are based on the expenditures of two population groups in 1972-73, they may not accurately reflect the experience of individual families and single persons with different buying habits.

Though the CPI is often called the "Cost-of-Living Index," it measures only price change, which is just one of several important factors affecting living costs. Area indexes do not measure differences in the level of prices among cities. They only measure the average change in prices for each area since the base period.

Producer Price Indexes 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 contains about 2,800 commodities and about 10,000 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 universe includes all commodities produced or imported for sale in commercial transactions in primary markets in the United States.

Producer Price Indexes can be organized by stage of processing or by commodity. The stage of processing structure organizes products by degree of fabrication (that is, finished goods, intermediate or semifinished goods, and crude materials). The commodity structure 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.

In calculating Producer Price Indexes, price changes for the various commodities are 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 groupings.

Price indexes for the output of selected SIC industries measure average price changes in commodities produced by particular industries, as defined in the *Standard Industrial Classification Manual 1972* (Washington, U.S. Office of Management and Budget, 1972). These indexes are derived from several price series, combined to match the economic activity of the specified industry and weighted by the value of shipments in the industry. They use data from comprehensive industrial censuses conducted by the U.S. Bureau of the Census and the U.S. Department of Agriculture.

Notes on the data

Beginning with the May 1978 issue of the *Review*, regional CPI's cross classified by population size, were introduced. These indexes will enable users in local areas for which an index is not published to get a better approximation of the CPI for their area by using the appropriate population size class measure for their region. The cross-classified indexes will be published bimonthly. (See table 24.)

For further details about the new and the revised indexes and a comparison of various aspects of these indexes with the old unrevised CPI, see *Facts About the Revised Consumer Price Index*, a pamphlet in the Consumer Price Index Revision 1978 series. See also *The Consumer Price Index: Concepts and Content Over the Years*, Report 517, revised edition (Bureau of Labor Statistics, May 1978).

For interarea comparisons of living costs at three hypothetical standards of living, see the family budget data published in the *Handbook of Labor Statistics, 1977*, Bulletin 1966 (Bureau of Labor Statistics, 1977), tables 122-133. Additional data and analysis on price changes are provided in the *CPI Detailed Report* and *Producer Prices and Price Indexes*, both monthly publications of the Bureau.

As of January 1976, the Wholesale Price Index (as it was then called) incorporated a revised weighting structure reflecting 1972 values of shipments. From January 1967 through December 1975, 1963 values of shipments were used as weights.

For a discussion of the general method of computing consumer, producer, and industry price indexes, see *BLS Handbook of Methods for Surveys and Studies*, Bulletin 1910 (Bureau of Labor Statistics, 1976), chapters 13-15. See also John F. Early, "Improving the measurement of producer price change," *Monthly Labor Review*, April 1978, pp. 7-15. For industry prices, see also Bennett R. Moss, "Industry and Sector Price Indexes," *Monthly Labor Review*, August 1965, pp. 974-82.

22. Consumer Price Index for Urban Wage Earners and Clerical Workers, annual averages and changes, 1967-80

[1967 = 100]

Year	All items		Food and beverages		Housing		Apparel and upkeep		Transportation		Medical care		Entertainment		Other goods and services	
	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change	Index	Percent change
1967	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...	100.0	...
1968	104.2	4.2	103.6	3.6	104.0	4.0	105.4	5.4	103.2	3.2	106.1	6.1	105.7	5.7	105.2	5.2
1969	109.8	5.4	108.8	5.0	110.4	6.2	111.5	5.8	107.2	3.9	113.4	6.9	111.0	5.0	110.4	4.9
1970	116.3	5.9	114.7	5.4	118.2	7.1	116.1	4.1	112.7	5.1	120.6	6.3	116.7	5.1	116.8	5.8
1971	121.3	4.3	118.3	3.1	123.4	4.4	119.8	3.2	118.6	5.2	128.4	6.5	122.9	5.3	122.4	4.8
1972	125.3	3.3	123.2	4.1	128.1	3.8	122.3	2.1	119.9	1.1	132.5	3.2	126.5	2.9	127.5	4.2
1973	133.1	6.2	139.5	13.2	133.7	4.4	126.8	3.7	123.8	3.3	137.7	3.9	130.0	2.8	132.5	3.9
1974	147.7	11.0	158.7	13.8	148.8	11.3	136.2	7.4	137.7	11.2	150.5	9.3	139.8	7.5	142.0	7.2
1975	161.2	9.1	172.1	8.4	164.5	10.6	142.3	4.5	150.6	9.4	168.6	12.0	152.2	8.9	153.9	8.4
1976	170.5	5.8	177.4	3.1	174.6	6.1	147.6	3.7	165.5	9.9	184.7	9.5	159.8	5.0	162.7	5.7
1977	181.5	6.5	188.0	6.0	186.5	6.8	154.2	4.5	177.2	7.1	202.4	9.6	167.7	4.9	172.2	5.8
1978	195.3	7.6	206.2	9.7	202.6	8.6	159.5	3.4	185.8	4.9	219.4	8.4	176.2	5.1	183.2	6.4
1979	217.7	11.5	228.7	10.9	227.5	12.3	166.4	4.3	212.8	14.5	240.1	9.4	187.6	6.5	196.3	7.2
1980	247.0	13.5	248.7	8.7	263.2	15.7	177.4	6.6	250.5	17.7	267.2	11.3	203.7	8.5	213.6	8.8

23. Consumer Price Index for All Urban Consumers and revised CPI for Urban Wage Earners and Clerical Workers, U.S. city average—general summary and groups, subgroups, and selected items

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)							
	1980		1981					1980		1981					
	Aug.	Mar.	Apr.	May	June	July	Aug.	Aug.	Mar.	Apr.	May	June	July	Aug.	
All items	249.4	265.1	266.8	269.0	271.3	274.4	276.5	249.6	265.2	266.8	269.1	271.4	274.6	276.5	
Food and beverages	252.0	265.0	265.7	265.4	266.5	268.9	270.1	252.5	265.5	266.1	265.9	267.0	269.4	270.6	
Housing	265.8	282.6	284.8	288.5	292.2	297.0	299.7	265.8	282.2	284.3	288.1	291.9	297.0	299.6	
Apparel and upkeep	178.6	185.1	186.4	186.4	185.8	184.7	187.4	177.9	184.3	186.0	186.2	185.8	185.5	187.9	
Transportation	252.7	273.5	275.3	277.8	279.9	282.6	283.7	253.5	274.4	276.3	278.9	281.0	283.9	285.1	
Medical care	268.4	284.7	287.0	289.0	291.5	295.6	299.3	270.0	287.0	289.1	290.8	292.9	295.4	298.6	
Entertainment	208.0	218.2	219.2	220.3	220.8	221.1	222.3	205.6	216.1	217.0	217.7	218.3	218.7	219.9	
Other goods and services	214.5	228.7	229.9	232.2	233.4	234.4	235.6	214.0	226.8	227.9	230.4	231.4	232.4	233.5	
Commodities	236.7	249.8	250.8	251.9	253.2	255.0	256.2	236.9	250.2	251.2	252.4	253.8	255.7	256.9	
Commodities less food and beverages	226.0	239.0	240.0	241.7	243.1	244.7	245.8	226.2	239.4	240.5	242.3	243.8	245.5	246.7	
Nondurables less food and beverages	242.6	263.1	263.8	263.8	263.5	262.9	263.9	244.8	265.7	266.5	266.6	266.3	266.0	266.8	
Durables	212.4	219.8	221.1	223.9	226.6	229.6	230.9	210.5	217.8	219.3	222.4	225.2	228.4	229.9	
Services	272.5	292.5	295.4	299.6	303.5	308.8	312.2	273.3	293.1	295.9	300.0	303.9	309.6	312.7	
Rent, residential	193.2	203.0	204.2	205.9	206.8	207.8	210.3	193.0	202.7	203.9	205.5	206.4	207.4	209.9	
Household services less rent	321.5	348.8	353.3	360.4	366.7	374.8	379.9	324.2	351.8	356.2	363.5	370.1	379.4	384.2	
Transportation services	246.4	262.5	264.4	266.6	269.6	275.0	275.7	246.3	261.3	263.1	265.5	268.2	273.8	274.3	
Medical care services	289.8	307.5	309.8	311.7	314.4	319.2	323.4	291.7	310.2	312.2	313.6	315.8	318.5	322.1	
Other services	219.2	233.2	234.4	235.3	236.3	237.6	239.1	219.5	233.0	233.8	234.5	235.6	236.8	238.3	
Special indexes:															
All items less food	246.3	262.3	264.2	267.0	269.5	272.7	274.9	246.6	262.6	264.4	267.2	269.7	273.1	275.2	
All items less mortgage interest costs	239.0	252.3	253.6	255.2	256.9	259.3	260.9	239.6	252.9	254.2	255.8	257.5	260.0	261.5	
Commodities less food	224.2	237.0	238.0	239.6	241.1	242.6	243.8	224.4	237.4	238.6	240.3	241.8	243.5	244.7	
Nondurables less food	237.8	257.5	258.1	258.2	258.0	257.5	258.4	239.9	259.9	260.7	260.9	260.7	260.4	261.2	
Nondurables less food and apparel	270.9	297.3	297.7	298.0	298.0	297.8	298.0	272.9	299.5	299.9	300.1	300.0	299.8	300.0	
Nondurables	248.3	265.2	265.9	265.8	266.2	267.1	268.1	249.6	266.6	267.3	267.2	267.6	268.7	269.7	
Services less rent	287.4	309.5	312.8	317.4	321.9	328.1	331.7	288.6	310.4	313.5	318.2	322.6	329.3	332.6	
Services less medical care	268.7	288.9	291.8	296.2	300.1	305.4	308.8	269.4	289.2	292.0	296.4	300.4	306.3	309.4	
Domestically produced farm foods	243.5	255.4	255.3	254.7	255.9	259.5	260.6	242.9	254.9	255.0	254.2	255.3	259.0	259.9	
Selected beef cuts	274.5	270.9	267.7	270.9	271.6	275.3	276.7	275.9	273.9	270.7	273.8	274.3	277.9	277.2	
Energy	370.7	409.3	409.8	411.3	414.0	415.7	416.1	374.2	413.7	414.0	414.9	417.3	418.9	418.9	
All items less energy	240.0	253.8	255.6	257.9	260.2	263.5	265.6	239.4	252.9	254.7	257.0	259.3	262.7	264.7	
All items less food and energy	234.3	248.1	250.1	253.0	255.6	259.0	261.3	233.4	246.9	248.9	251.9	254.5	258.1	260.3	
Commodities less food and energy	204.3	212.2	213.5	215.7	217.5	219.4	220.9	202.9	210.7	212.2	214.6	216.6	218.7	220.2	
Energy commodities	404.2	460.0	458.4	455.4	453.1	451.3	449.9	405.5	460.9	459.3	456.0	453.7	451.9	450.6	
Services less energy	269.0	289.9	292.7	296.5	299.8	304.9	308.3	269.9	290.6	293.2	297.0	300.2	305.7	308.9	
Purchasing power of the consumer dollar, 1967 = \$1	\$0.401	\$0.377	\$0.375	\$0.372	\$0.369	\$0.364	\$0.362	\$0.401	\$0.377	\$0.375	\$0.372	\$0.368	\$0.364	\$0.362	

23. Continued—Consumer Price Index—U.S. city average

[1967=100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980		1981					1980		1981				
	Aug.	Mar.	Apr.	May	June	July	Aug.	Aug.	Mar.	Apr.	May	June	July	Aug.
FOOD AND BEVERAGES	252.0	265.0	265.7	265.4	266.5	268.9	270.1	252.5	265.5	266.1	265.9	267.0	269.4	270.6
Food	258.7	272.2	272.9	272.5	273.6	276.2	277.4	259.2	272.6	273.2	272.9	274.0	276.6	277.7
Food at home	256.3	268.6	268.7	267.7	268.7	271.6	272.8	255.6	268.1	268.2	267.2	268.2	271.1	272.2
Cereals and bakery products	249.2	266.7	268.3	270.0	271.5	272.4	272.6	249.6	266.5	268.0	269.4	270.7	271.5	272.0
Cereals and cereal products (12/77 = 100)	136.3	145.2	145.4	146.8	148.3	149.0	149.5	136.8	146.5	146.9	148.4	150.0	150.6	151.3
Flour and prepared flour mixes (12/77 = 100)	133.6	138.5	137.1	138.8	139.0	139.5	139.6	133.9	139.4	139.2	140.3	141.4	141.9	142.0
Cereal (12/77 = 100)	137.6	146.9	147.8	149.8	152.4	153.4	154.6	137.7	148.5	148.9	151.3	154.0	154.8	156.4
Rice, pasta, and cornmeal (12/77 = 100)	136.8	148.9	149.5	149.8	150.9	151.2	151.4	138.4	150.5	151.4	152.0	152.7	153.2	153.1
Bakery products (12/77 = 100)	130.4	139.7	140.8	141.5	142.1	142.5	142.4	130.5	139.2	140.1	140.6	141.0	141.4	141.5
White bread	217.9	232.9	233.2	235.1	236.0	236.4	235.6	217.2	231.2	232.1	233.2	233.1	233.9	233.0
Other breads (12/77 = 100)	129.7	137.9	139.5	139.3	140.2	140.6	140.8	133.3	140.3	141.2	141.7	142.5	142.9	143.4
Fresh biscuits, rolls, and muffins (12/77 = 100)	130.0	140.1	140.4	141.5	141.7	142.4	143.4	128.9	138.4	138.7	139.6	139.7	141.7	141.0
Fresh cakes and cupcakes (12/77 = 100)	129.8	140.0	142.1	142.3	142.3	142.7	142.7	129.4	139.5	140.8	141.2	141.2	141.4	141.2
Cookies (12/77 = 100)	128.7	139.7	141.2	141.8	143.3	143.0	143.1	130.1	140.6	141.8	142.1	143.3	142.6	144.1
Crackers and bread and cracker products (12/77 = 100)	124.6	129.1	130.9	128.2	130.7	131.6	130.6	124.7	129.6	131.1	128.9	131.5	131.2	130.9
Fresh sweetrolls, coffeecake, and donuts (12/77 = 100)	131.4	141.1	141.7	142.8	142.9	143.9	143.9	131.6	140.7	141.7	142.5	142.3	142.8	143.4
Frozen and refrigerated bakery products and fresh pies, tarts, and turnovers (12/77 = 100)	131.4	141.9	144.0	147.0	146.1	147.2	147.1	129.2	137.6	139.0	140.1	140.3	140.9	141.5
Meats, poultry, fish, and eggs	245.4	250.5	247.7	247.0	248.7	254.1	255.8	244.3	249.9	247.1	246.3	248.4	254.1	255.5
Meats, poultry, and fish	251.0	256.2	253.0	253.2	255.0	260.7	262.2	249.8	255.7	252.2	252.4	254.5	260.5	261.8
Meats	251.1	254.4	251.0	252.3	254.2	259.6	262.0	250.0	254.2	250.7	251.7	253.9	259.7	261.3
Beef and veal	273.1	270.3	267.4	270.3	271.1	274.5	275.9	274.1	272.6	269.5	272.5	273.0	276.5	275.9
Ground beef other than canned	272.9	269.7	264.8	264.1	264.6	264.5	267.4	275.6	272.9	269.0	267.8	267.9	267.9	269.4
Chuck roast	279.8	284.1	281.4	280.3	281.0	283.5	285.3	287.9	295.6	291.8	290.9	288.9	295.5	295.5
Round roast	248.8	243.9	242.8	246.8	246.2	245.6	247.2	248.2	248.8	247.5	249.4	249.5	248.8	247.3
Round steak	258.0	256.1	252.9	256.0	255.1	258.9	256.0	256.4	253.3	251.3	253.7	253.6	257.0	251.5
Sirloin steak	274.1	259.8	261.5	271.4	274.6	284.3	282.2	278.8	264.5	262.7	275.3	278.7	285.6	279.2
Other beef and veal (12/77 = 100)	159.0	157.8	156.1	159.2	159.9	163.5	164.3	157.6	156.7	154.9	158.5	159.2	162.4	162.6
Pork	212.0	221.6	217.4	217.3	221.2	231.5	235.3	212.0	221.3	216.7	216.3	221.3	232.6	236.5
Bacon	201.5	218.5	209.0	212.7	216.5	228.1	231.1	205.6	221.6	210.0	215.2	220.5	230.5	234.5
Chops	199.9	209.3	209.2	203.7	209.8	221.8	224.1	198.5	206.9	206.3	201.5	208.8	222.4	224.4
Ham other than canned (12/77 = 100)	98.4	98.7	95.2	97.2	98.0	102.0	105.3	96.3	96.3	92.6	93.8	95.1	100.4	103.7
Sausage	262.5	281.0	277.4	277.7	278.9	289.7	297.2	263.6	282.7	280.1	278.5	278.7	293.4	298.6
Canned ham	217.0	236.6	230.1	230.5	229.8	233.0	234.9	219.1	237.9	230.8	231.4	230.1	234.4	238.0
Other pork (12/77 = 100)	123.1	124.2	123.4	122.7	126.7	133.6	135.0	122.7	124.3	123.8	122.4	127.7	134.5	136.3
Other meats	247.8	258.5	255.4	253.9	255.9	258.4	261.4	244.1	256.0	253.4	250.6	253.1	255.6	259.6
Frankfurters	245.8	257.8	253.5	247.6	250.7	251.8	259.8	245.9	257.2	252.8	247.0	249.8	251.9	260.4
Bologna, liverwurst, and salami (12/77 = 100)	138.5	147.0	143.5	143.0	143.9	145.9	147.0	134.5	144.7	142.6	140.6	141.9	144.6	145.7
Other luncheats (12/77 = 100)	123.7	128.1	127.9	126.9	127.6	129.1	130.6	121.5	126.4	126.4	124.8	126.0	126.5	128.8
Lamb and organ meats (12/77 = 100)	140.4	144.7	143.1	145.3	146.5	147.6	146.8	140.8	146.0	143.8	145.9	147.1	148.9	148.3
Poultry	197.5	201.6	196.8	194.7	196.8	204.8	202.0	195.1	200.6	194.6	192.5	194.4	203.1	201.2
Fresh whole chicken	205.3	203.1	198.0	190.3	193.8	206.9	201.4	199.9	200.9	194.1	187.0	190.3	202.9	199.6
Fresh and frozen chicken parts (12/77 = 100)	127.8	131.6	127.5	127.5	128.3	133.0	131.8	128.1	130.1	125.8	126.6	127.0	133.3	131.6
Other poultry (12/77 = 100)	120.3	127.6	125.9	128.3	128.9	130.0	129.7	119.1	128.9	126.3	127.5	128.2	129.3	129.9
Fish and seafood	331.8	358.8	359.7	353.2	352.1	356.9	356.8	327.3	351.5	353.7	349.9	349.8	353.5	356.4
Canned fish and seafood (12/77 = 100)	131.2	138.9	138.8	139.2	139.3	140.6	139.8	129.3	136.2	136.6	137.8	137.9	139.0	138.5
Fresh and frozen fish and seafood (12/77 = 100)	123.6	135.3	135.9	131.8	131.0	133.1	133.6	121.8	132.5	133.6	130.5	130.4	131.9	134.1
Eggs	178.3	180.5	184.3	170.5	172.1	174.2	177.6	177.1	180.5	185.5	171.5	173.0	175.0	177.7
Dairy products	229.7	242.6	243.5	243.8	243.8	244.2	243.8	229.9	242.7	243.8	243.9	243.9	243.9	243.9
Fresh milk and cream (12/77 = 100)	127.9	134.3	134.6	134.9	134.8	134.9	134.5	128.0	134.1	134.7	134.7	134.5	134.4	134.3
Fresh whole milk	209.8	219.9	220.4	220.8	220.7	220.7	220.2	209.7	219.4	220.2	220.4	220.0	219.9	219.8
Other fresh milk and cream (12/77 = 100)	127.1	134.4	134.5	134.7	134.6	134.9	134.2	127.6	134.5	135.2	134.8	135.1	134.5	134.4
Processed dairy products (12/77 = 100)	132.5	141.1	142.0	141.9	142.0	142.5	142.5	132.9	141.8	142.6	142.6	142.9	143.1	143.3
Butter	231.2	243.0	244.3	245.2	245.1	245.8	246.2	233.7	246.4	247.7	247.6	248.7	247.7	248.5
Cheese (12/77 = 100)	130.4	139.8	140.6	140.5	140.5	140.7	140.8	130.9	140.0	140.5	140.6	140.9	141.3	141.5
Ice cream and related products (12/77 = 100)	137.0	145.3	146.7	146.2	146.4	147.6	147.9	136.1	146.1	147.8	147.8	147.8	148.0	147.9
Other dairy products (12/77 = 100)	128.3	135.1	135.7	136.1	136.3	136.6	135.6	128.8	136.1	136.1	136.4	136.8	137.2	137.2
Fruits and vegetables	258.4	278.2	281.9	276.8	278.1	284.4	286.1	256.6	275.0	280.0	274.3	275.3	281.7	282.5
Fresh fruits and vegetables	273.0	293.9	296.4	284.4	285.2	294.0	295.8	270.8	289.4	294.5	281.8	281.0	290.2	290.4
Fresh fruits	302.3	265.2	271.6	276.6	278.9	292.1	306.9	300.1	259.0	268.6	271.5	272.1	285.5	298.4
Apples	340.8	227.9	231.1	235.4	239.9	251.9	282.1	342.2	225.7	232.1	232.7	241.0	253.1	284.6
Bananas	234.0	264.1	266.8	266.3	260.5	240.6	245.2	228.0	258.8	262.2	264.2	259.0	233.8	239.9
Oranges	297.1	287.4	287.5	274.1	287.1	327.8	353.7	285.5	268.4	274.3	261.1	274.0	307.0	325.1
Other fresh fruits (12/77 = 100)	158.5	141.1	147.1	154.9	154.4	160.4	163.5	157.9	139.9	147.6	153.3	149.9	158.9	160.5
Fresh vegetables	245.6	320.8	319.6	291.7	291.1	295.9	285.5	244.4	316.9	318.0	291.1	289.0	294.4	283.2
Potatoes	327.1	363.9	378.1	384.4	414.3	414.9	375.1	325.4	359.6	369.8	378.1	402.7	404.2	362.8
Lettuce	213.1	225.2	226.9	255.5	238.7	261.3	290.6	209.3	219.3	231.5	255.6	237.1	259.2	290.0
Tomatoes	205.4	367.8	375.3	200.2	205.2	194.0	209.9	199.6	354.0	370.7	193.8	200.8	195.5	211.0
Other fresh vegetables (12/77 = 100)	126.2													

23. Continued—Consumer Price Index—U.S. city average

[1967=100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1980		1981				1980		1981					
	Aug.	Mar.	Apr.	May	June	July	Aug.	Aug.	Mar.	Apr.	May	June	July	Aug.
FOOD AND BEVERAGES—Continued														
Food—Continued														
Food at home—Continued														
Fruits and vegetables—Continued														
Cut corn and canned beans except lima (12/77=100)	119.4	128.4	130.2	131.5	134.6	136.0	137.4	118.1	126.3	129.0	130.1	133.6	134.8	135.4
Other canned and dried vegetables (12/77=100)	118.0	126.4	128.7	129.8	131.4	134.6	135.4	116.4	125.3	127.1	128.0	129.7	132.8	133.7
Other foods at home	307.8	324.1	324.7	323.7	323.6	323.3	325.1	307.4	325.2	325.4	324.8	324.5	324.2	326.1
Sugar and sweets	355.1	383.2	375.8	367.1	361.3	360.0	361.3	356.6	384.6	377.8	368.1	363.0	362.8	362.7
Candy and chewing gum (12/77=100)	132.6	142.8	144.1	145.1	145.2	145.9	146.1	133.2	143.6	145.1	145.8	146.5	147.3	147.4
Sugar and artificial sweeteners (12/77=100)	194.6	209.7	195.5	178.4	168.2	164.6	164.3	195.1	209.6	196.0	179.2	169.3	166.6	165.3
Other sweets (12/77=100)	128.3	139.3	139.8	141.4	142.6	142.9	145.0	126.9	138.2	137.7	139.7	140.8	141.8	142.9
Fats and oils (12/77=100)	242.0	268.9	270.1	270.7	269.6	269.0	269.2	242.4	270.5	270.4	270.9	269.5	269.0	268.7
Margarine	249.3	255.7	256.1	256.1	256.1	255.9	258.2	251.5	257.7	256.1	256.7	256.0	256.6	255.7
Nondairy substitutes and peanut butter (12/77=100)	124.7	179.3	182.4	182.7	181.8	181.0	179.8	124.8	180.0	182.3	181.6	180.5	179.4	178.8
Other fats, oils, and salad dressings (12/77=100)	126.2	129.9	129.8	130.4	129.6	129.4	129.4	125.7	130.3	129.7	130.4	129.6	129.4	129.6
Nonalcoholic beverages	402.8	412.2	414.4	412.3	412.8	410.3	413.1	403.0	415.4	415.8	414.6	414.6	411.3	415.2
Cola drinks, excluding diet cola	275.2	295.9	298.0	295.7	297.0	294.7	298.2	274.7	295.4	294.9	293.7	294.1	290.8	296.6
Carbonated drinks, including diet cola (12/77=100)	131.3	140.5	141.8	140.6	140.8	139.6	141.5	128.8	138.7	139.8	139.4	139.3	138.3	138.9
Roasted coffee	433.9	359.4	356.7	354.4	353.1	351.4	346.0	430.4	355.0	352.5	350.5	348.5	346.6	342.8
Freeze dried and instant coffee	380.3	340.8	339.5	339.1	335.2	334.3	333.3	379.7	343.9	340.9	340.2	337.1	334.9	333.8
Other noncarbonated drinks (12/77=100)	123.1	132.4	133.5	134.0	134.5	134.2	134.9	122.3	132.7	133.5	133.9	134.4	134.0	133.0
Other prepared foods	234.9	249.4	251.2	252.9	254.4	256.3	257.9	234.2	250.0	252.4	254.7	255.8	257.9	259.7
Canned and packaged soup (12/77=100)	123.7	128.4	129.3	131.5	132.6	133.2	133.6	124.2	129.2	129.8	132.1	133.5	134.5	134.8
Frozen prepared foods (12/77=100)	134.6	142.3	142.3	141.6	142.2	143.7	143.5	131.7	139.6	139.8	139.6	140.8	142.3	142.5
Snacks (12/77=100)	129.3	143.9	145.6	145.9	147.2	147.5	148.8	129.9	145.5	148.1	149.1	149.1	150.0	151.5
Seasonings, olives, pickles, and relish (12/77=100)	129.4	139.1	139.9	140.0	141.1	142.0	144.4	127.8	137.9	138.7	139.3	140.3	141.4	142.8
Other condiments (12/77=100)	131.8	138.1	139.2	141.1	140.8	142.3	142.9	133.4	140.0	141.7	143.6	143.2	144.4	145.6
Miscellaneous prepared foods (12/77=100)	130.9	135.9	136.7	138.6	139.3	140.7	142.0	130.2	136.2	137.7	139.6	139.9	141.0	142.1
Other canned and packaged prepared foods (12/77=100)	127.5	134.1	135.1	136.6	137.7	139.0	139.5	126.8	134.4	135.9	137.2	138.5	139.8	140.8
Food away from home	269.5	286.1	288.2	289.3	290.6	292.4	293.7	272.8	288.6	290.7	291.9	293.5	295.2	296.4
Lunch (12/77=100)	131.2	139.2	140.7	141.0	141.5	142.6	143.2	131.8	140.3	141.4	141.8	142.8	143.6	144.2
Dinner (12/77=100)	130.7	138.8	139.4	139.9	140.7	141.3	141.9	132.8	140.1	141.1	141.7	142.6	143.0	143.7
Other meals and snacks (12/77=100)	130.0	137.9	138.8	139.9	140.3	141.6	142.1	132.3	139.3	140.1	141.1	141.3	142.7	143.1
Alcoholic beverages	188.7	197.1	197.8	199.1	199.8	200.5	201.4	190.6	198.7	199.4	201.2	202.1	202.8	203.8
Alcoholic beverages at home (12/77=100)	123.1	128.1	128.5	129.3	129.7	130.1	130.6	124.6	129.6	130.0	131.1	*131.5	131.9	132.4
Beer and ale	190.1	198.2	199.7	201.4	202.0	201.8	202.6	191.1	198.5	199.8	201.8	202.4	202.4	203.2
Whiskey	136.9	141.6	141.3	142.5	143.0	143.7	144.7	137.8	142.3	142.3	143.2	144.0	144.7	145.6
Wine	213.9	224.3	224.7	223.9	224.6	227.5	227.4	218.1	233.6	233.2	234.3	233.4	236.9	235.5
Other alcoholic beverages (12/77=100)	111.2	115.0	114.9	115.5	116.1	116.3	117.0	111.1	114.0	114.1	114.6	115.7	115.9	117.0
Alcoholic beverages away from home (12/77=100)	123.5	131.1	131.6	132.6	133.1	134.1	134.7	123.6	129.9	130.6	132.0	133.4	134.0	135.4
HOUSING	265.8	282.6	284.8	288.5	292.2	297.0	299.7	265.8	282.2	284.3	288.1	291.9	297.0	299.6
Shelter	283.3	301.6	303.8	308.4	312.6	318.5	322.0	284.8	302.6	304.6	309.4	313.7	320.2	323.6
Rent, residential	193.2	203.0	204.2	205.9	206.8	207.8	210.3	193.0	202.7	203.9	205.5	206.4	207.4	209.9
Other rental costs	267.5	283.6	285.9	286.4	289.5	293.6	298.5	267.3	283.5	285.8	286.1	289.7	293.3	299.0
Lodging while out of town	286.4	304.8	307.5	307.2	311.8	318.3	325.7	285.1	303.2	306.0	305.5	310.6	316.3	324.4
Tenants' insurance (12/77=100)	122.2	130.1	131.2	131.9	133.1	133.3	133.9	122.7	130.8	131.6	132.3	133.4	133.7	134.5
Homeownership	315.4	336.8	339.3	345.0	350.4	358.0	361.8	318.1	338.8	341.1	347.1	352.7	361.2	364.8
Home purchase	258.1	261.1	260.7	263.0	266.6	271.4	272.6	258.6	260.2	259.7	262.2	266.2	271.2	272.3
Financing, taxes, and insurance	393.6	441.1	447.1	458.3	467.2	480.0	488.3	398.8	446.4	452.6	464.3	473.8	486.9	495.3
Property insurance	355.9	375.6	378.5	388.7	386.6	387.1	389.0	357.9	379.9	382.5	387.1	388.1	388.3	390.5
Property taxes	190.3	199.0	199.9	199.8	200.3	201.4	205.2	192.0	201.0	201.7	201.7	202.2	203.2	207.1
Contracted mortgage interest cost	501.8	570.9	579.8	596.9	610.4	630.1	641.3	504.2	572.0	580.9	598.6	612.9	632.6	643.8
Mortgage interest rates	192.0	216.0	219.5	224.0	226.4	239.4	232.4	192.5	216.7	220.3	224.9	227.2	230.3	233.3
Maintenance and repairs	288.5	306.1	309.3	312.9	315.5	319.3	320.5	287.7	302.7	304.5	307.3	308.2	316.2	315.8
Maintenance and repair services	312.4	332.6	337.0	341.2	344.4	349.0	350.6	312.1	331.3	334.1	337.6	338.7	350.5	349.5
Maintenance and repair commodities	232.7	243.9	244.4	246.3	247.6	249.3	249.5	233.2	239.9	239.7	241.1	241.5	242.4	243.1
Paint and wallpaper, supplies, tools, and equipment (12/77=100)	134.4	143.7	143.4	143.9	145.3	146.7	146.9	133.1	138.5	136.8	137.7	138.4	138.2	139.2
Lumber, awnings, glass, and masonry (12/77=100)	120.1	123.3	124.3	125.1	124.7	125.0	124.2	120.4	122.4	123.1	123.7	122.7	123.0	122.0
Plumbing, electrical, heating, and cooling supplies (12/77=100)	122.7	127.6	127.9	130.7	131.2	132.7	132.0	126.6	127.8	127.9	128.1	128.5	130.1	130.6
Miscellaneous supplies and equipment (12/77=100)	122.1	125.9	126.4	127.6	128.5	129.2	130.5	123.9	128.8	129.9	130.8	131.7	132.5	133.3
Fuel and other utilities	286.8	308.4	310.5	314.9	320.2	325.1	327.8	287.4	309.4	311.4	315.7	321.2	326.4	328.7
Fuels	362.5	393.7	396.5	403.3	411.7	417.2	419.5	362.1	393.4	396.2	402.5	411.2	417.0	418.7
Fuel oil, coal, and bottled gas	561.5	693.4	690.6	685.8	682.0	677.9	674.6	562.7	696.3	693.7	688.6	685.1	681.1	677.9
Fuel oil	586.1	730.9	727.0	720.6	715.7	711.0	707.3	586.4	733.2	729.4	723.1	718.4	713.8	710.2
Other fuels (6/78=100)	140.8	161.5	162.5	163.6	164.3	164.0	163.6	142.5	162.9	164.2	164.7	165.5	165.4	165.1
Gas (piped) and electricity	316.1	326.7	330.6	339.6	350.2	357.6	360.8	315.4	325.9	329.6	338.1	349.0	356.7	359.4
Electricity	268.3	273.9	277.3	281.9	296.7	306.2	311.9	268.6	273.5	276.8	281.2	296.6	306.2	312.1
Utility (piped) gas	375.2	395.2	399.4	416.5	416.9	418.6	416.2	372.0	392.8	397.2	413.0	413.2	415.8	411.2

23. Continued—Consumer Price Index—U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980		1981					1980		1981				
	Aug.	Mar.	Apr.	May	June	July	Aug.	Aug.	Mar.	Apr.	May	June	July	Aug.
HOUSING—Continued														
Fuel and other utilities—Continued														
Other utilities and public services	166.5	174.0	175.1	176.2	177.1	180.8	183.7	166.4	174.4	175.4	176.6	177.3	181.3	184.3
Telephone services	136.5	142.5	143.4	144.0	143.5	147.2	149.2	136.4	142.6	143.4	144.1	143.6	147.5	149.5
Local charges (12/77 = 100)	105.4	113.6	114.8	115.5	114.9	116.7	117.3	105.2	113.7	114.9	115.7	115.1	116.9	117.6
Interstate toll calls (12/77 = 100)	101.9	101.8	101.8	101.8	101.8	109.1	113.4	101.9	101.9	101.9	101.9	101.9	109.6	113.8
Intrastate toll calls (12/77 = 100)	99.9	101.2	101.4	101.7	101.5	101.5	101.8	99.7	101.0	101.2	101.5	101.3	101.3	101.6
Water and sewerage maintenance	263.5	277.1	278.4	282.3	291.2	294.0	299.2	264.5	279.0	280.3	284.7	292.5	295.8	301.4
Household furnishings and operations	207.2	216.9	219.2	220.1	221.1	222.4	222.9	204.5	213.7	215.9	216.8	217.8	219.1	219.8
Housefurnishings	175.2	182.6	183.9	184.2	185.2	186.0	186.2	173.5	180.2	181.6	182.1	182.8	184.1	184.5
Textile housefurnishings	189.1	199.8	200.5	198.3	202.5	202.9	203.4	189.6	201.4	202.9	202.3	204.4	206.2	207.3
Household linens (12/77 = 100)	114.1	123.1	123.0	122.3	125.1	123.3	124.6	114.7	124.1	125.0	124.7	125.7	126.0	126.8
Curtains, drapes, slipcovers, and sewing materials (12/77 = 100)	121.9	126.1	127.1	125.0	127.4	129.8	129.1	122.4	127.2	128.2	127.7	129.5	131.5	132.1
Furniture and bedding	192.6	201.6	203.7	204.2	204.6	206.0	205.4	189.9	198.0	200.0	200.6	200.1	202.3	201.4
Bedroom furniture (12/77 = 100)	125.8	133.2	134.5	133.4	134.6	135.0	135.9	123.6	129.4	130.7	129.2	129.2	130.7	132.2
Sofas (12/77 = 100)	111.3	115.8	116.5	117.0	116.2	117.6	116.0	110.4	114.1	114.9	115.8	116.0	116.2	115.0
Living room chairs and tables (12/77 = 100)	111.6	116.5	116.6	117.5	116.9	117.9	116.7	112.3	116.7	117.6	119.1	118.2	119.5	116.9
Other furniture (12/77 = 100)	125.7	130.8	133.4	134.7	135.4	136.2	135.9	122.5	128.3	130.1	131.2	130.5	132.9	132.2
Appliances including TV and sound equipment	141.4	144.2	145.3	145.5	146.3	147.1	147.3	140.6	143.4	144.2	144.4	145.6	146.3	146.6
Television and sound equipment (12/77 = 100)	106.6	108.0	108.6	108.3	108.2	108.8	108.6	105.2	106.4	107.1	106.9	107.3	107.7	107.8
Television	105.0	105.6	106.0	105.4	105.3	105.6	105.0	103.3	104.3	104.7	104.4	104.3	104.5	104.2
Sound equipment (12/77 = 100)	109.1	111.2	112.1	112.1	111.9	112.7	112.8	107.9	109.3	110.2	110.1	110.9	111.4	110.9
Household appliances	164.6	168.9	170.4	171.3	173.2	174.2	174.9	164.5	169.0	169.9	170.6	172.6	173.6	174.1
Refrigerators and home freezers	164.4	168.5	170.6	170.9	172.4	174.2	175.8	168.0	172.7	174.7	175.8	177.1	178.1	178.9
Laundry equipment (12/77 = 100)	120.2	124.5	126.1	126.2	128.0	128.1	129.2	120.1	124.3	125.7	125.3	127.1	128.3	129.1
Other household appliances (12/77 = 100)	113.3	115.9	116.6	117.6	118.9	119.6	119.5	112.0	114.5	114.4	115.2	116.6	117.1	117.0
Stoves, dishwashers, vacuums, and sewing machines (12/77 = 100)	111.8	115.1	115.8	117.2	118.4	119.2	118.5	111.4	115.2	113.9	115.1	116.5	117.1	116.4
Office machines, small electric appliances, and air conditioners (12/77 = 100)	115.1	116.9	117.4	118.0	119.4	120.1	120.6	112.6	113.7	115.0	115.3	116.7	117.1	117.7
Other household equipment (12/77 = 100)	121.7	129.1	130.0	130.7	131.0	131.2	131.7	120.5	126.9	127.9	129.0	129.3	129.8	131.0
Floor and window coverings, infants', laundry, cleaning, and outdoor equipment (12/77 = 100)	121.7	130.7	131.4	132.2	132.1	132.4	133.4	115.3	123.2	124.4	125.1	125.3	127.1	129.3
Clocks, lamps, and decor items (12/77 = 100)	119.8	125.7	125.6	124.4	124.6	125.0	125.8	117.1	121.7	120.9	120.9	121.9	122.9	122.5
Tableware, serving pieces, and nonelectric kitchenware (12/77 = 100)	125.8	135.6	137.1	138.8	139.5	139.5	138.9	125.1	132.1	134.1	136.0	136.0	136.4	137.0
Lawn equipment, power tools, and other hardware (12/77 = 100)	117.1	120.8	121.5	122.5	122.6	122.7	124.0	119.6	125.1	125.9	127.0	127.1	126.7	128.8
Housekeeping supplies	249.9	264.2	266.9	269.0	269.8	271.5	272.0	247.8	261.2	263.4	265.5	266.9	267.9	268.6
Soaps and detergents	240.1	255.3	259.4	262.6	266.0	266.5	267.0	236.8	253.8	256.7	260.2	263.6	263.1	263.6
Other laundry and cleaning products (12/77 = 100)	124.4	129.7	131.0	132.8	133.4	134.8	134.8	123.9	130.3	130.4	131.5	132.3	133.6	134.7
Cleansing and toilet tissue, paper towels and napkins (12/77 = 100)	132.2	137.9	138.4	137.8	137.6	138.8	138.4	135.1	138.1	138.5	137.9	138.2	139.0	138.7
Stationery, stationery supplies, and gift wrap (12/77 = 100)	117.4	122.3	123.1	125.1	125.8	126.6	126.6	117.4	123.7	124.8	126.8	127.2	127.9	128.2
Miscellaneous household products (12/77 = 100)	127.7	137.3	138.1	138.4	139.5	140.5	141.7	125.5	133.2	134.5	135.0	136.1	136.6	136.9
Lawn and garden supplies (12/77 = 100)	127.5	136.6	139.1	140.6	138.4	138.8	139.2	121.4	128.5	131.1	132.4	131.3	131.7	131.8
Housekeeping services	271.6	284.8	289.9	291.6	292.9	295.3	296.9	269.0	283.3	288.6	289.9	291.7	293.4	295.1
Postage	257.3	274.3	308.0	308.0	308.0	308.0	308.0	257.3	274.2	308.1	308.1	308.1	308.1	308.1
Moving, storage, freight, household laundry, and drycleaning services (12/77 = 100)	131.3	139.0	140.7	141.6	141.9	143.1	143.9	129.7	139.0	140.2	140.7	141.8	142.8	143.8
Appliance and furniture repair (12/77 = 100)	119.4	124.5	125.2	125.9	126.3	127.8	128.5	118.3	123.8	124.3	124.6	125.4	126.4	127.2
APPAREL AND UPKEEP	178.6	185.1	186.4	186.4	185.8	184.7	187.4	177.9	184.3	186.0	186.2	185.8	185.5	187.9
Apparel commodities	171.0	176.3	177.6	177.2	176.4	175.1	178.0	170.7	175.8	177.5	177.6	177.0	176.6	179.0
Apparel commodities less footwear	167.8	172.7	174.0	173.3	172.5	171.2	174.3	167.3	172.3	173.9	173.8	173.0	172.8	175.2
Men's and boys'	167.9	175.0	175.6	176.8	176.6	175.6	177.6	168.4	174.9	176.1	177.3	177.2	176.9	178.4
Men's (12/77 = 100)	105.6	110.2	110.5	111.2	111.0	110.3	111.7	106.1	110.1	110.9	111.8	111.6	111.6	112.8
Suits, sport coats, and jackets (12/77 = 100)	99.2	103.2	104.1	104.7	104.3	102.5	105.6	95.2	98.5	98.3	99.3	98.4	97.4	99.7
Coats and jackets (12/77 = 100)	96.7	97.9	98.1	97.9	98.1	96.7	97.7	98.0	98.9	99.6	100.5	101.2	100.8	102.4
Furnishings and special clothing (12/77 = 100)	119.3	127.2	127.5	129.2	129.7	129.6	129.5	116.3	121.5	122.7	123.9	124.1	124.8	125.3
Shirts (12/77 = 100)	114.9	118.0	117.0	118.3	117.9	115.5	117.9	115.1	119.2	119.5	120.3	120.4	118.8	122.1
Dungarees, jeans, and trousers (12/77 = 100)	99.5	104.7	105.4	105.5	105.0	106.5	106.6	105.0	110.0	111.5	112.2	111.8	113.2	112.5
Boys' (12/77 = 100)	109.5	113.7	114.5	115.1	115.4	115.1	115.8	108.6	112.9	113.9	114.2	114.3	113.6	113.8
Coats, jackets, sweaters, and shirts (12/77 = 100)	106.0	106.5	107.2	108.8	108.7	107.0	109.2	107.1	109.5	110.9	111.8	109.8	107.6	109.5
Furnishings (12/77 = 100)	114.6	121.2	121.5	121.4	123.9	124.5	124.3	112.9	117.4	118.2	117.4	119.5	120.6	120.3
Suits, trousers, sport coats, and jackets (12/77 = 100)	110.3	116.5	117.4	117.5	117.3	117.7	117.5	108.2	113.9	114.8	114.8	115.9	115.6	114.7
Women's and girls'	153.7	157.5	158.8	157.2	155.4	153.5	157.8	154.1	158.9	160.7	160.0	158.1	157.9	161.2
Women's (12/77 = 100)	101.7	104.4	105.0	103.9	102.7	101.2	104.4	102.5	105.5	106.7	106.2	104.9	104.5	107.1
Coats and jackets	164.0	157.9	157.6	152.8	149.5	153.9	162.1	170.2	156.9	156.8	155.8	148.9	159.0	168.7
Dresses	158.3	166.4	167.8	164.8	163.7	162.2	166.2	151.1	154.3	159.8	159.7	156.6	154.1	153.4
Separates and sportswear (12/77 = 100)	98.5	99.3	100.2	99.0	98.0	95.1	97.4	99.7	101.6	102.6	101.5	101.0	99.1	101.1
Underwear, nightwear, and hosiery (12/77 = 100)	114.2	117.8	119.3	119.7	119.8	120.0	121.2	114.3	117.7	119.1	119.5	120.0	120.1	121.0
Suits (12/77 = 100)	86.5	93.0	91.6	90.7	86.3	87.6	87.0	91.3	100.5	108.0	106.9	103.6	106.0	109.8
Girls' (12/77 = 100)	104.5	106.4	108.6	107.9	106.4	106.5	107.9	102.3	106.4	107.8	107.1	106.2	106.9	107.6
Coats, jackets, dresses, and suits (12/77 = 100)	103.4	101.2	106.4	104.1	100.4	100.0	101.6	95.5	98.4	101.3	98.8	98.1	98.9	101.5
Separates and sportswear (12/77 = 100)	102.0	106.2	106.8	106.9	105.9	106.1	108.7	100.7	109.1	109.5	109.6	108.1	108.9	108.9
Underwear, nightwear, hosiery, and accessories (12/77 = 100)	111.2	115.6	115.5	116.1	117.2	117.6	117.0	109.6	114.6	115.4	115.9	116.2	116.3	115.1

23. Continued—Consumer Price Index—U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980	1981						1980	1981					
	Aug.	Mar.	Apr.	May	June	July	Aug.	Aug.	Mar.	Apr.	May	June	July	Aug.
APPAREL AND UPKEEP—Continued														
Apparel commodities—Continued														
Apparel commodities less footwear—Continued														
Infants and toddlers	243.9	255.3	259.2	256.9	260.0	259.8	263.6	252.6	266.4	269.3	269.9	273.0	272.9	279.3
Other apparel commodities	209.9	212.2	214.1	212.1	212.2	212.4	214.0	204.1	204.5	205.6	204.1	204.8	204.8	206.1
Sewing materials and notions (12/77 = 100)	110.2	113.3	114.8	114.3	114.5	115.3	117.5	110.0	113.3	114.3	113.4	113.2	113.6	115.3
Jewelry and luggage (12/77 = 100)	146.5	147.3	148.4	146.8	146.8	146.6	147.2	142.0	140.9	141.4	140.5	141.2	141.0	141.4
Footwear	190.3	197.4	199.3	201.0	200.4	199.0	200.0	190.0	195.9	198.4	200.0	200.6	199.2	200.8
Men's (12/77 = 100)	121.3	125.2	126.8	127.8	127.7	128.0	128.3	123.4	125.4	128.0	128.7	129.5	129.5	129.8
Boys' and girls' (12/77 = 100)	122.8	127.6	128.2	129.3	129.1	130.1	129.1	123.9	127.3	126.7	127.7	128.6	128.7	130.4
Women's (12/77 = 100)	115.4	120.0	121.3	122.4	121.6	118.7	120.6	111.7	117.0	119.3	120.5	120.2	117.8	118.9
Apparel services	235.4	252.4	254.3	256.4	257.8	258.9	260.2	233.7	251.5	252.7	254.2	255.7	256.3	258.2
Laundry and drycleaning other than coin operated (12/77 = 100)	138.3	149.6	150.9	152.2	153.2	153.8	154.7	138.4	149.3	150.4	151.5	152.5	153.1	153.9
Other apparel services (12/77 = 100)	126.9	133.7	134.5	135.6	136.0	136.7	137.2	125.0	133.9	134.0	134.5	135.0	135.1	136.5
TRANSPORTATION	252.7	273.5	275.3	277.8	279.9	282.6	283.7	253.5	274.4	276.3	278.9	281.0	283.9	285.1
Private	251.6	271.7	273.4	276.0	277.9	279.6	280.5	252.7	273.2	275.1	277.7	279.7	281.6	282.6
New cars	181.1	182.9	186.1	190.9	192.2	192.5	191.9	181.9	182.7	186.2	191.2	192.5	192.9	192.1
Used cars	206.4	235.4	239.1	245.2	252.9	260.3	266.9	206.4	235.4	239.1	245.2	252.9	260.3	266.9
Gasoline	375.9	420.7	419.3	416.5	414.4	412.9	411.7	377.1	422.3	420.8	417.7	415.6	414.0	412.9
Automobile maintenance and repair	271.1	287.7	289.0	290.8	291.9	293.5	295.5	272.2	288.2	289.7	291.3	292.6	293.4	296.1
Body work (12/77 = 100)	133.0	140.3	140.8	141.5	142.3	144.1	145.8	132.4	140.2	140.7	141.3	142.2	143.3	145.4
Automobile drive train, brake, and miscellaneous mechanical repair (12/77 = 100)	129.0	137.7	138.0	138.7	138.9	139.9	140.9	131.5	140.2	140.5	141.2	141.7	141.4	142.6
Maintenance and servicing (12/77 = 100)	128.4	134.8	135.5	136.5	137.1	137.4	137.8	128.4	134.7	135.7	136.4	136.9	137.3	138.2
Power plant repair (12/77 = 100)	127.3	137.0	137.8	138.6	139.2	139.9	141.2	127.5	135.9	136.7	137.7	138.3	139.1	140.5
Other private transportation	224.7	234.7	236.3	238.9	241.0	242.9	243.0	226.8	237.3	239.2	241.9	243.9	246.0	245.6
Other private transportation commodities	198.3	206.2	208.1	208.6	208.5	208.8	212.1	200.6	208.0	210.4	211.7	211.1	210.8	213.4
Motor oil, coolant, and other products (12/77 = 100)	136.3	141.6	143.5	143.1	144.5	144.8	146.8	136.1	139.8	140.5	141.4	142.7	143.4	144.1
Automobile parts and equipment (12/77 = 100)	127.0	132.1	133.2	133.6	133.4	133.6	135.7	128.7	133.7	135.4	136.1	135.5	135.2	137.0
Tires	175.9	184.1	185.8	186.4	186.1	185.6	189.3	179.9	186.9	189.6	191.1	189.9	188.4	191.5
Other parts and equipment (12/77 = 100)	126.2	129.2	130.1	130.4	130.2	131.7	132.4	125.2	129.5	130.8	130.7	130.7	132.2	132.9
Other private transportation services	233.9	244.6	246.2	249.4	252.0	254.3	253.6	236.0	247.4	249.2	252.4	255.0	257.7	256.6
Automobile insurance	250.2	254.4	255.7	256.8	257.4	259.8	260.3	249.9	253.9	255.2	256.3	256.9	259.6	260.1
Automobile finance charges (12/77 = 100)	148.2	164.3	166.5	172.9	178.5	180.9	177.3	147.5	163.4	166.3	172.5	177.2	179.9	176.3
Automobile rental, registration, and other fees (12/77 = 100)	114.0	118.2	118.2	117.7	117.8	118.0	119.5	115.4	119.9	119.3	118.1	118.2	118.4	119.5
State registration	146.5	146.9	146.9	147.5	148.0	147.9	147.9	146.5	147.0	147.0	147.7	147.7	147.9	148.0
Drivers' licenses (12/77 = 100)	104.9	105.4	105.5	105.5	105.8	105.9	106.2	104.6	105.1	105.2	105.2	105.6	105.6	105.9
Vehicle inspection (12/77 = 100)	122.8	126.1	126.0	125.8	125.7	128.6	(1)	123.5	126.6	126.5	126.5	126.5	129.3	(1)
Other vehicle-related fees (12/77 = 100)	128.3	138.4	138.4	136.3	136.3	136.6	140.0	136.6	148.9	147.1	142.8	142.6	143.1	145.8
Public	261.5	293.9	297.2	297.7	303.9	323.1	326.5	256.9	285.1	287.7	288.2	293.6	317.7	320.9
Airline fare	289.8	343.7	348.6	348.8	360.7	367.3	371.4	287.9	342.3	346.6	346.7	359.3	365.6	370.0
Inter-city bus fare	297.9	323.2	329.1	333.4	337.6	343.5	347.5	298.0	323.9	329.2	333.0	336.8	343.6	347.3
Intra-city mass transit	234.1	250.8	251.7	251.9	253.5	290.7	294.0	233.8	249.1	249.8	249.9	251.5	291.0	293.9
Taxi fare	266.2	273.8	279.9	280.4	281.7	287.1	288.1	273.0	280.5	287.4	287.9	289.2	295.7	296.7
Inter-city train fare	255.4	276.7	277.2	296.7	304.1	304.6	304.6	255.6	277.1	277.5	298.5	304.6	304.9	305.0
MEDICAL CARE	268.4	284.7	287.0	289.0	291.5	295.6	299.3	270.0	287.0	289.1	290.8	292.9	295.4	298.6
Medical care commodities	170.2	180.7	182.4	184.7	186.3	187.7	189.4	170.8	181.2	183.4	185.9	187.3	189.2	190.6
Prescription drugs	156.4	166.5	168.5	170.4	172.3	173.7	175.4	157.4	166.8	169.2	171.6	173.5	175.0	176.5
Anti-infective drugs (12/77 = 100)	120.5	130.5	130.2	130.3	132.2	133.9	134.8	121.6	131.0	132.4	132.7	134.3	135.8	137.0
Tranquilizers and sedatives (12/77 = 100)	126.1	132.8	134.4	136.0	137.3	138.4	139.6	125.4	131.5	133.3	135.2	136.5	137.6	138.8
Circulatories and diuretics (12/77 = 100)	116.0	122.2	123.9	124.9	125.5	126.5	127.6	118.2	123.7	125.3	126.1	126.8	127.9	128.6
Hormones, diabetic drugs, biologicals, and prescription medical supplies (12/77 = 100)	138.2	148.2	151.2	154.6	157.2	158.1	160.4	137.0	147.8	150.9	154.5	158.1	158.2	160.3
Pain and symptom control drugs (12/77 = 100)	125.2	132.7	134.5	136.5	137.7	139.1	140.2	127.6	134.1	135.8	138.2	138.9	141.8	142.7
Supplements, cough and cold preparations, and respiratory agents (12/77 = 100)	119.9	126.3	128.6	130.2	131.1	131.8	133.1	121.2	126.5	128.8	131.2	132.0	132.5	133.9
Nonprescription drugs and medical supplies (12/77 = 100)	122.6	129.9	130.9	132.6	133.5	134.5	135.6	122.9	130.5	131.9	133.6	134.4	135.8	136.7
Eyeglasses (12/77 = 100)	119.9	124.6	125.1	125.3	125.3	125.8	126.3	118.4	122.6	123.4	124.1	124.7	125.0	125.3
Internal and respiratory over-the-counter drugs	190.4	204.2	205.9	209.1	211.5	213.1	215.5	191.6	205.5	208.0	211.0	212.6	215.4	217.5
Nonprescription medical equipment and supplies (12/77 = 100)	119.9	125.0	126.2	128.6	128.6	129.9	130.4	119.9	127.1	128.2	130.5	130.7	132.2	132.3
Medical care services	289.8	307.5	309.8	311.7	314.4	319.2	323.4	291.7	310.2	312.2	313.6	315.8	318.5	322.1
Professional services	254.7	269.6	271.7	273.8	275.8	280.4	282.9	257.8	274.2	276.2	278.0	279.4	280.8	282.7
Physicians' services	272.2	290.3	292.2	295.5	297.5	300.7	302.7	277.6	296.3	297.9	300.3	302.4	304.7	306.7
Dental services	242.2	254.9	257.1	257.7	260.2	266.5	269.9	244.5	259.8	262.2	263.3	264.0	264.6	266.6
Other professional services (12/77 = 100)	126.0	131.5	132.6	133.7	134.2	136.8	137.3	123.9	129.9	131.3	132.1	132.6	132.7	133.6
Other medical care services	332.3	353.4	355.9	357.6	361.1	366.1	372.5	333.3	354.4	356.2	357.1	360.3	364.6	370.6
Hospital and other medical services (12/77 = 100)	135.4	147.1	148.1	148.3	149.6	151.7	154.7	134.9	146.7	147.3	147.3	148.6	150.3	153.1
Hospital room	424.0	460.9	465.0	465.1	470.4	478.0	489.4	422.4	459.2	461.4	461.3	467.1	472.2	482.6
Other hospital and medical care services (12/77 = 100)	135.1	146.7	147.3	147.6	148.7	150.4	152.9	134.4	146.3	146.8	146.8	147.6	149.4	151.8

23. Continued — Consumer Price Index — U.S. city average

[1967 = 100 unless otherwise specified]

General summary	All Urban Consumers						Urban Wage Earners and Clerical Workers (revised)							
	1980	1981					1980	1981						
	Aug.	Mar.	Apr.	May	June	July	Aug.	Aug.	Mar.	Apr.	May	June	July	Aug.
ENTERTAINMENT	208.0	218.2	219.2	220.3	220.8	221.1	222.3	205.6	216.1	217.0	217.7	218.3	218.7	219.9
Entertainment commodities	210.8	222.1	223.6	225.0	225.4	225.5	226.5	206.4	218.0	219.4	220.4	220.8	221.1	222.2
Reading materials (12/77 = 100)	123.2	133.2	134.1	135.6	136.2	136.0	136.0	122.7	133.0	134.1	135.6	136.1	135.9	135.9
Newspapers	240.7	256.6	262.5	264.1	264.9	265.0	265.5	239.9	256.7	262.5	264.0	264.8	265.0	265.4
Magazines, periodicals, and books (12/77 = 100)	124.0	136.2	134.8	137.1	137.9	137.3	137.2	123.7	136.3	134.8	137.3	138.2	137.4	137.1
Sporting goods and equipment (12/77 = 100)	120.9	126.1	127.5	127.2	126.8	127.0	127.2	115.3	120.3	120.9	120.8	120.4	120.6	120.8
Sport vehicles (12/77 = 100)	122.2	128.5	130.4	129.5	128.7	129.0	128.6	113.5	119.5	120.0	119.3	118.4	118.5	118.3
Indoor and warm weather sport equipment (12/77 = 100)	113.5	116.2	116.7	117.4	116.9	117.7	118.2	111.7	115.2	115.4	116.4	116.9	117.0	116.7
Bicycles	183.6	188.4	188.3	190.4	191.0	191.0	192.2	183.2	189.4	189.7	191.6	192.0	192.1	193.5
Other sporting goods and equipment (12/77 = 100)	116.5	121.2	122.6	122.4	122.7	122.7	124.1	116.9	119.3	121.1	121.5	122.2	122.9	124.9
Toys, hobbies, and other entertainment (12/77 = 100)	121.8	127.2	127.8	128.8	129.3	129.3	130.5	120.3	126.3	127.2	127.7	128.1	128.5	129.6
Toys, hobbies, and music equipment (12/77 = 100)	120.4	125.6	126.2	127.6	127.9	127.9	129.3	117.8	123.1	124.0	125.0	125.3	125.3	126.6
Photographic supplies and equipment (12/77 = 100)	122.5	124.0	125.4	125.8	126.2	125.7	126.0	121.7	125.5	126.7	126.1	126.5	127.0	127.1
Pet supplies and expenses (12/77 = 100)	123.9	132.3	132.4	133.3	134.2	134.5	136.2	123.8	132.8	133.2	133.6	134.3	135.1	136.6
Entertainment services	204.3	213.0	213.4	214.0	214.7	215.2	216.7	205.2	213.8	213.9	214.2	215.1	215.8	217.0
Fees for participant sports (12/77 = 100)	123.2	129.8	130.7	130.7	131.3	131.6	132.0	121.8	129.6	130.2	130.5	131.4	131.6	132.4
Admissions (12/77 = 100)	122.1	125.3	124.5	125.1	124.9	125.9	128.1	124.2	125.9	124.7	125.0	124.8	125.7	126.9
Other entertainment services (12/77 = 100)	117.4	121.0	121.1	121.7	122.2	121.7	121.7	119.1	121.7	122.4	122.5	123.4	123.2	123.1
OTHER GOODS AND SERVICES	214.5	228.7	229.9	232.2	233.4	234.4	235.6	214.0	226.8	227.9	230.4	231.4	232.4	233.5
Tobacco products	204.5	212.5	213.3	218.2	219.1	219.3	219.9	204.4	212.4	213.2	217.8	218.4	218.4	219.1
Cigarettes	207.0	214.8	215.5	220.8	221.4	221.6	222.2	207.0	214.9	215.5	220.3	220.8	220.7	221.4
Other tobacco products and smoking accessories (12/77 = 100)	122.0	128.0	129.6	130.4	132.3	132.5	132.9	121.7	128.1	130.0	131.3	132.7	133.4	133.9
Personal care	215.4	226.9	228.7	230.5	232.1	233.4	235.1	214.7	225.1	226.4	228.4	229.7	231.2	232.4
Toilet goods and personal care appliances	209.0	222.4	223.9	226.6	228.6	228.7	230.1	208.8	220.9	222.5	225.5	227.2	228.4	229.4
Products for the hair, hairpieces, and wigs (12/77 = 100)	121.7	131.4	131.9	132.4	132.8	133.9	134.1	122.5	128.4	128.8	130.1	130.4	131.7	132.5
Dental and shaving products (12/77 = 100)	125.2	135.3	136.6	138.6	139.4	139.0	140.0	123.6	133.3	135.1	136.1	136.6	137.1	137.6
Cosmetics, bath and nail preparations, manicure and eye makeup implements (12/77 = 100)	119.6	123.9	125.3	127.8	129.0	127.7	128.9	118.5	123.4	124.4	126.2	128.0	128.3	128.9
Other toilet goods and small personal care appliances (12/77 = 100)	119.9	128.3	128.4	129.8	132.0	133.0	133.9	121.5	130.7	131.3	134.0	135.4	135.9	136.4
Personal care services	221.7	231.7	233.7	234.7	236.0	238.4	240.3	220.7	229.4	230.5	231.5	232.5	234.4	235.7
Beauty parlor services for women	222.5	233.6	236.0	236.4	237.7	240.5	241.9	222.0	230.8	231.7	232.0	232.7	235.1	235.7
Haircuts and other barber shop services for men (12/77 = 100)	124.8	129.2	129.9	131.1	131.9	132.7	134.4	123.4	128.4	129.1	130.5	131.3	131.8	133.3
Personal and educational expenses	231.4	255.2	256.2	256.8	257.8	259.2	260.4	231.8	256.0	257.1	257.7	258.5	260.1	261.7
Schoolbooks and supplies	207.7	230.5	230.8	230.8	230.9	231.3	231.4	211.5	234.4	234.6	234.7	234.7	235.2	235.2
Personal and educational services	237.1	261.2	262.4	263.0	264.2	265.8	267.2	237.1	261.6	262.9	263.6	264.6	266.4	268.4
Tuition and other school fees	119.4	132.8	132.8	132.8	132.9	133.5	134.2	119.5	133.0	133.0	133.0	133.1	133.7	134.7
College tuition (12/77 = 100)	118.7	132.3	132.3	132.3	132.4	133.0	133.2	118.7	132.3	132.3	132.3	132.4	132.9	133.1
Elementary and high school tuition (12/77 = 100)	122.0	134.4	134.4	134.4	134.4	135.3	137.8	121.8	134.4	134.4	134.4	134.4	135.4	138.7
Personal expenses (12/77 = 100)	130.7	138.7	141.8	143.6	146.3	147.9	148.7	128.5	138.1	141.1	142.8	144.8	146.6	147.6
Special indexes:														
Gasoline, motor oil, coolant, and other products	370.7	414.5	413.2	410.4	408.4	407.1	405.9	371.8	415.9	414.5	411.5	409.5	408.0	406.9
Insurance and finance	338.3	373.6	378.1	386.6	393.4	402.7	408.1	338.7	373.0	377.6	386.1	393.1	402.4	407.3
Utilities and public transportation	251.9	265.2	267.9	272.4	278.5	286.5	289.7	251.2	263.6	266.1	270.6	276.7	285.6	288.5
Housekeeping and home maintenance services	300.8	318.3	323.1	326.2	328.6	332.3	334.0	299.7	317.2	321.1	323.8	325.1	322.8	333.0

1 Not available.

c=corrected.

24. Consumer Price Index for All Urban Consumers: Cross classification of region and population size class by expenditure category and commodity and service group

[December 1977 = 100]

Category and group	Size class A (1.25 million or more)			Size class B (385,000-1.250 million)			Size class C (75,000-385,000)			Size class D (75,000 or less)		
	1981			1981			1981			1981		
	Apr.	June	Aug.	Apr.	June	Aug.	Apr.	June	Aug.	Apr.	June	Aug.
Northeast												
EXPENDITURE CATEGORY												
All items	137.3	139.1	142.1	144.4	146.8	150.5	149.8	152.5	155.3	143.4	146.3	147.7
Food and beverages	136.8	137.5	139.4	138.3	139.2	139.9	141.4	141.1	142.3	135.2	136.1	137.6
Housing	139.1	142.1	146.2	149.1	153.2	160.4	161.5	166.0	170.4	149.7	154.0	155.2
Apparel and upkeep	116.9	116.2	117.6	118.2	118.9	118.3	121.7	123.1	123.5	123.3	122.9	125.7
Transportation	149.7	151.5	154.5	157.3	159.1	161.3	154.9	158.4	160.5	153.0	156.6	158.3
Medical care	132.9	134.8	137.6	132.9	134.0	139.2	133.8	137.8	140.8	135.9	137.2	138.9
Entertainment	126.3	127.9	129.3	130.2	129.6	129.1	125.8	125.9	127.8	128.5	130.2	131.7
Other goods and services	124.5	125.9	127.2	130.4	132.1	132.2	132.6	134.1	135.8	127.1	128.8	129.5
COMMODITY AND SERVICE GROUP												
Commodities	137.9	139.0	141.0	145.0	146.5	148.6	147.1	148.1	149.1	143.3	145.0	146.0
Commodities less food and beverages	138.7	139.9	142.0	148.3	150.0	152.7	149.7	151.4	152.3	147.1	149.3	150.0
Services	136.4	139.4	143.5	143.4	147.2	153.6	154.1	159.7	165.4	143.6	148.3	150.5
North Central region												
EXPENDITURE CATEGORY												
All items	145.9	150.0	152.3	143.5	146.6	148.1	140.2	142.3	145.4	141.1	143.1	145.3
Food and beverages	137.5	138.1	139.4	136.6	137.5	139.2	137.8	139.6	140.8	140.5	140.7	142.4
Housing	155.0	162.9	165.9	147.4	152.6	154.7	140.5	143.5	148.5	142.1	144.0	147.0
Apparel and upkeep	112.3	110.8	112.9	119.8	118.9	120.2	116.4	115.3	116.9	115.6	118.6	121.6
Transportation	153.9	156.4	158.9	154.3	157.3	158.4	155.1	157.0	159.3	152.6	155.9	157.6
Medical care	137.1	139.1	141.3	138.1	139.9	144.5	138.6	140.4	143.9	142.1	144.0	146.9
Entertainment	130.2	130.6	130.9	125.3	124.4	128.4	129.2	129.8	129.8	125.7	126.9	128.1
Other goods and services	127.9	130.1	131.2	134.0	136.0	136.5	127.9	129.3	131.5	131.7	134.3	133.6
COMMODITY AND SERVICE GROUP												
Commodities	141.7	144.4	145.7	140.1	142.5	142.9	138.6	139.9	141.7	136.9	138.0	139.4
Commodities less food and beverages	143.7	147.4	148.7	141.5	144.6	144.5	139.0	140.0	142.1	135.4	136.8	138.1
Services	152.1	158.3	162.1	149.0	153.2	156.4	142.7	146.2	151.6	147.8	151.1	154.8
South												
EXPENDITURE CATEGORY												
All items	144.1	146.2	148.2	146.7	148.7	151.6	143.7	145.9	148.5	141.8	144.8	147.2
Food and beverages	139.0	138.2	140.2	139.8	139.4	141.7	139.0	138.7	141.6	142.3	141.9	143.9
Housing	148.7	152.3	154.9	153.0	156.4	160.5	148.3	151.9	155.3	142.4	147.5	150.9
Apparel and upkeep	121.1	121.1	121.9	121.3	119.9	120.6	115.5	115.3	115.1	109.4	109.5	108.6
Transportation	155.7	158.1	158.9	155.9	158.3	160.3	153.8	156.6	158.6	154.3	157.7	159.1
Medical care	132.5	135.0	138.3	136.5	138.8	141.6	140.0	142.1	145.6	146.4	148.1	149.9
Entertainment	123.2	124.9	125.3	130.0	130.7	132.2	130.5	132.1	132.1	131.2	133.5	138.6
Other goods and services	131.3	133.1	135.3	132.0	134.1	134.6	129.7	131.5	132.7	131.6	134.1	134.8
COMMODITY AND SERVICE GROUP												
Commodities	141.5	142.1	143.5	142.3	143.2	144.7	140.1	141.3	143.1	140.7	142.1	143.2
Commodities less food and beverages	142.6	143.8	144.9	143.4	144.8	146.0	140.6	142.4	143.8	140.0	142.2	143.0
Services	147.6	152.1	154.9	153.3	157.0	161.9	149.2	153.1	156.9	143.6	149.0	153.1
West												
EXPENDITURE CATEGORY												
All items	145.7	147.5	152.4	146.7	149.1	151.2	142.1	143.9	146.4	143.6	146.9	147.7
Food and beverages	138.2	138.3	140.3	141.4	142.6	144.6	136.2	137.5	141.2	141.3	143.2	145.2
Housing	151.2	153.2	160.6	151.8	155.1	156.6	144.8	146.7	148.9	142.0	146.1	145.6
Apparel and upkeep	119.9	120.7	121.2	125.2	123.1	124.5	114.9	113.4	114.6	133.7	133.5	134.4
Transportation	154.2	157.4	159.3	154.9	157.5	161.1	155.6	158.7	160.8	156.0	159.3	161.0
Medical care	139.5	141.0	149.2	137.5	141.2	146.1	139.0	141.5	147.0	140.8	146.2	149.9
Entertainment	127.0	127.7	130.2	128.9	128.9	130.1	128.9	130.8	130.8	142.1	143.7	145.4
Other goods and services	131.8	134.8	136.4	133.3	134.7	137.3	128.6	130.2	131.3	133.0	137.8	141.0
COMMODITY AND SERVICE GROUP												
Commodities	139.5	140.5	143.4	142.2	143.4	145.2	139.1	140.2	142.6	141.6	144.7	144.5
Commodities less food and beverages	140.1	141.4	144.7	142.6	143.8	145.5	140.2	141.3	143.2	141.6	145.3	144.2
Services	154.0	156.8	164.3	152.9	156.8	159.4	146.4	149.2	151.7	146.5	150.1	152.5

25. Consumer Price Index—U.S. city average, and selected areas

[1967 = 100 unless otherwise specified]

Area ¹	All Urban Consumers							Urban Wage Earners and Clerical Workers (revised)						
	1980	1981						1980	1981					
	Aug.	Mar.	Apr.	May	June	July	Aug.	Aug.	Mar.	Apr.	May	June	July	Aug.
U.S. city average ²	249.4	265.1	266.8	269.0	271.3	274.4	276.5	249.6	265.2	266.8	269.1	271.4	274.6	276.5
Anchorage, Alaska (10/67=100)	...	241.1	...	244.6	...	246.1	...	...	236.2	...	240.1	...	241.7	...
Atlanta, Ga.	246.5	...	265.9	...	269.2	...	276.1	249.7	...	268.8	...	272.8	...	278.1
Baltimore, Md.	...	270.3	...	269.3	...	272.5	...	...	269.3	...	268.6	...	273.7	...
Boston, Mass.	...	262.3	...	263.6	...	266.3	...	...	261.8	...	263.6	...	266.5	...
Buffalo, N.Y.	236.8	...	254.6	...	257.2	...	260.3	235.5	...	252.7	...	256.1	...	259.4
Chicago, Ill.-Northwestern Ind.	245.2	259.7	263.7	264.5	269.1	272.7	275.8	245.4	258.9	263.0	263.9	267.9	271.7	274.6
Cincinnati, Ohio-Ky.-Ind.	...	266.1	...	271.7	...	273.3	...	...	267.7	...	273.3	...	276.3	...
Cleveland, Ohio	253.9	...	272.0	...	285.3	...	284.4	254.4	...	272.1	...	283.8	...	283.0
Dallas-Ft. Worth, Tex.	258.5	...	279.6	...	286.0	...	288.2	257.4	...	276.9	...	284.0	...	285.1
Denver-Boulder, Colo.	...	281.4	...	288.2	...	294.2	...	...	285.8	...	293.4	...	299.9	...
Detroit, Mich.	255.1	268.2	272.4	275.2	280.5	283.1	283.5	253.8	263.6	268.0	271.3	275.9	278.9	279.1
Honolulu, Hawaii	230.1	...	250.0	...	252.8	...	256.6	229.5	...	250.2	...	253.8	...	256.6
Houston, Tex.	268.6	...	286.4	...	292.9	...	294.7	265.6	...	283.1	...	289.4	...	291.8
Kansas City, Mo.-Kansas	250.8	...	265.4	...	270.5	...	271.3	249.3	...	264.3	...	269.1	...	270.2
Los Angeles-Long Beach, Anaheim, Calif.	247.3	263.3	265.5	267.3	267.9	272.2	274.8	250.1	266.5	269.1	270.7	271.7	276.3	278.6
Miami, Fla. (11/77=100)	...	140.0	...	143.2	...	146.1	...	...	141.7	...	144.8	...	143.7	...
Milwaukee, Wis.	...	269.9	...	278.5	...	285.6	...	...	274.6	...	283.5	...	291.2	...
Minneapolis-St. Paul, Minn.-Wis.	250.1	...	266.5	...	276.1	...	286.6	250.6	...	267.3	...	276.6	...	287.0
New York, N.Y.-Northeastern N.J.	240.8	253.9	255.4	256.7	258.6	262.5	264.8	240.7	253.7	254.8	255.9	257.9	262.3	264.0
Northeast, Pa. (Scranton)	...	257.6	...	259.9	...	266.0	...	...	260.6	...	263.3	...	269.0	...
Philadelphia, Pa.-N.J.	246.0	258.3	261.0	261.9	265.4	267.8	270.5	247.3	259.5	261.5	262.9	265.6	268.5	271.6
Pittsburgh, Pa.	250.7	...	265.7	...	271.3	...	277.7	251.2	...	267.3	...	273.0	...	278.1
Portland, Oreg.-Wash.	...	268.1	...	278.5	...	280.8	...	...	267.0	...	276.1	...	279.2	...
St. Louis, Mo.-Ill.	...	259.3	...	268.0	...	269.4	...	...	259.4	...	268.4	...	269.2	...
San Diego, Calif.	...	293.1	...	297.5	...	305.4	...	...	288.0	...	292.5	...	300.5	...
San Francisco-Oakland, Calif.	251.0	...	270.3	...	274.0	...	287.9	251.4	...	270.9	...	274.3	...	287.2
Seattle-Everett, Wash.	...	271.1	...	274.7	...	282.3	...	...	267.9	...	271.5	...	277.8	...
Washington, D.C.-Md.-Va.	...	262.3	...	264.7	...	267.1	...	...	264.2	...	267.7	...	271.4	...

¹The areas listed include not only the central city but the entire portion of the Standard Metropolitan Statistical Area, as defined for the 1970 Census of Population, except that the Standard Consolidated

 Area is used for New York and Chicago.
²Average of 85 cities.

26. Producer Price Indexes, by stage of processing

[1967 = 100]

Commodity grouping	Annual average 1980	1980				1981								
		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ¹	June	July	Aug.	Sept.
FINISHED GOODS														
Finished goods	247.0	251.4	255.4	256.2	257.2	260.9	263.3	266.0	268.5	'269.6	269.9	271.3	271.2	271.1
Finished consumer goods	248.9	254.1	257.0	257.9	258.9	262.5	265.0	268.2	270.6	'271.5	271.5	272.8	272.6	272.6
Finished consumer foods	239.5	247.4	248.0	248.9	249.3	251.0	251.3	252.6	251.9	'252.8	253.1	256.9	255.5	255.5
Crude	237.2	259.8	237.8	250.5	254.8	257.9	265.6	279.7	279.3	'263.1	255.8	262.4	256.5	253.0
Processed	237.8	244.3	246.9	246.7	246.7	248.4	247.9	248.1	247.4	'249.8	250.8	254.4	253.4	253.7
Nondurable goods less foods	283.9	290.9	291.7	293.9	296.2	302.7	308.4	316.0	320.4	'321.0	321.0	321.2	321.8	323.5
Durable goods	206.2	206.2	214.0	213.1	213.5	214.9	215.1	214.0	216.6	'218.1	217.9	217.9	218.1	215.6
Consumer nondurable goods less food and energy	191.2	194.6	195.6	196.9	197.6	201.9	203.5	204.8	207.3	'207.7	208.0	208.9	209.9	211.0
Capital equipment	239.8	241.8	249.2	250.2	250.9	254.6	256.7	258.1	260.8	'262.5	264.0	265.7	265.9	265.6
INTERMEDIATE MATERIALS														
Intermediate materials, supplies, and components	280.3	285.3	287.7	289.1	291.9	296.1	298.3	302.0	305.8	'306.7	307.1	308.6	309.9	309.6
Materials and components for manufacturing	265.7	269.5	273.3	273.9	275.7	279.6	280.3	281.6	284.1	'285.1	285.8	288.0	289.6	290.2
Materials for food manufacturing	264.4	275.8	295.1	299.0	279.6	280.7	273.2	267.5	263.1	'259.0	263.9	262.6	261.7	254.7
Materials for nondurable manufacturing	259.5	263.2	265.0	266.7	268.5	274.0	276.5	279.4	284.3	'287.0	287.5	288.8	290.7	291.2
Materials for durable manufacturing	301.0	300.5	304.7	303.8	304.3	306.9	305.4	306.9	310.6	'311.2	310.5	314.4	316.1	317.4
Components for manufacturing	231.8	237.0	238.4	238.3	246.3	250.3	253.0	254.2	255.4	'256.3	257.0	259.5	261.5	263.4
Materials and components for construction	268.3	271.7	272.4	274.0	276.6	279.2	280.3	282.7	288.0	'288.5	289.3	290.2	290.6	289.9
Processed fuels and lubricants	503.0	519.5	516.2	521.3	539.4	551.9	569.8	598.3	608.5	608.7	605.7	604.3	606.7	600.1
Manufacturing industries	425.7	440.8	440.6	445.2	457.9	469.5	482.8	503.9	509.0	'510.7	505.7	503.7	507.4	499.3
Nonmanufacturing industries	570.9	588.9	583.7	589.3	611.4	624.7	646.7	681.6	696.2	'695.2	694.0	693.1	694.3	689.3
Containers	254.5	257.9	260.1	259.5	260.6	264.6	268.2	270.9	274.3	'276.4	277.2	278.2	280.3	280.8
Supplies	244.5	250.3	252.3	255.2	255.0	257.8	257.8	258.9	262.4	'264.0	264.6	266.2	266.1	266.1
Manufacturing industries	231.9	236.1	237.5	238.7	239.5	242.5	244.8	246.8	250.6	'252.3	253.4	255.3	256.0	256.7
Nonmanufacturing industries	251.1	257.6	259.9	263.8	263.0	265.7	264.6	265.2	268.7	'270.2	270.5	272.1	271.5	271.1
Feeds	229.0	246.8	250.3	259.2	251.5	252.0	237.5	231.7	239.2	'242.9	235.7	232.8	228.9	221.7
Other supplies	253.6	256.9	258.8	261.3	262.4	265.6	268.3	270.6	272.9	'273.8	276.1	278.9	279.2	280.6
CRUDE MATERIALS														
Crude materials for further processing	304.6	319.3	322.8	324.6	323.5	328.0	336.5	334.2	336.3	'334.4	334.3	336.2	333.2	327.7
Foodstuffs and feedstuffs	259.2	276.6	279.1	277.3	271.6	270.7	267.1	262.1	263.5	260.6	264.2	267.0	261.8	253.4
Nonfood materials	401.0	409.8	415.4	424.9	433.8	450.1	484.9	488.4	492.1	'492.4	484.2	484.2	485.9	486.8
Nonfood materials except fuel	346.1	351.4	355.6	363.9	373.3	391.0	427.9	430.9	432.5	'428.3	418.3	413.5	414.2	410.7
Manufacturing industries	357.4	362.6	367.1	376.1	386.5	405.1	445.5	448.6	450.2	'445.5	434.4	429.0	429.7	425.8
Construction	237.6	244.8	245.3	246.5	247.4	254.8	257.2	259.2	261.5	'261.7	263.5	264.7	265.2	265.7
Crude fuel	615.0	639.1	650.9	664.9	670.2	677.4	697.7	703.6	716.6	'738.4	739.9	762.2	768.6	790.6
Manufacturing industries	690.5	722.0	738.1	755.8	762.9	771.9	798.1	805.8	821.9	'850.6	851.4	877.2	885.4	913.8
Nonmanufacturing industries	567.0	585.4	593.8	605.2	608.9	614.9	630.6	635.0	645.8	'662.2	664.4	684.1	689.3	706.3
SPECIAL GROUPINGS														
Finished goods excluding foods	247.8	251.1	256.2	257.0	258.2	262.4	265.5	268.7	272.1	'273.3	273.6	274.1	274.5	274.4
Finished consumer goods excluding foods	250.8	254.6	258.7	259.5	260.9	265.1	268.5	272.5	276.1	'277.0	277.0	277.1	277.5	277.4
Finished consumer goods less energy	218.0	221.9	225.0	225.5	226.0	233.8	229.6	230.2	231.8	'232.8	232.9	234.5	234.5	234.2
Intermediate materials less foods and feeds	282.3	286.6	288.2	289.3	293.5	298.0	301.0	305.4	309.5	'310.7	311.0	312.8	314.3	314.5
Intermediate materials less energy	265.3	269.2	272.2	273.3	274.9	278.3	279.1	280.5	283.7	'284.7	285.4	287.2	288.4	288.7
Intermediate foods and feeds	252.6	265.9	280.3	285.7	270.0	270.9	261.3	255.6	254.9	'253.1	254.3	252.5	250.7	243.7
Crude materials less agricultural products	446.4	454.1	463.2	473.8	482.8	504.0	547.6	551.8	556.0	'557.5	547.4	546.9	549.9	552.4
Crude materials less energy	256.1	269.9	272.4	271.7	267.5	266.0	262.6	259.6	261.1	'257.9	259.6	261.8	258.1	250.5

¹ Data for May 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

² Not available.

r = revised.

NOTE: Figures in this table may differ from those previously reported because stage-of-processing indexes from January 1976 through December 1980 have been revised to reflect 1972 input-output relationships.

27. Producer Price Indexes, by commodity groupings

[1967 = 100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1980	1980				1981								
			Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ¹	June	July	Aug.	Sept.
	All commodities	268.8	274.6	277.8	279.1	280.8	264.8	287.6	290.3	293.4	294.1	294.5	296.0	296.2	295.5
	All commodities (1957-59 = 100)	285.2	291.4	294.7	296.1	297.9	302.2	305.1	308.0	311.3	312.0	312.5	314.1	314.3	313.5
	Farm products and processed foods and feeds	244.7	256.5	259.4	260.5	257.0	257.9	255.1	253.5	253.8	252.9	254.1	256.6	253.9	250.0
	Industrial commodities	274.8	278.8	282.0	283.4	286.6	291.5	295.7	299.6	303.5	304.7	306.0	307.0	307.2	307.2
FARM PRODUCTS AND PROCESSED FOODS AND FEEDS															
01	Farm products	249.4	267.0	263.6	264.9	265.3	264.5	262.4	260.7	263.3	259.6	260.3	263.1	257.8	251.0
01-1	Fresh and dried fruits and vegetables	238.6	266.2	240.9	246.6	245.1	258.7	271.5	292.8	286.1	275.3	258.6	265.0	257.3	251.9
01-2	Grains	239.0	260.6	269.2	270.9	265.2	277.7	267.5	261.8	264.7	257.7	257.1	257.4	242.7	227.0
01-3	Livestock	252.7	266.8	263.0	254.8	251.4	244.3	244.6	239.3	246.6	251.8	263.0	266.5	262.0	257.3
01-4	Live poultry	202.1	241.0	222.9	221.0	218.9	213.1	220.8	213.5	195.4	207.2	210.0	215.3	210.3	196.7
01-5	Plant and animal fibers	271.1	295.2	278.5	287.2	294.1	284.1	268.4	270.1	274.2	258.3	259.6	251.3	232.5	206.5
01-6	Fluid milk	271.2	275.5	280.9	284.7	290.5	288.4	289.5	289.5	287.2	283.6	285.0	284.3	285.0	287.3
01-7	Eggs	171.0	188.4	175.2	194.0	217.5	185.7	184.8	180.4	196.2	165.0	174.6	185.1	180.7	193.2
01-8	Hay, hayseeds, and oilseeds	247.1	280.7	284.4	298.3	310.2	311.8	295.0	289.5	296.3	299.0	285.3	288.3	284.3	267.2
01-9	Other farm products	299.0	292.0	285.8	296.6	296.0	296.1	295.1	295.9	295.9	259.7	242.7	250.2	263.9	268.9
02	Processed foods and feeds	241.2	249.8	256.1	257.2	251.5	253.3	250.2	248.5	247.6	248.2	249.7	252.1	250.7	248.4
02-1	Cereal and bakery products	236.0	238.3	241.5	245.3	248.7	251.5	252.1	252.2	253.9	256.3	256.0	257.2	256.6	258.0
02-2	Meats, poultry, and fish	243.1	257.8	256.0	250.9	248.1	248.1	243.6	242.0	239.1	245.2	248.3	257.1	254.2	253.3
02-3	Dairy products	230.6	233.7	238.0	240.2	242.3	244.7	245.0	245.1	245.4	244.6	245.6	245.5	245.6	246.0
02-4	Processed fruits and vegetables	228.7	231.3	233.8	234.7	236.6	238.4	243.7	255.2	258.0	259.4	263.3	266.5	267.6	270.3
02-5	Sugar and confectionery	322.5	341.4	404.7	409.0	339.8	344.6	323.7	302.0	284.5	262.8	277.6	269.8	269.1	246.8
02-6	Beverages and beverage materials	233.0	236.1	239.5	240.6	240.5	243.0	244.8	245.4	246.0	247.6	245.5	246.3	246.3	245.6
02-7	Fats and oils	226.8	238.3	231.0	238.0	234.1	230.2	228.2	229.8	232.4	228.2	227.5	235.1	228.4	224.6
02-8	Miscellaneous processed foods	227.2	226.8	230.6	235.0	240.5	244.2	248.0	249.2	249.9	251.1	251.5	252.2	252.0	253.0
02-9	Manufactured animal feeds	226.8	243.4	246.9	254.5	247.1	248.9	235.9	231.1	237.7	241.0	234.5	232.2	228.8	223.2
INDUSTRIAL COMMODITIES															
03	Textile products and apparel	183.5	186.6	188.1	189.6	190.4	193.1	193.9	195.2	197.6	199.2	199.5	200.5	201.4	202.5
03-1	Synthetic fibers (12/75 = 100)	134.7	139.5	140.2	140.7	140.8	146.5	147.1	148.9	151.5	156.4	158.2	158.6	162.0	162.3
03-2	Processed yarns and threads (12/75 = 100)	122.5	124.3	125.1	125.8	128.2	129.8	130.3	134.6	135.0	138.6	138.9	139.0	139.3	141.8
03-3	Gray fabrics (12/75 = 100)	138.1	141.0	143.5	145.0	144.0	143.6	144.0	144.7	146.6	145.8	146.6	147.4	148.2	148.1
03-4	Finished fabrics (12/75 = 100)	115.7	117.0	118.3	119.1	120.1	122.2	122.9	123.2	124.9	125.7	124.8	125.2	125.9	126.2
03-81	Apparel	172.4	175.0	176.2	176.8	177.5	179.9	180.7	181.4	184.3	185.2	185.0	186.2	186.5	187.2
03-82	Textile housefurnishings	206.9	212.9	213.8	213.8	214.3	219.8	221.3	221.3	222.1	224.0	228.1	231.6	231.6	236.6
04	Hides, skins, leather, and related products	248.9	247.8	251.2	255.4	256.9	258.2	257.7	261.2	263.5	263.7	262.8	262.1	261.7	263.0
04-1	Hides and skins	370.9	356.1	381.5	409.1	392.8	377.5	367.4	(²)	(²)	(²)	(²)	(²)	(²)	(²)
04-2	Leather	310.6	298.1	301.9	317.3	332.4	332.6	310.0	322.5	337.8	330.0	321.0	317.4	312.2	311.7
04-3	Footwear	233.1	235.5	236.6	237.5	236.9	238.4	240.7	240.4	241.1	241.4	241.0	241.9	242.3	242.0
04-4	Other leather and related products	218.3	218.8	221.8	222.6	225.3	230.1	236.9	238.4	238.5	244.2	249.4	247.8	247.8	250.1
05	Fuels and related products and power	574.0	593.5	592.9	600.2	615.7	634.6	667.5	696.5	707.2	709.0	704.9	703.4	704.1	703.2
05-1	Coal	467.3	471.3	470.7	475.4	475.3	477.8	480.8	481.1	486.1	487.3	491.8	505.7	507.3	510.6
05-2	Coke	430.6	430.6	430.6	430.6	430.1	430.1	430.1	430.1	430.1	467.9	470.3	470.3	470.3	470.3
05-3	Gas fuels ³	760.7	786.2	802.2	825.5	844.3	857.1	881.6	889.9	907.8	933.9	931.6	946.6	952.4	979.7
05-4	Electric power	321.6	338.3	337.4	333.8	337.6	341.4	346.2	351.2	355.5	360.4	366.9	374.9	383.6	382.0
05-61	Crude petroleum ⁴	556.4	571.3	579.6	600.6	632.8	704.4	842.7	842.8	842.5	839.9	816.0	799.0	797.0	797.0
05-7	Petroleum products, refined ⁵	674.7	696.4	690.4	697.6	717.0	736.9	769.6	825.5	840.9	835.3	827.7	818.4	813.4	805.7
06	Chemicals and allied products	260.3	263.4	264.8	266.7	268.1	274.3	277.6	280.4	286.0	288.6	290.3	291.4	293.2	293.3
06-1	Industrial chemicals ⁶	324.0	327.5	330.0	332.7	334.6	344.5	352.1	354.5	362.4	368.5	369.4	370.4	371.9	372.0
06-21	Prepared paint	235.3	239.3	239.3	241.4	241.4	242.9	246.6	248.1	250.0	250.4	251.0	251.0	251.0	251.0
06-22	Paint materials	273.9	278.9	279.6	279.8	281.0	284.0	287.0	290.5	295.4	300.3	300.8	304.4	308.4	307.8
06-3	Drugs and pharmaceuticals	174.5	176.8	178.4	181.1	182.6	184.7	187.3	189.3	191.0	192.4	193.2	195.4	195.6	197.1
06-4	Fats and oils, inedible	298.0	304.5	302.0	308.2	317.1	310.7	289.7	295.7	312.7	312.1	303.1	290.9	305.6	285.6
06-5	Agricultural chemicals and chemical products	257.1	260.6	260.6	261.1	263.3	267.6	271.6	275.8	277.8	279.1	288.9	288.9	293.8	292.3
06-6	Plastic resins and materials	279.2	276.5	276.1	276.2	274.1	214.7	276.1	279.4	285.1	287.9	289.7	295.9	295.6	298.5
06-7	Other chemicals and allied products	224.5	229.1	230.9	232.4	234.1	244.4	245.1	248.3	255.3	254.8	256.0	254.8	256.7	257.0
07	Rubber and plastic products	217.4	222.0	222.8	223.4	223.3	224.8	226.4	228.4	230.8	231.8	233.7	233.5	234.4	236.0
07-1	Rubber and rubber products	237.5	242.6	244.6	245.0	244.9	246.2	248.5	252.1	253.0	254.4	257.8	258.0	258.4	261.3
07-11	Crude rubber	264.3	267.3	271.7	271.0	268.5	279.1	281.9	281.2	279.8	283.2	284.6	283.8	282.0	280.6
07-12	Tires and tubes	236.9	242.1	245.2	245.2	245.2	240.9	243.5	248.6	250.7	251.2	250.8	251.0	251.0	256.5
07-13	Miscellaneous rubber products	226.6	232.1	232.0	233.3	234.0	238.6	240.4	243.5	243.8	245.7	254.2	254.7	256.4	257.1
07-2	Plastic products (6/78 = 100)	121.1	123.7	123.6	124.0	123.9	125.0	125.5	126.0	128.2	128.6	128.8	128.5	129.3	129.6
08	Lumber and wood products	288.9	292.2	289.0	293.4	299.4	296.5	294.7	294.4	299.4	298.4	297.9	295.5	294.3	289.1
08-1	Lumber	325.8	328.0	320.6	324.9	333.0	331.3	326.9	326.2	333.6	336.3	335.0	330.1	329.2	319.7
08-2	Millwork	260.4	264.5	264.5	270.0	273.3	273.6	273.8	275.7	276.5	274.8	272.9	273.6	272.4	271.3
08-3	Plywood	246.5	252.6	252.9	256.6	263.5	251.1	251.2	248.8	256.0	248.3	250.9	248.1	245.9	241.2
08-4	Other wood products	239.1	236.8	236.7	236.6	236.2	238.5	238.1	236.9	238.3	238.2	239.7	240.5	239.9	240.6

See footnotes at end of table.

27. Continued — Producer Price Indexes, by commodity groupings

[1967 = 100 unless otherwise specified]

Code	Commodity group and subgroup	Annual average 1980	1980				1981								
			Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ¹	June	July	Aug.	Sept.
INDUSTRIAL COMMODITIES — Continued															
09	Pulp, paper, and allied products	249.2	252.8	254.3	255.0	256.7	264.4	267.2	269.0	271.4	272.1	272.7	273.8	275.7	276.9
09-1	Pulp, paper, and products, excluding building paper and board	250.6	254.1	255.6	256.2	257.9	260.9	264.5	266.8	268.6	269.9	271.9	272.5	274.3	275.5
09-11	Woodpulp	380.3	388.2	389.6	390.2	390.2	390.2	390.2	390.2	394.1	394.2	396.6	396.6	396.6	396.6
09-12	Wastepaper	208.7	192.5	193.5	192.3	191.5	186.1	185.1	184.2	182.7	182.9	182.1	182.1	178.5	
09-13	Paper	256.8	258.7	262.1	264.1	269.4	271.7	272.9	273.8	275.2	275.9	278.8	280.0	283.8	287.1
09-14	Paperboard	234.6	239.5	239.9	241.7	239.6	250.2	252.8	255.1	255.7	258.8	262.7	261.4	261.2	262.5
09-15	Converted paper and paperboard products	238.5	242.7	243.7	243.5	244.7	246.9	252.1	255.3	257.3	258.8	260.1	260.8	262.5	263.0
09-2	Building paper and board	206.2	210.2	212.7	216.5	219.7	219.7	225.7	227.9	232.5	237.3	236.8	234.6	233.8	233.7
10	Metals and metal products	286.4	287.3	291.9	291.1	290.6	294.0	294.0	296.4	298.8	299.1	298.5	302.5	304.3	305.1
10-1	Iron and steel	305.2	304.5	310.5	312.7	316.4	323.0	323.2	328.2	331.0	330.4	329.9	338.7	339.7	339.7
10-13	Steel mill products	302.7	301.0	307.5	309.4	313.7	322.6	322.9	328.7	331.8	331.8	332.1	344.9	344.9	345.3
10-2	Nonferrous metals	305.0	302.2	309.4	302.1	293.4	292.1	287.4	286.5	288.4	287.7	284.9	283.3	287.7	290.0
10-3	Metal containers	298.6	303.2	304.4	303.3	303.3	311.4	313.8	314.1	314.1	314.1	314.1	315.7	319.4	319.6
10-4	Hardware	240.5	245.9	246.6	249.6	251.7	254.5	258.0	258.6	258.5	259.4	257.6	261.7	263.2	265.7
10-5	Plumbing fixtures and brass fittings	246.7	250.6	250.6	252.3	254.9	256.7	259.2	259.5	265.3	266.2	268.2	270.3	271.0	271.4
10-6	Heating equipment	206.5	208.8	210.6	212.0	214.0	216.6	217.6	219.5	219.8	222.3	222.9	225.7	227.2	227.9
10-7	Fabricated structural metal products	270.5	274.1	276.9	278.0	279.3	283.1	285.4	289.4	293.1	294.0	295.4	298.3	300.0	300.5
10-8	Miscellaneous metal products	250.0	255.0	256.3	256.9	257.6	260.5	263.1	264.7	267.2	269.7	270.4	275.0	273.8	274.5
11	Machinery and equipment	239.8	244.7	246.8	248.3	249.8	253.3	255.3	257.5	259.6	260.7	261.9	264.5	266.0	267.8
11-1	Agricultural machinery and equipment	259.2	263.9	265.4	271.6	272.9	276.4	278.4	279.8	282.5	285.7	285.9	287.3	289.3	292.0
11-2	Construction machinery and equipment	289.4	295.7	299.1	300.1	301.4	305.9	310.0	312.8	317.0	318.4	320.0	324.0	324.9	326.6
11-3	Metalworking machinery and equipment	274.4	280.2	282.5	283.9	285.7	289.7	291.6	294.9	298.7	299.9	300.9	303.0	303.6	305.3
11-4	General purpose machinery and equipment	264.6	270.0	272.5	274.3	275.6	278.6	280.2	282.3	284.4	285.9	286.6	290.0	291.7	293.5
11-6	Special industry machinery and equipment	275.8	283.0	286.0	287.7	290.9	295.6	299.2	301.0	303.2	307.2	309.1	311.0	310.5	312.7
11-7	Electrical machinery and equipment	201.7	206.0	207.0	207.5	208.9	211.9	213.7	216.0	217.4	217.5	219.0	221.0	222.8	224.1
11-9	Miscellaneous machinery	229.9	233.6	236.5	238.5	239.6	243.3	245.2	247.0	248.5	248.8	249.8	252.2	255.3	257.8
12	Furniture and household durables	187.7	189.5	190.9	191.5	193.1	194.0	195.2	195.8	196.4	197.4	197.1	198.9	199.5	200.7
12-1	Household furniture	204.8	208.5	209.8	210.9	212.1	212.9	213.8	214.5	216.5	216.4	218.9	220.4	221.4	223.3
12-2	Commercial furniture	236.0	237.8	241.4	242.2	242.4	246.7	251.6	253.4	254.5	257.7	258.1	259.1	259.2	261.5
12-3	Floor coverings	163.0	163.9	164.4	165.5	170.7	172.3	171.9	174.1	175.3	179.5	181.1	182.8	182.3	181.5
12-4	Household appliances	174.2	177.2	177.5	178.5	179.5	182.2	183.5	184.2	185.1	185.5	184.8	187.5	187.7	188.3
12-5	Home electronic equipment	91.4	91.6	91.5	91.2	91.0	91.0	91.3	91.4	90.9	90.8	86.9	87.1	87.5	87.8
12-6	Other household durable goods	278.6	276.2	281.8	281.2	285.7	278.9	280.8	278.1	275.3	276.7	275.8	279.1	282.0	285.4
13	Nonmetallic mineral products	283.0	286.8	288.6	288.7	291.2	296.6	297.9	300.9	310.8	312.0	312.8	313.9	314.0	313.1
13-11	Flat glass	196.5	199.7	200.7	203.1	203.0	203.9	204.3	204.8	210.2	210.2	208.1	216.2	218.8	218.8
13-2	Concrete ingredients	274.0	278.9	279.0	279.1	279.7	290.0	291.4	292.6	297.4	297.5	297.1	298.1	298.4	298.4
13-3	Concrete products	273.9	277.3	277.5	277.7	277.6	286.1	286.6	286.9	289.9	291.2	292.2	293.0	293.0	292.9
13-4	Structural clay products excluding refractories	231.5	230.1	233.3	233.5	233.6	239.5	239.8	244.6	246.0	250.1	249.5	250.3	250.4	254.8
13-5	Refractories	264.6	270.6	273.2	273.2	273.2	282.6	293.5	296.1	296.4	304.0	307.3	308.0	308.0	308.0
13-6	Asphalt roofing	396.8	407.9	408.5	397.1	394.6	394.8	389.5	390.5	415.9	407.4	422.5	420.3	419.2	400.0
13-7	Gypsum products	256.3	251.8	249.5	253.3	252.7	259.6	257.3	257.6	256.8	261.1	260.7	259.7	255.3	252.9
13-8	Glass containers	292.7	294.6	306.2	306.2	311.4	311.4	311.4	311.4	326.7	335.3	334.5	334.7	334.8	334.8
13-9	Other nonmetallic minerals	394.6	400.7	402.7	403.3	418.9	418.7	424.7	441.7	479.1	477.6	476.8	476.3	475.2	474.2
14	Transportation equipment (12/68 = 100)	207.0	204.4	217.4	217.8	224.3	227.4	229.1	228.1	231.9	233.6	234.1	235.3	235.8	231.7
14-1	Motor vehicles and equipment	208.8	205.6	218.2	218.6	226.2	228.9	230.9	229.5	233.9	236.0	236.4	237.5	238.1	232.6
14-4	Railroad equipment	313.1	320.0	323.3	323.6	323.9	332.5	332.5	333.9	335.7	331.2	337.4	344.3	345.0	345.0
15	Miscellaneous products	258.8	265.1	266.0	263.6	265.3	264.3	264.9	264.0	266.0	266.9	266.1	262.8	262.6	266.7
15-1	Toys, sporting goods, small arms, ammunition	198.6	202.3	202.7	202.8	205.7	208.4	210.5	211.1	211.3	211.4	212.1	213.8	214.0	215.1
15-2	Tobacco products	245.7	248.2	249.4	254.4	254.8	254.8	256.1	256.3	268.7	268.7	268.4	268.5	268.6	274.2
15-3	Notions	217.2	223.9	224.0	224.1	225.0	227.2	247.3	247.3	248.4	267.8	268.0	267.5	267.7	267.8
15-4	Photographic equipment and supplies	202.9	200.9	200.8	206.7	206.6	207.4	209.6	211.2	212.4	212.5	212.9	211.7	207.4	209.0
15-5	Mobile homes (12/74 = 100)	150.2	151.7	153.2	152.7	153.0	153.0	153.1	155.0	(²)	(²)	155.5	155.8	157.7	158.1
15-9	Other miscellaneous products	363.4	381.9	383.4	367.0	370.5	363.3	358.1	351.3	349.0	349.4	346.0	332.3	333.9	343.4

¹ Data for May 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

² Not available.

³ Prices for natural gas are lagged 1 month.

⁴ Includes only domestic production.

⁵ Most prices for refined petroleum products are lagged 1 month.

⁶ Some prices for industrial chemicals are lagged 1 month.

r = revised.

28. Producer Price Indexes, for special commodity groupings

[1967 = 100 unless otherwise specified]

Commodity grouping	Annual average 1980	1980				1981								
		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ¹	June	July	Aug.	Sept.
All commodities less farm products	269.6	274.3	278.1	279.4	281.2	285.4	288.8	291.9	295.0	296.1	296.4	297.7	298.5	298.3
All foods	244.7	254.3	258.8	259.7	254.3	255.8	253.7	253.4	251.4	250.3	252.2	255.5	253.7	251.7
Processed foods	246.6	254.9	261.7	261.9	255.5	257.0	253.9	252.3	250.3	250.5	253.4	256.3	254.9	252.8
Industrial commodities less fuels	243.5	246.0	249.6	250.3	252.3	255.4	257.2	258.6	261.8	262.9	263.4	264.8	266.0	266.3
Selected textile mill products (Dec. 1975 = 100)	124.3	126.6	127.5	128.1	129.3	131.8	132.5	132.2	134.5	135.7	136.0	136.9	137.2	138.2
Hosiery	123.2	126.4	126.2	126.7	126.4	129.5	130.3	130.5	134.2	134.6	135.6	135.7	135.3	135.5
Underwear and nightwear	185.4	189.5	189.7	190.3	190.6	199.2	200.9	202.0	202.1	202.3	203.5	205.0	205.0	205.0
Chemicals and allied products, including synthetic rubber and manmade fibers and yarns	250.7	254.0	255.4	257.0	258.2	264.8	268.3	271.0	276.1	279.0	281.0	282.1	283.9	284.4
Pharmaceutical preparations	167.1	168.8	170.8	173.7	174.6	177.1	179.7	182.1	184.0	185.7	186.5	188.7	189.1	190.8
Lumber and wood products, excluding millwork and other wood products	304.0	307.4	302.3	306.5	314.2	309.2	306.0	304.8	312.3	311.5	311.5	307.2	305.9	297.9
Special metals and metal products	258.5	257.8	265.7	265.7	268.6	271.8	272.7	273.5	276.8	277.9	277.7	280.5	281.8	280.1
Fabricated metal products	258.2	262.6	264.3	265.2	266.3	269.9	272.5	274.7	277.0	278.9	279.2	282.7	283.4	284.2
Copper and copper products	222.0	214.1	216.5	215.7	210.8	207.4	205.0	204.8	207.7	206.6	204.3	203.0	206.3	205.4
Machinery and motive products	230.4	232.1	239.2	240.2	244.1	247.4	249.4	250.2	253.1	254.4	255.4	257.4	258.4	257.6
Machinery and equipment, except electrical	263.0	270.2	273.0	275.1	276.7	277.3	279.7	281.9	284.3	285.9	287.0	289.9	291.3	293.4
Agricultural machinery, including tractors	267.3	272.9	274.8	280.9	281.4	285.0	287.3	288.3	289.6	293.7	293.6	294.3	296.9	300.5
Metalworking machinery	299.4	306.5	309.6	311.2	314.1	318.9	320.5	323.5	325.9	327.1	328.4	329.9	330.8	333.7
Numerically controlled machine tools (Dec. 1971 = 100)	225.6	230.0	231.7	232.1	230.6	234.6	235.0	235.7	235.7	237.3	241.7	242.1	242.1	242.1
Total tractors	287.3	295.8	298.3	299.9	301.2	305.8	311.1	311.8	316.8	322.0	322.0	325.4	327.3	330.5
Agricultural machinery and equipment less parts	261.2	266.5	268.3	273.7	274.3	278.0	280.2	281.5	283.2	286.7	286.9	287.6	290.0	293.0
Farm and garden tractors less parts	268.8	277.3	278.0	282.4	282.4	284.0	287.2	287.6	289.3	297.7	297.2	297.2	300.6	305.0
Agricultural machinery excluding tractors less parts	266.5	269.7	272.5	279.9	280.9	285.7	287.7	289.1	290.2	290.8	290.9	292.3	294.1	297.1
Industrial valves	287.8	292.4	294.6	296.0	297.8	300.7	305.5	310.1	314.0	314.3	312.0	314.1	316.4	319.3
Industrial fittings	291.8	296.1	298.6	298.6	298.6	298.6	296.0	298.9	302.7	303.0	303.0	303.0	303.0	304.3
Abrasive grinding wheels	(²)	261.3	263.4	273.0	273.8	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)
Construction materials	266.4	269.3	269.9	271.9	274.1	276.7	279.0	283.9	283.9	284.2	284.8	285.4	285.6	284.4

¹ Data for May 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

² Not available.
r = revised.

29. Producer Price Indexes, by durability of product

[1967 = 100]

Commodity grouping	Annual average 1980	1980				1981								
		Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ¹	June	July	Aug.	Sept.
Total durable goods	251.5	253.7	258.4	258.6	261.0	262.7	263.8	264.9	267.8	268.6	268.9	270.7	271.8	271.7
Total nondurable goods	282.4	291.2	293.0	295.2	296.3	302.6	306.8	310.9	314.2	314.8	315.1	316.3	315.9	314.6
Total manufactures	261.5	265.8	269.6	270.5	272.0	277.3	279.3	282.3	285.3	286.2	286.7	288.0	288.4	288.1
Durable	250.8	253.1	257.8	257.9	260.4	262.3	263.4	264.4	267.2	268.2	268.7	270.6	271.6	271.6
Nondurable	273.0	279.5	282.1	284.0	284.3	293.5	296.4	301.7	304.9	305.7	306.2	306.8	306.6	305.9
Total raw or slightly processed goods	305.7	319.9	319.6	322.9	326.2	322.9	330.3	331.2	334.6	334.2	333.9	336.6	335.6	332.7
Durable	278.2	274.9	282.7	285.6	284.0	275.9	275.5	281.7	286.0	280.4	272.7	271.9	276.6	271.1
Nondurable	306.7	322.2	321.3	324.6	328.2	325.3	333.3	333.8	337.1	337.1	337.3	340.3	338.9	336.2

¹ Data for May 1981 have been revised to reflect the availability of late reports and corrections by respondents. All data are subject to revision 4 months after original publication.

r = revised.

30. Producer Price Indexes for the output of selected SIC industries

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980				1981								
			Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ¹	June	July	Aug.	Sept.
MINING															
1011	Iron ores (12/75 = 100)	152.9	155.8	155.8	155.8	155.8	155.8	168.1	168.1	168.1	168.1	168.1	168.1	168.1	168.1
1092	Mercury ores (12/75 = 100)	331.2	335.4	338.7	343.7	325.0	297.9	324.5	335.4	354.1	347.9	352.0	358.3	365.4	364.5
1211	Bituminous coal and lignite	466.7	470.3	469.7	474.2	473.9	476.1	478.1	478.5	483.5	484.5	488.7	502.5	503.8	506.3
1311	Crude petroleum and natural gas	643.8	667.6	681.8	704.6	731.7	786.5	897.9	901.7	908.6	919.7	901.0	898.9	901.4	914.6
1442	Construction sand and gravel	252.7	258.5	261.8	263.2	264.3	270.1	272.3	275.2	278.0	278.4	277.8	278.5	278.3	279.4
1455	Kaolin and ball clay (6/76 = 100)	136.0	136.6	137.2	132.1	133.7	137.1	137.1	137.1	137.1	137.1	137.1	137.1	137.1	137.1
MANUFACTURING															
2011	Meatpacking plants	244.0	257.1	258.0	251.4	249.0	244.7	237.2	236.1	237.8	243.6	245.5	252.6	250.7	252.9
2013	Sausages and other prepared meats	220.1	240.0	247.0	249.5	247.4	235.3	232.9	230.4	227.5	230.4	237.6	245.5	252.7	253.7
2016	Poultry dressing plants	191.9	226.0	211.3	205.9	201.8	201.9	208.3	203.9	186.7	196.2	198.3	203.6	201.2	188.8
2021	Creamery butter	258.5	265.8	273.2	273.3	274.8	273.6	273.5	273.6	273.4	273.4	273.6	273.8	273.7	275.0

See footnotes at end of table.

30. Continued—Producer Price Indexes for the output of selected SIC industries

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980				1981								
			Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ¹	June	July	Aug.	Sept.
MANUFACTURING Continued															
2022	Cheese natural and processed (12/72 = 100)	204.4	208.0	213.7	214.9	216.1	215.9	215.6	215.7	216.2	216.2	218.0	217.1	216.0	217.0
2024	Ice cream and frozen desserts (12/72 = 100)	193.3	196.1	199.5	199.8	207.5	210.1	210.6	210.6	211.4	212.4	212.4	212.7	212.7	212.7
2033	Canned fruits and vegetables	221.4	224.3	227.6	231.1	232.0	233.3	237.4	241.5	244.0	245.9	250.0	252.4	253.8	255.6
2034	Dehydrated food products (12/73 = 100)	160.2	159.9	162.6	168.6	170.4	174.1	171.3	172.9	174.2	175.3	175.1	180.5	178.7	183.4
2041	Flour mills (12/71 = 100)	189.1	196.1	201.5	205.1	199.5	203.8	198.4	195.1	201.5	199.4	199.3	196.5	191.0	194.8
2044	Rice milling	243.4	225.9	237.2	265.8	287.2	289.6	289.6	298.0	300.9	300.3	300.3	297.4	284.3	268.2
2048	Prepared foods, n.e.c. (12/75 = 100)	124.2	129.6	129.2	133.3	133.9	132.6	129.3	126.6	128.5	129.8	127.8	125.9	124.9	120.0
2061	Raw cane sugar	414.1	458.9	588.2	563.8	402.9	418.0	367.1	318.8	275.7	224.8	263.3	272.2	254.6	212.3
2063	Beet sugar	358.0	384.5	460.1	512.2	423.3	414.5	398.1	370.7	350.5	334.4	358.1	299.3	299.3	271.0
2067	Chewing gum	290.7	302.4	322.4	322.9	322.9	323.0	323.0	323.1	323.1	303.1	303.1	303.2	303.2	303.2
2074	Cottonseed oil mills	192.9	232.9	218.7	231.8	228.0	221.2	193.7	204.4	218.4	216.6	212.3	212.0	206.0	182.3
2075	Soybean oil mills	244.3	275.2	279.2	290.5	270.5	272.0	252.5	253.2	259.1	248.2	248.2	252.6	245.6	234.6
2077	Animal and marine fats and oils	290.2	307.0	311.0	317.2	311.8	310.8	287.2	284.2	301.7	304.3	291.3	288.8	294.1	281.4
2083	Malt	249.9	244.1	267.4	267.4	267.4	286.1	286.1	286.1	286.1	286.1	286.1	286.1	286.1	275.4
2085	Distilled liquor, except brandy (12/75 = 100)	123.0	127.7	127.9	128.5	129.2	129.2	133.9	133.9	133.9	134.3	134.6	134.6	135.5	135.5
2091	Canned and cured seafoods (12/73 = 100)	174.0	178.6	180.0	183.1	183.4	187.3	187.1	187.6	187.7	187.3	187.5	187.4	188.5	188.8
2092	Fresh or frozen packaged fish	366.9	355.0	353.8	353.3	353.9	374.9	366.7	385.2	393.5	378.2	377.0	369.2	348.6	355.0
2095	Roasted coffee (12/72 = 100)	269.3	263.9	257.0	252.5	248.5	238.2	238.3	238.3	238.5	238.6	238.6	236.6	236.0	235.6
2098	Macaroni and spaghetti	233.8	239.3	243.6	243.6	243.6	243.6	243.6	243.6	243.6	246.6	246.6	258.5	259.5	259.5
2111	Cigarettes	254.6	257.4	257.8	263.5	263.6	263.6	264.1	264.2	278.3	278.3	278.3	278.3	278.3	284.2
2121	Cigars	158.6	159.9	163.7	164.0	165.1	165.1	165.3	167.0	168.5	168.5	165.6	166.8	166.8	171.6
2131	Chewing and smoking tobacco	279.8	279.7	295.0	295.0	298.8	298.7	320.7	320.7	320.8	320.8	320.8	320.8	321.1	325.2
2211	Weaving mills, cotton (12/72 = 100)	215.8	221.9	223.4	224.2	225.0	227.9	230.9	232.3	235.3	234.6	234.6	234.9	236.9	235.5
2221	Weaving mills, synthetic (12/77 = 100)	124.8	127.7	130.7	133.0	132.5	131.9	132.3	133.3	134.9	135.7	136.4	137.0	137.5	138.4
2251	Women's hosiery, except socks (12/75 = 100)	106.3	108.8	108.7	109.0	108.6	109.1	109.2	108.9	114.1	114.2	115.7	115.6	115.0	115.1
2254	Knit underwear mills	190.1	194.1	194.2	194.7	195.0	205.6	208.7	209.7	209.8	210.0	209.9	210.5	210.7	210.8
2257	Circular knit fabric mills (6/76 = 100)	104.6	105.8	106.7	107.1	107.5	109.3	109.6	109.1	110.8	110.5	108.9	109.6	110.5	111.0
2261	Finishing plants, cotton (6/76 = 100)	135.1	136.9	139.1	139.3	140.2	142.4	144.5	144.6	146.9	147.0	146.3	146.2	146.1	143.3
2262	Finishing plants, synthetics, silk (6/76 = 100)	113.6	115.3	117.3	117.9	120.5	121.7	123.1	124.3	125.2	126.6	126.2	127.0	127.7	129.0
2272	Tufted carpets and rugs	138.1	138.3	138.8	140.0	145.7	148.1	147.8	150.2	151.5	154.5	157.0	159.2	158.7	157.9
2281	Yarn mills, except wool (12/71 = 100)	203.5	206.2	207.9	209.9	215.1	216.9	218.1	220.7	220.9	224.1	225.9	225.1	225.3	223.9
2282	Throwing and winding mills (6/76 = 100)	115.5	117.2	118.2	118.4	120.1	123.2	123.2	131.3	131.5	139.1	138.1	139.0	139.5	146.7
2284	Thread mills (6/76 = 100)	139.1	143.1	143.8	143.9	143.9	144.1	144.3	148.4	150.8	150.9	151.1	151.1	151.1	154.8
2298	Cordage and twine (12/77 = 100)	123.6	125.0	127.1	129.2	129.3	129.3	129.3	130.9	132.7	134.3	134.3	134.3	134.3	139.3
2311	Men's and boys' suits and coats	212.6	214.9	216.2	216.3	216.1	218.2	219.7	220.1	220.3	220.4	221.5	223.1	224.1	226.1
2321	Men's and boys' shirts and nightwear	204.4	207.7	208.0	208.6	209.5	206.3	207.3	207.1	207.6	207.1	205.5	208.6	208.7	209.6
2322	Men's and boys' underwear	208.0	212.8	212.8	212.8	212.9	224.9	229.1	231.0	231.0	231.0	230.6	230.7	230.7	230.7
2323	Men's and boys' neckwear (12/75 = 100)	112.6	112.4	112.4	112.4	115.4	115.4	115.4	115.4	115.4	115.4	115.4	113.9	113.9	113.9
2327	Men's and boys' separate trousers	175.3	175.3	180.2	180.2	180.3	185.3	185.3	185.3	186.0	186.1	186.1	186.3	186.4	186.4
2328	Men's and boys' work clothing	240.5	243.9	244.3	244.3	244.4	242.2	242.2	242.3	247.0	248.2	248.2	250.7	251.3	251.4
2331	Women's and misses' blouses and waists (6/78 = 100)	110.3	112.6	114.0	114.0	115.4	116.3	116.3	116.4	118.3	118.4	117.1	119.7	119.8	120.1
2335	Women's and misses' dresses (12/77 = 100)	114.7	115.4	116.3	116.3	116.3	116.5	116.9	118.5	118.4	122.3	121.4	121.4	121.5	122.5
2341	Women's and children's underwear (12/72 = 100)	154.4	155.4	156.0	157.1	158.1	165.5	167.5	168.8	169.0	169.2	171.1	171.2	171.2	171.2
2342	Brassieres and allied garments (12/75 = 100)	126.5	129.0	129.0	129.1	129.1	131.7	132.8	134.9	135.0	135.0	136.6	139.2	139.2	139.2
2361	Children's dresses and blouses (12/77 = 100)	109.9	112.2	112.7	115.1	117.4	118.1	118.9	119.2	120.7	120.5	119.4	120.5	120.5	120.5
2381	Fabric dress and work gloves	268.6	271.1	271.1	272.1	272.1	284.9	289.1	289.1	289.1	292.1	292.1	289.2	289.2	289.2
2394	Canvas and related products (12/77 = 100)	123.8	123.9	125.1	125.1	126.1	126.8	126.8	127.8	129.3	130.0	130.6	130.6	133.7	135.2
2396	Automotive and apparel trimmings (12/77 = 100)	122.4	122.3	122.3	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0	131.0
2421	Sawmills and planing mills (12/71 = 100)	227.7	229.0	223.2	226.8	233.5	232.3	229.6	228.6	233.3	234.8	233.9	231.6	231.0	224.9
2436	Softwood veneer and plywood (12/75 = 100)	144.6	149.6	149.1	152.3	158.2	149.8	149.3	147.2	152.6	145.7	147.5	144.0	139.9	135.7
2439	Structural wood members, n.e.c. (12/75 = 100)	155.6	155.5	156.2	157.0	157.1	157.1	157.0	157.1	158.3	158.2	158.2	157.5	157.1	156.2
2448	Wood pallets and skids (12/75 = 100)	160.1	154.9	154.6	154.7	154.1	153.8	152.8	152.7	153.1	153.1	153.0	153.0	152.8	152.7
2451	Mobile homes (12/74 = 100)	150.3	151.8	153.2	152.7	153.1	153.1	153.2	155.0	155.8	155.9	155.6	155.9	157.7	158.1
2492	Particleboard (12/75 = 100)	161.5	163.7	159.8	163.6	165.9	163.9	170.3	172.3	180.9	184.5	181.0	178.3	172.3	169.3
2511	Wood household furniture (12/71 = 100)	183.8	187.7	188.1	189.1	190.0	210.1	192.1	193.3	195.4	196.2	197.1	198.3	199.1	200.8
2512	Upholstered household furniture (12/71 = 100)	163.6	166.2	167.7	168.6	170.5	169.9	170.1	170.1	171.8	169.7	175.2	176.4	176.4	177.7
2515	Mattresses and bedsprings	179.1	186.4	186.5	186.5	186.5	186.3	188.3	189.5	190.5	190.4	194.6	195.4	198.7	199.4
2521	Wood office furniture	235.2	235.5	239.7	239.7	240.9	244.1	250.4	253.5	254.5	255.4	255.6	255.7	255.7	258.1
2611	Pulp mills (12/73 = 100)	240.0	244.4	246.1	246.8	246.8	246.9	246.9	246.9	251.2	251.3	253.5	253.5	253.5	253.5
2621	Paper mills, except building (12/74 = 100)	145.5	146.7	148.2	149.2	150.7	152.0	152.6	153.3	153.9	154.3	156.2	157.6	158.3	159.6
2631	Paperboard mills (12/74 = 100)	139.0	141.7	142.3	143.2	142.4	148.2	149.2	150.8	151.0	152.1	154.3	152.7	152.6	153.6
2647	Sanitary paper products	322.0	331.1	332.6	334.7	338.2	338.3	342.5	343.0	343.2	344.3	345.4	345.3	345.3	345.3
2654	Sanitary food containers	216.0	222.3	222.3	222.3	225.3	232.0	235.2	237.9	239.2	239.2	243.5	245.5	254.2	254.5
2655	Fiber cans, drums, and similar products (12/75 = 100)	150.6	155.2	155.5	155.5	155.0	157.7	160.6	160.7	160.8	160.9	160.9	163.2		

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30. Continued—Producer Price Indexes for the output of selected SIC industries

[1967 = 100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1980	1980				1981										
			Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May ¹	June	July	Aug.	Sept.		
3021	Rubber and plastic footwear (12/71 = 100)	177.9	182.0	182.0	182.4	182.3	182.8	183.4	183.6	183.6	184.0	184.1	184.7	185.3	185.4	185.2	185.2
3031	Reclaimed rubber (12/73 = 100)	184.7	185.9	184.0	184.1	186.7	190.4	190.4	187.6	187.7	187.7	185.6	190.8	198.1	198.1	198.1	198.1
3079	Miscellaneous plastic products (6/78 = 100)	121.7	124.4	124.2	124.6	124.5	125.4	125.4	126.3	128.7	129.1	129.3	129.0	129.7	130.0	130.0	130.0
3111	Leather tanning and finishing (12/77 = 100)	146.6	140.0	(²)	149.3	156.6	157.0	145.5	151.4	158.6	154.7	150.7	150.6	147.8	147.6	147.6	147.6
3142	House slippers (12/75 = 100)	149.1	151.1	153.5	158.2	154.9	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)
3143	Men's footwear, except athletic (12/75 = 100)	159.8	161.5	161.6	162.4	162.4	164.8	166.5	167.6	168.7	168.9	168.5	169.7	170.4	169.8	169.8	169.8
3144	Women's footwear, except athletic	213.5	215.2	217.1	217.1	217.1	217.8	220.2	218.7	218.7	219.3	219.0	218.9	219.2	217.8	217.8	217.8
3171	Women's handbags and purses (12/75 = 100)	137.9	140.9	140.9	140.9	140.9	149.5	149.5	149.7	149.7	158.4	158.4	158.4	158.4	158.4	158.4	158.4
3211	Flat glass (12/71 = 100)	161.3	162.8	163.8	166.4	166.3	167.1	167.5	168.1	174.5	174.5	171.8	177.1	180.2	180.2	180.2	180.2
3221	Glass containers	292.6	294.2	306.1	306.1	311.4	311.4	311.4	311.4	326.6	335.2	334.4	334.6	334.7	334.7	334.7	334.7
3241	Cement, hydraulic	310.8	312.3	311.8	310.5	310.5	324.3	324.3	324.4	332.4	332.3	329.0	329.5	329.5	329.5	329.5	329.5
3251	Brick and structural clay tile	277.3	278.5	282.6	282.9	282.9	286.6	286.1	295.3	296.0	297.4	298.3	299.8	299.9	300.9	300.9	300.9
3253	Ceramic wall and floor tile (12/75 = 100)	122.5	117.6	120.1	120.1	120.1	127.1	127.1	127.1	129.6	132.1	129.6	129.6	129.6	129.6	129.6	129.6
3255	Clay refractories	273.6	279.7	280.2	280.7	280.7	291.5	305.2	308.1	308.6	311.0	313.9	314.0	314.0	314.2	314.2	314.2
3259	Structural clay products, n.e.c.	202.7	204.8	204.9	205.0	205.1	209.5	212.8	213.0	212.7	223.9	224.3	224.3	224.2	227.9	227.9	227.9
3261	Vitreous plumbing fixtures	234.8	241.1	241.5	242.6	245.0	244.7	248.9	249.4	250.2	252.5	255.8	258.7	259.5	258.9	258.9	258.9
3262	Vitreous china food utensils	317.3	318.7	327.4	327.4	327.4	327.4	327.4	328.0	328.2	336.6	336.6	336.6	336.6	336.6	336.6	336.6
3263	Fine earthenware food utensils	295.5	296.4	297.9	297.9	297.9	298.6	298.6	307.9	308.2	309.6	309.1	309.1	309.1	313.3	313.3	313.3
3269	Pottery products, n.e.c. (12/75 = 100)	152.6	153.3	155.4	155.5	155.5	155.5	155.5	158.5	158.6	160.6	160.5	160.6	160.6	161.7	161.7	161.7
3271	Concrete block and brick	257.3	260.5	259.4	259.4	259.4	264.1	265.0	263.2	267.4	271.2	271.2	271.3	274.0	274.0	274.0	274.0
3273	Ready-mixed concrete	279.9	283.6	282.7	282.8	282.9	294.8	295.4	296.0	298.5	299.4	301.9	300.5	299.9	299.5	299.5	299.5
3274	Lime (12/75 = 100)	157.7	158.8	160.8	160.8	161.8	165.7	171.7	172.6	172.4	172.6	173.1	173.4	174.2	173.9	173.9	173.9
3275	Gypsum products	256.7	252.2	250.0	253.6	253.1	259.9	257.6	257.9	257.1	261.4	260.9	261.8	258.9	257.0	257.0	257.0
3291	Abrasive products (12/71 = 100)	212.6	217.1	218.8	220.2	220.6	222.8	221.7	223.1	232.7	233.2	233.8	234.9	234.9	235.6	235.6	235.6
3297	Nonclay refractories (12/74 = 100)	161.1	164.8	167.8	167.5	167.6	172.4	177.5	178.9	178.9	186.6	189.0	189.7	189.8	189.8	189.8	189.8
3312	Blast furnaces and steel mills	310.5	308.6	314.8	316.6	320.7	328.7	328.9	334.0	336.7	337.3	337.6	349.6	349.6	350.3	350.3	350.3
3313	Electrometallurgical products (12/75 = 100)	117.7	117.2	117.3	117.3	117.3	119.9	120.0	120.0	120.8	120.6	120.7	121.2	121.5	121.4	121.4	121.4
3316	Cold finishing of steel shapes	284.0	282.3	288.1	288.8	293.3	302.8	303.1	306.1	308.2	308.2	308.5	325.1	325.7	326.2	326.2	326.2
3317	Steel pipes and tubes	290.9	292.6	294.2	302.4	308.4	315.5	316.3	326.1	333.1	334.1	336.3	348.2	350.7	350.6	350.6	350.6
3321	Gray iron foundries (12/68 = 100)	282.5	283.3	289.7	290.1	290.7	295.2	296.1	295.6	297.0	298.4	298.6	299.4	299.4	301.9	301.9	301.9
3333	Primary zinc	270.5	264.0	269.9	282.0	288.7	300.3	300.0	299.7	311.9	332.7	331.0	331.3	349.5	351.5	351.5	351.5
3334	Primary aluminum	297.9	313.0	325.6	328.5	328.0	331.7	332.3	332.2	332.8	334.2	334.4	336.2	336.6	336.4	336.4	336.4
3351	Copper rolling and drawing	227.5	220.2	222.0	222.9	222.8	218.7	215.3	211.8	213.1	212.6	212.1	209.5	210.9	213.7	213.7	213.7
3353	Aluminum sheet plate and foil (12/75 = 100)	158.2	157.6	161.5	163.3	165.1	169.3	170.7	172.1	173.8	174.4	176.2	178.2	178.7	178.7	178.7	178.7
3354	Aluminum extruded products (12/75 = 100)	167.7	168.2	173.2	176.3	176.4	176.8	177.1	177.3	180.6	180.7	180.8	181.1	181.3	181.2	181.2	181.2
3355	Aluminum rolling, drawing, n.e.c. (12/75 = 100)	146.2	147.5	150.7	151.2	151.1	155.3	157.1	157.2	157.3	157.4	157.4	157.6	157.6	158.1	158.1	158.1
3411	Metal cans	291.6	296.1	297.9	297.2	297.3	302.1	303.0	304.7	304.7	304.7	304.7	305.6	306.9	307.4	307.4	307.4
3425	Hand saws and saw blades (12/72 = 100)	182.1	185.8	186.8	187.2	190.5	195.4	196.3	198.0	198.1	200.2	199.8	302.8	203.8	204.2	204.2	204.2
3431	Metal sanitary ware	248.3	251.4	251.5	252.2	253.8	256.0	256.4	258.5	262.8	264.8	263.9	266.9	267.1	267.5	267.5	267.5
3465	Automotive stampings (12/75 = 100)	136.9	140.1	140.2	140.9	141.2	143.0	143.9	144.2	145.0	145.0	145.6	146.6	146.8	147.2	147.2	147.2
3482	Small arms ammunition (12/75 = 100)	145.6	145.3	145.8	146.3	160.9	157.9	157.8	157.2	157.8	157.8	163.2	163.2	165.3	165.3	165.3	165.3
3493	Steel springs, except wire	230.3	231.9	233.0	233.3	234.3	238.4	239.2	239.5	241.2	241.7	241.8	244.2	244.3	249.5	249.5	249.5
3494	Valves and pipe fittings (12/71 = 100)	230.0	233.3	235.8	236.9	238.3	240.2	242.1	244.8	247.6	247.9	247.0	248.5	249.5	251.2	251.2	251.2
3498	Fabricated pipe and fittings	315.5	319.9	325.0	329.9	329.9	335.7	335.7	338.5	358.8	359.9	361.6	365.9	371.3	374.9	374.9	374.9
3519	Internal combustion engines, n.e.c.	275.4	283.2	285.2	289.1	289.9	298.2	299.4	302.6	306.0	306.2	305.7	311.5	313.6	320.9	320.9	320.9
3531	Construction machinery (12/76 = 100)	141.1	143.8	146.0	146.6	147.5	150.0	151.4	152.6	154.4	155.3	156.6	159.0	159.5	160.0	160.0	160.0
3532	Mining machinery (12/72 = 100)	258.5	264.1	266.0	268.0	270.0	272.5	273.5	276.2	279.5	280.0	280.5	282.3	283.5	286.0	286.0	286.0
3533	Oilfield machinery and equipment	338.1	347.3	352.9	358.4	360.9	367.0	374.2	378.2	382.2	384.6	389.4	393.3	403.1	408.7	408.7	408.7
3534	Elevators and moving stairways	239.3	246.4	248.3	248.8	249.5	250.3	250.3	250.3	251.2	251.2	251.2	251.3	252.9	254.6	254.6	254.6
3542	Machine tools, metal forming types (12/71 = 100)	279.5	285.6	286.8	287.4	292.0	297.5	298.0	301.9	303.0	305.1	305.6	307.3	312.6	312.6	312.6	312.6
3546	Power driven hand tools (12/76 = 100)	132.2	135.3	136.6	136.7	137.9	142.6	144.9	145.2	146.4	147.0	147.1	148.1	148.5	148.6	148.6	148.6
3552	Textile machinery (12/69 = 100)	216.6	222.3	223.8	224.5	226.0	235.7	235.0	240.0	240.4	241.2	242.4	245.0	245.3	247.0	247.0	247.0
3553	Woodworking machinery (12/72 = 100)	212.5	216.0	217.0	217.7	221.5	222.5	223.1	224.7	225.5	219.1	226.6	233.6	224.2	225.0	225.0	225.0
3576	Scales and balances, excluding laboratory	215.0	226.2	226.3	226.9	217.9	220.5	221.1	224.2	230.2	230.2	230.2	226.5	226.8	226.1	226.1	226.1
3592	Carburetors, pistons, rings, valves (6/76 = 100)	156.6	160.1	164.9	165.2	167.6	168.9	170.9	171.5	172.0	172.0	178.3	180.6	181.1	181.9	181.9	181.9
3612	Transformers	184.9	190.7	193.9	193.0	193.3	194.9	197.1	204.3	206.0	207.8	209.6	212.6	215.3	215.9	215.9	215.9
3623	Welding apparatus, electric (12/72 = 100)	209.9	211.7	214.4	214.9	215.8	218.9	220.9	222.1	224.3	225.9	226.8	227.4	228.8	230.8	230.8	230.8
3631	Household cooking equipment (12/75 = 100)	133.1	134.7	134.8	135.8	137.5	140.1	141.0	141.1	140.5	140.7	140.9	140.4	141.1	141.2	141.2	141.2
3632	Household refrigerators, freezers (6/76 = 100)	121.4	123.3	124.1	125.1	125.1	127.5	127.5	127.6	129.4	129.5	129.4	134.0	134.1	135.0	135.0	135.0
3633	Household laundry equipment (12/73 = 100)	162.0	165.5	166.1	166.6	167.4	169.8	170.2	170.9	173.5	173.9	173.8	174.1	174.1	176.0	176.0	176.0
3635	Household vacuum cleaners	154.4	158.6	158.8	158.8	159.1	159.1	156.3	158.5	158.4	158.5	152.0	152.0	152.2	152.2	152.2	152.2
3636	Sewing machines (12/75 = 100)	129.1	130.0	130.3	130.3	130.3	130.3	130.3	131.9	131.8	153.8	153.1	153.1	153.1	153.1	153.1	153.1
3641	Electric lamps	260.3	269.2	268.7	270.2	266.2	265.8	271.2	272.6	275.5	275.1	275.1	275.3	280.1	283.2	283.2	283.2
3644	Noncurrent-carrying wiring devices (12/72 = 100)	21															

PRODUCTIVITY DATA

PRODUCTIVITY DATA are compiled by the Bureau of Labor Statistics from establishment data and from estimates of compensation and output supplied by the U.S. Department of Commerce and the Federal Reserve Board.

Definitions

Output is the constant dollar gross domestic product produced in a given period. Indexes of **output per hour of labor input**, or labor productivity, measure the value of goods and services produced per hour of labor. **Compensation per hour** includes wages and salaries of employees plus employers' contributions for social insurance and private benefit plans. The data also include an estimate of wages, salaries, and supplementary payments for the self-employed, except for nonfinancial corporations, in which there are no self-employed. **Real compensation per hour** is compensation per hour adjusted by the Consumer Price Index for All Urban Consumers.

Unit labor cost measures the labor compensation cost required to produce one 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 the current dollar gross domestic product and dividing by output. In these tables, **Unit nonlabor costs** contain all the components of unit nonlabor payments except unit profits. **Unit profits** include corporate profits and inventory valuation adjustments per unit of output.

The **implicit price deflator** is derived by dividing the current dollar estimate of gross product by the constant dollar estimate, making the deflator, in effect, a price index for gross product of the sector reported.

The use of the term "man-hours" to identify the labor component of productivity and costs, in tables 31 through 34, has been discontinued. **Hours of all persons** is now used to describe the labor input of payroll workers, self-employed persons, and unpaid family workers. **Output per all-employee hour** is now used to describe labor productivity in nonfinancial corporations where there are no self-employed.

Notes on the data

In the private business sector and the nonfarm business sector, the basis for the output measure employed in the computation of output per hour is Gross Domestic Product rather than Gross National Product. Computation of hours includes estimates of nonfarm and farm proprietor hours.

Output data are 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 from the Bureau of Economic Analysis and the Bureau of Labor Statistics.

Beginning with the September 1976 issue of the *Review*, tables 31-34 were revised to reflect changeover to the new series—private business sector and nonfarm business sector—which differ from the previously published total private economy and nonfarm sector in that output imputed for owner-occupied dwellings and the household and institutions sectors, as well as the statistical discrepancy, are omitted. For a detailed explanation, see J. R. Norsworthy and L. J. Fulco, "New sector definitions for productivity series," *Monthly Labor Review*, October 1976, pages 40-42.

31. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years, 1950-80

[1977=100]

Item	1950	1955	1960	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980
Private business sector:													
Output per hour of all persons	50.3	58.2	65.1	78.2	86.1	94.8	92.7	94.8	97.9	100.0	99.8	99.5	99.3
Compensation per hour	20.0	26.3	33.9	41.7	58.2	71.3	78.0	85.5	92.9	100.0	108.4	119.3	131.4
Real compensation per hour	50.4	59.6	69.4	80.0	90.8	97.3	95.9	96.3	98.8	100.0	100.7	99.6	96.6
Unit labor cost	39.8	45.2	52.1	53.3	67.6	75.2	84.2	90.2	94.8	100.0	106.6	119.9	132.3
Unit nonlabor payments	43.5	47.8	50.8	57.8	63.4	75.6	78.9	90.7	94.4	100.0	105.1	110.9	118.4
Implicit price deflator	41.0	46.1	51.7	54.8	66.2	75.3	82.4	90.4	94.7	100.0	107.4	116.9	127.6
Nonfarm business sector:													
Output per hour of all persons	56.2	62.7	68.2	80.4	86.7	95.3	93.1	95.0	98.1	100.0	99.8	99.1	98.8
Compensation per hour	21.8	28.3	35.6	42.8	58.6	71.7	78.4	86.0	93.0	100.0	108.5	119.0	130.8
Real compensation per hour	55.0	63.9	73.0	82.2	91.5	97.7	96.4	96.8	99.0	100.0	100.7	99.3	96.2
Unit labor cost	38.8	45.1	52.3	53.2	67.6	75.2	84.3	90.5	94.8	100.0	108.7	120.0	132.4
Unit nonlabor payments	42.8	47.9	50.5	58.2	64.0	71.9	76.1	88.9	94.0	100.0	103.6	108.5	117.5
Implicit price deflator	40.2	46.0	51.7	54.9	66.4	74.1	81.6	89.9	94.5	100.0	107.0	116.2	127.4
Nonfinancial corporations:													
Output per hour of all employees	(¹)	(¹)	66.3	79.9	85.4	94.5	91.3	94.4	97.4	100.0	100.4	100.4	101.0
Compensation per hour	(¹)	(¹)	36.3	43.0	58.3	70.8	77.6	85.5	92.5	100.0	108.2	118.7	130.7
Real compensation per hour	(¹)	(¹)	74.2	82.6	91.0	96.5	95.4	96.3	98.5	100.0	100.5	99.1	96.2
Unit labor cost	(¹)	(¹)	54.7	53.8	68.3	74.9	85.1	90.6	95.0	100.0	107.8	118.2	129.4
Unit nonlabor payments	(¹)	(¹)	54.6	60.8	63.1	70.7	75.7	90.9	95.0	100.0	103.8	108.3	117.3
Implicit price deflator	(¹)	(¹)	54.7	56.2	66.5	73.4	81.8	90.7	95.0	100.0	106.4	114.8	125.2
Manufacturing:													
Output per hour of all persons	49.5	56.5	60.1	74.6	79.2	93.1	90.9	93.5	97.7	100.0	100.9	102.0	101.7
Compensation per hour	21.5	28.8	36.7	42.9	57.6	69.1	76.4	85.5	92.4	100.0	108.2	118.8	131.6
Real compensation per hour	54.1	65.2	75.1	82.3	89.9	94.2	93.9	96.3	98.3	100.0	100.5	99.2	96.8
Unit labor cost	43.4	51.0	61.1	57.4	72.7	74.2	84.1	91.4	94.6	100.0	107.3	116.5	129.4
Unit nonlabor payments	55.1	59.4	62.0	70.3	66.0	71.6	70.4	88.5	95.1	100.0	104.7	105.7	108.6
Implicit price deflator	46.8	53.4	61.3	61.2	70.7	73.4	80.1	90.6	94.7	100.0	106.5	113.4	123.4

¹ Not available.

32. Annual changes in productivity, hourly compensation, unit costs, and prices, 1970-80

Item	Year											Annual rate of change	
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1950-80	1960-80
Private business sector:													
Output per hour of all persons	0.9	3.6	3.5	2.7	-2.3	2.3	3.3	2.1	-0.2	-0.3	-0.2	2.5	2.2
Compensation per hour	7.4	6.6	6.5	8.0	9.4	9.6	8.6	7.7	8.4	10.1	10.1	6.0	7.1
Real compensation per hour	1.4	2.2	3.1	1.7	-1.4	0.4	2.7	1.2	0.7	-1.1	-3.0	2.4	1.9
Unit labor cost	6.4	2.9	2.9	5.2	11.9	7.2	5.1	5.5	8.6	10.4	10.3	3.5	4.8
Unit nonlabor payments	0.7	7.6	4.5	5.9	4.4	15.0	4.1	5.9	5.1	5.5	6.7	3.2	4.4
Implicit price deflator	4.5	4.4	3.4	5.4	9.4	9.7	4.7	5.6	7.4	8.8	9.2	3.4	4.7
Nonfarm business sector:													
Output per hour of all persons	0.3	3.3	3.7	2.5	-2.4	2.1	3.2	2.0	-0.2	-0.7	-0.3	2.1	1.9
Compensation per hour	7.0	6.6	6.7	7.6	9.4	9.6	8.1	7.6	8.5	9.7	9.9	5.7	6.8
Real compensation per hour	1.0	2.2	3.3	1.3	-1.4	0.4	2.2	1.0	0.7	-1.4	-3.2	2.1	1.6
Unit labor cost	6.6	3.1	2.8	4.9	12.1	7.4	4.7	5.5	8.7	10.4	10.3	3.5	4.8
Unit nonlabor payments	1.1	7.4	3.2	1.3	5.9	16.7	5.7	6.4	3.6	4.8	8.3	3.1	4.2
Implicit price deflator	4.8	4.5	3.0	3.7	10.1	10.3	5.1	5.8	7.0	8.6	9.7	3.4	4.6
Nonfinancial corporations:													
Output per hour of all employees	0.4	4.8	3.0	2.6	-3.4	3.4	3.2	2.7	0.4	-0.0	0.6	(¹)	2.1
Compensation per hour	6.8	6.5	5.8	7.7	9.7	10.1	8.2	8.1	8.2	9.7	10.1	(¹)	6.7
Real compensation per hour	0.8	2.1	2.5	1.4	-1.1	0.9	2.3	1.5	0.5	-1.4	-3.0	(¹)	1.5
Unit labor cost	6.3	1.6	2.8	4.9	13.6	6.5	4.9	5.3	7.8	9.7	9.5	(¹)	4.6
Unit nonlabor payments	0.5	7.4	2.7	1.5	7.1	20.1	4.6	5.2	3.8	4.4	8.3	(¹)	3.8
Implicit price deflator	4.4	3.5	2.8	3.8	11.4	10.9	4.8	5.2	6.4	7.9	9.1	(¹)	4.3
Manufacturing:													
Output per hour of all persons	-0.2	6.1	5.0	5.4	-2.4	2.9	4.4	2.4	0.9	1.1	0.3	2.6	2.7
Compensation per hour	6.8	6.1	5.4	7.2	10.6	11.9	8.0	8.3	8.2	9.8	10.7	5.6	6.7
Real compensation per hour	0.8	1.8	2.0	0.9	-0.3	2.5	2.1	1.7	0.5	-1.3	-2.5	2.0	1.5
Unit labor cost	7.0	0.0	0.3	1.7	13.3	8.8	3.4	5.7	7.3	8.6	11.1	2.9	3.8
Unit nonlabor payments	-2.5	11.2	0.8	-3.3	-1.8	25.9	7.4	5.2	4.7	0.9	2.8	2.9	4.5
Implicit price deflator	4.3	3.1	0.5	0.3	9.0	13.1	4.6	5.6	6.5	6.4	8.8	3.0	4.2

¹ Not available.

33. Quarterly indexes of productivity, hourly compensation, unit costs, and prices, seasonally adjusted

[1977 = 100]

Item	Annual average		Quarterly indexes										
			1978		1979				1980				1981
	1979	1980	IV	I	II	III	IV	I	II	III	IV	I	II
Private business sector:													
Output per hour of all persons	99.5	99.3	99.9	99.7	99.7	99.4	99.1	99.5	99.1	99.4	99.1	100.3	101.0
Compensation per hour	119.3	131.4	111.9	115.0	118.1	120.7	123.2	126.4	130.1	133.1	135.9	139.7	143.2
Real compensation per hour	99.6	96.6	100.3	100.6	100.3	99.2	98.0	96.7	96.5	96.9	96.0	96.1	96.8
Unit labor cost	119.9	132.3	112.1	115.4	118.5	121.4	124.3	127.0	131.3	133.9	137.0	139.4	141.8
Unit nonlabor payments	110.9	118.4	109.1	109.6	110.4	111.5	112.2	115.2	116.0	119.7	122.7	127.6	129.2
Implicit price deflator	116.9	127.6	111.1	113.4	115.8	118.1	120.2	123.0	126.1	129.1	132.2	135.4	137.6
Nonfarm business sector:													
Output per hour of all persons	99.1	98.8	99.8	99.5	99.1	98.9	98.8	98.9	98.2	99.0	99.0	100.0	100.2
Compensation per hour	119.0	130.8	111.9	114.9	117.7	120.2	123.0	126.0	129.4	132.3	135.4	139.1	142.4
Real compensation per hour	99.3	96.2	100.3	100.4	100.0	98.8	97.8	96.4	96.0	96.3	95.6	95.7	96.3
Unit labor cost	120.0	132.4	112.2	115.4	118.7	121.5	124.4	127.4	131.8	133.6	136.8	139.1	142.1
Unit nonlabor payments	108.5	117.5	107.0	107.1	107.7	109.2	110.1	113.9	115.1	119.2	122.0	127.8	128.6
Implicit price deflator	116.2	127.4	110.5	112.6	115.1	117.4	119.7	122.9	126.3	128.8	131.9	135.3	137.6
Nonfinancial corporations:													
Output per hour of all employees	100.4	101.0	100.5	100.6	100.7	100.5	99.9	100.2	100.1	101.8	101.8	103.3	103.6
Compensation per hour	118.7	130.7	111.5	114.5	117.6	120.1	122.7	125.7	129.3	132.5	135.5	139.2	142.3
Real compensation per hour	99.1	96.2	99.9	100.1	99.9	98.7	97.5	96.2	95.9	96.5	95.7	95.7	96.2
Total unit costs	116.8	129.7	109.6	112.2	115.3	118.2	121.3	124.2	129.2	131.1	134.1	136.0	139.2
Unit labor cost	118.2	129.4	111.0	113.8	116.8	119.5	122.8	125.4	129.1	130.2	133.1	134.7	137.4
Unit nonlabor costs	112.7	130.2	106.0	107.8	111.2	114.6	117.2	120.9	129.3	133.8	136.9	139.5	144.4
Unit profits	99.0	90.2	108.9	105.6	100.7	97.5	92.2	95.5	83.4	89.1	92.4	106.8	101.2
Implicit price deflator	114.8	125.2	109.6	111.5	113.7	115.9	118.1	121.0	124.1	126.4	129.5	132.7	135.0
Manufacturing:													
Output per hour of all persons	102.0	101.7	102.0	101.5	102.3	102.0	102.1	102.0	100.8	100.5	103.4	104.2	105.3
Compensation per hour	118.8	131.6	111.5	114.5	118.6	119.8	122.3	125.4	130.0	133.9	137.3	140.9	144.5
Real compensation per hour	99.2	96.8	100.0	100.2	100.7	98.5	97.2	95.9	96.4	97.5	97.0	96.9	97.7
Unit labor cost	116.5	129.4	109.3	112.9	115.9	117.5	119.8	122.9	129.0	133.3	132.8	135.3	137.3

r = revised.

34. Percent change from preceding quarter and year in productivity, hourly compensation, unit costs, and prices, seasonally adjusted at annual rate

[1977 = 100]

Item	Quarterly percent change at annual rate						Percent change from same quarter a year ago					
	IV 1979 to I 1980	I 1980 to II 1980	II 1980 to III 1980	III 1980 to IV 1980	IV 1980 to I 1981	I 1981 to II 1981	I 1979 to II 1980	II 1979 to III 1980	III 1979 to IV 1980	IV 1979 to I 1981	I 1980 to II 1981	II 1980 to III 1981
Private business sector:												
Output per hour of all persons	1.6	-1.8	1.3	-1.1	4.6	2.8	-0.1	-0.6	0.0	-0.0	0.7	1.9
Compensation per hour	10.7	12.3	9.5	8.6	11.8	10.4	9.9	10.1	10.3	10.3	10.5	10.1
Real compensation per hour	-5.0	-0.7	1.6	-3.8	0.4	3.1	-3.8	-3.8	-2.3	-2.0	-0.7	0.3
Unit labor costs	9.0	14.4	8.1	9.8	6.9	7.3	10.0	10.8	10.3	10.3	9.7	8.0
Unit nonlabor payments	11.2	2.6	13.7	10.2	17.2	5.0	5.1	5.1	7.4	9.3	10.8	11.4
Implicit price deflator	9.7	10.5	9.8	9.9	10.0	6.6	8.4	9.0	9.4	10.0	10.1	9.1
Nonfarm business sector:												
Output per hour of all persons	0.3	-2.9	3.6	-0.2	4.3	-0.7	-0.7	-1.0	0.1	-0.1	1.1	2.1
Compensation per hour	10.2	11.3	9.0	9.8	11.6	9.6	9.7	9.9	10.1	10.1	10.4	10.0
Real compensation per hour	-5.4	-1.6	1.2	-2.7	-0.2	2.4	-4.0	-4.0	-2.5	-2.2	-0.8	0.2
Unit labor costs	9.9	14.6	5.3	10.1	7.0	8.8	10.4	11.0	9.9	9.9	9.2	7.8
Unit nonlabor payments	14.6	4.2	15.0	9.9	20.3	-2.7	6.4	6.9	9.1	10.8	12.2	11.8
Implicit price deflator	11.3	11.3	8.2	10.0	11.0	6.9	9.1	9.7	9.6	10.2	10.1	9.0
Nonfinancial corporations:												
Output per hour of all employees	1.5	-0.5	6.7	-0.0	6.3	0.9	-0.3	-0.5	1.3	1.9	3.1	3.4
Compensation per hour	10.2	12.0	10.2	9.4	11.4	9.2	9.8	9.9	10.3	10.4	10.8	10.1
Real compensation per hour	-5.4	-1.0	2.2	-3.1	-0.0	2.1	-3.9	-3.9	-2.2	-1.9	-0.5	0.3
Total unit costs	9.8	17.0	6.2	9.4	5.6	10.0	10.6	12.0	11.0	10.5	9.5	7.8
Unit labor costs	8.6	12.6	3.2	9.4	4.8	8.3	10.1	10.5	8.9	8.4	7.4	6.4
Unit nonlabor costs	13.5	30.6	14.7	9.5	7.9	14.9	12.2	16.3	16.8	16.8	15.4	11.7
Unit profits	15.3	-41.9	30.3	15.7	77.9	-19.4	-9.5	-17.2	-8.6	0.3	11.8	21.3
Implicit price deflator	10.3	10.5	7.9	9.9	10.4	7.1	8.5	9.1	9.1	9.6	9.7	8.8
Manufacturing:												
Output per hour of all persons	-0.5	-4.7	-1.2	12.1	3.2	4.3	-0.5	-1.5	-1.5	1.2	2.2	4.5
Compensation per hour	10.4	15.5	12.7	10.5	11.1	10.6	9.4	9.6	11.7	12.2	12.4	11.2
Real compensation per hour	-5.3	2.1	4.5	-2.2	-0.3	3.4	-4.2	-4.3	-1.0	-0.3	1.0	1.3
Unit labor costs	10.9	21.2	14.0	-1.5	7.7	6.0	8.9	11.3	13.4	10.9	10.0	6.4

c = corrected.

LABOR-MANAGEMENT DATA

MAJOR COLLECTIVE BARGAINING DATA are obtained from contracts on file at the Bureau of Labor Statistics, direct contact with the parties, and from secondary sources. Additional detail is published in *Current Wage Developments*, a monthly periodical of the Bureau. Data on work stoppages are based on confidential responses to questionnaires mailed by the Bureau of Labor Statistics to parties involved in work stoppages. Stoppages initially come to the attention of the Bureau from reports of Federal and State mediation agencies, newspapers, and union and industry publications.

Definitions

Data on wage changes apply to private nonfarm industry agreements covering 1,000 workers or more. Data on wage and benefit changes *combined* apply only to those agreements covering 5,000 workers or more. **First-year wage settlements** refer to pay changes going into effect within the first 12 months after the effective date of

the agreement. **Changes over the life of the agreement** refer to total agreed upon settlements (exclusive of potential cost-of-living escalator adjustments) expressed at an average annual rate. **Wage-rate changes** are expressed as a percent of straight-time hourly earnings, while **wage and benefit changes** are expressed as a percent of total compensation.

Effective wage-rate adjustments going into effect in major bargaining units measure changes actually placed into effect during the reference period, whether the result of a newly negotiated increase, a deferred increase negotiated in an earlier year, or as a result of a cost-of-living escalator adjustment. Average adjustments are affected by workers receiving no adjustment, as well as by those receiving increases or decreases.

Work stoppages include all known strikes or lockouts involving six workers or more and lasting a full shift or longer. Data cover all workers idle one shift or more in establishments directly involved in a stoppage. They do not measure the indirect or secondary effect on other establishments whose employees are idle owing to material or service shortages.

35. Wage and benefit settlements in major collective bargaining units, 1976 to date

[In percent]

Sector and measure	Annual average					Quarterly average								
	1976	1977	1978	1979	1980	1979			1980				1981 ^P	
						II	III	IV	I	II	III	IV	I	II
Wage and benefit settlements, all industries:														
First-year settlements	8.5	9.6	8.3	9.0	10.4	10.5	9.0	8.5	8.8	10.2	11.4	8.5	10.4	12.0
Annual rate over life of contract	6.6	6.2	6.3	6.6	7.1	7.8	6.1	6.0	6.7	7.4	7.2	6.1	7.3	11.0
Wage rate settlements, all industries:														
First-year settlements	8.4	7.8	7.6	7.4	9.5	8.9	6.8	6.3	8.2	9.1	10.5	8.3	9.0	12.2
Annual rate over life of contract	6.4	5.8	6.4	6.0	7.1	7.2	5.1	5.3	6.5	7.3	7.4	6.5	7.7	9.8
Manufacturing:														
First-year settlements	8.9	8.4	8.3	6.9	7.4	9.7	6.3	5.6	7.2	6.7	8.4	7.8	9.0	7.4
Annual rate over life of contract	6.0	5.5	6.6	5.4	5.4	8.1	4.7	4.2	5.7	5.1	5.6	5.8	6.7	6.2
Nonmanufacturing (excluding construction):														
First-year settlements	8.6	8.0	8.0	7.6	9.5	8.5	9.4	7.8	9.4	10.3	9.5	8.2	8.3	12.3
Annual rate over life of contract	7.2	5.9	6.5	6.2	6.6	5.8	6.5	7.4	7.6	8.5	5.9	6.8	7.6	9.4
Construction:														
First-year settlements	6.1	6.3	6.5	8.8	13.6	8.7	9.7	7.5	10.8	12.2	15.4	14.3	13.4	13.1
Annual rate over life of contract	6.2	6.3	6.2	8.3	11.5	8.3	8.5	7.6	9.1	10.4	13.0	12.0	11.6	10.9

r = revised.

36. Effective wage adjustments going into effect in major collective bargaining units, 1976 to date

[In percent]

Sector and measure	Average annual changes					Average quarterly changes									
	1976	1977	1978	1979	1980	1979			1980				1981		
						II	III	IV	I	II	III	IV	I	II	
Total effective wage rate adjustment, all industries	8.1	8.0	8.2	9.1	9.9	2.6	3.3	1.6	1.6	3.3	3.5	1.3	1.2	2.8	
Change resulting from —															
Current settlement	3.2	3.0	2.0	3.0	3.6	1.1	1.0	.5	.4	1.0	1.7	.5	.1	.9	
Prior settlement	3.2	3.2	3.7	3.0	3.5	1.0	1.0	.4	.5	1.4	1.2	.3	.6	1.4	
Escalator provision	1.6	1.7	2.4	3.1	2.8	.5	1.2	.7	.7	.8	.7	.6	.6	.5	
Manufacturing	8.5	8.4	8.6	9.6	10.2	2.3	3.2	2.4	2.0	3.4	2.9	1.7	1.4	2.1	
Nonmanufacturing	7.7	7.6	7.9	8.8	9.7	2.8	3.4	1.0	1.3	3.2	4.0	1.1	1.0	3.4	

NOTE: Because of rounding and compounding, the sums of individual items may not equal totals.

37. Work stoppages, 1947 to date

Month and year	Number of stoppages		Workers involved		Days idle	
	Beginning in month or year	In effect during month	Beginning in month or year (thousands)	In effect during month (thousands)	Number (thousands)	Percent of estimated working time
1947	3,693	.....	2,170	.....	34,600	.30
1948	3,419	.....	1,960	.....	34,100	.28
1949	3,606	.....	3,030	.....	50,500	.44
1950	4,843	.....	2,410	.....	38,800	.33
1951	4,737	.....	2,220	.....	22,900	.18
1952	5,117	.....	3,540	.....	59,100	.48
1953	5,091	.....	2,400	.....	28,300	.22
1954	3,468	.....	1,530	.....	22,600	.18
1955	4,320	.....	2,650	.....	28,200	.22
1956	3,825	.....	1,900	.....	33,100	.24
1957	3,673	.....	1,390	.....	16,500	.12
1958	3,694	.....	2,060	.....	23,900	.18
1959	3,708	.....	1,880	.....	69,000	.50
1960	3,333	.....	1,320	.....	19,100	.14
1961	3,367	.....	1,450	.....	16,300	.11
1962	3,614	.....	1,230	.....	18,600	.13
1963	3,362	.....	941	.....	16,100	.11
1964	3,655	.....	1,640	.....	22,900	.15
1965	3,963	.....	1,550	.....	23,300	.15
1966	4,405	.....	1,960	.....	25,400	.15
1967	4,595	.....	2,870	.....	42,100	.25
1968	5,045	.....	2,649	.....	49,018	.28
1969	5,700	.....	2,481	.....	42,869	.24
1970	5,716	.....	3,305	.....	66,414	.37
1971	5,138	.....	3,280	.....	47,589	.26
1972	5,010	.....	1,714	.....	27,066	.15
1973	5,353	.....	2,251	.....	27,948	.14
1974	6,074	.....	2,778	.....	47,991	.24
1975	5,031	.....	1,746	.....	31,237	.16
1976	5,648	.....	2,420	.....	37,859	.19
1977	5,506	.....	2,040	.....	35,822	.17
1978	4,230	.....	1,623	.....	36,922	.17
1979	4,827	.....	1,727	.....	34,754	.15
1980: August	360	775	88	231	3,315	.17
September	436	813	153	289	3,576	.18
October	349	722	90	224	2,530	.12
November	205	532	53	126	1,440	.09
December	90	380	19	77	1,228	.06
1981 P: January	253	297	50	68	614	.03
February	347	517	90	136	647	.04
March	314	545	271	336	1,419	.07
April	371	560	101	273	5,117	.25
May	473	688	152	383	5,857	.31
June	421	682	186	499	3,891	.19
July	391	659	127	190	2,015	.10
August	310	596	49	86	1,387	.07

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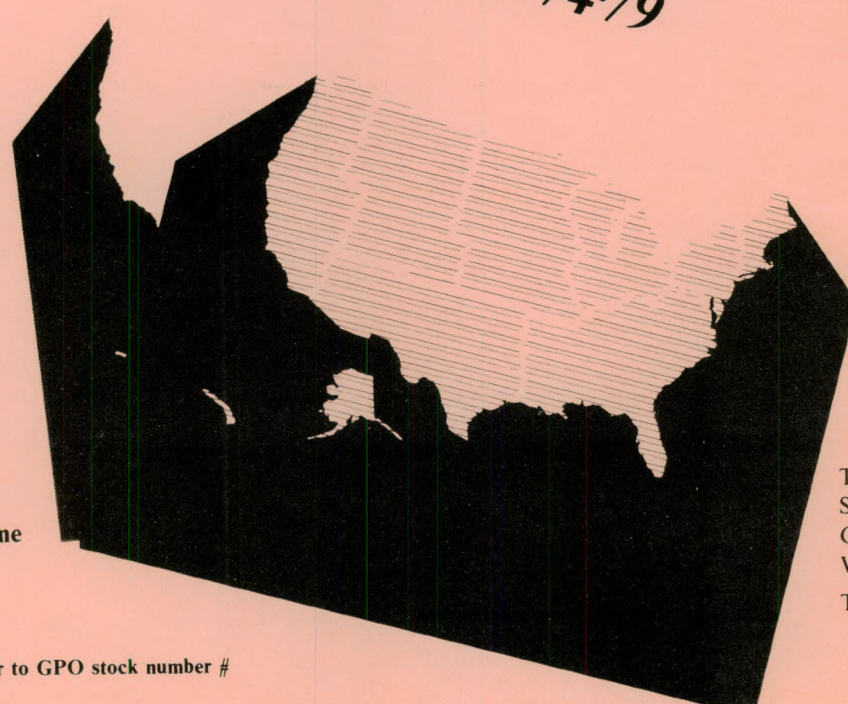
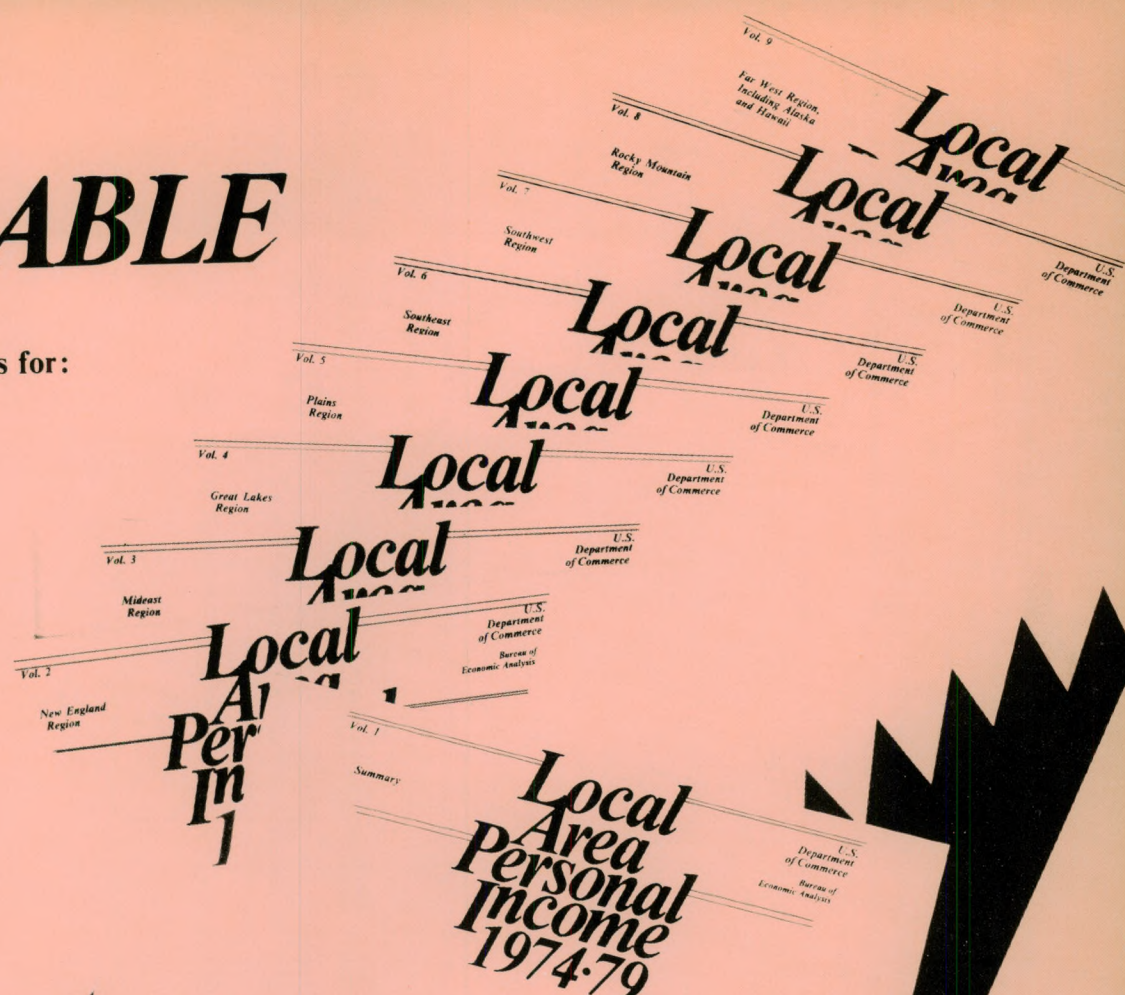
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By Industry Group

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A photograph of the first legislative committee of the Federation of Organized Trades and Labor Unions of the United States and Canada, the immediate precursor of the American Federation of Labor. The members were (standing left to right) Samuel Gompers and William H. Foster, and (seated, left to right), Charles F. Burgman, Richard Powers, and Alexander C. Rankin.