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Henry Lowenstern, Editor-in-Chief
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Labor Month In Review

STATISTICAL INTEGRITY. Three years ago, a President's Reorganization Project for the Federal Statistical System, under the leadership of James T. Bonnen, set out to define the problems of Federal statistics and to suggest some possible solutions. Last month, the *Statistical Reporter*, issued by the Office of Federal Statistical Policy and Standards, published the Project's report, "Improving the Federal Statistical System: Issues and Options." The following excerpts from chapter 5 focus on threats to the integrity of the statistical system.

The most direct threat to integrity is outright manipulation of, or tampering with, data. For the most part, this is not believed to be a problem. The production of a major statistical series or analysis is almost always a joint effort involving many statisticians, field staff, systems analysts, and others. Any significant manipulation of the output would likely cause someone within the system to blow the whistle. Knowledgeable users would also be likely to raise questions.

According to the diaries of Henry Wallace, President Franklin D. Roosevelt once suggested to Dr. Isador Lubin that he "doctor up the cost of living figures by leaving out some item so as to make it appear that the cost of living was not really so much as it is." Such a suggestion to a statistical administrator by a President or other high administration official today seems almost unthinkable. It is important to insure that the conditions that make it unthinkable continue to exist.

More subtle threats to integrity can arise from selectivity—selectivity in what kinds of data to collect, in the resources allotted to establish the quality of data in a particular series, in the selection of models and assumptions for analyzing an issue, in decisions on what data to include in publications, in decisions on when to release data or analyses, and in many other ways. Analytical, as opposed to data-production, activities are especially vulnerable to threats of bias from selectivity. Selectivity biases can arise inside the statistical system, if employees allow their own personal biases to affect their objectivity, but are perhaps more likely to arise from outside the system. It is usually in the interest of any administration, particularly as a Presidential election year approaches, to demonstrate that the economy is sound and society is healthy. Considerable restraint and objectivity on the part of administration officials are needed to avoid favoring statistical activities which support that view, and withdrawing support from those which do not.

The integrity of the Federal statistical system depends heavily on the maintenance of high professional standards by its members. Threats to integrity can arise within the system from lack of professionalism and objectivity. Some practices to be avoided include:

(1) The use of judgment, as opposed to random or probability, samples. Judgment or purposive samples are sometimes acceptable for small exploratory studies, but should never be used when estimates for the population sampled are a primary objective.

(2) Failure to deal properly with missing or incomplete data. Statisticians must evaluate the probable effects of nonresponse bias on a particular series, make reasonable efforts to achieve an acceptable level of response, and develop and document procedures to deal with remaining nonresponse.

(3) Failure to monitor all phases of data collection and processing with appropriate quality control procedures.

(4) Failure to document all procedures used to collect, compile, process, and analyze data, and to make documentation available to data users and other interested persons.

(5) Failure to use acceptable evaluation techniques, such as verification, validation, and sensitivity analyses.

Another kind of threat to the integrity of the Federal statistical system can occur if agencies or individuals fail to observe what has come to be called a code of fair information practices. Data collectors must not, in their zeal to achieve high response rates, harass potential respondents to voluntary surveys or misrepresent in any way the conditions under which they are being asked to respond. Once data are supplied to the system, all employees must be aware of and scrupulously abide by all regulations, policies, and procedures designed to protect the confidentiality of individually identifiable data.

Failure to abide by fair information practices, no matter how well intentioned, in the long run can only impair the integrity of the system and destroy the confidence of persons and businesses asked to supply data for statistical purposes. Cooperation in voluntary surveys will probably decline, and the quality of results will suffer accordingly.

Finally, employees of the Federal statistical system must avoid any conflict of interest. Most issues in this area are similar to those which arise in other kinds of government activities. Employees with responsibilities for procurement should deal at arm's length with any organizations from which their agencies contract for surveys and other statistical services, purchase of data-processing equipment, and so forth.

The report appears in the February 1981 issue of *Statistical Reporter,* available for $1.10 from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Annual subscription price, $13. □

Price changes in 1980: double-digit inflation persists

Consumer prices jumped 12.4 percent and producer prices, 11.7 percent; costs for energy items rose, but mortgage interest rates fluctuated wildly and a severe drought raised food prices

CRAIG HOWELL, DAVE CALLAHAN, AND OTHERS

For the second consecutive year, the rate of inflation in both retail and primary markets registered double-digit increases. The Consumer Price Index for All Urban Consumers (CPI-U) moved up 12.4 percent, following a 13.3-percent advance during 1979. Prices for all major consumer expenditure categories, except apparel and entertainment, increased at least 10 percent over the year. Mortgage interest costs advanced 27.6 percent, compared with a 34.7-percent climb in the preceding year. Prices paid by consumers for energy items were up 18.1 percent. Although this was larger than the increases recorded for most other CPI components, it was half as large as the 1979 surge of 37.4 percent. Food prices rose about 10 percent for the second consecutive year. Excluding food, energy, and mortgage interest costs, however, the rate of increase in the CPI accelerated from 8.7 percent in 1979 to 9.9 percent in 1980. (See table 1.)

At the primary market level, Producer Price Indexes (PPI) for each of the three major stage-of-processing groupings—finished, intermediate, and crude goods—rose at double-digit rates from December 1979 to December 1980, although each rate was somewhat slower than the corresponding 1979 pace. The Finished Goods Price Index climbed 11.7 percent in 1980, following a 12.8-percent advance in 1979.[1] The slowdown in 1980 was partly due to the deceleration in the rate of increase for the finished energy goods index, which climbed 27.7 percent, after soaring 58.0 percent in 1979. Finished consumer food prices rose 7.3 percent in 1980, virtually the same as during the previous 12 months. Prices for finished goods other than food and energy rose more in 1980 (11.0 percent) than in 1979 (9.3 percent); on average these prices advanced rapidly in early 1980 and then moderated as the year progressed. At the earlier stages of processing, the price index for intermediate goods moved up 12.5 percent over the year, after increasing 16.1 percent from December 1978 to December 1979, and crude material prices climbed 11.9 percent, following a 16.4-percent jump during the 12 months ended in December 1979.

Energy cost increases moderate

Prices for most energy goods and services continued to rise rapidly in 1980, although the increases were generally less than in 1979. (See table 2.) The upward movement in energy prices reflected increased costs of imported crude petroleum as well as higher prices allowed for domestic crude petroleum and natural gas. The slowdown in the rate of increase was partly due to reduced consumer and industrial demand for energy.

In late 1979 and early 1980, world crude petroleum prices rose sharply as the security of Persian Gulf oil shipments was threatened by political turmoil in Iran

Craig Howell and Dave Callahan are economists in the Office of Prices and Living Conditions, Bureau of Labor Statistics. They were assisted by Andrew Clem, John Z. Wetmore, William Thomas, Eddie Lamb, Mary Burns, and Jesse Thomas, economists in the same office.

Table 1. Changes in selected components of the Consumer and the Producer Price Indexes, 1979–80

Grouping	Relative importance Dec. 1979	Percent change		Contribution[1]		Compound annual rates, seasonally adjusted except as noted, for 3 months ended—			
		Dec. 1978 to Dec. 1979	Dec. 1979 to Dec. 1980	Dec. 1978 to Dec. 1979	Dec. 1979 to Dec. 1980	1980			
						Mar.	June	Sept.	Dec.
Consumer Price Index for All Urban Consumers (CPI-U)[2]									
All items	100.0	13.3	12.4	100.0	100.0	17.3	11.4	7.8	13.2
Food and beverages	18.7	10.0	10.1	14.5	15.3	3.6	5.9	19.1	12.5
Food at home	12.2	9.5	10.6	9.1	10.4	.8	4.7	24.8	13.2
Food away from home	5.5	11.4	9.6	4.8	4.2	9.1	8.1	9.0	12.3
Alcoholic beverages	1.0	8.0	7.6	.6	.6	7.4	9.8	8.2	5.2
All Housing	45.0	15.2	13.7	50.5	49.7	18.5	19.7	1.7	15.8
Shelter	30.9	17.4	15.1	39.0	37.6	20.0	23.1	−1.4	20.2
Rent, residential[3]	5.3	7.9	9.1	3.3	3.9	8.3	10.0	8.6	9.6
Homeownership	24.9	19.8	16.5	35.0	33.2	22.6	26.4	−3.5	23.1
Home purchase[3]	10.4	15.8	11.4	12.1	9.5	7.0	14.9	14.9	9.0
Finances, taxes, insurance[3]	10.9	27.5	23.3	20.0	20.5	41.5	43.9	−20.0	41.8
Maintenance and repairs	3.6	10.3	10.6	2.9	3.1	16.2	8.3	8.2	10.1
Fuel and other utilities	6.5	16.0	13.6	7.6	7.1	19.8	17.0	9.8	8.5
Household furnishings and repairs	7.6	6.4	8.1	3.9	5.0	10.8	8.4	7.8	5.1
Apparel and upkeep	5.1	5.5	6.8	2.3	2.8	13.2	1.1	8.9	4.3
Apparel commodities	4.4	4.5	6.0	1.6	2.1	13.2	−.7	8.8	3.3
Apparel services	.7	12.5	12.4	.6	.7	14.9	13.8	9.2	11.7
Transportation	18.6	18.2	14.7	24.3	22.0	33.2	2.6	11.3	13.9
Private transportation	17.5	18.2	14.0	23.0	19.8	34.1	1.8	8.9	13.8
Public transportation	1.1	17.9	25.6	1.4	2.2	17.3	18.6	56.7	14.1
Medical care	4.8	10.1	10.0	3.8	3.9	14.2	8.9	9.2	7.9
Medical care commodities	.8	7.6	10.0	.5	.6	10.2	10.7	10.2	8.9
Medical care services	4.0	10.6	10.0	3.3	3.3	15.3	8.4	8.9	7.7
Entertainment	3.7	6.9	9.6	2.0	2.9	14.3	9.1	10.5	5.0
Other goods and services	4.1	7.9	10.1	2.5	3.3	11.0	9.3	11.1	9.0
All items	100.0	13.3	12.4	100.0	100.0	17.3	11.4	7.8	13.2
Food	17.7	10.2	10.2	13.9	14.6	3.3	5.8	19.7	13.1
Commodities less food and energy	34.5	8.8	9.9	23.8	27.7	9.5	7.7	12.9	9.6
Energy[3]	10.3	37.4	18.1	24.0	15.1	64.0	15.2	2.5	.3
Services less energy	37.5	13.6	14.1	38.3	42.6	20.2	20.0	−.4	17.9
All items	100.0	13.3	12.4	100.0	100.0	17.3	11.4	7.8	13.2
Services	40.9	13.7	14.2	42.1	47.0	20.1	20.5	.7	16.8
Commodities	59.1	13.0	10.3	57.9	53.0	15.3	5.4	13.2	11.0
All items less food, energy, and mortgage interest cost	62.0	8.7	9.9	43.2	51.0	10.7	8.6	11.0	9.3
Producer Price Index (PPI) by stage of processing[2]									
Finished goods	100.0	12.8	11.7	100.0	100.0	17.5	8.4	13.5	7.8
Finished energy goods	11.3	58.0	27.7	36.7	26.9	89.2	18.7	27.3	14.4
Consumer foods	25.9	7.4	7.3	15.7	16.1	−.9	−1.4	31.0	3.6
Finished goods less food	74.1	14.8	13.3	84.1	83.9	24.6	11.8	8.3	9.3
Finished goods less food and energy	62.8	9.4	10.6	47.5	57.0	15.0	10.4	9.3	8.3
Finished consumer goods less food	52.0	17.5	14.0	68.2	62.2	29.7	12.1	7.6	8.5
Finished consumer goods less food and energy	40.7	9.7	10.2	31.7	35.5	16.0	10.0	8.9	6.7
Capital equipment	22.0	8.8	11.4	15.7	21.5	13.6	10.9	9.9	11.4
Intermediate materials, supplies, and components	100.0	16.1	12.5	100.0	100.0	22.2	6.6	10.1	11.9
Intermediate energy goods	14.1	44.7	25.2	31.5	28.5	65.4	9.9	13.0	19.5
Intermediate food and feeds	6.1	8.2	15.3	3.4	7.5	.5	14.1	52.7	.7
Intermediate materials less foods and feeds	93.9	16.7	12.3	96.9	92.5	23.7	6.2	7.8	12.6
Intermediate materials less food and energy	79.8	12.8	10.0	65.2	64.0	17.1	5.8	6.9	11.0
Crude materials from further processing	100.0	16.4	11.9	100.0	100.0	−3.4	−.1	55.2	4.4
Crude energy materials[3]	24.0	34.9	23.0	44.1	46.4	33.6	19.3	20.4	19.1
Crude foodstuffs and feedstuffs	59.7	10.6	8.6	40.6	43.1	−16.6	−.3	73.9	−4.1
Crude nonfood materials	40.3	26.1	16.7	59.2	56.6	18.9	.2	32.3	17.6
Crude nonfood materials less energy	16.3	15.1	7.5	15.2	10.3	.2	−24.4	54.8	15.1

[1] Percent of overall change attributable to each specific item.

[2] See "Definitions" and "Notes" preceding tables 22–30 of Current Labor Statistics in this *Review*.

[3] Not seasonally adjusted.

NOTE: PPI data shown above and elsewhere in this article may differ from those previously reported because: (1) stage-of-processing indexes from January 1976 through December 1980 have been revised to reflect 1972 input-output relationships; (2) seasonal adjustment factors have been recalculated to reflect developments during 1980; and (3) data through September 1980 have been routinely revised to reflect late reports and corrections by respondents. Seasonal adjustment factors have also been recalculated for CPI data.

and Afghanistan. Some members of the Organization of Petroleum Exporting Countries (OPEC) lifted their prices unilaterally; others, such as Saudi Arabia, sought to restrain such increases. Industrial nations reduced their consumption of petroleum as a consequence of the sluggish economy, consumers' resistance to increases in gasoline prices, and the trend toward more energy-efficient technologies. As a result, inventories of crude petroleum grew to record levels as Saudi Arabia continued to export about one million barrels per day above the level it was exporting prior to the Iranian Revolution of early 1979. The surplus of crude oil on world markets inhibited other OPEC members from raising prices substantially during mid-year. However, in late September, oil shipments from Iraq and Iran virtually ceased after their war broke out. Trading on the spot market quickened, and prices rapidly rose to more than $40 per barrel for the first time since late 1979.[2]

The United States imported about 20 percent less crude oil in 1980 than in 1979, which helped to moderate the impact of higher costs of foreign crude oil on domestic energy prices. American refineries operated at an average capacity utilization rate of 76 percent during 1980, down from 85 percent in 1979, and 88 percent in 1978. The continuing phase-out of price controls on crude oil encouraged increased production and exploration. As a result, domestic output of crude oil exceeded 1979 levels, despite considerably weakened demand for most petroleum products. As deregulation continued, domestic crude oil prices became increasingly sensitive to world market conditions. Prices for domestic crude petroleum rose substantially during 1980,[3] although not as rapidly as in 1979.

Consumer items. Retail gasoline prices rose 18.9 percent in 1980, substantially less than the 52.2-percent surge in 1979. Most of the 1980 increase occurred in the first quarter, as refiners passed through the crude oil price boosts of late 1979 and early 1980. In the spring, the combined effects of the recession, consumer resistance to the earlier price jump, and the increasing proportion of smaller, high-mileage automobiles in use led to a decline in demand for gasoline, resulting in record-high levels of gasoline inventories. Profit margins for retailers were squeezed as competition led to small price decreases during the second and third quarters. But gasoline prices turned up again in the fourth quarter, as the economy strengthened and crude oil costs continued to climb.

Consumer prices for home heating oil moved up 20.2 percent over the year, about one-third as much as in 1979. Again, the largest advances occurred early in the year. Demand was lighter than expected, largely because of the relatively mild winter. As a result, during

Table 2. Changes in retail and producer prices for energy items, 1979–80

Grouping	Index	Relative importance Dec. 1979	Percent change		Compound annual rate, seasonally adjusted, except as noted, for 3 months ended—			
			Dec. 1978 to Dec. 1979	Dec. 1979 to Dec. 1980	1980			
					Mar.	June	Sept.	Dec.
Finished items (sold to consumers)								
Energy items[1]	CPI	100.0	37.4	18.1	64.0	15.2	2.5	0.3
Finished energy goods	PPI	100.0	58.0	27.7	89.2	18.7	3.6	14.5
Gasoline, motor oil, coolants, etc.	CPI	55.3	51.4	18.9	97.6	−5.3	−3.0	10.2
Gasoline[2]	CPI	54.5	52.2	18.9	98.9	−5.8	−3.3	10.5
	PPI	55.7	61.2	29.5	125.9	16.9	−3.9	10.7
Household fuels	CPI	44.7	23.4	17.0	28.7	20.6	11.5	8.5
Fuel oil[2]	CPI	10.3	61.8	20.2	68.4	3.7	1.5	17.9
	PPI	14.6	70.4	24.0	81.7	14.1	2.5	11.7
Gas (piped)[1, 2]	CPI	13.4	20.1	14.7	14.3	29.3	15. 6	1.4
	PPI	17.5	38.7	29.9	25.9	25.9	37.9	30.3
Electricity	CPI	19.5	11.2	16.7	18.6	28.1	14.0	7.3
Intermediate materials (sold to businesses)								
Intermediate energy goods	PPI	100.0	44.7	25.2	65.4	9.9	13.0	19.5
Diesel fuel[2]	PPI	9.2	74.9	23.5	88.2	9.7	9.6	2.9
Commercial jet fuel[1, 2]	PPI	8.1	76.1	29.7	98.6	24.6	13.1	1.0
Residual fuel[2]	PPI	14.1	62.8	39.1	95.7	−42.5	65.8	99.6
Liquefied petroleum gas[1]	PPI	5.0	77.5	20.9	63.2	7.4	−9.1	34.3
Electric power[3]	PPI	32.1	14.5	17.7	20.3	22.6	16.9	10.9
Crude materials								
Crude energy materials	PPI	100.0	34.9	23.0	33.6	19.3	20.4	19.1
Natural gas[1, 2]	PPI	28.9	38.7	29.9	25.9	25.9	37.9	30.3
Crude petroleum	PPI	51.0	50.7	26.6	52.1	21.6	17.3	18.4
Coal	PPI	20.1	3.3	3.7	6.1	−2.2	5.4	6.3

[1] Not seasonally adjusted.
[2] Prices for these items are lagged 1 month in the PPI.
[3] Includes commercial and industrial power, but not residential.

the opening months of 1980, primary stocks of distillate fuels (home heating oil and diesel oil) were considerably above 1979 levels.[4]

Retail prices for piped gas rose 14.7 percent, almost as much as in the prior year; this paralleled the pattern of producer prices for natural gas at the wellhead, which climbed almost 30 percent following a 38.7-percent jump in 1979.[5] Under the provisions of the 1978 Natural Gas Policy Act, price ceilings were raised during the year. In addition, a relatively greater volume of gas from newer or deeper wells was sold in 1980; existing regulations allowed higher prices for gas from such wells. Prices for natural gas imported from Canada (which are based on changes in world crude oil prices) advanced sharply during the first half and then stabilized. Residential electricity rates increased more than in 1979. Most of the 1980 increase occurred in the first half of the year as regulatory agencies permitted higher generation fuel costs incurred in 1979 to be passed through to consumers; rate increases slowed for the rest of the year.

Industrial fuels. Producer prices of energy items used in the production of goods and services also continued to move up in 1980, although the increases were less than in 1979. Prices for refined petroleum products rose sharply early in the year, following increases in OPEC crude oil prices. The petroleum glut which emerged during the middle of the year helped to keep prices for diesel fuel, commercial jet fuel, and liquefied petroleum gas relatively stable until late in the year, when these prices turned upward again. Prices for residual fuel tended to be more volatile, dropping sharply in the second quarter after several utilities and industrial firms switched to less costly fuels, then turning upward during the second half of the year.

Charges for commercial and industrial electric power advanced more than during the previous year; this was due to significantly higher fuel costs as well as additional fixed costs incurred by some electric utilities for switching from oil to other fuels. The sharpest increases in electric power rates occurred on the West Coast and in New England, where relatively more oil for power generation is used. Ample supplies resulted in an increase in coal prices of less than 4 percent for the second consecutive year. Potentially strong demand by foreign nations for coal was constrained by the lack of adequate port facilities in this country.

Mortgage interest rates bounce

Following a 13.6-percent advance in 1979, the CPI for services excluding energy increased 14.1 percent in 1980. This increase was largely caused by substantially higher prices for household services other than energy, which moved up 17.2 percent primarily because of a 27.6-percent climb in the index for contracted mortgage interest costs (34.7 percent in 1979). This advance in the contracted mortgage interest cost index was responsible for nearly one-fifth of the 1980 increase in the All Items CPI. The index for residential rent moved up 9.1 percent, compared with 7.9 percent in 1979, reflecting higher charges for heating oil, gas, and electricity. Increases in charges for transportation services also accelerated, while the indexes for medical care, entertainment, and apparel services rose about as much as in the previous year. (See table 3.)

The 17.2-percent increase for household services other than rent and energy reflected home purchase prices (up 11.4 percent in 1980; 15.8 percent in 1979) and mortgage interest rates (up 15.0 percent in 1980; 16.1 per-

Table 3. Changes in consumer services less energy prices, 1979–80

CPI grouping	Relative importance Dec. 1979	Percent change		Compound annual rate, seasonally adjusted except as noted, for 3 month ended—			
		Dec. 1978 to Dec. 1979	Dec. 1979 to Dec. 1980	1980			
				Mar.	June	Sept.	Dec.
Services less energy	100.0	13.6	14.1	20.2	20.0	−0.4	17.9
Rent, residential[1]	14.0	7.9	9.1	8.3	10.0	8.6	9.6
Household less rent and energy[1]	48.7	18.8	17.2	28.6	29.7	−10.8	26.7
Home financing, taxes, and insurance[1]	23.1	27.5	23.3	41.5	43.9	−20.0	41.8
Mortgage interest costs[1]	8.7	34.7	27.6	51.6	55.0	−25.4	51.3
Home maintenance and repairs	7.4	10.6	10.7	18.3	7.0	7.0	11.0
Housekeeping services[1]	5.4	8.4	7.4	8.8	8.6	6.4	5.7
Transportation services	15.1	10.3	14.1	16.2	16.6	13.5	10.3
Auto maintenance and repairs	3.9	10.2	10.9	10.8	11.0	10.9	10.8
Other private transportation services	8.3	8.0	11.8	18.4	18.6	2.1	8.8
Public transportation[1]	2.8	17.9	25.6	17.3	18.6	56.7	14.1
Medical care services	10.7	10.6	10.0	15.3	8.4	8.9	7.7
Entertainment services[1]	4.1	5.8	8.7	12.9	9.2	9.7	3.3
Personal care services[1]	2.4	8.4	8.0	11.3	7.4	6.5	6.8
Apparel services	1.8	12.5	12.4	14.9	13.8	9.2	11.7
Personal and educational services	3.2	8.8	12.3	10.2	9.2	21.7	8.6

[1] Not seasonally adjusted.

cent in 1979). The index for mortgage interest rates accelerated sharply during 1980. In late 1979, the Federal Reserve Board began a series of credit-tightening moves. The resulting climb in interest rates in early 1980 dampened the previously strong demand for houses and home financing. The mortgage interest rate index then decreased sharply in the third quarter. Consequently in the fourth quarter, the demand for houses and house financing rose, in part, because house purchases were still viewed as a hedge against inflation. The Federal Reserve Board continued its restrictive policies, and mortgage interest rates again accelerated to levels approaching the record established in early 1980.[6]

The index for property insurance rose 13.2 percent, a much faster rate than was registered in the preceding year. Insurance premiums for a specified level of coverage increased very little but the additional coverage made necessary by escalating house prices caused most of the overall increase. The property tax index rose 4.6 percent (3.7 percent in 1979). After the strong national trend toward Proposition 13 type legislation in 1978, local taxing jurisdictions have been forced to raise property taxes slowly to offset the costs of the services such taxes provide.

The transportation services index rose 14.1 percent, more than in the previous year. The increase in the public transportation index accelerated from 17.9 percent in 1979 to 25.6 percent in 1980. Sharply higher fuel costs and increased food and labor expenses caused airline fares to soar 33.4 percent, despite the competitive effects of the Airline Deregulation Act of 1978. Intracity mass transit fares increased 20.3 percent, as government subsidies failed to keep pace with increased operating expenses (largely higher wage and fuel costs). Increases in taxi fares reflected the cost of gasoline.

Medical care services rose 10.0 percent, about the same as in 1979, reflecting large increases in professional and hospital services. The entertainment services index moved up 8.7 percent, reflecting increases in fees for participant sports. Price increases for other types of services, including personal care and apparel, rose about the same as in the previous year, while the personal and educational services index increased substantially more, reflecting higher college tuition.

Drought hampers food production

The CPI for food increased 10.2 percent, the same as in 1979. At the producer level, finished consumer food prices increased 7.3 percent in 1980, slightly less than in 1979. (See table 4.) Both the consumer and producer price indexes showed relatively little change during the first half of the year. However, in the third quarter, the CPI recorded its largest quarterly increase since 1973, and the PPI, its largest since 1974. This sharp runup was largely the result of a severe summer drought which helped prices for crude foodstuffs and feedstuffs to soar at a 120.1-percent annual rate during July and August. At the same time, the increase in crude food prices pushed up producer prices of finished food products at an annual rate of 45.3 percent. Retail food prices consequently advanced at a 19.7-percent annual rate during the third quarter. During the fourth quarter, prices moderated: at the retail level, the moderation was quite small; at the producer level, it was substantial.

Early in the year, live poultry and hog supplies were more than ample; in fact, pork production reached a new high. Competition from decreasing pork and poultry prices forced beef prices down, even though cattle populations were near the low point of the production cycle, which had peaked in 1975. In response to low prices in 1979, pig farmers already had cut back on production plans for late 1980. Meanwhile, hot summer weather damaged pastures and sent hay and manufactured animal feed prices upward, and animal weight gain slowed. As a result, livestock supplies fell and prices soared during the third quarter. The hot weather also hit the poultry industry particularly hard, as millions of chickens succumbed to the heat. However, the fourth quarter showed considerable price moderation.

Fluid milk prices rose 10.0 percent over the year despite large supplies, primarily as the result of higher price supports. Combined with higher processing costs, this raised prices for dairy products about 10 percent at both the processor and retail levels.

Prices for sugar and sweets showed the greatest increase of any food group in the CPI in 1980. The 35.7-percent increase was the largest since 1974, when this index more than doubled. Within this group, the largest advance occurred for the sugar and artificial sweeteners component, which jumped 96.5 percent. Retail sugar prices reached their highest level since January 1975. The PPI showed a similar picture: the price of raw sugar was up 62.2 percent. Poor sugar harvests in several major sugar producing countries, especially Cuba and the Soviet Union, led to a worldwide shortage. The situation was aggravated by increased demand in many developing countries. In addition, intense speculation in commodity markets led to highly volatile price movements throughout the year. Higher sugar prices and tight supplies allowed prices for corn syrup, a widely used substitute sweetener, to soar 75.3 percent. However, prices for other confectionery materials failed to reflect these strong upward pressures. The declining per capita consumption in recent years and the third consecutive year of production surpluses sent the price of cocoa beans down 34.6 percent in 1980, keeping the increase in chocolate coating and candy bars modest, despite their large sugar content.

The CPI for fats and oils increased 8.1 percent in 1980. Nondairy substitutes and peanut butter rose the most, at 20.7 percent. Processor peanut prices more than tripled by the end of the year, as the drought led

Table 4. Changes in retail and producer prices for consumer foods, 1979–80

Grouping	Index	Relative importance Dec. 1979	Percent change		Compound annual rate, seasonally adjusted, except as noted, for 3 months ended—			
			Dec. 1978 to Dec. 1979	Dec. 1979 to Dec. 1980	1980			
					Mar.	June	Sept.	Dec.
Consumer foods[1]	CPI	100.0	10.2	10.2	3.3	5.8	19.7	13.1
	PPI	100.0	7.4	7.3	−.9	−1.4	31.0	3.6
Beef and veal	CPI	10.3	21.7	5.0	−3.5	−16.3	48.8	1.4
	PPI	13.4	20.6	−1.8	−13.8	−8.0	35.0	−11.5
Pork[2]	CPI	4.7	−8.2	11.8	−4.6	−22.0	87.2	12.0
	PPI	6.3	−12.9	8.8	−30.0	−23.5	171.7	−2.7
Poultry	CPI	2.2	−.8	15.0	−8.1	−8.9	89.0	10.3
	PPI	3.3	−1.9	6.8	48.1	−19.4	262.0	−15.3
Cereal and bakery products	CPI	8.6	11.4	11.6	12.6	12.8	7.4	13.8
	PPI	12.5	13.6	11.1	15.0	8.8	7.0	14.4
Dairy products	CPI	9.3	10.4	9.7	8.6	12.3	6.9	11.2
	PPI	13.2	8.4	10.4	9.7	13.9	4.6	13.7
Fresh fruits and vegetables	CPI	5.0	13.2	139.9	−15.0	27.4	53.7	0.3
	PPI	4.7	−4.9	16.1	−12.0	41.3	100.5	−27.9
Processed fruits and vegetables[2]	CPI	4.6	6.1	8.0	8.7	7.3	8.4	7.7
	PPI	6.5	1.9	6.5	5.3	7.1	5.7	7.8
Eggs	CPI	1.3	3.6	11.1	−21.2	11.3	31.3	31.8
	PPI	2.0	5.0	9.6	4.7	−19.9	47.9	16.4
Sugar and sweets[3]	CPI	2.4	7.4	35.7	34.8	34.8	33.8	39.5
	PPI	4.4	14.6	42.7	61.2	130.5	21.2	−7.7
Roasted coffee[2]	CPI	1.0	19.6	−11.6	−2.8	−4.7	−5.7	−30.0
	PPI	4.5	22.8	−14.7	−5.6	−11.7	−20.2	−21.0
Fats and oil products[4]	CPI	2.0	7.1	8.1	9.6	−2.0	6.5	19.5
	PPI	1.6	8.8	2.8	−0.2	−7.2	11.1	8.6

[1] Includes items not listed. The CPI includes prices of food away from home, which account for about 31 percent of the food index. The PPI for finished consumer foods does not reflect restaurant prices.

[2] Not seasonally adjusted.

[3] "Sugar and confectionery" in the PPI. Not seasonally adjusted in the PPI.

[4] "Vegetable oil end products" in the PPI.

to the smallest peanut crop since 1964 on top of a poor harvest in 1979. Processor prices of peanut butter were up by a third. Margarine prices rose slightly, as higher processing costs more than offset lower prices for refined corn and soybean oil. Prices for crude vegetable oils were down 9.9 percent despite a 34.9-percent rise in oilseed prices. Both oils and oilseeds showed large price declines during the first half of the year as excellent soybean harvests in Brazil depressed world prices. However, hot, dry weather across much of the United States during the summer resulted in a shortage, especially for soybeans. U.S. soybean production was down 20 percent from 1979 after 3 years of record output. The price of soybeans jumped 25.0 percent in July alone. The price of vegetable cake and meal was up 19.8 percent over the year, creating a strong demand from crushers for oilseeds. Heavy crush resulted in large supplies of vegetable oil, a byproduct of vegetable cake and meal production. Meanwhile, strong demand for corn syrup resulted in large supplies of corn oil, which is a byproduct of corn syrup production. Thus, even with large price increases in the last half of 1980, abundant supplies kept crude vegetable oil prices well below the 1979 level.

Retail prices for roasted coffee dropped 11.6 percent in 1980, compared with a 19.6-percent increase in 1979. This drop was the direct result of record supplies that led to a 17.3-percent decline in prices for green coffee beans and a 14.7-percent drop in processor prices for roasted coffee. There was little frost damage to the Brazilian crop in 1980; world output was large, despite crop damage in some smaller producing nations. By yearend, the United States had more than a year's supply on hand. In addition, domestic coffee consumption continued to decline. In contrast, world consumption of tea kept pace with record production, leading to a modest 1.9-percent rise in unprocessed tea prices. Higher manufacturing costs were largely responsible for a 9.3-percent boost in the PPI for packaged tea. Packaged cocoa prices increased modestly, as falling cocoa bean prices were offset by rising sugar prices. Soft drink prices were up in both the CPI and the PPI in response to sugar prices.

Cereal and bakery products were up 11.6 percent in the CPI and 11.1 percent in the PPI. Higher wheat prices during most of the second half of the year led to a 5.5-percent increase in the PPI for flour. Costs increased for many goods, especially cookies, cereals, and sweet baked goods because of skyrocketing sugar prices. Despite a record domestic crop, the price of milled rice

moved up, principally because of strong export demand due to poor rice harvests in South America and the Republic of Korea.

At the farm level, grain prices dropped at a 10.8-percent annual rate during the first half of the year as world supplies were generally good. The grain embargo against the Soviet Union in January had only a temporary impact on prices because the Soviets removed an equivalent amount of grain from the world market through purchases from other countries. Hot, dry weather hurt U.S. grain production during the summer, sending grain prices up at a 51.7-percent annual rate during the second half. Corn production was down 16 percent from 1979, after 5 years of record crops, sending corn prices up 26.8 percent in 1980. However, the winter wheat crop was harvested before the drought hit, and damage to spring wheat was not sufficient to prevent a record wheat harvest in 1980. The large domestic supply of wheat counteracted poor harvests of other grains, and strong export demand for wheat resulted in a wheat price increase of less than 1 percent.

Consumer prices for fresh fruits rose 7.2 percent in 1980, despite a 4.3-percent drop in the PPI for fresh fruits. A record harvest and sizable drops in the PPI for citrus fruits and apples did not fully impact retail prices by yearend. Florida orange trees had recovered from the severe frost of January 1977; however, higher costs for transportation, storage, and marketing exerted upward pressure on retail prices. The supply situation for fresh fruits, though, was much more favorable than that for fresh vegetables. The CPI for fresh vegetables rose 20.3 percent in 1980, led by a 43.8-percent increase for potatoes. Fresh vegetable prices fell during the first quarter when supplies were more than ample. U.S. Department of Agriculture statistics indicated that 6.9 percent more acreage was devoted to 14 major winter vegetables over 1979 and production was up 8.2 percent. However, reduced plantings and severe weather took their toll during the summer. Potatoes were especially hard hit, with the smallest crops for sweet and white potatoes since the early 1970's. Planted acreage for 14 fresh fall vegetables was the same in 1980 as in 1979, but yields were down 4.7 percent, limiting the yearend recovery. However, tomatoes, which had suffered damage from heat in the fall of 1979 and were in short supply at the start of 1980, went against the trend and showed a net price decrease over the year.

Processed fruits and vegetables were up 8.0 percent in the CPI and 6.5 percent in the PPI. Processed fruits rose 5.9 percent at the retail level in 1980. The cost of most raw fruits being processed was fairly stable. Most of the increase was due to other raw material and production costs, especially sugar. Processed vegetables experienced a more substantial increase of 10.2 percent. Acreage contracted for the production of seven major processing vegetables was down approximately 12 percent from 1979 levels. In addition, bad weather reduced yields and in turn the quantity packaged. Thus, the 1980 supply was considerably smaller than in 1979. Meanwhile, as with processed fruits, labor, tinplate, energy, transportation, and marketing costs all increased. Prices increased as the large carryover stocks from 1979 were depleted.

Commodities other than food and energy

Consumer goods. Both retail and producer prices for consumer goods other than food and energy increased about 10 percent in 1980, a somewhat larger increase than in the preceding year. Price increases accelerated for a broad range of goods, including used cars, apparel, textile housefurnishings, sanitary papers, cosmetics, drugs, soaps, tobacco products, and sporting goods. Home purchase and gold jewelry prices continued to climb rapidly. Prices for footwear and tires, however, increased considerably less than in 1979. (See table 5.)

The home purchase component of the CPI moved up 11.4 percent over the year, second only to the 15.8-percent annual increase recorded in 1979. The rate of increase in this index slowed significantly in the first quarter of 1980, as record-high mortgage interest rates severely dampened both housing demand and the availability of mortgage credit. A resurgence in the housing market, triggered by a sharp drop in interest rates during the spring, caused the increase in home prices to accelerate through the second and third quarters. By the end of the year, record-high interest rates returned and had the same moderating impact on home prices as in the first quarter.

Retail prices for new cars moved up 7.5 percent in 1980, almost identical to the 1979 increase. Producer prices, however, rose somewhat more than in the previous year (9.0 versus 7.3 percent). The largest increases were registered for compacts and subcompacts while prices for larger cars rose very little or not at all in response to reduced demand for cars with low gas mileage. Prices for imports, which captured approximately 27 percent of the American market in 1980, were sharply higher, both because of the weakness of the dollar compared to the yen and demand that exceeded supplies. Price increases slowed for tires, particularly at the primary market level, largely because reduced domestic production of automobiles depressed demand.

After dropping at an annual rate of 12 percent during the first half of 1980, used car prices exploded in the second half at the second highest rate ever recorded for this index. This turnaround was all the more dramatic because, historically, used car prices have decreased after the introduction of new model-year cars each fall. The unusual upturn in late 1980 could be attributed to a number of factors, including: (1) a continued rise in new car prices, especially smaller, higher-mileage models; (2) an increase in gasoline supplies, which made the purchase of large used cars more palatable; (3) the re-

Table 5. Changes in retail prices for commodities less food and energy, 1979–1980

CPI grouping	Relative importance Dec. 1979	Percent change		Compound annual rate, seasonally adjusted except as noted, for 3 months ended—			
		Dec. 1978 to Dec. 1979	Dec. 1979 to Dec. 1980	1980			
				Mar.	June	Sept.	Dec.
Commodities less food and energy	100.0	8.8	9.9	9.5	7.7	12.9	9.6
Alcoholic beverages	3.0	8.0	7.6	7.4	9.8	8.2	5.2
Home purchase[1]	30.1	15.8	11.4	7.0	14.9	14.9	9.0
Maintenance and repair commodities[1]	2.4	9.2	10.4	9.2	12.5	12.7	7.3
Textile housefurnishings	1.5	6.1	8.2	14.9	7.6	10.4	.6
Furniture and bedding	3.5	6.3	7.8	15.7	5.8	7.3	2.7
Appliances, including radio and T.V.[1]	4.4	3.3	3.6	3.8	4.1	5.2	1.1
Other household equipment[1]	2.6	6.5	10.4	16.1	10.3	9.6	6.0
Housekeeping supplies[1]	4.2	7.2	12.4	16.3	13.0	11.2	9.4
Apparel commodities less footwear	10.9	3.8	5.8	14.1	−1.4	8.7	2.9
Footwear	1.9	8.7	6.7	7.6	3.7	9.2	6.1
New cars	10.8	7.4	7.5	10.2	8.7	15.4	−3.4
Used cars	8.2	2.2	18.3	−2.0	−12.1	39.0	62.3
Auto parts and equipment[1]	1.8	13.3	8.6	14.0	3.3	11.7	5.7
Medical care commodities	2.3	7.6	10.0	10.2	10.7	10.2	8.9
Entertainment commodities	6.4	7.7	10.3	15.3	9.2	11.0	6.1
Tobacco products[1]	3.1	6.2	9.7	13.8	10.5	2.2	12.9
Toilet goods and personal care appliances[1]	2.1	8.2	9.9	9.3	10.2	10.5	9.7
School books and supplies	.5	7.9	9.7	9.5	7.6	27.4	−3.4

[1] Not seasonally adjusted.

cord-high interest rates required for new-car financing; and (4) a smaller supply of good, late-model used cars because weak demand for new cars resulted in a shortage of trade-ins.

Retail prices for apparel commodities other than footwear increased 5.8 percent in 1980. While moderate when compared to most other items in the CPI, this rate was still the largest annual increase since 1974. From 1975 through 1979, these prices had moved up at an average annual rate of just 3.2 percent. Producer price increases for apparel also accelerated from 4.6 percent in 1979 to 8.9 percent in 1980. Major influences included the increased cost of financing inventories due to high interest rates, a substantial advance in cotton prices as a result of a domestic cotton crop that was 20 percent smaller than the year before, and a continued increase in synthetic fiber prices. On the other hand, leather footwear prices rose considerably less than in 1979, particularly at the primary market level, reflecting an easing of leather price boosts.

Gold jewelry prices advanced sharply for the second consecutive year. Most of the 1980 increases occurred early in the year, before gold prices took a sharp dip in the spring. After resurging in the third quarter, producer prices for gold jewelry declined at a 21-percent rate during the final months of the year. Prices accelerated for prescription and over-the-counter drugs—higher petrochemical prices and an increase in labor costs were among the major contributors. Higher prices for tobacco products partly reflected increased costs for leaf tobacco.

Capital equipment. The Producer Price Index for capital equipment moved up 11.4 percent in 1980, the first double-digit advance in this index since the 22.3-percent surge in 1974. The acceleration from an 8.8-percent rise in 1979 was very broad-based—most major types of capital goods rose considerably more in 1980 than in the previous year. Advances of at least 15 percent were recorded for generators, small aircraft, oilfield machinery, plastic and rubber industry machinery, food products machinery, and chemical industry machinery. Photographic equipment, office and store machines, and commercial furniture were among the few kinds of investment goods which moved up less than 8 percent over the year.

After adjusting for inflation, the real level of capital spending declined about 6 percent in 1980. A number of factors served to discourage capital expansion plans in 1980. The economic downturn in the first half of the year led to both sharply reduced profits and excess capacity in some industries. Energy-intensive industries, which had been hard hit by the steep energy price boosts from late 1978 through early 1980, often found it difficult during the recession to raise output prices to match the climb in input costs. The resulting erosion of profitability severely limited their ability to internally generate investment funds. The unusually high level of interest rates which prevailed much of the year further discouraged potential investment spending.

Mitigating these negative effects somewhat was the relatively quick upturn in business activity after midyear, as many firms were sufficiently confident to continue their capital expansion projects. Investments by petroleum companies, other energy producers, firms in the aerospace and defense-related industries, metals processors, electrical machinery manufacturers, and transportation equipment companies were especially strong. Companies eager to install more energy-efficient machinery and to meet pollution abatement requirements also tried to maintain their capital spending plans. The fact that real investment spending did not drop as

much in 1980 as it usually does during a recession served to limit the depth and duration of the recession.

Intermediate materials other than food and energy

The Producer Price Index for intermediate materials less foods and energy climbed 10.0 percent from December 1979 to December 1980, a somewhat slower pace than in the previous 12 months. In general, prices for most items within this category tended to rise sharply during the first quarter, moderate during the middle of the year, and resume substantial increases in the fourth quarter. These price movements thus paralleled the sharp changes in the general level of economic activity during 1980. High interest rates during most of the year had a negative impact on material prices; speculation in nonferrous metals and certain crude commodities was discouraged by increased borrowing costs, and the need felt by many firms to cut their material inventories (because of high financing costs) led to reduced demand.

Durable manufacturing materials. The slowdown in the rate of price increases was most evident in the durable manufacturing materials category, which rose 5.9 percent following a 17.2-percent jump in 1979. This comparatively moderate pace was largely due to the depressed markets for housing, automobiles, and some related consumer durable goods. The PPI for finished steel mill products moved up 7.9 percent in 1980, following two years of double-digit increases. Steel industry production was reduced to about half of capacity by midyear and total 1980 shipments of steel products fell 18 percent from 1979 levels, principally because of poor demand from the automotive industry. Competitive price discounts were introduced in July for sheets, strips, and bars to stimulate sales; most of these discounts were removed at the beginning of the fourth quarter, and new increases were included as the economy strengthened. In contrast to the weakness in other steel markets, demand was very strong for steel pipes and other products used by the oil and natural gas industries. Prices for these products rose sharply during 1980.

Price movements for nonferrous metals during 1980 were mixed. Heavy speculative activity led to very steep increases at the beginning of the year for gold, silver, and copper. However, soaring interest rates helped to end the boom by spring, and prices dropped sharply in subsequent months. From June to October, precious metals prices recovered some of these losses, but turned down at the end of the year as interest rates again approached 20 percent. Over the year, copper prices fell 15.5 percent because of poor demand from the construction industries. Prices for lead plummeted 28.7 percent in response to low demand from manufacturers of automobile batteries, the largest market for lead. On the other hand, primary aluminum prices were up 14.4 percent because of strong overseas demand and increased production in the defense and aerospace industries.

Nondurable manufacturing materials. The nondurable manufacturing materials index advanced 12.3 percent in 1980 after rising 18.0 percent in the previous year. Sharply higher world prices for crude oil led to large advances during the early months of 1980 for organic industrial chemicals, plastic resins and materials, and synthetic rubber. These prices changed very little during the rest of the year because of the impact of the recession and the slowdown in crude oil price rises.

Among textile products, synthetic fibers prices rose 13.5 percent, about the same as in 1979, largely because of higher petrochemical feedstock costs. Because producers had reduced their output in response to declining demand, they were able to continue passing through cost hikes. Higher prices for synthetic materials plus rising prices for cotton led to accelerated price increases for processed yarns and threads, gray fabrics, and finished fabrics.

Prices for paper and paperboard continued to move up at double-digit rates in 1980, largely because of higher costs for woodpulp and energy. Woodpulp prices were sharply higher over the year as a result of reduced production of lumber.

Construction materials. The index for construction materials rose about 9 percent for the second consecutive year. The sharp climb in mortgage interest rates in early 1980 led to a steep decline in the rate of new private housing starts. After interest rates receded in the spring, residential construction activity picked up again; this upturn persisted through the rest of the year in spite of renewed increases in interest rates by late fall. Prices for softwood lumber, millwork, and plywood were generally sensitive to demand from the construction industry, falling sharply in the early months of the year and then turning up in subsequent months. Prices for nonmetallic mineral products rose substantially during the first part of the year as producers passed through increased energy costs; prices during the latter part of the year were relatively stable, reflecting the slowdown in energy price increases. Most other construction materials such as fabricated structural metal products moved up moderately during 1980, partly because of smaller advances in steel prices compared to 1979.

Other. Among other intermediate goods, the electronic components index advanced 14.0 percent, more than in any other year on record, as higher prices for gold, aluminum, and tantalum led to increases for such products as capacitors and relays. Because poor economic conditions prevailed during much of the year, businesses were reluctant to invest in new machinery and, instead, invested in replacement parts to extend the usefulness of

existing capital equipment. Large increases were registered for ball and roller bearings, fluid power equipment, mechanical power transmission equipment, and nonfarm tractor parts, among other goods. Prices for photographic supplies rose sharply early in the year, then edged down somewhat, in response to the fluctuating price of silver, which is used in making most types of camera film.

Crude nonfood materials less energy

Producer prices for crude nonfood materials less energy, which tend to be highly sensitive to changes in general economic conditions, dropped at a seasonally adjusted annual rate of 18.4 percent during the first half of the year. These prices then turned up dramatically in the second half, climbing at a rate of 50.5 percent. For the year as a whole, this index rose 7.5 percent, following a 15.1-percent advance in 1979. Prices for nonferrous scrap, wastepaper, and hides and skins tumbled after rising rapidly in 1979, and increases for iron and steel scrap, crude natural rubber, and iron ore were considerably smaller than those of the year before. In contrast, raw cotton prices jumped far more than in 1979, and prices for sand and gravel, leaf tobacco, and potash also recorded larger increases in 1980.

After climbing 36.7 percent in 1979, nonferrous scrap prices were down 3.5 percent in 1980 because of weak domestic and export demand, reflecting the weakness in prices for copper and some other nonferrous metals. Wastepaper prices fell 13.7 percent over the year, principally because of sluggish demand from domestic recycling mills. However, increased exports and good demand for wastepaper for making insulation materials served to restrain the price decline. Prices for hides and skins moved down in the first 6 months of the year because of poor demand. A surge in demand from domestic tanners and export buyers from Japan, Korea, and Taiwan led to a partial price recovery in the second half; nevertheless, the hides and skins index finished the year 11.5 percent lower than in December 1979. Iron and steel scrap prices were up 7.6 percent for the year. Sharply lower prices during the first half resulted from a marked decrease in steel mill production. Ferrous scrap prices then rebounded in the last half when supplies were tight in the face of increased domestic steel output. Crude natural rubber prices rose much less than a year earlier (5.6 percent versus 21.5 percent), in large part because of weak demand from domestic and foreign tire manufacturers, and because of slower price increases for synthetic rubber.

Raw cotton prices soared 35.5 percent from December 1979 to December 1980. Most of this surge was registered in the third quarter as hot, dry weather in major domestic producing areas reduced the cotton crop by 20 percent from the 1979 level. Unusually strong export demand, particularly from the People's Republic of China, also helped to boost cotton prices. Prices for sand, gravel, and crushed stone were up 14.4 percent for the year as energy-related costs continued to rise. Leaf tobacco prices rose 10.2 percent, partly because of damage to the new crop by the summer drought. Potash prices climbed even more in 1980 (21.8 percent) than the year before (18.9 percent), reflecting tight supplies and firm export demand. □

FOOTNOTES

[1] All previously published data for stage-of-processing indexes from January 1976 through December 1980 have been revised to reflect new stage-of-processing allocations based on 1972 input-output tables published by the Bureau of Economic Analysis, U.S. Department of Commerce.

[2] At the December 1980 OPEC conference in Indonesia, another general increase in official contract prices was announced. Saudi Arabia raised its standard crude oil price to $32 per barrel, one-third higher than a year earlier, but still the lowest within OPEC. The highest allowed price within OPEC was set at $41 per barrel, a $4 increase over the ceiling price in effect since June.

[3] The PPI for crude petroleum does not include prices for uncontrolled categories of domestic production other than low-output "stripper" wells. These excluded categories accounted for a growing proportion of total output during 1980 and by the end of the year represented about half of total production; therefore, the PPI underestimated the actual average price for domestic crude oil.

[4] "Primary stocks" refer to petroleum products stored at refineries, in pipelines, or at bulk terminals; inventories of retailers, jobbers, and so forth are excluded.

[5] The PPI for natural gas has been partly reallocated from the Crude Materials stage-of-processing category to the Finished Goods stage-of-processing category to reflect the proportion of natural gas consumed by households. This change was part of a comprehensive revision of stage-of-processing allocations, which became effective with the release of January 1981 data on February 13.

[6] The highest recorded average monthly contracted mortgage interest rate occurred in May 1980. On average, there is about a 60-day lag between mortgage rate commitments and home purchase settlements.

Labor and the Supreme Court: significant decisions of 1979–80

The Court approved Congress' remedial quotas, left important safety and health issues unresolved, limited NLRA coverage of teaching professionals, and broadened the concept of work preservation; many important cases were decided by one-vote margins

GREGORY J. MOUNTS

Mr. Dooley said that " . . . th' supreme coort follows th' iliction returns,"[1] but in its 1979–80 labor cases, the Supreme Court foreshadowed the electorate's November return to private sector emphasis with a series of cases expanding the flexibility of private sector employers and unions[2] but limiting that of public sector employers.[3] Some decisions resulted in expansive enforcement of constitutional rights,[4] while the Court read statutory texts literally to broaden administrative discretion in some cases[5] and limit it in others.[6]

In seven of the year's most important cases, different alliances produced decisions that hinged on one vote. Such close verdicts in cases involving health and safety standards, faculty bargaining rights, seniority system provisions, and the work preservation doctrine suggest that the new approaches established by the Court in these areas may be either broadened or trimmed, as some justices clarify their views or as the makeup of the Court changes.

In the cases considering workplace health and safety standards and racial quotas, the independent-minded justices forged agreements only by combining the result of differing factions, because no more than three justices could agree on the reasons for a verdict. The Court's splintered approach to health and safety standards prevented a resolution of whether the costs of standards, such as for reducing worker exposure to benzene, need to be justified based on the benefits to workers' health.[7] The Occupational Safety and Health Administration's standard-setting process probably must be modified based on the Court's multiple opinions, but the agency and affected industries will have to await future decisions—perhaps in the 1980–81 term—to find out exactly how much.

The decision on racial quotas was somewhat more conclusive, as the six justices who approved minority set-asides by Congress split evenly on the appropriate constitutional standard in such cases.[8] Employment discrimination cases under Title VII of the 1964 Civil Rights Act permitted wide flexibility in negotiated seniority system provisions[9] and settled important procedural questions, including a ruling that the Equal Employment Opportunity Commission need not meet restrictive class certification standards.[10]

A pair of public-sector cases significantly altered the potential liability of State and local governments. An old law with many new twists, the Civil Rights Act of 1871 permits suits against governmental entities for alleged violations of all Federal statutory rights, not just civil rights.[11] And municipalities may not claim "good faith" immunity as a defense in such suits.[12] A third public-sector case further restricted patronage.[13]

In traditional labor law, the Court continued a year-earlier pattern and rejected National Labor Relations Board positions in two of three cases. But the result in all three cases expanded employer rights. The Court denied Board-approved bargaining rights to faculty professors with "managerial" responsibilities,[14] and rejected

Gregory J. Mounts, an economist now with the General Accounting Office, wrote "Significant Decisions in Labor Cases" while on the staff of the *Monthly Labor Review.*

the Board's limited interpretation of the work preservation doctrine applied to longshoring.[15] However, the Court adopted a new NLRB policy that prohibits secondary picketing of a struck product if it will have a severe economic impact on a neutral employer.[16]

The Supreme Court also decided a wide range of issues concerning government benefit programs. In contrast to the variegated pattern in other areas, nearly every decision involving benefits expanded coverage or made benefits more available by removing restrictions created by legislatures and courts.

Safety and health

The Occupational Safety and Health Administration celebrated its 10th anniversary in 1980, winning one of two Supreme Court cases challenging its interpretation of the 1970 health and safety law. Now, the agency enters its second decade facing two major sources of uncertainty: the Supreme Court has been unable to agree on how health and safety standards must be justified; and the new Administration may approach OSHA regulatory policies differently than did President Carter.

Early in the year, the Court resolved a conflict among the Circuits by upholding an OSHA regulation giving workers the right to refuse to perform hazardous jobs if they reasonably believe that there is no other way to avoid risk of serious injury or death.[17] Although the OSH act does not mention a right to refuse to work under unsafe conditions, Justice Potter Stewart's opinion for a unanimous Court reasoned that the Secretary of Labor had the power to find such an implied right in the law because Congress had intended to prevent injuries and to require employers to eliminate dangers in the workplace. However, the Court made clear that employers have no obligation to pay workers for the time they have refused to work.

What the Court characterized as its liberal interpretation of the health and safety law in *Whirlpool Corp.* did not last. In *American Petroleum Institute,*[18] the Court took its first look at the complicated process of setting health and safety standards without resolving much. Although it was expected to answer several questions, including whether and when the benefits of a standard must justify its costs, the decision had only one legal outcome: OSHA's attempt to further reduce worker exposure to benzene was impermissible.

In reaching its 5–4 verdict on the benzene standard, the Court pluarality (five justices split three ways in explaining their vote) appeared to seriously undermine OSHA's standard-setting procedure for carcinogens. The Secretary of Labor had relied on the act's language requiring the most protective standard feasible for toxic substances.[19] But the Court's lead opinion, written by Justice Stevens and joined by Chief Justice Warren Burger and Justice Stewart (and in part by Justice Powell), found that the act initially requires all standards to be "reasonably necessary or appropriate to remedy a significant risk" to workers' health or safety. After making this "threshold determination," the Secretary may select a standard geared to eliminate the "significant risk of harm," Stevens wrote. But he explicitly rejected OSHA's policy on regulating carcinogens, which sought standards strict enough to produce a risk-free work environment. The law was not intended to provide such protection, Stevens declared. Because the Secretary had failed to produce "substantial evidence" that a significant risk exists with the old benzene exposure limits (10 parts per million parts of air), Stevens refused to consider the further question of whether the benzene standard was economically feasible.

The law is unclear as to the meaning of economic feasibility, and the Circuits have split on the question. Some have held, as the Fifth Circuit had when considering the benzene case, that OSHA must use some cost/benefit approach in creating standards for industry.[20] Other Circuits have ruled that the standards are economically feasible as long as an industry is not faced with massive economic dislocation.[21] There is a wide gap between the two approaches, and the Court will have another opportunity to resolve the question during its 1980–81 term when it reviews a District of Columbia Circuit Court ruling upholding OSHA's cotton dust standard.[22] The D.C. appeals court found that a standard can be economically feasible even if compliance results in the demise of some employers within an industry.

Some of the justices used the benzene ruling to express their general views on the economic feasibility issue. Powell's concurring opinion supported the use of cost/benefit analysis to justify OSHA standards. The Chief Justice, in his own concurrence, also compared the benefits and costs of a standard, but in far more general terms. The four dissenters, in an opinion by Justice Marshall, noted that the law does not specifically require cost/benefit analysis. A standard is feasible, Marshall wrote, "if it is capable of achievement, not if its benefits outweigh its costs." Thus, these four may need the support of only one other justice to prevail on this issue when the Court considers the cotton dust standard.

Constitutional quotas, civil rights

For the third consecutive term, the Supreme Court addressed the sensitive question of whether goals and quotas are permissible tools to correct racial and ethnic imbalances. Based on the line of cases, quotas are proper tools in some hands but their use by many others involves unanswered questions. Public schools may not use rigid admissions quotas, a divided Court ruled in 1978, but race may be a factor in the selection of students.[23] Within certain limits, the 1979 *Weber* ruling

allowed private employers and unions to voluntarily adopt racial quotas in job training programs.[24] In 1980, the Court ruled that Congress has the authority to use quotas to remedy past discrimination, reasoning that the 14th Amendment's requirement of equal protection means that groups historically denied this right may be given special treatment.[25] The Court's incremental approach to deciding how far society can go in favoring minorities passed a critical constitutional test with this most recent ruling. Even though the six justices approving quotas split 3–3 on precisely when they are constitutional, the ruling made clear that properly devised minority quotas do not violate the constitutional rights of others in society. Some of the remaining questions concerning quotas, such as whether and when other governmental authorities besides Congress may use them in remedial schemes, may be answered by the Court in its 1980–81 term.[26]

Last term's case arose when white contractors challenged a provision of the 1977 Public Works Employment Act setting aside 10 percent of available funds for minority business enterprises; those owned or operated by U.S. citizens who are "Negroes, Spanish-speaking, Orientals, Indians, Eskimos, and Aleuts." Congress acted to remedy the effects of prior discrimination, and its unique constitutional power to enforce equal protection guarantees permits new approaches—"such as the limited use of racial and ethnic criteria"—to achieve this objective, Chief Justice Warren Burger's lead opinion concluded. Burger, joined by Justices Powell and White, reasoned that the impact on white contractors was not an unreasonable burden, even though it fell on many not guilty of prior discrimination. He also found that administrative provisions that waived the quotas when qualified minorities were unavailable reduced the potential for abuse. Questions about whether the law's coverage of specific disadvantaged groups was appropriate must be decided in other cases, Burger wrote.

Writing for the second three-man bloc, Justice Marshall approved the quotas using a much broader constitutional test he first developed in his *Bakke* opinion. As long as remedial racial classifications "serve important governmental objectives and are substantially related to these objectives," they are constitutionally permissible. The 10-percent set-aside for minorities in *Fullilove* fell well within the limits of this standard, he concluded. The significance of a split opinion, offering two rationales for the same result, is the freedom—some say confusion—it creates for lower court judges confronted with similar questions in different settings. For example, the Supreme Court's multiple *Bakke* opinions have been cited in rulings upholding voluntary racial quotas adopted by public employers.[27] On the opening day of its 1980–81 term, the Court refused to review a California Supreme Court ruling that approved the voluntary use of quotas by a county employment agency following administrative findings that its racially imbalanced work force resulted from prior discrimination. The case could signal the direction the Court will take in a similar California case it has agreed to review.[28] Until these questions are more fully resolved, *Fullilove* allows Congress—if not other governmental authorities—to use remedial quotas in the allocation of funds for jobs, housing, education, and perhaps other areas.

In cases arising under Title VII of the 1964 Civil Rights Act, the Court established a broad interpretation of the permissible provisions of a "bona fide" seniority system and narrowly ruled that the Equal Employment Opportunity Commission need not meet restrictive procedural criteria in filing class action suits. Three other cases resolved important procedural issues under Title VII.

"Bona fide" seniority systems are exempt from the antidiscrimination provisions of Title VII. The Court's 1977 *Teamsters* decision approved a two-track seniority system as bona fide, even though it perpetuated the effects of pre-act discrimination.[29] The ruling created much uncertainty about what other provisions could be included in bona fide plans. In *California Brewers Assn.*,[30] the Court finally provided some guidance. In addition to rules that operate on the basis of employment longevity, a seniority system may also include "ancillary" rules that determine when and how the "seniority time clock begins ticking," what work time will "count" toward benefits, and when and how accrued seniority can be forfeited, a 4–3 majority ruled.

As a result of this broad definition of acceptable provisions, the Court approved the use of a rule requiring brewery employees to accumulate 45 weeks of work during a year for advancement to a high-benefit seniority track. Black workers had charged that the 45-week rule had a discriminatory impact, in violation of Title VII. However, Justice Stewart's majority opinion stressed the freedom of collective bargaining parties to adopt such provisions. He also made clear that negotiated provisions acceptable under Title VII may be used as vehicles of illegal discrimination. Thus, California's black brewery workers remain free to show in district court that the *operation* of the 45-week rule produced differences in employment conditions resulting from an intention to discriminate.

The standard procedural rules governing class certification require, in part, that the group be sufficiently large and that all members share important interests. In a narrow 5–4 ruling, the Supreme Court resolved a conflict among the Circuits and found that the EEOC need not meet such procedural requirements because it has separate authority under Title VII to file suits on behalf of groups of aggrieved persons.[31]

One especially sensitive aspect of this issue is that the standard procedural requirements for class certification

(Rule 23 of the Federal Rules for Civil Procedure) make any judgment in subsequent suits binding on all class members; no such requirement exists under Title VII. Thus, employers expressed concern over the possibility of additional or supplemental claims by EEOC class action members unsatisfied with class-wide relief. Writing for the Court, Justice Byron White refused to restrict EEOC's ability to bring class actions, but he instructed lower courts to play an active role in determining whether subsequent private suits by unsatisfied EEOC class members occur. Where the EEOC has prevailed in its action, a court may require "any individual who claims under its judgment to relinquish his right to bring a separate private action." Except where lower courts ignore this advice, it should ameliorate employers' equity concerns for double recovery by discrimination victims.

In *N.Y. Gaslight Club,*[32] the Court increased the likelihood that discrimination victims can recover the costs of their successful litigation. A 7–2 majority ruled that, in States that have employment discrimination agencies, a successful plaintiff in State court may file a Federal Title VII suit for an award of attorney's fees if State law does not provide for such an award. The Court reasoned that the complementary nature of State and Federal enforcement mechanisms permits those receiving inadequate relief in State courts to seek complete relief in Federal courts. All plaintiffs may seek attorney's fees once they reach a Federal Court, so the Court found no reason to block such access simply because adequate relief was received at the State level.

In a second case involving attorney's fees, the Court rejected a novel approach by a district judge that would award fees to prevailing parties in Title VII cases when the proceedings had been "vexatiously multiplied."[33] A separate law allows the assessment of "excess costs" for creating such delays,[34] and the lower court found that attorney's fees are part of the costs.

Even though the Supreme Court refused to award fees by combining the two laws, Justice Powell and four others found that attorney's fees may be awarded against lawyers who "willfully abuse judicial process," such as by refusing to comply with discovery orders. The five justices agreed that Federal courts have the "inherent power" to assess fees as part of the "bad faith" exception to the American Rule against recovery of counsel fees.

Both this case and *N.Y. Gaslight Club* clearly expand the opportunities for Title VII litigants to recover court costs, creating additional incentives for alleged victims to bring suits. But the assessment of fees for the abuse of judicial process should provide an incentive for more timely resolution of Title VII cases, perhaps offsetting the burden of fatter dockets in lower courts.

The fourth procedural case under Title VII involved the length of time available for filing Federal claims when deferral to a State employment discrimination agency is required. Title VII provides that, in a deferral State, a complainant must file charges with the EEOC within 300 days of the allegedly unlawful incident; the law also provides that no charges can be filed with the EEOC until 60 days after the filing of charges with a State agency.

When charges were filed with the EEOC after 291 days, and the case was then referred to a State agency, the Supreme Court ruled that the charge was not filed on time with the EEOC because the 60-day deferral period for State charges pushed the technical EEOC filing date beyond the legal 300-day limit.[35] Justices Blackmun, Marshall, and Brennan argued in dissent that the Court's interpretation effectively reduces the time for filing EEOC charges in deferral States to 240 days.

Public-sector cases

Three public-sector cases decided by the Court in 1979–80 expanded the rights of individuals in dealing with State and local governments. A pair of cases, not the subject of much media attention, fundamentally altered the potential liability of these governmental entities. In one case, the Court ruled that State and local governments can be sued not only for alleged violations of constitutional and Federal civil rights but also for alleged violations of any other federally created right. The second ruling denied municipalities a qualified "good faith" immunity defense in such suits. Increased rights for individuals and corresponding increased liability for State and local governments are certain to play a key role in public employment issues. A third public-sector decision further reduced the number of patronage jobs controlled by elected officials.

In *Maine v. Thiboutot,*[36] a 6–3 majority ruled that the Civil Rights Act of 1871 creates liability for State and local government violations of any Federal statutory right. The 1871 law provides that anyone acting under the color of State law to deprive another person's "rights, privileges, or immunities secured by the Constitution and laws" is subject to liability. Justice Brennan's majority opinion found "and laws" to be a straightforward indication that Congress wanted to provide a right of action to enforce all rights created under Federal laws.

Thiboutot specifically approved the right to file a claim against State officials for incorrectly computing benefits under the Social Security Act. But the list of federally created rights now enforceable under the 1871 law is long; it includes "any Federal-State cooperative program," according to Justice Powell's vigorous dissent. Thus, cooperative public-works programs and the Comprehensive Employment and Training Act programs, among others, may now be potential sources of

liability for the States, counties, and cities involved in their administration.

In expanding private rights under the 1871 law, the Court also ruled that attorney's fees could be awarded by State courts to prevailing parties in all actions under the law. But, in a companion case that permitted such fee awards by a Federal court based only on a consent decree,[37] the Court left open whether Federal courts can award fees against States based on a statutory, non-civil rights claim under the 1871 law. The 11th Amendment may bar such an award, but the increased litigation now expected in this area could soon produce a case that may answer this question.

In 1978, the Supreme Court overturned a 17-year-old interpretation of the 1871 Civil Rights Act and held that municipalities can be sued as "persons" under the law.[38] Last term, in a narrow 5–4 ruling, the Court found that cities cannot claim "good faith" immunity as a defense in such suits.[39] Writing for the Court, Justice Brennan reasoned that the law was designed to protect against misuse of State and local powers, and permitting immunity would undermine that purpose. Brennan made clear that government officials may still claim such a defense in cases under the 1871 law, indicating that when a municipality deprives individuals of their constitutional or Federal rights "the public, as represented by the municipality," must bear the costs.

The two-way expansion of the potential liability of State and local governments may have important implications for the role these government entities choose to play in administering Federal programs and in providing other services. Pressure on local governments to ensure that neither Federal nor constitutional rights are infringed could increase administrative costs, as program procedures are re-examined and new controls are implemented. The cost of additional court suits can easily upset a carefully balanced budget. And with public finances limited by taxpayer resistance, additional expenditures could mean fewer—but, perhaps, fairer—programs and services.

Patronage systems suffered a strong blow in 1980, as once again the Supreme Court upheld the rights of individuals over those of governmental authorities. The Court refused to permit a newly elected Democratic county administration to replace two assistant public defenders appointed by the defeated Republican officials.[40] Expanding public employees' First Amendment protections against political coercion first announced in *Elrod v. Burns*,[41] a 6–3 Court found that the attorneys, judged competent in their jobs, could not be dismissed solely because of their political beliefs.

Which public jobs can still be controlled for patronage purposes? The confidential or policymaking nature of a job is not the criterion for patronage positions, Justice Stevens wrote for the Court; rather, a hiring authority must demonstrate that party affiliation is "an appropriate requirement for the effective performance of the public office involved." However, the types of positions where effectiveness is related to party affiliation remains uncertain. Stevens acknowledged only that election judges and "various assistants" of State governors, such as press secretaries, speech writers, and lobbyists, are examples of permissible patronage jobs, but he created no clear line.

One writer suggested that the Court has adopted and expanded Oliver Wendell Holmes' concept of "Jobbism," where a worker's political beliefs do not interfere with the performance of a job—even if that job involves carrying out the policies of a competing political party. Under the Court's present approach, "it's an open question whether a newly elected governor, or president, may appoint his own cabinet," wrote Robert M. Kaus in "Zbig for Life: The Way the Supreme Court is Going That's What We Could be Stuck With."[42] Although Stevens' opinion is unlikely to lead to court suits by cabinet officials of an out-going administration, the question of when party affiliation influences the effectiveness of a public employee's performance is bound to raise some interesting future cases that should help reduce the present uncertainty.

Indeed, some officials appointed by President Carter may be encouraged to try and keep their jobs by a recent district court decision. Mahlon M. Delong was appointed to a Schedule A, Federal "plum book" job by President Ford. Based on the Supreme Court's ruling in *Branti v. Finkel*, a district court found that Delong was illegally fired by the Carter Administration and must be reinstated as the Maine director for the Farmers Home Administration.[43] As a result, the Deputy General Counsel for the Federal Office of Personnel Management, Paul Trause, expects some Carter appointees to go to court: "I don't expect to be deluged, but I think it's a real consideration."

Traditional labor law

The NLRB's expertise in settling labor relations issues under the National Labor Relations Act has been frequently recognized by the Supreme Court. But in its 1979–80 term, the Court continued a year-earlier pattern and rejected two of three Board interpretations of the act, so that all three decisions resulted in greater flexibility for employers. In both cases lost by the Board, however, the Court achieved only a bare 5–4 majority.

In *Yeshiva*,[44] the Supreme Court ruled that the act's coverage of university faculty is far more limited than the Board claimed. The Court supported a Second Circuit ruling that faculty members who play dominant decisionmaking roles in matters of hiring, tenure, sabbaticals, terminations and promotions as well as in aca-

demic areas are "managerial" employees excluded from NLRA coverage. The Board had argued that the faculty exercised "independent professional judgment" in handling its decisionmaking responsibilities, but the Court rejected this approach in finding that the interests of faculty members and those of the university could not be separated.

Justice Powell's majority opinion stressed that the purpose of the managerial exclusion was to preserve for an employer the undivided loyalty of those employees who carry out management policies. In applying this rationale to the employment structure at private universities, the Court failed to provide clear lines to determine when a faculty member is aligned with management, although Powell suggested that tenure status in some schools might distinguish managerial faculty members.

For 9 years, NLRB decisions had approved virtually all faculty bargaining units, but the uncertainty created by *Yeshiva* requires case-by-case reviews by the Board, certain to dampen union organizing efforts among private institutions. Public colleges and universities are covered by State labor laws, and any change in coverage must come in State courts or legislatures.

Without doubt, the most significant aspect of *Yeshiva* is whether the "managerial" exclusion may now reach other professional employees. The Taft-Hartley Act created the original exemption for "supervisors," which was expanded by Court-approved Board decisions to cover those "who formulate and effectuate management policies by expressing and making operative the decisions of their employees."[45] The "managerial" activities of the Yeshiva faculty may be similar to the responsibilities held by some nurses, lawyers, doctors, engineers, and other professionals currently bargaining under the act. More precise limits on the managerial exclusion are bound to emerge through increased litigation by managements seeking to avoid collective bargaining. Ironically, the greater decisionmaking authority among professionals—such as university faculty—that resulted from the availability (if not the use) of collective bargaining may be the basis for finding their interests aligned with those of management. However, *Yeshiva's* narrow 5–4 verdict suggests that a Court majority may not support a broad expansion of the managerial exclusion.

Technological innovation carries conflicting consequences for economic growth and for the continuity of employment. As pressures increase to combat sagging productivity growth through policies to stimulate innovation, attempts to preserve traditional work may also increase. Possibly anticipating such a scenario, the Court's ruling in *NLRB v. International Longshoremen's Assn.*[46] recognized the important role of collective bargaining in resolving such conflicts and outlined a broad new interpretation of the work preservation doctrine that should permit innovative solutions to limit job losses following the introduction of new technologies.

The NLRB ruled invalid an agreement between the ILA and the shipping industry granting the union exclusive rights to pack and unpack containerized cargo within 50 miles of a port. The Board reasoned that such work was not traditional longshoring work and that the union illegally sought to acquire the work traditionally done by freight consolidators and trucking companies. However, the High Court, noting that container technology had completely replaced the traditional method of handling goods between ocean and motor transportation, found that the Board had incorrectly analyzed the work the union sought to preserve. On remand, the Board must reexamine the ILA agreement based on the Court's advice that the work preservation doctrine must protect union actions that "attempt to accommodate change while preserving as much of their traditional work as possible."

If the Board finds the ILA contract provisions valid, a second question will be whether the shipping industry has the "right to control" the assignment of work.[47] Justice Marshall hinted in a footnote to his majority opinion that the Board might frame the question in terms of the shippers' authority over containers they own or lease in their "possession and control."[48] But other issues such as government regulatory constraints cloud the resolution of the control question.

Regardless of how the Board now decides the ILA case, the Court's decision clearly broadens the scope of permissible work preservation agreements. In earlier cases such as *National Woodwork* and *Pipefitters*,[49] unions had completely rejected an innovation in efforts to preserve traditional work. Thus, it appeared that only *exact* work patterns could be preserved through negotiated contracts. Now, however, the Court has opened the way for agreements that can preserve work *generically* the same as that performed before an innovation. The flexibility of the new approach was also enhanced by Marshall's comment that valid agreements need not be the "most rational or efficient response to innovation." As in *Yeshiva*, however, the 5–4 majority in this case suggests that the new standard may extend only as far as the views of a single justice.

The views of the NLRB were adopted by the Supreme Court when it declared that a union may not picket a struck product handled by a neutral secondary employer if the product accounts for substantially all of the employer's business.[50] The Court's 1974 *Tree Fruits* decision had permitted a union to picket a struck product at a secondary location (apples in a retail store).[51] But the Court reasoned that this simple rule must be conditioned on the relationship of the product to the neutral employer's revenues. Justice Powell explained for the 6–

3 majority that when product picketing "reasonably can be expected to threaten neutral parties with ruin or substantial loss" it illegally coerces them to cease dealing with that product or with the primary employer.

The threshold criterion for when product picketing at secondary locations becomes illegally coercive remains unclear. Must a union gain access to the employer's books and use some quantitative interpretation of "substantial" before being reasonably certain that picketing is legal? In the case before the Court, revenues from sales of the struck product accounted for more than 90 percent of the neutral employers' gross income. But is 75 or even 50 percent still "substantial"? The threshold of illegality is also crossed when "ruin or substantial loss" of a neutral employer is a "reasonably expected" outcome of secondary picketing. Must a union evaluate its potential success in influencing consumers? Presumably the Board and the lower courts will have to answer these questions and others that emerge concerning specific products and their economic contribution to the neutral employer's business.

The Court also considered the First Amendment speech questions involved in limiting secondary picketing. Powell's majority opinion found the new standard constitutionally sound basically because it differed little—on the speech question—from the existing limits on secondary picketing. Justices Blackmun and Stevens agreed that the new economic impact limitation on secondary picketing was constitutional, but both were troubled by the Court's easy acceptance of additional content-based speech restrictions. During the 1979–80 term, the Court struck down an Illinois law as unconstitutional because it prohibited picketing of residential homes based on the content of the picketers' speech.[52] Generally, speech rights have only been limited based on time, place, and manner. In labor law, the Supreme Court first limited speech based on content (primary product picketing) in *Tree Fruits,* and Blackmun and Stevens appeared wary of establishing precedents that could be used in other areas.

Another case decided under the NLRA settled questions about the liability of parent unions for damages caused by a local's unauthorized strike. Unanimously the Court ruled that a parent union can be held liable for such damages when it can be proved that the local acted with the express or implied authority of the parent. Damage liability can also result from a parent union's failure to fulfill contractual obligations to resolve unauthorized strikes, the Court found in resolving a conflict among the circuits.[53] Under both tests, the United Mine Workers of America were found not liable for damages resulting from a series of wildcat strikes by locals between 1969 and 1973.

Justice Brennan's opinion emphasized that parent union liability under the NLRA exists only when a local acts as its agent. However, his analysis of the potential liability arising from contract language left some important questions.

Brennan found that the UMW's obligation to "maintain the integrity" of the contract did not require attempts to resolve the unauthorized strikes, largely because such a duty to intervene had been specifically deleted from the 1952 contract. It is unclear whether an "integrity" clause that resulted from a different bargaining history could create an obligation for parent union intervention. Thus, where contract language is imprecise and the negotiating history offers no definitive answers, a parent union could be held liable for failing to intervene in a local's unauthorized strike.

Injury compensation

The two worker compensation cases decided by the Court last term overturned unconstitutional restrictions on the availability of benefits to injured workers or their survivors. Likewise, a pair of cases under the Federal injury compensation law for maritime workers also resulted in greater availability of benefits. An unusual case under another Federal law found the Court agreeing with actions that might curb the amount of compensation awards to injured workers or their survivors.

The Missouri workers' compensation law required a dependency test for widowers seeking benefits based on their wives' former earnings, but did not require such a test for similarly situated widows. The Supreme Court struck down this unequal treatment as unconstitutional sex discrimination,[54] extending to State benefit laws the equal protection analysis used to void similar sex-based provisions for the distribution of Federal social security benefits.[55] The 8–1 ruling acknowledged that the Missouri provision discriminated both against working women, by failing to provide the same protection for their families that men receive, and against men who survive their working wives. The Court left State courts to decide whether to require a dependency test for widows or to drop it altogether.

In the second workers' compensation case, the Court ruled that an injured worker may obtain supplemental or additional benefits from a second jurisdiction that is willing to pay.[56] Although seven justices agreed on this result, they split 4–3 on their approach. Justices Stevens, Brennan, Stewart, and Blackmun would have overruled a 1943 High Court ruling that the Full Faith and Credit Clause of the Constitution precludes compensation from one State following receipt of benefits from another.[57] However, Justices White and Powell and the Chief Justice pursued a more narrow course, agreeing with a 1947 case that benefits from a second jurisdiction are permissible when not expressly prohibited by the law of the first jurisdiction.[58] In this case, Virginia's compensation law was found not to prevent addi-

tional benefits from other jurisdictions. In dissent, the unusual combination of Justices Marshall and Rehnquist supported the Court's 1943 ruling that payment of secondary compensation claims violates the Full Faith and Credit Clause.

Under the Longshoremen's and Harbor Workers' Compensation Act, the Court ruled unanimously that Congress intended coverage to be based on the nature of the work performed rather than based solely on its location. Thus, "maritime employment" for the purposes of the act includes all workers involved in moving cargo between ocean and land transportation, even though some of this traditional longshoring work may occur away from the water's edge.[59]

Another unanimous decision found that State compensation plans may cover the same land-based maritime workers covered by the Federal injury compensation scheme.[60] The Court reasoned that the extension of the Federal law in 1972 to cover such workers was meant to complement not to supplant State compensation systems.

The calculation of damage awards for a worker's death or injury has generally been based on expected gross income in claims under the Federal Employers' Liability Act. But during 1980, the Supreme Court sided with a vanguard of inflation-fighting lower courts and ruled that after-tax future earnings of a victim could be calculated and presented to the jury by the defending employer.[61] Justice Stevens wrote for the Court that juries are now sufficiently sophisticated to deal with the complexities of future tax liabilities. Awards under the law are not taxed, and Stevens reasoned that juries may be told this to prevent inadvertently large awards that include the imaginary tax consquences. Justices Blackmun and Marshall argued that the Court simply reduced penalties for defendents in such cases, whereas Congress probably intended only victims to benefit from the tax break on awards.

Other benefits, Federal laws

Vested pension benefits are "nonforfeitable" and thus insured under provisions of the Employee Retirement Income Security Act even if the pension plan was terminated before the act took full effect and contained a provision disclaiming employer liability for insufficient assets, the Supreme Court ruled.[62] Justice Stevens wrote for a narrow 5–4 majority that disclaimers of employer liability protect against direct claims by employees, but that even during the phase-in period of benefit insurance Congress intended employers to be liable for up to 30 percent of their net assets to compensate the ERISA insurance fund for benefits paid. Because Congress knew that most plans contained disclaimers, its creation of the reimbursement plan made clear that benefits were insured where the employer had disclaimed liability.

Although the decision directly affects only the participants of plans terminated before 1976, Pepperdine University law professor R. Wayne Estes has suggested that the decision "sets a tone for strict judicial interpretation of the statute that may have a far-reaching effect.[63]

Veterans whose employment is interrupted by their military service are entitled to seniority benefits calculated as if they had been continuously employed. The Supreme Court has ruled that such seniority benefits include severance pay[64] and pension benefits[65] but not vacation benefits.[66] In 1980, a unanimous Court ruled that the steel industry's supplemental unemployment benefits are perquisites of seniority, and military service must be included in the calculation of SUB payments.[67]

Justice Marshall's opinion for the Court satisfied both prongs of the test established in *Alabama Power:*[68] it is reasonably certain that steel industry SUB benefits would have accrued to an employee who entered military service; and because they offer lay-off protection initially based on time worked, SUB benefits are a reward for length of service.

In *U.S. v. Clark,*[69] the Court made it easier for illegitimate children of Federal civil service employees to obtain survivors' benefits under the Civil Service Retirement Act. A 7–2 majority ruled that the law's requirement that "recognized natural" children "lived with" their parents to be eligible for a survivor's annuity means only that they must have *once* lived in a normal parent-child relationship—not necessarily at the time of the worker's death. Although not an explicit dependency requirement (which would raise troublesome constitutional issues), the Court's reading of the "lived with" provision establishes some basis for the economic support intended to flow to the dependent survivors of a Federal worker.

During its 1979–80 term, a unanimous Court upheld the constitutionality of the Labor Department's practice of using fines assessed for violations of child labor laws to help defray the cost of enforcing these laws.[70] Although the Court has found that Fifth Amendment due process requirements prohibited such self-supporting activities for judicial or quasi-judicial decisionmakers,[71] Justice Marshall wrote for the Court that child labor law enforcers act more like prosecutors because all employers fined under the law have an opportunity for a *de novo* review by an administrative law judge. The Court left open the question of what constitutional limits may exist on the financial or personal interests of prosecutors.

Employment discrimination issues sometimes arise in unusual legal contexts. In a case under the Emergency School Aid Act, the Court ruled that Federal funds may be denied to elementary and secondary schools based on statistical evidence of a disparate racial impact in the hiring, promotion, or assignment of employees.[72]

The Court found that discriminatory impact—not necessarily intent—should trigger a fund cutoff because Congress intended to eliminate *de facto* as well as *de jure* minority group segregation and isolation. The Court suggested that schools could possibly rebut a statistically shown disparate impact by proof of "educational necessity," analogous to the "business necessity" justification permitted under Title VII of the 1964 Civil Rights Act. □

FOOTNOTES

[1] Finley Peter Dunne, *Mr. Dooley's Opinions* (St. Clair Shores, Mich., Scholarly Press, Inc., 1977), reprint of original 1900 edition.

[2] Private employers gained greater flexibility in contesting health and safety regulations, *Industrial Union Dept. AFL–CIO, v. American Petroleum Institute*, 48 U.S.L.W. 5022 (U.S., July 2, 1980), and in preventing unionization of employees with some managerial responsibilities, *NLRB v. Yeshiva Univ.*, 48 U.S.L.W. 4175 (U.S., Feb. 20, 1980). Private employers and unions were jointly provided new freedoms to preserve traditional work, *NLRB v. International Longshoremen's Assn.*, 48 U.S.L.W. 4765 (U.S., June 20, 1980), and to structure seniority systems, *California Brewers Assn. v. Bryant*, 48 U.S.L.W. 4156 (U.S., Feb. 20, 1980).

[3] State and local government employers became liable for violations of all Federal statutory rights, *Maine v. Thiboutot*, 48 U.S.L.W. 4859 (U.S., June 25, 1980), and were denied "good faith" immunity in such cases, *Owen v. City of Independence, Mo.*, 38 U.S.L.W. 4389 (U.S., Apr. 16, 1980).

[4] In *Fullilove v. Klutznick*, 48 U.S.L.W. 4979 (U.S. July 2, 1980), congressionally imposed quotas were approved to enforce the equal protection rights of minorities; *Branti v. Finkel*, 48 U.S.L.W. 4331 (U.S., Mar. 31, 1980), expanded public employees' first amendment protections against dismissal for political reasons; and *Wengler v. Druggists Mutual Ins. Co.*, 48 U.S.L.W. 4459 (U.S. Apr. 22, 1980), found unconstitutional sex discrimination in a workers' compensation law by extending the equal protection analysis developed in challenges to Federal benefit laws.

[5] The Court broadened administrative discretion in *General Telephone Co. of the Northwest, Inc. v. EEOC*, 48 U.S.L.W. 4513 (U.S., May 12, 1980), allowing EEOC to use special, less restrictive class certification procedures; *Whirlpool Corp. v. Marshall*, 48 U.S.L.W. 4189 (U.S., Feb. 26, 1980), upholding a Labor Department regulation that allows employees to refuse dangerous work even though the OSH act does not specify such authority; and *NLRB v. Retail Store Employees Union, Local 1001*, 48 U.S.L.W. 4796 (U.S., June 20, 1980), approving an NLRB policy that limits secondary boycotts based on the potential economic loss for the neutral employer.

[6] *Industrial Union Dept., AFL–CIO v. American Petroleum Institute*, 48 U.S.L.W. 5022 (U.S., July 2, 1980), limiting OSHA's regulatory authority over toxic substances; *NLRB v. Yeshiva University*, 48 U.S.L.W. 4175 (U.S., Feb. 20, 1980), restricting NLRB jurisdiction over university faculty; *Maine v. Thiboutot*, 48 U.S.L.W. 4859 (U.S., June 25, 1980), creating liability for State and local government violations of Federal laws; and *Mohasco Corp. v. Silver*, 48 U.S.L.W. 4851 (U.S., June 23, 1980), limiting when the EEOC may act on charges first filed with a State agency.

[7] *Industrial Union Dept., AFL–CIO v. American Petroleum Institute*, 48 U.S.L.W. 5022 (U.S., July 2, 1980), see *Monthly Labor Review*, September 1980, pp. 53–54.

[8] *Fullilove v. Klutznick*, 48 U.S.L.W. 4979 (U.S., July 2, 1980), see *Monthly Labor Review*, September 1980, pp. 54–56.

[9] *California Brewers Assn. v. Bryant*, 48 U.S.L.W. 4156 (U.S., Feb. 20, 1980), see *Monthly Labor Review*, June 1980, pp. 51–52.

[10] *General Telephone Co. of the Northwest, Inc. v. EEOC*, 48 U.S.L.W. 4513 (U.S., May 12, 1980), see *Monthly Labor Review*, August 1980, pp. 45–46.

[11] *Maine v. Thiboutot*, 48 U.S.L.W. 4859 (U.S., June 25, 1980).

[12] *Owen v. City of Independence, Mo.*, 48 U.S.L.W. 4389, (U.S., Apr. 16, 1980).

[13] *Branti v. Finkel*, 48 U.S.L.W. 4331 (U.S., Mar. 31, 1980), see *Monthly Labor Review*, August 1980, pp. 44–45.

[14] *NLRB v. Yeshiva Univ.*, 48 U.S.L.W. 4175 (U.S., Feb. 20, 1980), see *Monthly Labor Review*, April 1980, pp. 57–58.

[15] *NLRB v. International Longshoremen's Assn.*, 48 U.S.L.W. 4765 (U.S., June 20, 1980), see *Monthly Labor Review*, November 1980, pp. 46–47.

[16] *NLRB v. Retail Store Employees Union, Local 1001*, 48 U.S.L.W. 4796 (U.S., June 20, 1980), see *Monthly Labor Review*, November 1980, pp. 47–48.

[17] *Whirlpool Corp. v. Marshall*, 48 U.S.L.W. 4189 (U.S., Feb. 26, 1980), see *Monthly Labor Review*, April 1980, p. 57.

[18] *Industrial Union Dept., AFL–CIO v. American Petroleum Institute*, 48 U.S.L.W. 5022 (U.S., July 2, 1980), see *Monthly Labor Review*, September 1980, pp. 53–54.

[19] 29 U.S.C. Sec. 655(b)(5).

[20] *American Iron and Steel Institute v. OSHA*, 581 F.2d 493 (5th Cir., 1978); *RMI Co. v. Sec. of Labor*, 594 F.2d (6th Cir. 1979); and *Turner Co. v. Sec. of Labor*, 561 F.2d 82 (7th Cir., 1977).

[21] *Industrial Union Dept. v. Hodgson*, 499 F.2d 467 (D.C. Cir., 1974), and *American Iron and Steel Inst. v. OSHA*, 577 F.2d 825 (3d Cir., 1978).

[22] *American Textile Manufacturers Institute, Inc. v. Marshall*, 48 U.S.L.W. 2311 (D.C. Cir., Oct. 24, 1979), review granted, 49 U.S.L.W. 3208 (U.S., Oct. 7, 1980), see *Monthly Labor Review*, December 1980, p. 67. For a more detailed discussion, see Berger and Riskin, "Economic and Technological Feasibility in Regulating Toxic Substances Under the Occupational Safety and Health Act," 7 Ecology L.Q. 285 (1978).

[23] *University of California Regents v. Bakke*, 438 U.S. 265 1978), see *Monthly Labor Review*, August 1978, p. 46.

[24] *Steelworkers v. Weber*, 443 U.S. 193 (1979), see *Monthly Labor Review*, August 1979, pp. 56–57.

[25] *Fullilove v. Klutznick*, 48 U.S.L.W. 4979 (U.S., July 2, 1980), see *Monthly Labor Review*, September 1980, pp. 54–55.

[26] *Minnick v. California Dept. of Corrections*, 48 U.S.L.W. 2128 (Cal. Ct. App., 1979), review granted, 48 U.S.L.W. 3855 (U.S., July 2, 1980), see *Monthly Labor Review*, December 1980, pp. 67–68.

[27] See, for example, *District Atty. Sacramento Cty. v. Sacramento Cty. Civil Serv. Comm.*, 48 U.S.L.W. 2538 (Cal. Sup. Ct., 1980), cert. dismissed, 49 U.S.L.W. 3213 (U.S., Oct. 7, 1980), see *Monthly Labor Review*, December 1980, pp. 67–68; *Detroit Police Officers Assn. v. Young*, 608 F.2d 671 (6th Cir., 1979); and *Maehren v. City of Seattle*, 20 FEP Cases 854 (Wash. Sup. Ct., 1979).

[28] See footnote 19.

[29] *Teamsters v. United States*, 431 U.S. 324 (1977), see *Monthly Labor Review*, August 1977, pp. 48–49.

[30] *California Brewers Assn. v. Bryant*, 48 U.S.L.W. 4156 (U.S. . . , Feb. 20, 1980), see *Monthly Labor Review*, June 1980, pp. 51–52.

[31] *General Telephone Co. of the Northwest, Inc. v. EEOC*, 48 U.S.L.W. 4513 (U.S., May 12, 1980), see *Monthly Labor Review*, August 1980, pp. 45–46.

[32] *New York Gaslight Club, Inc. v. Carey*, 48 U.S.L.W. 4645 (U.S., June 9, 1980).

[33] *Roadway Express, Inc. v. Piper*, 48 U.S.L.W. 4836 (U.S., June 23, 1980).

[34] 29 U.S.C. Sec. 1927.

[35] *Mohasco Corp. v. Silver*, 48 U.S.L.W. 4851 (U.S., June 23, 1980).

[36] 48 U.S.L.W. 4859 (U.S., June 25, 1980).

[37] *Maher v. Gagne*, 48 U.S.L.W. 4891 (U.S., June 25, 1980).

[38] *Monell v. Dept. of Social Serv., New York City,* 436 U.S. 658 (1978), see *Monthly Labor Review,* October 1978, p. 53.

[39] *Owen v. City of Independence, Mo.,* 48 U.S.L.W. 4389 (U.S., Apr. 16, 1980).

[40] *Branti v. Finkel,* 48 U.S.L.W. 4331 (U.S., Mar. 31, 1980), see *Monthly Labor Review,* August 1980, pp. 44–45.

[41] 427 U.S. 347 (1976), see *Monthly Labor Review,* October 1976, pp. 46–47.

[42] Robert M. Kaus, "Zbig for Life: The Way the Supreme Court is Going, That's What We Could be Stuck With," *The Washington Monthly,* June 1980, pp. 25–32.

[43] See T. R. Reid, "GOP Loyalist's Job Victory May Impede Housecleaning," *The Washington Post,* Dec. 3, 1980, p. 12.

[44] *NLRB v. Yeshiva Univ.,* 48 U.S.L.W. 4175 (U.S., Feb. 20, 1980), see *Monthly Labor Review,* April 1980, pp. 57–58.

[45] *NLRB v. Textron,* 416 U.S. 267 (1974).

[46] 48 U.S.L.W. 4765 (U.S., June 20, 1980), see *Monthly Labor Review,* November 1980, pp. 46–47.

[47] See *NLRB v. Enterprise Assn. of Pipefitters,* 429 U.S. 507 (1977), establishing the so-called "right to control" test for work preservation agreements; see *Monthly Labor Review,* June 1977, pp. 57–58.

[48] See footnote 27 of Justice Marshall's opinion, 48 U.S.L.W. 4771.

[49] *National Woodwork Manufacturers Assn. v. NLRB,* 386 U.S. 612 (1967); *NLRB v. Enterprise Assn. of Pipefitters,* 429 U.S. 507 (1977), see *Monthly Labor Review,* June 1977, pp. 57–58.

[50] *NLRB v. Retail Store Employees,* Local 1001, 48 U.S.L.W. 4796 (U.S., June 20, 1980), see *Monthly Labor Review,* November 1980, pp. 47–48.

[51] *NLRB v. Fruit Packers* (*Tree Fruits*), 377 U.S. 58 (1964), see *Monthly Labor Review,* June 1964, pp. 687–88.

[52] *Carey v. Brown,* 48 U.S.L.W. 4756 (U.S., June 20, 1980).

[53] *Carbon Fuel Co. v. United Mine Workers of America,* 48 U.S.L.W. 4059 (U.S., Dec. 10, 1979). For a more detailed discussion and citations of lower court decisions, see *Monthly Labor Review,* March 1980, p. 51.

[54] *Wengler v. Druggists Mutual Ins. Co.,* 48 U.S.L.W. 4459 (U.S., Apr. 22, 1980), see *Monthly Labor Review,* August 1980, p. 45.

[55] See *Weinberger v. Wisenfield,* 420 U.S. 636 (1975); and *Califano v. Goldfarb,* 430 U.S. 199 (1977), see *Monthly Labor Review,* May 1977, pp. 51–52.

[56] *Thomas v. Washington Gaslight Co.,* 48 U.S.L.W. 4930 (U.S., June 27, 1980).

[57] *Magnolia Petroleum Co. v. Hunt,* 320 U.S. 430 (1943).

[58] *Industrial Commission of Wisconsin v. McCartin,* 330 U.S. 62 (1947).

[59] *P. C. Pfeiffer Co., Inc. v. Ford,* 48 U.S.L.W. 4018 (U.S., Nov. 27, 1979), see *Monthly Labor Review,* March 1980, pp. 51–52.

[60] *Sun Ship, Inc. v. Commonwealth of Pennsylvania,* 48 U.S.L.W. 4826 (U.S., June 23, 1980).

[61] *Norfolk and Western Railway Co. v. Liepelt,* 48 U.S.L.W. 4132 (U.S., Feb. 19, 1980), see *Monthly Labor Review,* June 1980, p. 52.

[62] *Nachman Corp. v. Pension Benefit Guaranty Corp.,* 48 U.S.L.W. 4524 (U.S., May 12, 1980), *see Monthly Labor Review,* September 1980, p. 56.

[63] R. Wayne Estes, from a paper presented at the annual meeting of the American Bar Association's Section on Labor and Employment Law, Honolulu, Hawaii, August 4, 1980, 155 DAILY LAB. REP. 1980, D-1.

[64] *Accardi v. Pennsylvania R. Co.,* 383 U.S. 225 (1966), see *Monthly Labor Review,* April 1966, pp. 417–18.

[65] *Alabama Power Co. v. Davis,* 431 U.S. 581 (1977), see *Monthly Labor Review,* October 1977, p. 71.

[66] *Foster v. Dravo Corp.,* 420 U.S. 92 (1975), see *Monthly Labor Review,* May 1975, p. 65.

[67] *Coffy v. Republic Steel Corp.,* 48 U.S.L.W. 4683 (U.S., June 10, 1980), see *Monthly Labor Review,* November 1980, p. 48.

[68] 431 U.S. 581 (1977).

[69] 48 U.S.L.W. 419 (U.S., Feb. 26, 1980), see *Monthly Labor Review,* June 1980, p. 53.

[70] *Marshall v. Jerrico, Inc.,* 48 U.S.L.W. 4485 (U.S., Apr. 28, 1980), see *Monthly Labor Review,* June 1980, pp. 52–53.

[71] See *Tumey v. Ohio,* 273 U.S. 510 (1927); and *Ward v. Village of Monroeville,* 409 U.S. 57 (1972).

[72] *Board of Ed., City of New York v. Harris,* 48 U.S.L.W. 4035 (U.S., Nov. 28, 1979), see *Monthly Labor Review,* March 1980, p. 52.

The negative income tax: would it discourage work?

Advocates of the negative income tax often contend that such a program would provide stronger work incentives than conventional welfare benefits; evidence from recent tests indicates that this assumption may not be well-founded

ROBERT A. MOFFITT

Would government cash transfer payments to the poor, in the form of a negative income tax, discourage work effort among recipients? The strongest evidence for the existence of such a disincentive comes from four income maintenance experiments, each of which tested the effects of the negative income tax on samples of the Nation's low-income population. The findings from the experiments have been released in uneven spurts, as they have become available. This article summarizes the results of all four experiments, shows what we have learned from them, and discusses their limitations in providing correct estimates of work disincentive effects.[1]

The experiments were conducted over a number of years in selected "test bore" sites across the country: New Jersey and Pennsylvania (1968–72); rural areas of North Carolina and Iowa (1970–72); Seattle and Denver (1970–78); and Gary, Indiana (1971–74). Three of the tests were limited to specific groups of people; only husband-wife couples were studied in New Jersey and Pennsylvania and in the rural experiment, and only blacks in the Gary test, although the Gary test included both couples and families headed by women. All races and family types were included in the Seattle-Denver study.

The sample sizes for the experiments were: 1,300 in New Jersey and Pennsylvania; 800 in the rural tests; 4,800 in Seattle-Denver; and 1,800 in Gary. The first experiment was conducted in the New Jersey-Pennsylvania area because of its high density of urban poor, because it initially had no Aid to Families with Dependent Children Unemployed Parent Program for husband-wife couples, and because area government officials were very receptive. The rural experiment was designed to study a different group of the population, and thus focused on two States with different types of low-income populations and agricultural bases. Seattle and Denver were chosen to represent the West, and in the case of Denver, to study a Chicano subpopulation. Finally, Gary was selected because its population permitted concentration on black female family heads in the Aid to Families with Dependent Children Program, and because of receptive local officials.

However, the experiments were alike in the most important respect—each attempted to test the negative income tax using classical experimental methods. A sample of the low-income population was selected in each area, and families were assigned to either an "experimental" group or a "control" group. The experimental group received negative income tax benefits, the control group did not, and the effect of the experiment was measured as the difference in work effort between the two groups. The experiments also varied the generosity of benefits to the experimental groups in order to measure the effect of this factor on work effort.

Like all pure negative income tax schemes, the plans provided a positive benefit to families with no earnings at all, whether the head or any other family member

Robert A. Moffitt is assistant professor of economics at Rutgers College, New Brunswick, N.J.

was "voluntarily" or "involuntarily" unemployed; there was no work requirement in any of the experiments. However, to provide work incentives, benefits were not reduced by the full amount of any earnings that the family did receive. That is, the "tax rate" or "benefit-reduction rate" was less than 100 percent. The algebraic statement of the benefit formula is:

$$B = G - tY,$$

where B is the benefit paid to the family, G is the "guarantee level"—that is, the amount paid to a family with no other income—Y is the family's income level, and t is the benefit-reduction rate.

As is apparent from the benefit formula, an extra dollar of income, Y, reduces the family's benefit by t dollars, where t is some fraction between 0 and 1. Therefore, because an extra dollar of earnings lowers the benefit by only t dollars, total income does indeed increase—by 1−t dollars. The experiment varied levels of the guarantee (G) and reduction rate (t) given to different families in the experimental group. On average, however, a tax rate of .50 and a guarantee level about equal to the poverty line ($6,191 per year in 1977 for a family of four) were offered. The guarantee level in all cases was higher for larger families.

The economists conducting the experiments expected that the results would show some negative effect on work effort; the important question was what the magnitude of the reduction would be. Moreover, they believed that the size of the work disincentive would vary with the levels of the guarantee and the benefit-reduction rate: the higher each of them, the greater the work disincentive.[2] This expectation was held most firmly for married couples, to whom the existing welfare system provides benefits in only a few States. For female heads of families, who are already eligible for conventional welfare benefits, there was no prior expectation of a net change in work effort. In fact, the negative income tax was originally proposed in the 1960's as a program to increase work incentives relative to the existing welfare system, which at that time had fairly high benefit-reduction rates that may have discouraged work.

Findings confirm expectations

Table 1 shows the difference in hours of work per week between the experimental and control groups, broken down for husbands, wives, and female heads of families in each of the test areas. Work effort is shown as hours of work per week, but most of the studies actually measured work hours over longer periods. For analytical purposes, hours have been standardized here to a weekly basis.

Data presented in the table are unequivocal evidence that hours of work are reduced by the negative income tax. The disincentive effects for husbands range from about 1 percent to 8 percent. For wives, they vary much more—from almost zero to 55 percent (although the latter figure may be a statistical anomaly). Disincentives of 12 to 28 percent were reported for female family heads in the only two experiments for which esti-

Table 1. Average differences in weekly hours between control and experimental groups in four test areas

Area and source of estimate	Husbands		Wives		Female heads of families	
	Absolute difference	Percentage difference	Absolute difference	Percentage difference	Absolute difference	Percentage difference
New Jersey-Pennsylvania						
U.S. Department of Health, Education and Welfare:[1]						
White	−1.9	5.6	−1.4	30.6	—	—
Black	0.7	2.3	0.1	2.2	—	—
Spanish-speaking	−0.2	0.7	−1.9	55.4	—	—
Hall:[2]						
White	[3] −2.4	7.1	[3] −1.5	32.8	—	—
Rural (nonfarm)						
U.S. Department of Health, Education and Welfare and Bawden:[4]						
North Carolina blacks	[3] −2.9	8.0	[3] −5.2	31.3	—	—
North Carolina whites	2.1	5.6	−2.2	21.5	—	—
Iowa whites	−0.5	1.2	−1.2	20.3	—	—
Seattle-Denver						
Keeley and others[5]	[3] −1.8	5.3	[3] −2.1	14.6	[3] −2.6	11.9
Gary						
Moffitt[6]	−1.6	4.7	0.2	3.7	[3] −2.0	27.8

[1] See *Summary Report: New Jersey Graduated Work Incentive Experiment* (U.S. Department of Health, Education and Welfare, 1973).

[2] See Robert Hall, "Effects of the Experimental Negative Income Tax on Labor Supply," in Joseph A. Pechman and P. Michael Timpane, eds., *Work Incentives and Income Guarantees* (The Brookings Institution, 1975).

[3] Significant at 10-percent level (15 percent for New Jersey Department of Health, Education and Welfare estimate).

[4] See *Summary Report: Rural Income Maintenance Experiment* (U.S. Department of Health, Education and Welfare, 1976).

[5] See Michael Keeley, Philip Robins, Robert Spiegelman, and Richard West, "The Labor Supply Effects and Costs of Alternative Negative Income Tax Programs," *Journal of Human Resources*, Winter 1978, pp. 3–36.

[6] See Robert A. Moffitt, "The Labor Supply Response in the Gary Income Maintenance Experiment," *Journal of Human Resources*, Fall 1979, pp. 477–87.

NOTE: Hours differences are regression-adjusted for differences between experimental and control group members in years of education, age, and similar variables.

Dashes indicate data not available.

mates are available, Gary and Seattle-Denver. These represent the differences in hours worked between the experimental group, which received negative income tax payments, and a control group which received Aid to Families with Dependent Children; thus, the results indicate that the negative income tax programs tested also reduced work effort relative to the existing welfare system.

Although the experiments clearly found a work disincentive effect, the ranges of response are rather disconcerting. Moreover, the effects for different demographic groups follow no clear pattern. Interracial variations, for example, appear to be only a result of random statistical error. In fact, in the Seattle-Denver experiment, no statistically significant differences between the races were found. (The Seattle-Denver data in table 1 are averages across all racial groups.)

One interesting finding that has emerged from the experiments relates to the form which work reduction has taken for men. There are strong indications that reductions in total hours of work most often reflect reductions in likelihood of being employed at all, rather than marginal reductions in the hours of those who remain employed. That is, the reduction in total work hours shows up as a decline in the employment rate of the experimental sample relative to that of the control sample.

The policy implications of this finding are ambiguous. On the one hand, withdrawal from the labor force is a major change in work effort, one that society is not likely to accept. On the other hand, this also implies that the total reduction in work hours stems from a rather large response by a small number of men. Therefore, the negative income tax does not appear to have a pervasive effect on the work ethic of the low-income male population; in fact most of the men do not respond at all.

This phenomenon is undoubtedly related to the difficulty in reducing hours of work while remaining employed. Work hours in most jobs held by prime-age men are institutionally fixed and difficult to change. This is less true of the poor than of the population as a whole, low-wage workers being more likely to hold part-time or unstable jobs. But even these workers may be able to reduce work effort mostly by not working at all. However, one way in which workers may be able to adjust hours marginally is by reducing overtime work. There has not been a great deal of attention paid to this possibility, except in the New Jersey experiment, where it did indeed appear that part of the response resulted from a reduction in overtime.

A decrease in the employment rate of the low-income population can occur in several ways. It may take the form of lengthening of time between jobs, longer periods of unpaid vacation and holidays, or permanent withdrawal from employment. Results from some of the experiments indicate that the first of these responses—a lengthening of time between jobs, often corresponding to an increase in the length of unemployment spells—was the most common. If used for more thorough job search, such unemployment spells may result in higher wages when employment is finally secured. For young workers, some data have also shown an increase in school attendance, which may contribute to the individual's human capital and also ultimately increase wages. Both of these uses of nonwork time are probably more acceptable than increases in pure leisure. However, although this investment should result in greater future earnings potential, no earnings increases were apparent in data from the experimental period.

The lengthening in unemployment spells took an interesting form in the Gary test, where heavy layoffs in the steel industry early in the experiment drove up local unemployment rates. The data showed that both the experimental and control groups increased their work effort over the period of the experiment as unemployment rates in the area dropped, but that the growth in the employment rate of the control group was greater than that in the experimental group. Consequently, this "relative employment reduction" was taken as evidence that the negative income tax resulted in a slower return to work among members of the experimental group, probably because they were using the payments as a form of unemployment insurance. Members of the control group, with much less generous conventional unemployment benefits available were probably forced by economic distress to return to work sooner.

As previously mentioned, the experiments also tested negative income tax plans with various benefit-reduction rates and guarantees. The results in table 1 should be thought of as the responses to plans with a benefit-reduction rate of about .50 and a guarantee level equal to the poverty line—roughly the average across all experiments. Most of the plans currently before Congress propose somewhat lower guarantee levels (equal to 65 percent of the poverty line), which would suggest a smaller work disincentive. Therefore, measures of the work effort resulting from various combinations of benefit-reduction rates and guarantees are needed to predict the responses to different programs.

The following tabulation shows the average effects of selected guarantee and benefit reduction rate adjustments:

Change in negative income tax variable	*Change in hours for—*		
	Husbands	*Wives*	*Female family heads*
An increase of $20 per week (1977 dollars) in the guarantee level . . .	−0.4	−0.8	−1.8
An increase of 10 percent in the benefit-reduction rate	−0.3	−1.2	+0.5

As indicated, increases in the guarantee level decrease hours of work.[3] The effects are largest for female family heads, who appear to be very responsive to the guarantee level, and smallest for husbands. Both husbands and wives also work less, the higher the benefit-reduction rate, with wives responding more than husbands. For female heads, the experimental findings show unexpectedly that increases in the benefit-reduction rate promote work effort. The explanation generally given for this result is that, in economic terms, the "income effect" of the change dominates the "substitution effect"; the reduction in take-home pay caused by the higher benefit-reduction rate strongly induces these women to work more in order to make up for the loss of income. However, the absolute size of this increase in work hours is rather small and is overwhelmed by the large negative effect of an increase in the guarantee level. In fact, the results show that, in general, experimental group members are somewhat more sensitive to changes in the guarantee than to changes in the benefit-reduction rate.

These findings do indeed imply that the response to a cash transfer program with a guarantee set at 65 percent of the poverty line would be smaller than shown in the experiments, which set it at 100 percent. At the lower guarantee level, the percentage reductions in work effort discussed in table 1 would be about 2 percent lower for husbands, 6 percent lower for wives, and 11 percent lower for female family heads.[4] Nevertheless, work disincentives would remain.

Limitations of the experiments

Several limitations of the experiments should be taken into account when assessing the results. The most important qualification is that the experiments by and large lasted only 3 years, a fact which was known beforehand by the families who agreed to enroll. Participants consequently may have behaved differently than they would in a permanent national program, although it is not obvious whether they would respond more or less under non-test conditions. As Charles Metcalf has shown, there is a tendency for individuals in a short-run experiment to overrespond (reduce work effort more than they would in a permanent program) in order to take advantage of the higher benefits temporarily available from non-work.[5] This runs contrary to the natural tendency for persons to underrespond simply because a permanent guarantee of income has more impact than a temporary guarantee. On *a priori* grounds, there is no way to tell which tendency dominates.

Fortunately, some families in the Seattle-Denver experiment were enrolled for 5 years (and were told so beforehand), to ascertain whether the duration of the experiment makes a difference. The preliminary results indicate that these individuals responded substantially more than those enrolled for 3 years, suggesting that the underresponse tendency dominates in test situations. Interestingly, there is also some evidence that this difference was largely due to the rather high guarantee levels offered in Seattle-Denver, and that a national negative income tax with a guarantee closer to 65 percent of the poverty line would have permanent effects closer to those discernible among the 3-year test families.[6] More research should be forthcoming on this topic.

Another limitation of the experiments is that they yield very little information on the welfare participation rate one might expect from a national negative income tax. Participation rates in existing welfare programs vary substantially (about 20 percent in the Aid to Families with Dependent Children Unemployed Parent Program, 50 percent in the Food Stamp Program, and 90 percent in the Aid to Families with Dependent Children Program), and it is likely that a national negative income tax would not have a 100-percent participation rate. However, the experiments rarely made any formal provision for nonparticipation; families were automatically sent a payment by mail if they reported their income every month—which they were required to do in order to take part in the experiment. Some families left the experiment for this reason, and others undoubtedly refused to participate in the first place because they did not want to be welfare recipients. Therefore, the experiments do not provide much information on the potential nationwide participation rate of eligibles.

A final problem with the experiments relates to the underreporting of income by the experimental and control groups. In the Gary experiment, there is some evidence that the female family heads in the experimental group underreported income substantially more than those in the control group, and that the reduction in work effort indicated by the data was partly spurious.[7] Rather than the 28-percent response shown in table 1, the evidence suggests that the true response was on the order of 9 percent. Such effects were not significant, however, for husbands, and wives showed no response in any case. A new study just completed in Seattle and Denver shows that the results of the original experiment in those areas were similarly affected.[8] These findings have implications not only for the estimated work disincentives of transfer programs, with which this article is concerned, but also for the administrative aspects of program cost and quality control.

Despite their limitations, the income maintenance experiments have contributed a great deal to our knowledge of the work disincentives of pure cash transfer programs. We now have a much better idea of what the magnitudes of these disincentives would be if a national program were instituted. And although it has not been discussed in this article, the experiments have also contributed substantially to our understanding of the proper administration of such programs and to our effective

knowledge of program evaluation techniques. In any case, the test results have provided much support for the current emphasis on work requirements and guaranteed-jobs programs in welfare reform, and have given us a much better ability to quantify the tradeoffs society would encounter among alternative antipoverty plans. □

FOOTNOTES

[1] More detailed information on the results of the experiments may be found in Robert A. Moffitt and Kenneth C. Kehrer, "The Effect of Tax and Transfer Programs on Labor Supply: The Evidence from the Income Maintenance Experiments," in Ronald Ehrenberg, ed., *Research in Labor Economics* (Greenwich, Conn., JAI Press, 1981).

[2] Economic theory actually predicts that the effect of a change in the benefit-reduction rate can be either positive or negative, depending upon whether the "income effect" dominates the "substitution effect." This is mentioned again below.

[3] Actually, a range of estimates have been found in the experiments. These numbers are the midpoints of the ranges. Also, caution should be exercised in using these estimates inasmuch as they refer to *net* changes in G and t over what they would be in the absence of a negative income tax. For example, a positive level of G already exists for female heads and positive levels of t exist for both female heads and married couples from the positive income tax system.

[4] For example, in 1977, the poverty line for a family of four was $119 per week, so 65 percent of it is $77. The difference is therefore $42. The percentages cited here are derived by multiplying the guarantee-effects in table 2 by $42 and dividing by the average hours of work for husbands, wives, and female family heads in the experiments (40, 30, and 35 per week, respectively).

[5] See Charles E. Metcalf, "Making Inferences from Controlled Income Maintenance Experiments," *The American Economic Review*, June 1973, pp. 478–83.

[6] See Gary Burtless and David Greenberg, "The Limited Duration of Income Maintenance Experiments and Its Implications for Estimating Labor Supply Effects of Transfer Programs," Technical Analysis Paper 15 (U.S. Department of Health, Education and Welfare, 1978). See also Robert A. Moffitt, "Estimating a Simple Life-Cycle Model of Labor Supply: The Evaluation of a Limited Duration NIT Experiment" (New Brunswick, N.J., Rutgers University, 1979). Mimeographed.

[7] See David Greenberg, Robert Moffitt, and John Friedmann, "The Effects of Underreporting on Estimation of the Experimental Effects on Work Effort: Evidence from the Gary Income Maintenance Experiment," *The Review of Economics and Statistics* (forthcoming).

[8] See David Greenberg and Harlan Halsey, "Underreporting and Experimental Effects on Work Effort: Evidence from the Seattle and Denver Income Maintenance Experiments" (SRI International, 1980). Mimeographed.

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.

Education, on-the-job training, and the black-white earnings gap

Black men's earnings lag those of white men, but their monetary returns for each year of education are as high as those for white men; on-the-job training does not pay off as well for blacks

DANIEL E. TAYLOR

More than a decade after the passage of the Economic Opportunity Act and the establishment of the Equal Employment Opportunity Commission, black men continued to earn much less than white men. Those who worked full time in 1977 earned a median of $8,714 in wage and salary income, compared with $12,603 earned by white men. Median weekly earnings for black men were $189, or $72 less than those of white men.[1]

During most of the postwar era, the earnings of black men increased faster than those of white men. Richard Freeman, in a comprehensive study of the economic status of blacks in the 1950's and 1960's, demonstrated that during that period, the median wage and salary annual income of black men increased at a rate of 3.2 percent per year, compared with a 2.6-percent rate for white men.[2] According to Janice Hedges and Earl Mellor, usual weekly earnings of black men who worked full time increased relative to those of white men from 1967 until the recession of 1974–75, but made little gain subsequently. Black men's usual weekly earnings rose from 69 percent of white men's earnings in 1967 to 77 percent in 1973 and to 78 percent by 1978.[3]

The interplay of social and economic factors complicates the analysis of the black-white earnings gap. For example, discrimination historically has played an important role in keeping black workers out of occupations which provide higher levels of earnings, skills training, and job stability. Racial disparities in education and other spheres that influence the worker's productivity also affect earnings.[4] Both the quantity and quality of education differ for whites and blacks. While the quantity usually is measured by years of school completed, the quality—which is affected by housing patterns, geographic location, and community and family investments in education—is more difficult to measure.

The human capital approach

The notion that workers embody wealth similar to that of capital is not new. Although the concept of human capital has been discussed since the 18th century, it received more attention in the 1960's, spurred by the National Defense Education Act of 1958 and the manpower development acts of the early 1960's. Gary Becker presented a general statement of human capital theory in 1964.[5] A decade later, Jacob Mincer set down perhaps the most fully developed discussion of the human capital theory to date.[6] This article uses Mincer's approach to report earnings differences of black and white men in 1977, by years of educational attainment and work experience.

Basically, human capital theory states that job skills obtained by workers through formal schooling and on-the-job training increase productivity. Because workers put aside time for training in which earnings otherwise could be made, they expect a return on this investment analagous to that on invested funds. This return is in the form of increased earnings for higher productivity. Under the human capital approach, education and work

Daniel E. Taylor is an economist in the Office of Current Employment Anaylsis, Bureau of Labor Statistics.

experience along with other variables are used to explain differences in earnings among workers.[7]

Because dollar amounts of investment are difficult to obtain, education is most often measured by years completed. Educational achievement affects both weekly earnings (earnings are increased because of the effect of education on productivity) and weeks worked per year (workers with more education tend to work more weeks, recapturing investments in education). Furthermore, education affects earnings and worktime indirectly through workers' occupations. Actual work experience also is difficult to measure and often is approximated by the number of years since leaving school.

Black-white earnings ratios

In 1977, both median annual and median weekly earnings ratios (black to white) of men with 1 or more years of college exceeded those with 1 to 4 years of high school. (See table 1.) Two exceptions were the groups who had been out of school 11 to 15 years and those out more than 30 years. For them, the weekly earnings ratios were about the same at both educational levels. The earnings differential by race was smallest for college-educated men who had been out of school fewer than 6 years and largest for men with some high school education and fewer than 6 years of work experience.[8]

The black-white weekly earnings ratio exceeded the annual earnings ratio in all groups, except for college men with more than 30 years of work experience. This reflects the fact that black men generally work fewer weeks in a year. The difference between the weekly and annual earnings ratios is greatest for men with some high school education and fewer than 6 years of work experience. This large difference is attributed to the high rate of unemployment among black men in this group: in 1977, 18- and 19-year-old black men had an unemployment rate of 38 percent, nearly 3 times that of their white counterparts.

Both the annual and weekly earnings ratios have improved since 1969. Following are annual and weekly earnings ratios by work experience cohorts in 1977 from this study, which uses the Current Population Survey, and from a study based on a similar universe from the 1970 Census:[9]

Work experience	*1970 Census* (mean)	*1977 Current Population Survey* (mean)	(median)
Fewer than 6 years:			
Annual	.65	.81	.74
Weekly	.70	.82	.76
6–10 years:			
Annual	.65	.75	.72
Weekly	.68	.78	.75
11–15 years:			
Annual	.62	.71	.68
Weekly	.64	.76	.71
16–20 years:			
Annual	.60	.75	.72
Weekly	.62	.80	.73
21–30 years:			
Annual	.59	.67	.66
Weekly	.62	.68	.68
31 years or more:			
Annual	.60	.65	.63
Weekly	.62	.67	.64

Black men made earnings gains relative to white men in each work experience category, with particularly large gains for black men recently out of school. However, the large difference between the median and mean earnings for those with fewer than 6 years of work experience suggests that only a portion of young black men benefits from high-paying, stable jobs.

By education. Over the last two decades, black and other men have made considerable gains in education.[10] In 1959, for example, only 21 percent of black and other men 18 years and over and in the labor force had completed at least 4 years of high school, compared with 58 percent in 1977. During the same period, the proportion of white men completing 4 years of high school rose from 49 percent to 75 percent. Thus, the educational attainment of black men continues to lag behind that of white men. Chart 1 contrasts the educational attainment of white and black men who were full-time wage

Table 1. Median annual and weekly earnings and earnings ratios of male full-time wage and salary workers, by race, educational attainment, and work experience, 1977

Education and work experience	Annual earnings			Weekly earnings[1]		
	White	Black	Ratio[2]	White	Black	Ratio[2]
All educational levels[3]	$12,603	$8,714	69	$261	$189	72
Fewer than 6 years experience	5,489	4,084	74	152	115	76
6 to 10	11,243	8,071	72	233	174	75
11 to 15	14,308	9,703	68	292	206	71
16 to 20	15,513	11,225	72	313	227	73
21 to 30	16,037	10,519	66	321	218	68
31 or more	14,078	8,836	63	292	186	64
High school—1 to 4 years	11,737	8,268	70	245	181	74
Fewer than 6 years experience	4,702	2,893	62	130	102	78
6 to 10	9,402	7,191	76	202	155	77
11 to 15	12,424	8,729	70	254	196	77
16 to 20	14,452	10,125	70	294	210	71
21 to 30	15,030	10,255	68	304	214	70
31 or more	14,386	10,509	73	296	219	74
College—1 year or more	15,126	11,867	78	306	246	80
Fewer than 6 years experience	7,065	6,861	97	186	186	100
6 to 10	13,517	10,976	81	272	233	86
11 to 15	16,778	12,382	74	331	251	76
16 to 20	19,101	14,742	77	377	305	81
21 to 30	20,306	15,170	75	403	307	76
31 or more	18,575	14,547	78	382	281	74

[1] Weekly earnings are calculated by dividing annual earnings by weeks worked.
[2] Ratios are calculated by dividing the earnings of black men in a particular cohort by those of white men in that cohort.
[3] Includes elementary school.

and salary earners in 1977. Although slightly more than one-third of both white and black men had completed 4 years of high school, the relative proportions are quite different at other levels of schooling. Whereas, 41 percent of black men had fewer than 4 years of high school, this was true for only 23 percent of the white men; and, while 25 percent of the black men attended college, 38 percent of the white men did so.

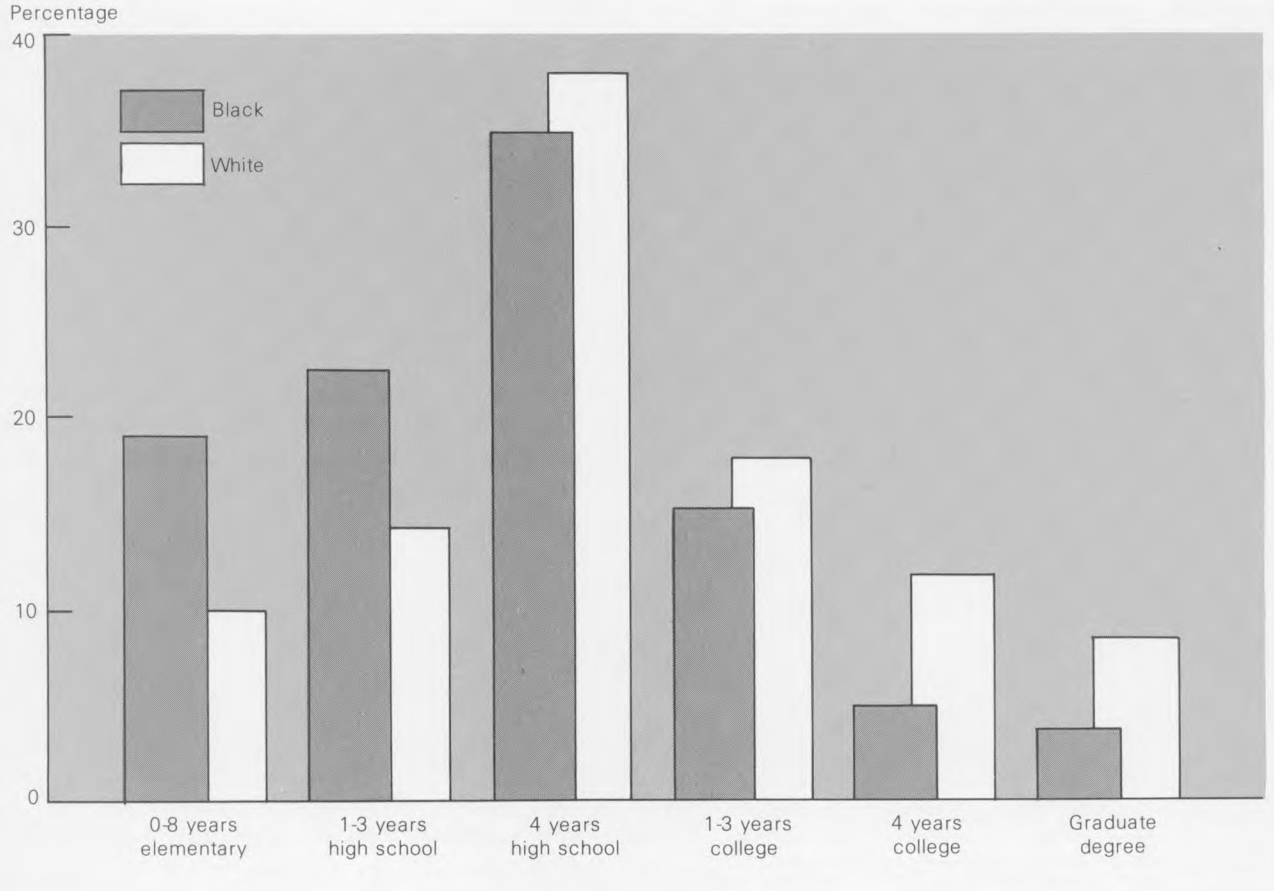
Black men not only completed fewer grades, they also scored lower on standardized scholastic aptitude tests. Mean scores of high school seniors were significantly lower for blacks. The racial difference between scores remained about the same over the school years reported (1972–73 through 1976–77).[11] According to a test administrator:

> . . . a typical result is to find that only 10 to 20 percent of disadvantaged minority groups score above a point that is . . . exceeded by 50 percent of whites . . . . Such differences should come as no surprise to anyone familiar with historically unequal education available to blacks as compared with whites, or with corresponding differences in social, economic, and occupational spheres of American life.[12]

By occupation. In 1977, nearly twice as many black men as white men were employed in low-paying occupations, for example, as service workers or laborers, while smaller proportions were in professional, managerial, and craft occupations. It is estimated that one-fourth of the pay differential[13] would be eliminated if black men were represented in major occupational groups in the same proportions as white men.

The overall black-white wage gap is also affected by pay differences within major occupational groups. (See table 2.) This is because earnings differ among individuals within the same occupational group. For example, the professional and technical group includes both physicians and health technicians, workers with vastly different earnings.

Chart 1. Educational attainment of male full-time wage and salary workers, by race, 1977



Payoffs for investment in education

Earlier studies. Using the human capital approach, Finis Welch calculated rates of monetary return to schooling for white and for black and other men in various job experience groups, using data from the 1960 Census (reporting 1959 earnings data) and the 1967 Survey of Economic Opportunity (reporting 1966 earnings data).[14] His results for 1959 showed a higher rate of return for white men than for black men in each experience group. However, over the period, younger black men gained relative to white men with the same years of work experience, both in rates of return for schooling and in relative earnings. The Vietnam War and a strong economic upswing at the time of the second survey may have influenced these results because employment and earnings of black workers rise faster than those of white workers during rapid economic expansions.

Leonard Weiss and Jeffrey Williamson used the same Survey of Economic Opportunity data to estimate income elasticities of education (percentage change in income resulting from a one percentage point change in education) by race.[15] They too noted the importance of full employment conditions as a source of improvement in black-white earnings differentials, but they also noted the possibility of a decline in discrimination as a probable cause.[16]

> . . . there may have been an independent shift in the incidence of discrimination at all education levels as well. The strong effect of secondary and even primary education on black male incomes in 1967 suggests that the improved opportunities in 1967 extended considerably beyond the token employment of a few black executives . . .

Other research also demonstrates that blacks made some gains during the 1960's although results are mixed. For example, Charles Link published income elasticities of education for 1960 and 1970 which showed that black men with 9 to 12 years of education made earnings gains, but his results differed from those of Weiss and Williamson, which showed a large increase at all educational levels. Weiss and Williamson (in an update of their earlier study) concluded that in 1970, "the effect of education on earnings is roughly as strong for blacks as for whites."[17]

James Smith and Finis Welch (using 1960 and 1970 Census data) found that returns for education in 1969 were less for black men who had not attended college than for their white counterparts.[18] However, among the college trained with 1 to 5 years of work experience, black men received more handsome returns than white men.

More recent research by Smith and Welch used Current Population Survey data for 1968–75 to estimate schooling coefficients, along with other measures of economic equality, for both white and black men.[19] They found that the declining proportion of blacks residing in the South (as well as movements within the South) has been an important factor in the decrease in the racial wage differential, but that education also played an important role in the movement towards wage parity in the late 1960's and early 1970's.[20]

Results of current study. In 1977, the rate of monetary return for education, measured in terms of weekly wages, was as high for black men as that for white men (8.1 percent versus 7.3 percent per year of school). These results appear to be in line with the trends noted earlier. The average rates in 1977 are shown in table 3.[21] Rates of return are highest for men most recently out of school and rates generally decline with additional years of work experience. The decline is less among those with some college education.

Two effects govern the decline in the rates of return for those with more years of work experience. The "vintage" effect suggests that workers who have been out of school longer receive lower returns than more recent graduates because of the increasing quality of schooling and the obsolesence of knowledge. The "life cycle"

Table 2. Median annual and weekly earnings and earnings ratios of male full-time wage and salary workers, by race and occupation, 1977

Occupation	Number (in thousands)		Annual earnings			Average weekly earnings [1]		
	White	Black	White	Black	Ratio [2]	White	Black	Ratio [2]
All workers [3]	41,677	4,180	$12,603	$8,714	69	$261	$189	72
Professional, technical and kindred workers	6,527	290	16,322	13,247	81	325	271	83
Managers and administrators	5,302	196	17,774	14,587	82	348	283	81
Sales workers	2,264	([4])	13,970	([4])	. . .	285	([4])	. . .
Clerical workers	2,666	303	12,615	9,363	74	255	199	78
Craft and kindred workers	9,775	651	13,093	10,072	77	275	214	78
Operatives, except transport	5,565	779	10,332	9,428	91	221	201	91
Transport equipment operatives	2,628	389	11,418	8,721	76	245	194	79
Nonfarm laborers	3,065	729	7,081	5,935	84	178	138	78
Service workers [5]	3,131	671	8,358	6,764	81	181	144	80
Farm laborers	724	104	4,098	3,875	95	121	91	75

[1] Weekly earnings are calculated by dividing annual earnings by weeks worked.
[2] Ratios are calculated by dividing the earnings of black men in a particular cohort by those of white men in that cohort.
[3] Includes farm managers and private household workers who are not listed separately because of their small sample size.
[4] Base is less than 75,000.
[5] Excludes private household workers.

Table 3. Rates of return on educational attainment for male full-time wage and salary workers, by race, educational attainment, and work experience, 1977

Education and work experience	White	Black	Difference
High school—1 to 4 years:			
Fewer than 6 years experience	[1].193	[1].207	.014
6 to 10	[1].124	[1].111	−.013
11 to 15	[1].126	[1].084	−.042
16 to 20	[1].112	[1].133	.021
21 to 30	[1].073	[1].062	−.011
31 or more	[1].041	[1].090	.049
College—1 year or more:			
Fewer than 6 years experience	[1].098	[1].116	.018
6 to 10	[1].074	[1].097	.023
11 to 15	[1].068	[1].144	[1].076
16 to 20	[1].078	.081	.003
21 to 30	[1].072	[1].074	.002
31 years or more	[1].060	[1].089	.028

[1] Statistically different from zero at the 95 percent confidence level.
NOTE: See appendix for the methodology used in deriving rates of return.

effect results from the compounding effect of training received at school and that received at work over one's lifetime. For example, a high school dropout would be less likely to be in a job which provides opportunity for advancement. Smith and Welch suggested that the life cycle effect may be of more importance to those who attend college, and this may explain why the rates of return decline much faster with additional years of work experience for those with only a high school education than for those who have also attended college.[22]

Within each schooling-experience group, the rates of return for white men and black men are not statistically different, except for college-educated men with 11 to 15 years of work experience. In this category, black men posted a rate of return 8 percentage points higher than that of white men. Three possible explanations for their exceptional performance are that (1) they entered the labor market during a period of a sharp economic up swing (1962–66), (2) they entered the labor market with at least some college training at a time when employers were eagerly looking for minorities to meet Federal affirmative action guidelines, and (3) they were the last cohort to enter the labor market before the entrance of the baby-boom cohorts, whose large number has lowered the relative wages of more recent workers.[23]

Rates of return based on a year of college is less than that for a year of high school. However, these estimates are the average rates; marginal rates imply that for black men with 12 years of schooling and 13 years of work experience, an additional year of education would bring with it an 11-percent rate of return. (See appendix.) For white men at a comparable level of education and experience, an additional year of school would result in about a 9-percent marginal rate of return.[24] These rates suggest that for white men, the marginal benefit of each additional year of school is less than that for blacks.

A rough estimate of the rates of return for on-the-job training suggests that black men do not fare as well as white men. The returns for on-the-job training (measured by time since leaving school) are estimated at about 13 percent for white men, and 8 percent for black men.[25] However, these estimates should be interpreted with caution. First, on-the-job training is measured by years of work experience; therefore, the training component is overestimated for black men because their jobs usually require less training.[26] Second, because black men have higher levels of unemployment than white men, their work experience is also overestimated.

DIFFERENCES IN EDUCATIONAL attainment and work experience are major forces determining earnings. Black men appear to be gaining as much or more from their fewer years of school relative to white men, but on-the-job training may not pay off as well for blacks. Compared with white men, the rates of monetary return for education are estimated to be slightly higher for black men but on-the-job training may be considerably less. However, limitations in measuring work experience suggest caution in drawing any policy interpretations. □

FOOTNOTES

[1] Information on annual earnings and educational attainment in 1977 was gathered from questions in the March 1978 supplement to the Current Population Survey (CPS). Weekly earnings data were derived by dividing the annual wage and salary earnings reported for an individual worker by the number of weeks that individual worked during the year. The CPS is conducted each month by the Bureau of the Census for the Bureau of Labor Statistics. A detailed description of the survey appears in *Concepts and Methods Used in Labor Force Statistics Derived From the Current Population Survey,* Report 463 (Bureau of Labor Statistics, 1976). The universe for this study included full-time (but not necessarily year round) wage and salary workers, age 16 to 65.

[2] Richard B. Freeman, "Changes in the Labor Market for Black Americans, 1948–72," *Brookings Papers on Economic Activity,* No. 1, 1973, p. 73.

[3] Janice N. Hedges and Earl F. Mellor, "Weekly and hourly earnings of U.S. workers, 1967–78," *Monthly Labor Review,* August 1979, pp. 31–41.

[4] See, for example, James Gwartney, "Discrimination and Income Differentials," *American Economic Review,* June 1970, pp. 396–408.

[5] Gary Becker, *Human Capital* (New York, Columbia University Press, 1964).

[6] Jacob Mincer, *Schooling, Experience, and Earnings* (New York, Columbia University Press, 1974).

[7] Additional variables relating to workers' social, economic, and demographic status have been used in various specifications of the human capital model. These variables include marital status, region, family background, city, size of residence, and veterans status. (See, for example, Randall D. Weiss, "The Effect of Education on the Earnings of Blacks and Whites," *Review of Economics and Statistics,* February 1970, pp. 150–59 or Leonard Weiss and Jeffrey G. Williamson, "Black Education, Earnings, and Inter-regional Migra-

tion: Some New Evidence," *American Economic Review,* June 1972, pp. 372–83.) Occupation, a variable which has an important indirect effect upon the distribution of earnings, is often discussed. Another important variable in the model, individual ability, is often excluded from consideration because it is difficult to measure.

[8] Work experience is estimated in the following manner: the years of schooling plus 5 years representing the preschool years are subtracted from the worker's age. Although this estimation of work experience is often used in human capital studies, it has serious limitations. Among these are that it assumes men finish school, go immediately to work, and work continuously until retirement. Also, it implicitly assumes that the amount of on-the-job training embodied in a given amount of work experience is the same for all men and that on-the-job training decreases over the life cycle in the same manner for all men.

[9] James P. Smith and Finis Welch, "Black-White Male Wage Ratios, 1960–70," *American Economic Review,* June 1977, p. 324. Smith and Welch groups with the shortest and longest work experience exclude workers with less than 1 year of experience and those with more than 40 years. (The Current Population Survey data include all full-time wage and salary workers between age 16 and 65 in 1977, irrespective of length of work experience.) Smith and Welch describe their ratios in the following manner: "Numbers reported are ratios of averages, i.e., they are average black earnings or weekly wages relative to appropriate averages for whites. Weekly wages are earnings last year divided by weeks worked last year. The average weekly wage used here is total earnings of all persons divided by total weeks worked, i.e., individual earnings per week are weighted by weeks worked." Although their data include workers with less than full-time schedules, this has little effect on the earnings ratios because the black-white ratio of median usual weekly earnings of part-time workers was .98 in May 1977.

[10] The term "black and other" is used for historical data which are not available for blacks only. In the 1970 Census of Population, 89 percent of the black and other group were black; the remainder included American Indian, Alaskan Natives, Asian and Pacific Islanders. The regression model, however, was designed to measure the earnings differential between blacks and other races. Whites comprised the overwhelming majority of the nonblack group—about 98 percent in 1970.

[11] Statement of Winton H. Manning, senior vice president for Research and Development, Educational Testing Service, before the Subcommittee on the Civil Service. (See *Professional and Administrative Career Examination,* U.S. House of Representatives, Subcommittee on the Civil Service of the Committee on Post Office and Civil Service, 96th Cong. 1st sess., May 15, 1979.)

[12] Statement of Winton H. Manning, *Professional and Administrative . . .* , p. 62.

[13] This figure was calculated by distributing black men across occupations in the same proportions as white men, then redistributing these groups across their earnings distribution in the same proportions. This new income distribution was then used to calculate a revised median in which 24 percent of the black-white difference was explained.

[14] Finis Welch, "Black-White Differences in Returns to Schooling," *American Economic Review,* December 1973, pp. 893–907.

[15] Weiss and Williamson, "Black Education, Earnings . . ."

[16] Weiss and Williamson, "Black Education, Earnings . . ."

[17] Charles R. Link, "Black Education, Earnings, and Interregional Migration: Comment and Some New Evidence," and Leonard Weiss and Jeffrey G. Williamson, "Black Education, Earnings and Interregional Migration: Even Newer Evidence," *American Economic Review,* March 1975, pp. 236–44. Link's estimates were based on grouped data from the 1970 Census, while Weiss and Williamson's estimates were based on individual data from the 1970 census.

[18] Smith and Welch, "Black-White . . . ," pp. 323–38. In their analysis of earnings ratios, they found that the earnings differential diminished somewhat over the decade yet remained large in 1970; that blacks entering the labor market in the 1960's, especially in the late 1960's fared best; and that college educated black men made the greatest improvements.

In their regression model, Smith and Welch include government employment and geographic location as explanatory variables as well as school completion and years of work experience which means that their results are not directly comparable with those reported in this article. However, it is useful to note that they found that little change had taken place between 1960 and 1970 in the rates of return for schooling of either black or white men in the elementary and secondary category and that data for both years showed the rate of return for black men to be lower than that for white men in each experience category. For example, white men in the 1 to 5 years of experience category accrued a return of .143, compared with a rate of .097 for black men of this category; in the 31 to 40 years of experience group, the rates of return were .050 and .026. Among those who attended college, the rate grew in the 1960's, while there was little difference between the races. In 1970, black men in the 1 to 5 years experience category had a rate of return for schooling of .158, compared with a rate of return of .124 for white men of this group.

[19] James P. Smith and Finis Welch, "Race Differences in Earnings: A Survey and New Evidence," in Peter Mieszkowski and Mahlon Straszheim, eds., *Current Issues in Urban Economics* (Baltimore, The Johns Hopkins University Press, 1979), pp. 40–73.

[20] Smith and Welch, "Race Differences . . . ,"

[21] Differences were tested for statistical significance using results from the dummy variable analysis. (See appendix.)

[22] Smith and Welch, "Black-White Male . . . ," p. 330.

[23] For a discussion of the "baby-boom" effect on wages see Richard B. Freeman, "The Effect of Demographic Factors on Age-Earnings Profiles," *The Journal of Human Resources,* Summer, 1979, pp. 289–318.

[24] These calculations were derived in the following manner for whites:

$$\frac{\text{Change in logarithm of weekly earnings}}{\text{Change in education}} =$$

$$.1414 - .0022 \times (12) - .0018 \times (13)$$

[25] Coefficients of experience and experience squared were used to derive these estimates. Mincer, *Schooling . . .* , p. 91, provides formulas used in the derivation of these estimates. For estimates of the effect experiences on earnings using a more direct measure of on-the-job training, see Greg J. Duncan and Saul Hoffman, "On-the-Job Training and Earnings Differences by Race and Sex," *Review of Economics and Statistics,* November 1979, pp. 594–603.

[26] See Duncan and Hoffman, "On-the-Job Training . . . ," p. 597, for estimates of the average amount of training by occupation.

APPENDIX: Rates of return for education

The model used to estimate rates of return for education in the current study is

$\ln W = a + b_1 S + b_2 t + b_3 t^2$; where:

ln W is the natural logarithm of average weekly earnings.

S is the number of years of schooling completed.

t is the calculated number of years of work experience (Age -S -5).

Average weekly earnings (annual earnings divided by weeks worked) is used as the dependent variable of the model because earnings and work time are both dependent on schooling and experience. An advantage in us-

ing weekly earnings as the dependent variable (as opposed to annual earnings) is that the labor-leisure tradeoff is taken into account, that is, the effect of human capital on earnings is separated from its effect on work time. However, involuntary unemployment, which reduces work time beyond that which would be freely chosen, makes this variable less useful, that is, to the extent that black men are involuntarily unemployed more than white men, their rate of return to schooling is overestimated.

Because years of schooling measure the quantity of schooling but not its quality and because the black educational experience historically has been lower in quality than that of whites, the independent variable, years of schooling, overestimates blacks' educational input. Experience, defined as the time since leaving school, overestimates black men's work experience as they are more likely to have periods of unemployment than white men. Additionally, the amount of on-the-job training which is embodied within a given amount of work experience may be less for black men. The experience squared term takes into account the fact that actual on-the-job training declines as workers age, which means that additional years of work experience will have less impact on workers' earnings.

To measure the statistical significance of the difference between the effect of schooling on the earnings of white and black men (holding experience constant), the model takes the form

$$\ln W = a + a'Z + b_1 S + b_1'SZ + b_2 t + b_2'tZ + b_3 t^2 + b_3't^2 Z$$

where Z is a dummy variable designating race (Z = 1 if black, 0 if white). Using this method, it can be said that the rate of return for black men is significantly different from that for white men if the coefficient, b_1' is statistically different from zero. (These differences are reported in table 3 of the text.) For a discussion of this estimation technique, see Jan Kmenta, *Elements of Econometrics* (New York, The Macmillian Co., 1971), pp. 419–22.

The regressions were run separately by length of work experience for workers who completed 1 to 4 years of high school and for those completing at least 1 year of college (total figures include those completing only elementary school). By analyzing the data in this manner, experience acts as an index of age (that is, successive experience groups can be considered successive age groups). In the context of the human capital model, this indexing marks the vintage of schooling. This is important because the difference in the quality of education of blacks and whites has declined over the past several decades. See John D. Owen, *School Inequality and the Welfare State* (Baltimore, the Johns Hopkins University Press, 1974), pp. 133–48. Furthermore, schooling's effect on earnings over the life cycle (successive experience groups) may differ by race.

A measure of the marginal rate of return can be estimated by altering the model to include a variable which accounts for the non-linear aspect of an additional year of education with experience. Essentially, the model is expanded to include a term for the square of education and for education by experience. The marginal change in earnings due to a change in education can then be derived by differentiating the estimated equation with respect to education. Estimates of this equation are shown in the following tabulation for the overall sample, by race (standard errors in parenthesis):

	White	*Black*
Constant	3.2	2.94
	(.05)	(.20)
Education	.1414	.1374
	(.0069)	(.0251)
Education squared	−.0011	.0001
	(.0002)	(.0009)
Education, by experience	−.0018	−.0022
	(.0001)	(.0003)
Experience	.0904	.0874
	(.0017)	(.0063)
Experience squared	−.0011	−.001
	(.00002)	(.0001)

The extra payoff from an additional year of education (at a given experience and educational level) can be estimated from the following relationships:

$$\frac{\text{For whites—change in logarithm weekly earnings}}{\text{change in education}} =$$

(.1414 − .0022 education − .0018 experience)

$$\frac{\text{For blacks—change in logarithm weekly earnings}}{\text{change in education}} =$$

(.1374 + .0002 education − .0022 experience)

Measuring wage dispersion: pay ranges reflect industry traits

Greatest wage dispersion occurs in industries with broad occupational staffing or with much incentive pay; high-paying industries, often heavily unionized, show less variation in earnings and a penchant for single job rates

CARL B. BARSKY AND MARTIN E. PERSONICK

Wage rates in an industry can vary a great deal above and below the average wage for that industry. However, in another industry with a similar average wage, the range of pay rates can be small. What causes such different wage dispersions among industries? Using measures of relative dispersion, this analysis shows that industry characteristics such as degree of unionization, geographic location, occupational mix, and method of wage payment influence the amount of variation. Recent wage data for a cross-section of manufacturing and mining industries are examined in this article.

The Bureau's Industry Wage Survey program is especially suited to analysis of wage dispersion. Individual surveys provide straight-time hourly earnings data for a number of detailed occupations representing an industry's wage structure. Information is recorded on each establishment's location, collective bargaining status, and number of employees, as well as on its major product and production processes. In addition, sex and method of wage payment are recorded for individual workers.

Data for 43 manufacturing and six mining industries surveyed during 1973–78 are used in this analysis.[1] These narrowly defined industries, although not a probability sample of all industries, adequately represent the many kinds of manufacturing and mining activities in the United States.

Carl B. Barsky is an economist and Martin E. Personick a project director in the Division of Occupational Wage Structures, Bureau of Labor Statistics.

The data reveal substantial differences in the degree of wage dispersion among various industries, apparently governed by two competing groups of factors: (1) companywide bargaining and single job rates create low wage dispersion in industries such as glass containers and cigarettes; and (2) broad occupational staffing patterns and incentive pay systems tend to produce large wage spreads in industries such as meat products and men's suits. In general, high-paying industries, often highly unionized, show less variation in individual earnings than low-paying industries. Differences in pay levels among establishments are a dominant characteristic of industries with widely dispersed earnings.

Employee opportunities for increased pay take different forms that are related to the degree of industry wage dispersion. Uniformity of wages, as found in many high-paying industries, might discourage movement of workers between firms (that may pay the same rates set by union agreement). However, widely dispersed earnings, often in low-paying industries, may encourage workers to seek increased earnings through shifts to higher paying firms or to those using incentive pay systems.

In addition to individual workers, others who make decisions based on wage rate distributions include companies who set their wage levels at stipulated distances from an industry or area-wide average, market researchers testing the potential demand for new consumer products, and tax analysts estimating revenues from workers at different earnings levels.

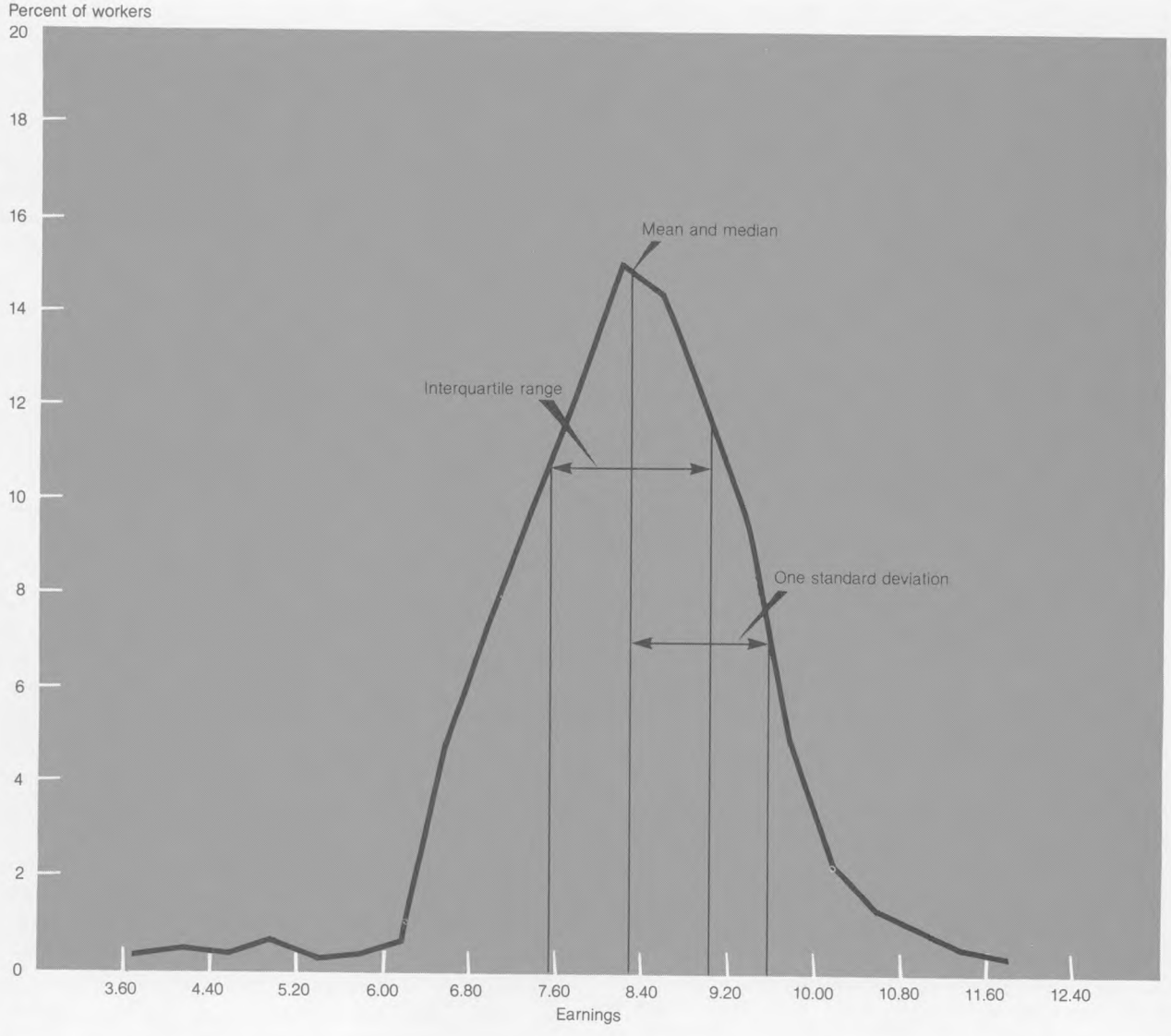
Analytical technique

Before defining the dispersion measures in this analysis, let us look at a full earnings distribution to find some of its key points. Chart 1 describes the wage distribution in basic steel, which corresponds closely to a "bell-shaped" curve; in fact, its mean and median value are exactly the same. Moreover, its first and third quartiles—the points above and below which a fourth of the workers fall—are each about equidistant from the median. The standard deviation can be thought of as the average distance (dispersion) of workers' earnings from the industry's mean. Typically, about two-thirds of the workers fall within plus or minus one standard deviation of the mean.

In this analysis of wage dispersion, two basic approaches are used: the spread in earnings for the central portion of the industry's distribution is related to the median value by the *index of dispersion*; and the variation of all wage rates in the distribution about the mean value is summarized by the *coefficient of variation.*

The index of dispersion is computed by dividing the interquartile range (the difference between the third and first quartiles) by the median (second quartile) and multiplying by 100. In the case of basic steel, it is $\$1.46/\$8.32 \times 100 = 18$. Obviously, the distribution of rates at the upper and lower fourth of the array has no

Chart 1. Distribution of hourly earnings of production workers in basic iron and steel, February 1978



influence on the index values. Further, the actual wage rates other than the three quartiles do not affect the dispersion index; this measure is determined only by the position of these quartiles, and not the shape of the distribution within the band. The median standardizes the index of dispersion, so that a distribution of relatively high rates may be compared with one of low rates. For example, if one industry has quartiles of $4.00, $4.50, and $5.00, and a second has quartiles of $8.00, $8.50, and $9.00, both would have an interquartile range of $1.00. The indexes of dispersion are 22 for the first industry and 12 in the second, indicating more relative dispersion in the lower paying industry.

The coefficient of variation is computed by dividing the standard deviation by the mean and multiplying by 100. The calculation for basic steel would be $1.25 ÷ $8.32 × 100 = 15. As with the dispersion index, a central value—the mean—is used to standardize the earnings dispersion for situations with varying pay levels.

Most of the analysis in this article relies on the coefficient of variation as a measure of dispersion. Using either the dispersion index or the coefficient of variation, however, will generally result in similar conclusions when comparing wage dispersion among industries or other economic units.[2] (See "technical note" that follows for a comparison of how the two measures may differ.) The primary advantage of the coefficient of variation approach is that total variation in earnings around the mean can be measured and then, broken into two component parts—earnings variations *among* and *within* establishments.

Ranking wage spreads

Two sets of dispersion rates by industry are shown in table 1. Indexes of dispersion were, with few exceptions, higher than coefficients of variation, but both measures yielded similar rankings of industries based on Spearman tests.[3] Industries with the least degree of earnings variation included motor vehicle manufacturing, several mining groups, petroleum refining, and cellulosic fibers. The most dispersed earnings were reported in semiconductors and men's suit and coat manufacturing.

In certain instances, the two dispersion measures were dissimilar in rank or value. The coefficients of variation for the women's hosiery and men's and boy's shirts industries, for example, were 21 and 22, respectively, indicating a moderate amount of dispersion. Their indexes of dispersions were 30 and 31, however—relatively high in comparison with other industries. The dispersion index in effect ignores a certain amount of wage compression brought about by the concentration of workers at the lower end of the array, below the first quartile. Thirteen percent of the women's hosiery and 24 percent of the shirts industry production workers earned within 5 cents of the applicable Federal minimum wage when the surveys were last conducted. The median-based dispersion index suggests that these industries have as much relative dispersion as, for example, meatpacking—an industry which is not influenced by the minimum wage and which has one of the highest coefficients of variation (29) among those reported.

At the other end of the earnings array, the lead and zinc mining industry has some "hidden" dispersion in the upper one-fourth of its earnings distribution. Miners, primarily paid on an incentive basis, had earnings that were usually scattered throughout that upper portion. As a result, the industry's dispersion index value of 18 ranks relatively low (although second highest among the mining segment); but, its coefficient of variation (26) is among the upper third of those reported.

Rankings of the coefficients of variation were compared with rankings of such characteristics as industry pay level, unionization, and the use of single-rate pay systems. Based on Spearman rank correlation tests, the degree of dispersion is inversely related to these factors.[4]

Table 2 portrays the inverse relationship found between dispersion and pay levels for 28 industries. Only the meatpacking and motor vehicle parts industries were in the top third of rankings of both industry pay levels and dispersion, and none of the industries fell into the bottom third of both categories. Consistent with the Spearman test, a clustering occurred for industries with the highest pay levels and the lowest coefficients of variation.

Industries with low dispersion rates were, as expected, highly unionized. There were, however, other highly unionized industries with broadly dispersed earnings—such as men's suits, leather tanning, and gray iron (except pipe and fittings) foundries. The latter industries had substantial proportions of workers under incentive pay plans. Four industries with coefficients of variation of 10 or less (underground coal, iron and copper mining, and petroleum refining), in addition to being virtually 100 percent unionized, were marked by almost complete mechanization of production processes and, therefore, a virtual absence of worker control over output. As a result, time rates are paid almost exclusively in these industries, producing low wage dispersion.

Industries with high dispersion rates were invariably those using pay plans other than single-rate systems. Men's suits, with the second highest coefficient of variation, had four-fifths of its production workers covered by union agreements—most of them by a single nationwide contract. Nevertheless, seven-tenths of the workers were paid under individual piecework plans. Further, dispersion is affected by regional differences that have not been eliminated by the nationwide contract that specifies only minimum occupational wage rates.

Semiconductors, the most highly dispersed industry, has relatively little unionization (two-fifths) and sub-

Table 1. Wage dispersion statistics for selected industries, 1973–78

SIC code	Industry title	Survey date	Number of workers	Mean wage	Coefficent of variation	Proportion of interplant variation	Index of dispersion
1011	Iron mining	July 1977	19,103	$7.10	10	13	16
1021	Copper mining	Oct. 1977	20,210	7.60	9	10	11
1031	Lead and zinc mining	Oct. 1977	5,277	6.23	26	30	18
1094	Uranium, radium and vanadium mining	Oct. 1977	9,000	6.89	25	48	27
1211	*Underground coal mines*	Jan. 1976	94,411	6.96	7	22	14
1211	Surface coal mines	Jan. 1976	33,979	6.88	19	76	22
2011	Meatpacking	Mar. 1974	118,319	4.64	29	75	32
2013	Prepared meat products	Mar. 1974	46,945	4.38	27	78	35
2071	Candy and other confectionery products	Aug. 1975	40,286	3.60	28	67	40
2111	Cigarettes	May 1976	32,826	5.71	15	8	21
221,8	Cotton textiles	May 1975	152,025	3.08	17	13	25
222,8	Manmade textiles	May 1975	136,437	3.07	17	25	25
223,8	Wool textiles	May 1975	13,122	3.17	19	48	23
2251	Women's hosiery	July 1976	23,805	3.00	21	17	29
2252	Hosiery, except women's	July 1976	23,913	3.05	22	15	32
226	Textile dyeing and finishing	June 1976	51,458	3.82	23	47	24
2311	Men's and boys' suits and coats	Apr. 1976	64,105	3.97	32	31	45
2321	Men's and boys shirts	May 1978	85,442	3.29	22	25	31
2327	Men's and boys separate trousers	May 1978	55,017	3.46	23	27	32
2511	Wood household furniture (except upholstered)	Nov. 1974	122,350	3.05	27	69	32
2611	Pulp mills	Summer 1977	8,016	7.23	18	31	29
2621	Paper mills	Summer 1977	98,860	6.47	19	51	26
2631	Paperboard mills	Summer 1977	41,030	6.59	22	47	32
2653	Corrugated and solid fiber boxes	Mar. 1976	61,912	4.65	20	61	25
281	Industrial chemicals	June 1976	129,952	6.28	19	77	26
2823	Cellulosic fibers	Aug. 1976	10,830	4.45	12	38	15
2824	Noncellulosic fibers	Aug. 1976	51,963	5.18	18	54	24
2851	Paints and varnishes	Nov. 1976	27,647	5.10	23	75	27
2911	Petroleum refining	Apr. 1976	63,289	7.38	10	38	13
3079	Miscellaneous plastics products	Sept. 1974	236,413	3.24	27	44	38
3111	Leather tanning and finishing	Mar. 1973	16,677	3.41	25	44	34
3141	Nonrubber footwear	Apr. 1975	105,583	2.98	29	21	40
3221	Glass containers	May 1975	62,591	4.63	18	8	18
3229	Other pressed or blown glassware	May 1975	28,328	4.32	22	18	22
3251	Brick and structural clay tile	Sept. 1975	15,375	3.35	26	63	36
3253	Ceramic wall and floor tile	Sept. 1975	5,215	3.41	22	56	28
3255	Clay refractories	Sept. 1975	7,585	4.78	23	48	26
3259	Clay sewer pipe	Sept. 1975	4,349	4.06	24	34	24
331	Basic iron and steel	Feb. 1978	345,163	8.32	15	35	18
3321	Gray iron foundries, except pipe and fittings	Nov. 1973	97,371	4.43	25	65	39
3321	Gray iron pipe and fittings foundries	Nov. 1973	17,982	3.72	20	42	27
3322	Malleable iron foundries	Nov. 1973	20,087	4.68	21	38	26
3323	Steel foundries	Nov. 1973	49,954	4.12	22	46	26
336	Nonferrous foundries	May 1975	54,432	4.45	26	63	36
3441	Fabricated structural steel	Nov. 1974	63,741	4.55	25	75	35
3711	Motor vehicles	Dec. 1973	611,428	5.54	—	—	4
3714	Motor vehicle parts and accessories	Apr. 1974	149,237	4.65	26	75	37
3674	Semiconductors and related devices	Sept. 1977	52,956	4.52	35	62	62
3731	Shipbuilding	Sept. 1976	104,015	5.66	18	60	20

stantial geographic dispersion. In addition, semiconductors is a relatively new industry within which companies are still developing internal wage structures. Method of pay, again, seems to be the most important influence on dispersion; here, through the use of rate-range pay plans.

Certain groups of related industries prove to be quite different in their dispersion characteristics when examined closely. The mining sector, for example, produces some striking contrasts. First, among four metal mining industries, two have low coefficients of variation (iron and copper) and two are quite high (lead-zinc and uranium). Iron and copper are extracted predominantly from open pit (surface) mines. Accordingly, workers in these industries have less control over production, and are much less likely to receive incentive pay. By contrast, a substantial proportion of workers in lead-zinc and uranium mining—typically underground miners—are paid incentives that lead to dispersed earnings.

In coal mining, the situation is reversed: underground coal has somewhat less dispersion than does surface coal mining. Underground coal workers, virtually all unionized, are covered by a master national agreement. In contrast, most surface coal agreements, covering three-fifths of the industry, are companywide, not nationwide. Thus, almost all of the dispersion in underground coal mining results from differences within establishments. The coefficient of variation is low in underground coal because the master agreement sets only a few rates to cover all occupations. In surface coal, however, there are pay differences among establishments, and these, in fact, more than offset differences within firms.

Components of dispersion

Table 1 shows the percentage of total wage variation attributable to differences among establishments. The

Table 2. Relationship between ranking of coefficients of variation and average hourly earnings, selected industries, 1973–78

Coefficient of variation in industry wages	Average hourly earnings [1]		
	$5.28 or less	$5.31–$7.14	$7.37 or more
Low (Under 20)		Corrugated boxes Glass containers Noncellulosic fibers Paper mills	Cigarettes Copper mining Iron mining Petroleum refining Shipbuilding
Medium (20 to 23)	Hosiery, n.e.c.[2] Men's shirts Men's trousers Textile dyeing Women's hosiery	Glassware, n.e.c.[2]	Malleable iron foundries Paperboard mills
High (24 or more)	Candy Footwear Men's suits Plastics	Fabricated steel Leather tanning Nonferrous foundries Prepared meat Semiconductors	Meatpacking Motor vehicle parts

[1] Gross hourly earnings of production workers in February 1979.
[2] Not elsewhere classified.

interplant proportion of variation was highest (at least 75 percent) for surface coal mining, motor vehicle parts, meat products, industrial chemicals, paints and varnishes, and fabricated structural steel. It was lowest (15 percent or less) for cigarettes, glass containers, cotton textiles, iron and copper mining, and hosiery (except women's). The difference between the interplant proportion of variation and 100 percent equals the percent of wage variation within plants.

Industry patterns. In general, the higher the proportion of interplant variation in an industry, the greater its overall wage dispersion as measured by the coefficient of variation.[5] Table 3 illustrates this relationship; for example, 10 of the 15 industries grouped as having the highest coefficients of variation were also in the upper third for the proportion of interplant variation.

The characteristics of several industries were examined to determine why earnings variation in some primarily stems from differences in pay within rather than among establishments. Low interplant variation was present in industries with one or more of the following dominant features:[6] geographic concentration (cigarettes, hosiery, and cotton textiles); companywide bargaining (glass containers, iron mining, copper mining, and cigarettes); prevalence of incentive pay (nonrubber footwear and hosiery); and broad range of occupational skills (cigarettes, glass containers, iron mining, and copper mining).

In addition, a low interplant value would be expected for an industry with few establishments.[7] For example, cigarettes, with 13 plants, ties for the lowest interplant value among industries studied. The pulp industry, comprised of only 19 mills nationwide, has an interplant value of 31, compared with 51 for paper mills and 47 for paperboard mills, two larger related industries with coefficients of variation and several other characteristics similar to the pulp industry. The same kind of relationship can be found for the cellulosic (12 plants) and noncellulosic (48 plants) fibers industries, with coefficients of variation of 12 and 18, and interplant values of 38 and 54, respectively.

Few establishments in an industry are not sufficient to produce low interplant variation. The cotton textile industry, with 800 plants, had a much lower interplant value (25) than wool, with 87 firms and an interplant value of 48. Cotton industry wages have little variation among plants, in part, because of geographic concentration—nine-tenths of the industry is in the Southeast, four-fifths in North Carolina alone. In contrast, wool industry employment is split about evenly between the Southeast and New England—two regions with quite different pay levels.

The four clay products industries had similar coefficients of variation but differing interplant values, ranging from 34 for clay sewer pipe to 63 for brick and clay tile. Clay sewer pipe had more geographic concentration and a higher proportion of incentive workers than the other branches—two factors associated with higher intraplant variation. By contrast, brick and clay tile plants were found in most parts of the country and had

Table 3. Relationship between rankings of coefficient of variation and degree of interplant variation in industry wages, 1973–78

Coefficient of variation in industry wages	Interplant variation in industry wages as a percent of total variation		
	Low (Under 32 percent)	Medium (33–54 percent)	High (56 percent or more)
Low (Under 20)	Cigarettes Copper mining Textiles (except wool) Glass containers Iron mining Pulp mills Underground coal	Basic steel Cellulosic fibers Noncellulosic fibers Petroleum refining Wool textiles Paper mills	Chemicals Shipbuilding Surface coal
Medium (20 to 23)	Glassware, n.e.c.[1] Hosiery, n.e.c.[1] Men's shirts Men's trousers Women's hosiery	Gray iron pipe Malleable iron foundries Paperboard mills Refractories Steel foundries Textile dyeing	Ceramic tile Corrugated boxes Paints
High (24 or more)	Footwear Lead and zinc mining Men's suits	Clay sewer pipe Leather tanning Plastics Uranium mining	Brick Candy Fabricated steel Furniture Gray iron, except pipe Meatpacking Motor vehicle parts Nonferrous foundries Prepared meat Semiconductors

[1] Not elsewhere classified.

relatively fewer incentive workers than the other clay products groups. This geographic dispersion is to be expected because of the relatively high cost of shipping the finished products and the availability of raw materials (mostly clay) in most areas.

Work force differences. Within individual occupations, earnings variations primarily reflected pay differences among establishments, regardless of the interplant variation for the overall industry. In the four industries with broad skill ranges and low interplant variation, for example, individual occupations exhibited relatively little earnings variation (coefficients of variation rarely exceeded 10); but, this small variation resulted primarily from interplant pay differences. Exceptions included certain incentive-oriented occupations, such as forming-machine operators (glass containers) and miners—both exhibiting more wage dispersion within establishments than did most time-rated occupations in these industries. Wages in some time-rated jobs in cigarettes also had relatively more variation within plants, in part because of the extensive use of rate-range plans.

One worker characteristic—sex—is often associated with different wage distributions. Women, for example, are commonly employed in a small number of occupations near the low end of the wage structure. As a group, therefore, their dispersion values are typically lower than men's and more attributable to interplant variation. Combining the distribution of women's wage rates with that for men typically results in higher proportions of within plant variation by industry. In fact, there is a statistically significant relationship between the proportion of within plant variation and the female percentage of an industry's production work force.[8]

The glass containers industry illustrates how values for dispersion can differ between men and women. Although glass containers is a high-paying industry (table 2), seven-eighths of its 20,000 women production workers were employed in three low-paying jobs—final inspectors, selectors, and carton assemblers. Men, in contrast, were spread throughout the industry's earnings spectrum. The result is a much lower coefficient of variation for women (6) than for men (19) and, as expected, very different proportions of interplant variation—54 for women and 11 for men. The high proportion for women, clustered in three occupations, approximates the high values that are typical for most individual occupations. At an occupational level, the proportion of interplant variation as well as dispersion rates and pay levels were fairly similar for men and women in the industry.

Few changes from earlier data

To examine trend information on dispersion measures, observations for industries in table 1 were matched, where possible, with earlier data. Of the industries compared, indexes of dispersion for 16 industries were essentially the same (a difference of 2 percentage points or less) in both survey periods.

As shown in the following tabulation, six industries—led by glass containers—recorded declines of 4 percentage points or more in their dispersion indexes and five industries—led by candy products—exhibited increases of at least that magnitude.

Industry, by direction of change	*Wage dispersion index*	
	1970–72	*1975–78*
Increases:		
Candy products	33	40
Industrial chemicals	20	26
Nonferrous foundries	31	36
Paperboard mills	28	32
Paper mills	22	26
Decreases:		
Basic steel	24	18
Copper mining	15	11
Glass containers	28	18
Glassware (except containers)	28	22
Iron mining	20	16
Lead and zinc mining	27	18

No single factor or set of factors consistently explain these changes. However, a decline in the incidence of incentive pay was reported in several instances where dispersion values dropped. In glass containers, for example, "buy-outs" of incentive plans by the largest companies contributed heavily to the decline of incentive workers in the industry from 33 percent in 1970 to 13 percent in 1975. In basic steel, however, lower dispersion rates were accompanied by a sharp increase in the incidence of incentive workers—from two-thirds in 1972 to four-fifths in 1978. In steel, uniform cents-per-hour wage increases more than offset the increased use of incentive plans—typically group bonuses. Such wage increases compressed its occupational pay structure to the extent that the highest basic wage rates for workers exceeded the lowest by about 50 percent in 1978 compared with 80 percent in 1972.

In summary, industries vary not only with respect to average earnings but also in the extent to which individuals' earnings are dispersed around a central point. Such industry characteristics as highly uniform pay rates and skill requirements are associated with low dispersion rates while broad staffing patterns and incentive pay systems are commonly found where earnings are more dispersed. Despite their high pay levels, high wage industries tend to have relatively little earnings variation; the degree of this variation and the relative importance of interplant wage differences as a source of dispersion seems to be directly related. Finally, dispersion rates for most industries were essentially the same as those recorded 5 years earlier. □

FOOTNOTES

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[1] For an earlier account of wage dispersion by industry, see L. Earl Lewis, "Wage Dispersion in Manufacturing Industries, 1950–55," *Monthly Labor Review*, July 1956, pp. 780–86.

[2] The Spearman rank correlation coefficient was .84 between the coefficient of variation and the index of dispersion. This test compares the ranking of arrays of these two measures. Had they coincided exactly, the coefficient would be 1.0; if the rankings were reverse images of each other, the coefficient would be −1.0.

[3] Two factors contribute to the index of dispersion exceeding the coefficient of variation: (1) the interquartile range, which covers 50 percent of the workers, is almost always higher than the standard deviation, which includes about one-third of the workers (68 percent typically fall within ± 1 standard deviation of the mean); (2) the mean is generally higher than the median. Hence, the index of dispersion contains a larger numerator and smaller denominator than does the coefficient of variation.

[4] The Spearman rank correlation coefficients were −.53 for industry pay level, −.40 for unionization, and −.64 for single-rate pay systems—all statistically significant at a 1-percent level.

[5] The Spearman rank correlation coefficient was .42 between the coefficient of variation and the proportion of interplant variation.

[6] In theory, it would be possible to use the analysis of variance technique to isolate the percentage of total within plant variation because of differences among occupations (interoccupational) and those due to differrences within occupations (intraoccupational). The Bureau's wage surveys, however, do not examine all occupations in an industry. Instead, occupations are selected to represent an industry's wage structure; these occupations may cover between 30 and 80 percent of the production workers in an industry. Thus, in some cases, 70 percent of the workers are lumped together in a residual category consisting of a broad range of occupations which are not studied separately.

[7] The Spearman rank correlation coefficient was .48 between the proportion of interplant variation and the number of establishments in an industry.

[8] The Spearman rank correlation coefficient was .44 between the proportion of within plant variation and the percentage of women in the industry.

A Technical Note on Dispersion Calculations

Coefficient of variation. The summary measure of relative dispersion called the coefficient of variation is derived from total wage variation by summing the wage variation that results from interplant and intra-plant factors; relating that total to the number of workers to derive the "average dispersion per worker"; and, finally, relating that average, the standard deviation, to the industry mean wage. The procedure involves the following series of equations:

(1) Interplant variation $= \Sigma(\overline{X}_e - \overline{X}_i)^2$

where X_e is the mean wage in each establishment and X_i is the industry mean;

(2) Intraplant variation $= \Sigma(\overline{X}_w - \overline{X}_e)^2$

where X_w is the individual wage rate and X_e is the mean wage in the establishment; the sum of equations (1) and (2) equals the total wage variation;

(3) $\text{Variance} = \dfrac{\textit{Total wage variation}}{\textit{Number of workers} - 1}$;

(4) Standard Deviation $= \sqrt{\text{Variance; and}}$

(5) $\text{Coefficient of Variation} = \dfrac{\textit{Standard deviation}}{\textit{Mean}}$.

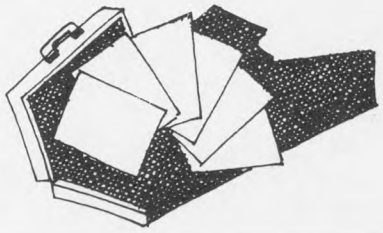
Dispersion measures compared. As mentioned earlier, the rankings of industry wage dispersions were similar and highly correlated using either indexes of dispersion or coefficients of variation. In terms of data accessibility, however, the index of dispersion is easier to derive because the Bureau publishes quartiles or full distributions of earnings, or both, but not standard deviations in its occupational wage survey reports.

The impact on an industry's coefficient of variation and index of dispersion could be quite different with a change in the minimum wage. To illustrate, data from the May 1978 men's and boys' shirts survey were adjusted to bring all workers paid less than $2.90—the Federal minimum that became effective in January 1979—to that level; no other wage rates were changed. The effect on dispersion statistics is illustrated below:

Statistic	*Actual values*	*After adjustment*	*Percent change*
Median	$3.04	$3.04	0
Middle 50 percent	$2.70–$3.65	$2.90–$3.65	-21
Index of dispersion	31	25	-19
Mean	$3.28	$3.36	2
Standard deviation	$ .73	$ .67	-8
Coefficient of variation	22	20	-9
Interplant proportion	25	23	-7

The much larger decrease in the dispersion index than in the coefficient of variation (19 percent compared with 9 percent) reflects the fact that most of the workers affected by the adjustment are in the lower 25 percent of earnings array. As can be seen, the median and third quartile are unchanged. The coefficient of variation, however, only drops 9 percent, reflecting an 8-percent decline in the standard deviation and a 2-percent increase in the mean.

In summary, either the index of dispersion or the coefficient of variation, in most instances, can be used to gauge dispersion effectively. The former has the advantage of being easier to derive; however, the coefficient of variation provides a more refined measurement because it takes into account portions of the wage distribution which are ignored in computing the index of dispersion.



Conference Papers

The following excerpts are adapted from papers presented at the Thirty-Third Annual Meeting of the Industrial Relations Research Association, September 1980 in Denver, Colo.

The full text of all papers appears in the IRRA publication, *Proceedings of the Thirty-Third Annual Meeting,* available from IRRA, Social Science Building, Madison, Wis. 53706.

The male-female pay gap: need for reevaluation

GEORGE T. MILKOVICH

A significant re-examination of current wage-setting practices is underway. Perhaps as far reaching as the advent of industrial unions and labor legislation of the 1930's and 1940's, this re-examination springs from concern over the magnitude and persistence of the earnings gap between men and women. This gap is considered evidence of continued discrimination in employment relationships. At issue in the challenges to current wage-setting practices are the legislative intent of the Equal Pay Act, Title VII, and the Bennett Amendment; the assertion that current wage practices potentially cause and continue wage discrimination; and the debate over alternative policies for reducing the earnings gap. Two basic policy options have emerged to reduce the earnings gap. The first focuses on regulating the distribution of employment and educational opportunities; the second aims at realigning wage differentials among jobs. While both have the same intended consequences regarding the earnings gap, their strategies differ.

During the 1970's the regulatory agencies' and the courts' interpretation and enforcement of Title VII and the Equal Pay Act were consistent with the policy of distributing employment and education opportunities. Under this policy, women and minorities, underrepresented (in some cases excluded) in higher paying jobs within and across occupations and in education and training programs, fill opportunities at rates greater than the rates at which they occur in the supply. To date, the legality of these "affirmative action" programs have been upheld in the court.

Coupled with the accelerated sharing of opportunities is the Equal Pay Act, which seeks to ensure that women (and minorities, under Title VII) receive pay equal to pay for men doing "substantially similar work." Thus, reduction in the earnings differentials is sought by the desegregation of jobs and the equality of pay within jobs.

The argument underlying the need for realignment is that while it may be true that desegregation of occupations and jobs within occupations may eventually reduce the gap between male and female earnings, progress is slow.[1] Further, proponents maintain that the focus solely on job opportunities and equal pay for equal work overlooks a major source of discrimination. Jobs dominated by women may be valued less because they are "women's work," not because of any productivity-related attributes of the work performed.[2]

The persistent male-female earnings differential has been attributed to two factors. First, despite affirmative action programs, women tend to be concentrated in lower paying jobs and in occupations which provide limited potential for advancement. Second, the rise in labor force participation rates of women has resulted in significant proportions of women with lower seniority at or near the lower paying entry level jobs.[3]

Empirical evidence supports the notion that a large part of the male-female earnings gap may be attributed to overrepresentation of women in lower-paying occupations and lower paying jobs rather than from women and men being paid unequally in similar jobs. When male and female earnings are analyzed within occupations, the income differentials are less than in the labor force at large.[4] Some evidence suggests that within the same occupation, firms employing predominantly women tend to pay a lower average wage than those employing predominantly men; however, while the occupations are controlled in these studies, specific job content is typically not controlled. Evidence suggests that the more similar the work content, the less the

George T. Milkovich is a professor in the School of Industrial and Labor Relations at Cornell University. His full IRRA paper is entitled "Pay Inequalities and Comparable Worth."

inequality between male and female earnings. Yet the more similar the work content, the greater chances of underrepresentation of women in the higher paid jobs and overrepresentation in lower paid jobs.

In sum, pay inequalities for work in similar jobs do not appear to be a major factor in the earnings gap; rather, the distribution of women among occupations and jobs is the issue. From this perspective, the relevant question is why women end up in lower-paying jobs than men.

Empirical research suggests a second, equally relevant question. "Rather than asking what causes women to be employed in lower paying jobs than men, let us ask what is it that causes female jobs to pay less than male jobs."[5] It is possible that women may be concentrated in jobs which have lower productivity-related attributes than male-dominated jobs, or it may be that through the overcrowding (through discriminatory practices and/or personal preferences) of women into certain types of work, lower wages can be paid regardless of the value of the work content.[6]

Comparable worth

The principal mechanism suggested to accomplish the restructuring of differentials is to set wages based upon the notion of comparable worth or value. Comparable worth, which focuses on the comparison of jobs across rather than within occupations, has been defined as "jobs that require comparable (not identical) skills, responsibility, and effort."[7] Yet in an analysis of the meaning and measurement of comparable worth, Schwab summarizes the present state of knowledge. "At present, however, there is no mechanism for defensibly establishing comparable worth."[8]

Under current compensation practices the differential "worth" or "value" of work is established through the interaction of a variety of forces, including market forces, forces attributed to collective bargaining, economic condition and policies of the employer, technology, and norms (including discrimination) found in the workplace. A variety of components, including job analysis, job evaluation, market surveys, and negotiations, constitute the wage determination process.

Comparable worth implies the wage differentials should be based on work content and skills required to perform the work. Consequently, application of the comparable value notion requires the development of a universal taxonomy of job content/skill requirements capable of being applied across all occupations and all jobs within occupations. Without this, comparisons across occupations and across employers to identify comparable jobs would not be feasible. Current wage practices and related research suggest that such a taxonomy may be feasible, although considerable research remains.

REGULATION OF THE alignment of the wage structure and the allocation of job opportunities is not in conflict. It is clear that elimination of discrimination in the distribution of jobs, coupled with equal pay for similar work, will reduce discrimination in earnings. It should be equally clear that the focus on equal job opportunities and equal pay for equal work fails to insure that current wage differentials among jobs across occupations are nondiscriminatory. The basic position taken in this article is that before employers, unions, regulating agencies and the courts can supervise any realignment of wages for work performed predominantly by women, a mechanism to accomplish it must be designed and tested. Such a mechanism does not currently exist. It should be clear, however, that it may be methodologically feasible to develop an approach based on the notion of comparable worth. The approach, using a taxonomy of universal work components skills required, and an agreed upon wage structure of male jobs, needs to be further examined.[9]

Finally, it is not at all clear that completely changing the wage determination process based on the notion of equal pay for jobs of comparable worth and skill will in any way influence the earnings gap between men and women. It assumes that jobs in which women are overrepresented are undervalued in current practice. We simply do not know that women (or minorities) on average are overrepresented in undervalued jobs. A more basic point, of course, is that if society desires that the median earnings of women and men be more equal, then we ought to be sure that notions such as comparable worth will generate that objective. □

FOOTNOTES

[1] P. England, "Assessing Trends in Occupational Sex Segregation, 1900–1976," in I. Berg, ed., *Sociological Perspectives on Labor Markets* (New York, Academic Press, 1981).

[2] N. D. Perlman and B. J. Bass, *Preliminary Memorandum on Pay Equality: Achieving Equal Pay for Work of Comparable Value* (Albany, N.Y., Center for Women in Government, Graduate School of Public Affairs, 1980). P. England and S. D. McLaughlin, "Sex Segregation of Jobs and Male-Female Income Differentials," in R. Alverez, K. Lutterman & Associates, ed. *Discrimination in Organization.* (San Francisco, Jossey-Bass, 1979).

[3] U.S. Department of Labor, *The Earnings Gap Between Women and Men* (Washington, D.C., U.S. Government Printing Office, 1979).

[4] H. Sanborn, "Pay Differences Between Women and Men," *Industrial and Labor Relations Review,* July 1964; V. Fuchs, "Differences in hourly earnings between men and women," *Monthly Labor Review,* May 1971 pp. 9–15, and "Women's earnings: recent trends and long-run prospects," *Monthly Labor Review,* May 1974, pp. 23–26; and B. G. Malkiel and J. A. Malkiel, "Male-Female Pay Differentials in professional Employment," *The American Economic Review,* 1972.

[5] England and McLaughlin, "Sex Segregation . . . ," p. 6.

[6] M. Stevenson, "Relative Wages and Sex Segregation by Occupation," in C. Lloyd, ed., *Sex Discrimination and the Division of Labor* (New York, Columbia University Press, 1975); D. J. Treiman and K. Terrell, "Women, Work, and Wages—Trends in the Female Occupational Structure Since 1940," in K. Land and S. Spilerman, eds., *Social Indicator Models* (New York, Russell Sage, 1975); and J. E.

Rosenbaum, "Hierarchical and Individual Effects Earnings," *Industrial Relations*, Winter 1980.

[7] Perlman and Bass, *Preliminary Memorandum . . .*, p. 2.

[8] D. Schwab, "Intra-Organizational Pay Setting and Comparable Worth," in R. Livernash, ed., *Comparable Worth* (Washington, D.C., Equal Employment Advisory Council, 1980).

[9] An alternative approach to developing a bias-free job evaluation plan, "part-correlation", in which the effects of sex (race) composition of jobs are partialed out has been suggested. See the *National Academy of Sciences Draft Guidelines on Job Evaluation Plans* (Washington, D.C., Bureau of National Affairs, 1980).

What is the occupational mobility of black immigrants?

GREGORY E. DEFREITAS

More immigrants were legally admitted to the United States in the 1970's than in any previous decade of the last half century. The increased volume of immigration has involved a striking shift in composition as well. Since the elimination of ethnocentric national origins quotas in 1965, nonwhite aliens have become the fastest growing segment of the foreign-born population. The number of West Indians, other than Cubans, entering as permanent resident aliens leapt from 44,500 in the 1950's to 262,700 in the 1960's, then rose still faster between 1971 and 1977 as another 304,700 arrived.[1]

Although considerable attention has recently been focused on the arrival of over 15,000 Haitian boat people in Miami, the black immigrant population is highly concentrated in the Northeast. One-tenth of all blacks in New York City counted in the 1970 census were foreign born.[2] Their current share may be far larger, given the hundreds of thousands of legal entrants and an estimated one-half million or more illegal entrants from the Caribbean in the past decade.[3] Yet little economic research exists on their employment in this country.

This article examines the occupational mobility of black immigrants in the United States through comparisons with their pre-migration occupations and with the occupational mobility of native-born blacks.

Data and empirical analysis

Data for this study were drawn from the 1970 Census of Population, 5 percent questionnaire. Respondents answered questions on country of birth, race, year of immigration, and occupation in 1965 and 1970. The study sample includes black native- and foreign-born men, ages 16 to 64, who were experienced members of the civilian noninstitutional labor force in 1970 and reported their occupation that year and in 1965. The sample was further limited to residents of New York and New Jersey Standard Metropolitan Statistical Areas; two thirds of all black immigrants are concentrated in this region, almost all in New York City. The 1/1000 census sample was used for analysis of the native born while the 1/100 sample was employed for the foreign born to provide an adequate number of observations for statistical tests.

The empirical analysis begins with an examination of the frequency and direction of occupational mobility experienced by blacks who immigrated to the United States between 1965 and 1970. For these individuals, the occupation in 1965 was the last occupation in the country of origin. The pre-migration occupational distribution of these recent entrants reveals that a relatively large proportion had high status occupations at origin. Over 16 percent held jobs in professional, technical, and kindred fields and 24.7 percent were craftsmen. Barely one-third were in lower-level operative, service, farm, and laboring jobs.

Entry into the American labor force entails considerable movement between major occupational categories for the foreign born, most of it downward. About 44 percent of black immigrants experienced occupational mobility between 1965 and 1970, compared with 20.6 percent of native-born blacks. But whereas the native born are almost twice as likely to be upwardly rather than downwardly mobile, 27 percent of foreign-born men fell in status while 17.3 percent were upwardly mobile.[4]

Calculations of mobility rates by pre-migration occupation indicate that two-thirds of those in managerial and administrative positions in their homeland changed occupations once in the United States and all of them moved to lower ranking jobs. Men formerly in professional and craft occupations were less likely to be mobile, but the roughly 2 of 5 who were moved downward. The only other group suffering substantial downward mobility were sales workers. The depth of their descent was relatively modest, with most moving into clerical jobs.

Despite the prevalence of downward occupational mobility among the foreign born, their decline is not so steep and prolonged as to put them at an occupational disadvantage relative to native black workers in New York City. A comparison of 1970 occupations indicates that immigrants are far more likely to be in higher level jobs: 9.6 percent are professional and technical workers and 18.7 percent are craftsmen, whereas among indigenous blacks, 7.8 percent are professional and technical workers and 14.7 percent craftsmen. Only one in three immigrants is employed in those occupations ranked below craftsmen in which over 58 percent of the native

Gregory E. DeFreitas is an assistant professor of economics at Barnard College, Columbia University. His full IRRA paper is entitled "Occupational Mobility Among Black Immigrants."

born are concentrated.[5] Black immigrants and natives alike, however, are much less likely than white men to secure high status jobs. Among native- and foreign-born whites in New York-New Jersey Standard Metropolitan Statistical Areas, 19.1 percent were in professional occupations and 14.4 percent in managerial occupations in 1970.[6]

These results are consistent with the hypothesis that adjustment difficulties tend to be especially important for high level occupations. However, because recent immigrants are younger, on average, than native-born blacks, these mobility rates may also reflect the greater mobility common to young age groups. Even with controls for length of work experience and other variables, men arriving in the country between 1965 and 1970 have 18 percent more downward mobility and those entering in 1960–64 have 9.8 percent more than native blacks. The native born-foreign born differential is small and insignificant for earlier immigrant cohorts, with no evidence of a subsequent upturn in the occupational level of immigrants relative to native workers. Finally, in an analysis restricted to recently arrived foreign-born men, migrants with managerial backgrounds are found to have far greater rates of downward mobility (60.7 percentage points) than those in "blue collar" jobs (the reference category). Smaller but also significant differentials exist for those in professional or clerical/sales positions in the country of origin.

These results suggest that black immigrants in New York City experience significant occupational mobility during their first few years after arrival. Downward mobility is especially severe among those with high level occupational backgrounds in the country of origin. These results are consistent with hypotheses derived from previous research on the adjustment difficulties experienced by white immigrants. However, unlike most white immigrants who are able to subsequently recover much of their lost occupational status through upward mobility, foreign-born black professionals, managers, and craftsmen appear less likely to regain their former occupational levels. Despite certain employment advantages when compared with indigenous blacks, foreign-born blacks are substantially underrepresented in high-pay, high-status occupations relative to white males.

Further research is needed to determine whether this reflects primarily the fact that many immigrants arrived recently or the fact that racial discrimination is pervasive in employment. □

FOOTNOTES

[1] *Annual Report,* U.S. Department of Justice, Immigration and Naturalization Service, various years.

[2] *1970 Census of Population, Vol. I, Characteristics of the Population, New York,* Part 34, Section 2 (Washington, U.S. Bureau of the Census, 1973), table 142.

[3] J. M. Scheuer, "Illegal Immigration—Problems and Prospects," *City Almanac,* April 1978, pp. 1–15.

[4] Matrices cross-classifying occupation in 1970 with 1965 occupation, both for the native- and foreign-born subsamples, are available from the author upon request.

[5] These results are supported by my recent research comparing black earnings by nationality. See Gregory E. DeFreitas, "The Relative Earnings of Black Immigrants: The American Case," *Economic Research Paper Series,* Cambridge University, 1980.

[6] Calculations from U.S. Bureau of the Census.

Sexual harassment: implications for employer liability

DONNA E. LEDGERWOOD AND SUE JOHNSON-DIETZ

Effective March 11, 1980, The Equal Employment Opportunity Commission (EEOC) issued new sex discrimination guidelines covering sexual harassment on the job.[1] These guidelines will be reviewed particularly in context of the recent appellate decision in *Miller v. Bank of America,*[2] and possible affirmative measures will be defined which employers may take with respect to these guidelines.

The new EEOC guidelines clearly reiterate the recent case law holdings that sexual harassment is sex discrimination under Title VII of the Civil Rights Act of 1964.[3] Section 1604.11(a) of the guidelines defines the term "sexual harassment" as being "unwelcome sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature . . . ." The definition is broad and in fact may represent an expansion of existing case law interpretation of what constitutes an offending activity since the definition extends to environmental conditions of the workplace itself. Included in the EEOC's legal definition of "employer" are employment agencies, joint apprenticeship committees and labor organizations, as well as other employers under Title VII. Use of the term "individuals" within the definition appears to make clear beyond any reasonable doubt that protection against sexual harassment extends to both male and female employees.

A definition of sexual harassment

The EEOC definition of sexual harassment stated above identifies two types of sexual incidents as the Quid Pro Quo type and the Work Environment type. The guidelines also set out three circumstances under which the definition will be applied. These are:

Donna E. Ledgerwood is an assistant professor in the College of Business Administration, North Texas State University. Sue Johnson-Dietz is a para legal in Dallas, Texas. Their full IRRA paper is entitled "The EEOC's Bold Foray Into Sexual Harrassment: Implications for New Employer Liability."

(1) Where sexual conduct is made a condition of an individual's employment (Employment Condition)
(2) Where such conduct or condition creates an employment consequence (Employment Consequence)
(3) Where such condition creates an offensive working environment or interferes with job performance (Offensive Job Interference)

The first circumstance (Employment Condition) describes sexual harassment as occurring when ". . . submission to such conduct is made either explicitly or implicitly a *term or condition* (emphasis added) of an individual's employment . . . ." This situation is the Quid Pro Quo type of sexual incident and implies an offer to exchange employment opportunity for sexual activity. Such an offer is usually made by a supervisor, or person in a superior position, to some subordinate employee.

Although the guidelines do not speak to possible responses which may be made by an individual confronted by a Quid Pro Quo incident, there are two possible responses to such an incident: compliance or non-compliance. A compliant response may be of either a consenting nature (a willing positive response in order to gain positive employment consequences), or a nonconsenting nature (an unwilling positive response in order to avoid loss or negative employment consequences). Potential employer liability may accrue under either a compliant or a non-compliant response.

The second circumstance (Employment Consequence) describes harassment activity or behavior as occurring when ". . . submission to or rejection of such conduct by an individual is used as the basis for employment decisions affecting such individual . . . ." The guidelines do not clearly state whether the first two circumstances must be read together. For example, is an individual, in order to sustain a claim of harassment, required to endure unwanted sexual behavior unless/until an adverse employment decision has been made as a result of such conduct? As noted by Gene Renslow, Deputy District Director of the Dallas EEOC,[4] the question is probably moot since it appears to be covered in any event by the third circumstance.

Under the third circumstance (Offensive Job Interference), the sexual harassment definition is extended beyond the Quid Pro Quo type of sexual incident to include situations where ". . . such conduct has the purpose or effect of substantially interfering with an individual's work performance or creating an intimidating, hostile, or offensive working environment." (In the November 10, 1980 guidelines, the term "unreasonably" replaced the term "substantially" which was used in the March 11, 1980 interim guidelines.) This circumstance is described as the Work Environment type of sexual incident. Since Work Environment harassments are probably a more pervasive form of harassment and harder to positively identify,[5] the Work Environment type of incident may create potentially more problems and liability for employers than the Quid Pro Quo type. With respect to the Work Environment sexual incident, no offer of positive rewards is made; the individual is simply put in the position of either tolerating or resisting unwanted sexual activity (physical and/or verbal) during the course of employment. Regardless of whether a response to such an incident is tolerance or resistance, the harassed individual probably always suffers negative consequences.

Analysis of employer liability

In addition to subsection (a), defining sexual harassment and identifying the circumstances under which the definition will be applied, four subsections to section 1604.11 of the EEOC guidelines make explicit reference to employer liability.

Subsection (b) of the guidelines states that the totality of the circumstances, including the nature of the offense and the context in which an alleged offense occurs, will be considered in any determination that an activity or behavior constitutes sexual harassment. Each case will turn on its own facts (be determined situationally) in defining a harassment activity.

Applying the legal doctrine of respondeat superior (let the principle, here the employer, be held responsible), subsection (c) clearly states that the employer will be held responsible for the acts of its agents and supervisory employees. Further, this responsibility exists ". . . regardless of whether the specific acts complained of were authorized or even forbidden by the employer and regardless of whether the employer knew or should have known of their occurrence."

With respect to non-supervisory personnel and others outside the agency relationship (possibly co-workers, customers, clients, etc.), subsection (d) invokes employer liability for harassment in the workplace except where the employer lacked knowledge and could not reasonably be expected to have known of a harassment incident. Further, the employer may rebut liability only where immediate and appropriate corrective action is taken upon discovery of such conduct. Although all harassment cases in which legal precedence were set have involved superior-subordinate situations, future litigation involving activities of non-supervisory persons can probably be expected. In fact, the recently filed case of *Alus v. General Foods, Inc.*,[6] in the U.S. District Court for the Western District of Michigan, alleges harassment activities by plaintiffs male co-workers. The plaintiff in *Alus* seeks, in addition to losses recoverable under Title VII, five million dollars in compensatory and punitive damages for tortious interference with a contract. The implications for liability under subsection (d) may then properly merit a serious concern for employers.

And, finally, the guidelines at subsection (e) define a

program of prevention stating that employers should take affirmative steps in dealing with the problem. Suggested approaches include ". . . affirmatively raising the subject, expressing strong disapproval, developing appropriate sanctions, informing employees of their right to raise and how to raise the issue of harassment under Title VII, and developing methods to sensitize all concerned."

Validity of the guidelines

The guidelines, at the date of original writing, only had "interim" approval. Comments from interested parties on these interim guidelines were received by the EEOC until June 10, 1980. The EEOC, however, made no significant changes in the finally approved guidelines which became effective November 10, 1980. Although it is the courts which over time will define the judicial validity of the guidelines, the Ninth Circuit's recent Miller decision (cited previously) may already have established validity for at least some of the principles iterated.

In *Miller,* the U.S. Ninth Circuit Court of Appeals ruled (1) that under the legal doctrine of respondeat superior, employers are responsible for the tortious acts (sexual harassment) of a supervisor even when such acts are forbidden by the employer's policy, and (2) that the mere existence of a harassment grievance procedure at the employer's establishment does not create a duty with the grievant to use the procedure, nor can failure to exhaust internal remedies foreclose an individual's rights under Title VII. *Miller* cites as authority *Alexander v. Gardner-Denver Co.,*[7] a race discrimination case in which the Supreme Court established that internal grievance procedures may not be used to deny access to Title VII remedies.

Under the language of the guidelines and the principles of *Miller* then, it appears that the employer is strictly liable for the acts of its supervisors and may not escape that liability. At the very most, liability may only be rebutted under the guidelines (1) upon a clear showing that immediate and appropriate corrective efforts were taken to halt activities which the employer either knew of or should have known of and (2) only with respect to non-supervisory (rather than supervisory) persons within the workplace.

The guidelines specify, however, that the context in which an alleged offense occurs will be considered, not in order to determine employer liability, but rather to ascertain whether an activity actually constitutes illegal behavior. Harassment prevention and enforcement of appropriate workplace behaviors then appear to be the best, if not the only, "cures" for employer liability. Consideration, therefore, should be given to development of programs which affirmatively meet the preventive standards outlined by the guidelines. Specific areas for program consideration include policy statements, management and employee training, and communication of internal grievance procedures for harassment complaints. □

FOOTNOTES

[1] 45 FR 25024. (All quoted material used in this paper which bears no immediate reference is taken from the above source. The EEOC's final regulations on sexual harassment will be codified at Title 29 CFR, Ch. XIV, Part 1604, Sec. 1604.11.)

[2] *Miller v. Bank of America,* 600 F.2d 211 (1979), 20 FEP Cases 462, 20 EPD §30086.

[3] *Williams v. Saxbe,* 413 F.Supp. 654, 12 EPD §11130; *Tompkins v. Public Service Electric & Gas Co.,* 568 F.2d 1044 (CA-3, 1977), 15 EPD §7954; *Miller v. Bank of America,* 600 F.2d 211 (1979), 20 FEP Cases 462, 20 EPD §30086; *Barnes v. Costle,* 561 F.2d 983 (D.C. Cir. 1977); *Heelan v. Johns-Manville Corp.,* 451 F.Supp. 1382 (1978), 16 EPD §8330, 20 FEP Cases 251.

[4] Statement by Gene Renslow, Deputy District Director, Equal Employment Opportunity Commission, Dallas Area District Office, Dallas, Texas, March 24, 1980.

[5] *Sexual Harassment in the Federal Government: Hearings Before the Subcommittee on Post Office and Civil Service, House of Representatives,* 96th Congress, 1st Session, Serial No. 96–57, Washington, 1980.

[6] *Alus v. General Foods, Inc.,* Civil Action No. G 79 699 CA 5.

[7] *Alexander v. Gardner-Denver Co.,* 415 U.S. 36, 49–50, 94 S. Ct. 1011 (1974).

Social relations, productivity, and employer discrimination

BARBARA R. BERGMANN AND WILLIAM DARITY, JR.

The fact that white males have a virtual monopoly of the best jobs and the highest incomes is explained by one school of economists as occurring simply because employers prefer things that way, even though employers lose money in enforcing it. A second school concludes that white male dominance of the best jobs is the most profitable arrangement for employers. This group in effect argues that a fair review of the candidates for all of the good jobs would show that all of the best candidates are white males, so that hiring and promoting them is both fair and profitable for employers. A third group calls attention to the fact that hiring for a good job is a gamble, and that employers may minimize risk by placing all their bets on white males.

All of these points of view are implausibly simple, and are unilluminating of what we might call the scenes of everyday economic life, in which people perform and interact on the job, in which decisions on hiring and

Barbara R. Bergmann is professor of economics at the University of Maryland. William Darity, Jr. is assistant professor of economics at the University of Texas at Austin. Their full IRRA paper is entitled "Social Relations in the Workplace and Employer Discrimination."

promotion are made and wages are set.

A set of ideas will be presented here which will emphasize the importance of social relations among people of different race or sex in the workplace, and the connection between productivity and smooth social relations. These ideas suggest that discrimination occurs, and that it is dictated by considerations of profitability in many cases. These considerations account for occupational segregation by race and sex, for the relegation of minority people to dead-end jobs and for the lower wages they earn on average.

Productivity and social process

Our analysis starts from the premise that considerable numbers of black women, black men, and white women have the capacity to perform a wide variety of tasks in entry-level jobs usually reserved for white men, and have the ability, by which we mean the intelligence and the drive, to perform them as well as the white men who customarily get those jobs. We are leaving aside consideration of those tasks for which specialized education or training or experience or strength would be required. We are concerned here with ability to perform the multiplicity of tasks the vast majority of white males' entry-level jobs require—driving a truck on the highway, serving as police officer, management trainee, painter, or apprentice crafts worker. Our argument does not depend on the assumption that the distribution of abilities is the same or nearly the same in all race-sex groups. We are taking a far more conservative position, namely that the distributions have enough overlap so that the proportion of the best candidates who are white men is not close to 100 percent in many of the situations where the proportion of white men who are hired is 100 percent or close to it.

Something excludes the able candidates who are not white men. We would locate that "something," not in the lack of innate capacities of a high proportion of the excluded group and not, principally, in the indulgence in bigotry or in complicated statistical calculations on the part of employers. We would rather draw attention to the fact that having innate ability is a necessary but not sufficient condition for performing creditably on any job. Workers (including immediate supervisors) affect each other's performance, and a person of sufficient innate ability (whether inborn or developed through training) to perform well on a job in a milieu which is cooperative, non-hostile, and facilitating may show low or negative productivity in a hostile milieu.

In almost any work establishment, the employees need to interact with each other for there to be any output at all, and the quality and smoothness of their interactions will powerfully affect the establishment's productivity. If there is a group of employees doing the same job, the members of that group will contribute more to the productivity of the establishment if they interact cooperatively—if the experienced workers are willing to teach newcomers the ropes, and if there is an absence of personal tensions resulting from slights, insults, or attempts to establish dominance. Persons assigned to supervise others will be more effective if they have no personal characteristics which make it difficult for some of the assigned subordinates to give respect and to submit to direction.

When they come to the job, American workers bring with them ideas about the status conferred in society by being male and white, as well as ideas about the roles customarily played in the home and in social life generally by men and women, by whites and blacks. Obviously, these ideas are likely to influence workers' interactions with fellow workers. Evidence which sociologists have collected by systematic observation shows that ideas of sex dominance, for example, have an important effect on job behavior.

A particularly vivid description of the part that workers' ideas of sex roles play in relations among workers on the job was provided by Whyte[1] in reporting a study of restaurants done in 1947. The investigators whom Whyte sent to observe noticed that when a waitress, in the course of her duties, had to interact with a male employee of the restaurant in a way atypical of the manner in which females and males interact in ordinary life, there was potential for trouble of a sort which would adversely affect the productivity of the establishment. Whenever a woman had to "set in motion" a man—as when a waitress had to get a bartender to make a drink which a customer had given her an order for—there was likely to be resentment on the part of the man. This resentment resulted in behavior which, in some cases, caused a deterioration of the service received by the restaurant's customers.

The waitresses studied by Whyte were in a traditionally female job for the United States. Studies of women who have been introduced into nontraditional jobs or into situations which simulated conditions in such jobs have demonstrated the problems which arise and, by implication, the threat to productivity which such problems pose. Judith Long Laws, who reviewed research on this issue by sociologists and psychologists, says, ". . . the possibility that male co-workers will explicitly and deliberately arouse sex role conflicts by baiting the woman recruit cannot be ruled out. Research on women in non-traditional occupations documents a whole range of harassment and sabotage by male co-workers and sometimes supervisors."[2]

The historical reaction of white workers to the placing of black workers in jobs which are non-traditional reveals a parallel pattern. Longstanding enmity between black laborers and white-dominated unions is a premier manifestation. Some unions have played a major role in

excluding blacks from the workplace.[3] David Taylor's study[4] of the Chicago labor market found that there were some jobs for which blacks and whites were both recruited, but employers who recruited blacks paid them less and provided them with no prospects of upward mobility. Whites may more easily accept the intrusion of black workers when there are evident guarantees that the blacks will not compete with them over the occupational life-cycle.

Race/sex territories in a firm

If even a very small proportion of whites are in a mood to make trouble for blacks who are moving into non-traditional placements or even if a small proportion of men make trouble for women moving into non-traditional placements, this may be enough to cause substantial unrest in the workplace. Where the person making trouble is a long-term employee, loaded down with valuable experience in the firm, whose loss would be a serious blow to the productivity of the organization, the employer is faced with a serious loss if he insists on resolving the incident in favor of the newcomer.

We would conjecture that employees who deal in personnel matters for business firms and other establishments develop or have handed down to them a few simple "axioms" on race and sex, which these days one would not expect to find written down in any manual:

(1) People who work in the same job and/or must interact as equals will interact more smoothly if they are all of the same race and sex.
(2) If a person is supervised by someone who by race and/or sex has an inferior social status, tensions may arise.
(3) If the occupations which constitute the training ground for another occupation are open to people of a race and/or sex whose presence in the latter would create frictions, the pool of able persons eligible for promotion would be reduced.

Consider the problem posed for the management of an establishment interested in establishing a staffing pattern which will minimize unit labor cost. The lower wage which blacks and women can be paid will be a factor favoring their hiring and promotion, but the "axioms" of interaction developed above will be a factor against their use in most jobs. Even under the assumption that management knew and believed that good candidates for all the entry-level jobs could be found in both races and both sexes, we would still be likely to observe occupational segregation by sex and race.

Management might be expected to try to find as many slots as possible to put black and white women into because of their cheapness, subject to the cost constraints suggested by the "axioms." Axiom 1 suggests that if any occupation is opened to a particular race/sex group, then all members of that occupation must be of that group. Axiom 2 suggests that the most likely slots for blacks and white women are entry-level positions. Axiom 3 suggests that jobs at all levels must be reserved for the group that is to be given the top-echelon jobs so as to provide adequate training opportunities for successors to the present incumbents. Taken together, the "axioms" might exclude all but white males from almost all of the higher paying jobs in many establishments, and from a considerable proportion of entry level jobs as well.

So far, we have been discussing the effects of behavior by individual male or white workers when attempts are made to increase the territory available to minority groups. There is an additional element which suggests itself—the idea of cohesive same-sex same-race groups occupying and defending "turf," an idea suggested by Bonacich.[5] Here, the idea is that there may be concerted efforts to maximize each group's territory. Employers who may want to hire blacks and women because of their cheapness may find it easier to do so if they carve out for them territory which is least desirable for white men. Thus, employers may purposely structure jobs that are dull, dirty, dangerous, and dead-end so as to have jobs that white men do not covet and do not make trouble over.

If employers' practice of race and sex discrimination is primarily based on productivity considerations deriving from social processes in the workplace, the difficulty in eliminating it becomes more comprehensible. Such considerations suggest the desirability of more field research into what actually happens when women and minority men are placed in non-traditional jobs. They also suggest that firms needing to get into compliance with anti-discrimination laws might place more emphasis on educating their own employees as to the forms of race-neutral and sex-neutral behavior the firm requires of them. □

FOOTNOTES

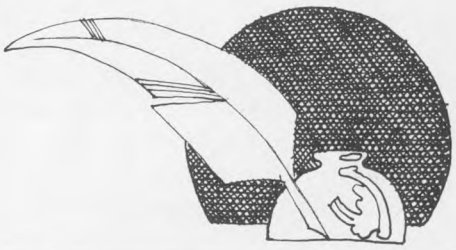
[1] William Foote Whyte, "The Social Structure of the Restaurant", *American Journal of Sociology* (January 1949, pp. 302–10).

[2] Judith Long Laws, *The Second X: Sex Role and Social Role* (New York, Elsevier, 1979).

[3] Julius Jacobson, "Union Conservatism: A Barrier to Racial Equality," in J. Jacobson ed., *The Negro and the American Labor Movement* (Garden City, Anchor Books, 1968).

[4] David P. Taylor, "Discrimination and Occupational Wage Differences in the Market for Unskilled Labor," *Industrial and Labor Relations Review,* April 1968.

[5] Edna Bonacich, "A Theory of Ethnic Antagonism: The Split Labor Market," *American Sociological Review,* October 1972.



Communications

Estimating the demographic mix of the available labor force

JOSEPH L. GASTWIRTH

Statistical arguments have played an important role in establishing prima facie cases of discrimination based on race or sex. The courts have generally established that a disproportionate racial impact in hiring can be demonstrated with one of two statistical methods:[1] comparing the proportion of minority applicants who are hired to the corresponding proportion of majority applicants (applicant flow method); or comparing the percentage of minorities currently employed or hired over a period of time to the proportion of minorities in the labor force (or population) in the relevant geographic area (demographic method). The two statistical methods may yield conflicting results.

Although the first approach is the standard two-sample test of equality of proportions (binomial probabilities), Mark Rosenblum[2] emphasized that the logic underlying its applicability rests on two assumptions: ability and qualifications for the job are distributed similarly in all race (sex) groups in the population; and the people who actually apply for the job can be considered a random sample from the total population (or the relevant subpopulations). Kenneth T. Lopatka[3] noted that if the minority group contains a disproportionately large share of incompetent potential candidates or if some eligible candidates are eliminated by the imposition of an invalid requirement (so some might not even apply), the actual applicants may not even be a close approximation to a random sample.

The demographic method does not rely on applicant data. It was originally used because courts noticed that minority members might not apply to firms with a reputation for employment discrimination. So that even though a statistically acceptable proportion of minority applicants get jobs, the minority proportion of all hires may be far less than the minority population share.[4] Thus, the two statistical methods are consistent only when the recruiting process draws a representative sample of all eligible applicants and the pool of eligible applicants can be determined from available data. Indeed, two 1977 Supreme Court decisions emphasize the importance of properly specifying the labor pool for new hires,[5] and recent articles in the legal literature have been concerned with this topic.[6]

This study will show that the appropriate labor force in minority hiring and promotion cases may have race-sex proportions substantially different from those derived from the 1970 census or from the Current Population Survey, the two most commonly used statistical sources. The reasons for this include the following:

1. New hires come from persons not in the labor force, (for example, students and persons returning to the labor market) in addition to the current labor force. The race-sex proportions of these sources of new hires are quite di fferent from those among the currently employed;
2. The census data for 1970 and, to a lesser extent, more current data include many employed persons who were hired prior to the 1964 Civil Rights Act, possibly reflecting pre-act societal discrimination.[7] Thus, the minority fraction of post-act entrants to the labor force, especially a "qualified labor force," is usually higher than the corresponding fraction of persons employed in that occupation as of 1970 (or even 1980);
3. Because persons already employed in an occupation for some time typically earn more than the beginning wage o ffered by an alternative employer and may be employed in higher level positions in the occupations, they are unlikely to be interested or available for entry level positions in that occupation and should be excluded from the potential labor pool for new hires.[8]

Because the race-sex mix of potential new hires differs from that of the entire labor force, refinements to the statistical procedure which adjust for some of the problems noted are discussed. For example, occupational wage data on employed persons enable us to account for the fact that persons who change jobs usually seek another job paying at least as much as the previous one.[9] This approach also tends to correct the census data for pre-act hires, as wages typically increase with seniority. Although there are severe data limitations with the use of gross flow data to refine the "entrant" portion of the labor force,[10] the wage adjustment alone

Joseph L. Gastwirth is professor of statistics and economics at the George Washington University. This was adapted from a paper presented at the annual meeting of the American Statistical Association at Houston in August 1980.

more accurately defines the available labor pool than do the census data. This approach is illustrated on data used in a case on new hires and in one on promotions, showing how it narrows the differences in the results obtained from the applicant flow and demographic approaches.[11]

Because labor force data are also being used in promotion cases,[12] the applications of this refinement of the occupational wage data also are discussed in that context. In particular, it is shown that by failing to make an adjustment for pre-act employees in the 1970 census data, a Federal appeals court may have reached a statistically incorrect inference, as it excluded pre-act promotions from the firm's data which it then compared to the raw census data.

In a final section, the need for better labor market data is discussed, as well as the implications for the use of statistical hypothesis testing when the minority proportion against which the data are tested is itself inaccurate.

Refining availability data

Courts have noted that the 1970 census data on persons employed in a specific occupation may be outdated or may reflect discrimination that occurred prior to the 1964 Civil Rights Act,[13] and, therefore, underestimate the availability of minorities for new positions. The Supreme Court's *Hazelwood* decision[14] focused attention on post-act hiring data and the need to develop statistical methods to exclude employees hired prior to the law's e ffective date from census or other data[15] to properly analyze an employer's post-act hiring decisions.

It can be demonstrated that the use of all employed persons or persons in the civilian labor force as a referent group for new hires can lead to serious errors. Recall that the labor force is composed of employed persons and persons available for work who are unemployed. Furthermore, the unemployed are classified into three subcategories: persons laid off from their most recent jobs; persons who quit their previous jobs; and persons who have just entered or reentered the labor force.

The available pool for new hires can be similarly separated into persons who have been unemployed, those employed elsewhere, or those who are not in the labor force but intend to enter or reenter the labor force. The Bureau of Labor Statistics reports monthly data on the flow of workers from both unemployment and not in the labor force into employment.[16] The data for 1978 are presented in table 1.

Although data specifically for job changers (persons employed in consecutive months but who changed employers) are unavailable, they are counted in the employed category. It is evident from the percentages in table 1 that using the currently employed civilian labor force as a referent to determine an affirmative action goal or standard of comparison in a legal case yields an underestimate of the proportion of minorities and women in the available labor pool for new hires. The degree of this statistical bias may depend on the particular position, as the fraction of new hires who come from the currently employed undoubtedly varies among the occupations and by experience level within an occupation.

As an estimate of the magnitude of the bias, a recent survey showed that 4.1 percent of persons currently employed were looking for work.[17] Of course, not all seekers of jobs find them within a month, so the actual job changers form a smaller percentage than 4.1 percent of the employed. However, the turnover in manufacturing jobs ranges from 1.1 to 3.4 percent with a typical value of about 2.2 percent.[18] For illustrative purposes, assume that 2.5 percent of the employed change jobs. Then the composition of new hires can be derived from table 1 by adding 2.5 percent of the previous month's employed to the new hires. The results are presented in the following tabulation:

	Number	*Percent*
Total	7,393	
Male	3,659	49.50
Female	3,734	50.50
White	6,414	86.76
Nonwhite	979	13.24

Comparing these race-sex percentages of the available labor force with those of the currently employed in table 1, we note that the difference between 13.24 and 11.66 percent for minorities is more important than it may first appear because minorities are not spread uniformly over the country. In an area where the labor force goal is about 35 percent, our estimate of availabil-

Table 1. Civilian labor force employment and new hires, by race and sex, annual averages, 1978

[Numbers in thousands]

Characteristic	Civilian labor force		Currently employed		New hires from unemployment		From not in labor force	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	100,312	100.00	94,433	100.00	1,678	100.00	2,882	100.00
Male	58,589	58.41	55,659	58.94	921	54.89	1,068	37.06
Female	41,723	41.59	38,774	41.06	757	45.11	1,814	62.94
White	88,618	88.34	84,145	89.11	1,396	83.19	2,494	86.54
Nonwhite	11,694	11.66	10,288	10.89	282	16.81	388	13.46

ity would be 40 percent. Moreover, lower paid workers are more likely to search for a new job while employed,[19] so that our adjustment, especially for minorities, may still be on the low side. As detailed data on new hires by occupation or geographic region are not available, we now turn to the development of methods of refining the census labor force data to obtain a more realistic estimate of the labor pool available for new hires.

One method for eliminating pre-act hires from census data is based on the fact that senior employees tend to earn more than the entry level wage and normally seek jobs paying at least as much as they currently earn.[20]

This idea only applies to the potential new hires among currently employed persons. And because the other two sources of new hires have higher minority percentages, it often yields reasonable numbers for the whole problem. Moreover, courts have often relied on experienced labor force data as the demographic referent, and indeed prior experience may be required for some jobs.

In addition to the use of wage data, in some applications data on school and university enrollment may be used to develop availability data for specific occupations such as lawyers, teachers, and technicians. Potential new hires may then be separated into persons hired directly from school and those hired from the external labor market.

Illustrations

In this section, two cases are examined to show how apparent conflicts between applicant flow data and the demographic method are diminished considerably when high wage earners are eliminated from the labor force to obtain the new hire pool. *Hill v. Western Electric* presents the issue clearly.[21] Entry level assembler positions requiring no previous background or experience were at issue. Applicant flow statistics showed that both black and female applicants had significantly lower hire rates than their white and male counterparts. The data for 1970–74 are shown in table 2.

To rebut the applicant flow statistics, the employer introduced data for the standard metroplitan statistical area (SMSA) showing that blacks formed 24 percent and women 40.4 percent of the civilian labor force. Because 25 percent of the hires were black, the firm claimed it had not discriminated in hiring blacks. A more accurate new hire pool might exclude persons earning more than $10,000 (in 1969 dollars) from the labor force and operative data.[22] The basic labor force data as well as data on earnings of the experienced labor force are given in table 3.

Blacks form about 40 percent of the experienced labor force and an even higher proportion of operative workers earning less than $10,000. As blacks formed 38.1 percent of the unemployed in the relevant SMSA, their proportion of the applicants (44 percent) probably reflects the lack of commuting problems.[23] Similarly, the female proportion of all applicants (41.1 percent) is between their percentages of the overall and operative labor force without high wage earners. Recalling the high proportions of women hired from the unemployed and out of the labor force categories in table 1, we realize the female share (30 percent) of actual hires is lower than their estimated availability from each source. Thus, Judge Bryan's original finding of discrimination in hiring of both blacks and females on the basis of applicant data is not in conflict with a proper demographic analysis. Indeed, the applicants (table 2) appear to be a representative sample from the labor pool available for the jobs at issue.

Both the District Court and appellate opinions in *EEOC v. UVB*[24] illustrate the problem and our approach quite clearly. Both courts stated that the proper comparison for determining whether the bank had engaged in racial discrimination in hiring for office/clerical and management positions is between the black fraction of the employees in these jobs and the black percentage of the local force with the requisite qualifications, *not* the black fraction of the total labor force or population. The District Court allowed the EEOC to establish a prima facie case (later rebutted by the defendant), in part on the basis of a significant disparity between the black fraction of employees in each job category and the SMSA data. The Fourth Circuit asserted that the EEOC failed to establish a prima facie case because it made no effort to exclude employees hired prior to the effective date of the Civil Rights Act. Moreover, the appeals court disregarded applicant flow data showing that 12.4 percent of whites were hired but only 4.4 percent of blacks because applicants for all positions were aggregated, and no evidence was presented by the EEOC as to qualified applicants.

The data used by the District Court, based on a Virginia Employment Commissions report for 1975:

Job category	*Black percentage in SMSA (1975)*	*Black percentage of employees (1970)*	*Black percentage of employees (1974)*
Managers	4.8	0.0	1.8
Office/Clerical . .	14.0	6.5	9.5
Operative	45.4	20.0	33.3
Service	49.6	55.0	78.6

The Fourth Circuit rejected the EEOC's assertion that the black percentage (27 percent) of the total labor force in the Norfolk-Portsmouth SMSA should be used as the availability figure for clerical workers and agreed with the District Court choice of referent data. However, it disagreed with the judge's use of "1975" referent data to evaluate the 1970 employment pattern[25] and proceeded to perform the usual "standard deviation"

Table 2. 1970–74 applicant-hire data for Western Electric Co.

Worker characteristics	Applicants		Hires		Percent hired
	Number	Percent	Number	Percent	
Race:					
Black	1,489	44.03	189	25.06	12.7
White	1,893	55.97	565	74.94	29.8
Sex:					
Female	1,443	41.10	244	30.54	16.9
Male	2,068	58.90	555	69.46	26.8

analysis on the bank's employment data and on employees hired in the post-act era. The Fourth Circuit did not eliminate high wage earners from the Census data, even though the District Court had found that a specific plaintiff did not suffer discrimination when she was not hired in 1972 for a clerical job paying $300 a month because she had been paid $375 a month in her previous job and expressed interest in jobs of the same level she previously held. Because the census earnings data report 1969 earnings, eliminating clerical workers receiving more than $3,600 would be conservative and allow for some persons who are willing to take a small pay cut.

Repeating the same type of calculations made in our discussion of *Hill v. Western Electric,* we found that blacks formed 14 percent of all clericals, 14.9 percent of clericals earning less than $4,000 in 1969, and 17.2 percent of all clerical workers earning less than $3,000 in 1969. For the specific positions of bank tellers and cashiers, the corresponding percentages are 14.6, 16.1, and 17.2. Therefore, it seems reasonable and conservative to use 15.5 percent instead of 14 percent as the black availability for entry level clerical jobs. As there were 301 clerical employees at UVB hired after July 1, 1965, we would expect 46.60 black clericals in contrast with the actual number of employees (30) which leads to a difference of 2.65 standard deviations instead of the 2.02 calculated by the Fourth Circuit.

Although our approach did not increase the number of standard deviations between the observed and expected number of black clerical employees to three or more, the data are significant at the .01 level rather than at the .05 level. Thus, our approach supports Judge Clarke's original finding that a prima facie case had been established as well as Judge Butzner's concurrent opinion. Moreover, excluding higher paid workers in the other occupations would also have reinforced the statistics showing black underrepresentation in managerial positions.

Both overall labor force data and specific occupational data have been used by a number of courts to aid in the determination of liability and in fashioning an appropriate remedy in cases involving possible discrimination in promotions. In particular, the Fourth Circuit held in two promotion cases[26] "that the ratio of blacks and females in supervisory positions should be judged on the basis of their ratio in the qualified work force and that a standard might be found in the SMSA data."

Because 1970 census data on managers include persons employed in higher paid supervisory positions, many of whom presumably became first level managers prior to July 1965, the concepts developed above imply that the basic labor force data need some refinement before being used in a promotion case.

In contrast with the demographic comparisons in hiring cases, where persons represented by census data could actually apply or be recruited for jobs, promotion cases focus on the advancement of current employees. Although most statisticians would prefer to base their analysis of promotion data on a test of the significance of the difference in the promotion rates,[27] comparisons with an external group are needed in cases where minorities are underrepresented in the feeder position, either because of hiring discrimination[28] or because of discriminatory placement or advancement at an earlier level.[29] Judges have also used demographic comparisons to find a firm innocent of discrimination when minorities were "overrepresented" in the feeder position but received a share of promotions corresponding to their proportion of the total labor force.[30] Our approach should aid in defining an appropriate comparison group from census data.

In *Patterson v. American Tobacco Company,*[31] the Fourth Circuit upheld the district court's finding that blacks and women had been discriminated against in

Table 3. Basic labor force data for the Washington SMSA, 1970 Census

Characteristic	Civilian labor force		Experienced labor force		Experienced labor force earning less than $10,000		Operatives in experienced labor force		Operatives earning less than $10,000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	1,292,347	100.00	1,174,888	100.00	737,059	100.00	41,182	100.00	37,259	100.00
Male	769,718	59.56	680,522	57.93	387,106	52.52	27,175	65.72	23,407	62.82
Female	522,629	40.44	494,366	42.07	349,953	47.48	14,117	34.28	13,852	37.18
Black	310,505	24.03	294,130	25.03	267,976	39.91	15,919	38.65	15,248	40.92

SOURCE: Data from the SMSA labor force are from tables 164–65 and those for the experienced labor force are from tables 175–76 of the Detailed Characteristics Volume of the 1970 Census for the District of Columbia.

promotions, but overturned the district court's remedy that vacancies for foremen and assistant foremen be filled with qualified blacks and women, except when none could be found, until their proportion equalled that in the Richmond, Va., SMSA work force.

The appeals court focused on the firm's post-act employment decisions in its two Richmond branches. During the post-act period, 1965–73, at the "Virginia Branch," the company appointed 18 assistant foremen, of whom 5 (27.5 percent) were black and 3 (16.6 percent) were women. At the "Richmond Branch," 3 (33.3 percent) of the 9 post-act supervisory appointments were black and 2 (22.2 percent) were women. Of the six entry level supervisory positions at the Richmond Branch at the time of the trial, 5 were white men with one vacancy, although there was some evidence indicating that the defendent subsequently promoted one black and one woman.

The appeals court found that 6.8 percent of the blacks and 1.5 percent[32] of the women in the Richmond SMSA could be classified as supervisory personnel. However, in a post-*Hazelwood* appeal,[33] the defendants asserted that blacks formed 12 percent of those eligible for supervisory work and women, 5 percent. These data were used by appeals court Judge Widener in dissent, claiming that these percentages were lower than the percentages of new promotions that actually went to blacks and women.

Ideally, the company's promotion data should be compared with all promotions to supervisory positions made from July 1965 through March 1970 in the labor market area. As these data are unavailable, a reasonable substitute is to eliminate senior (higher paid) supervisory positions. This should yield a closer approximation to the desired data on persons holding comparable lower level supervisory positions. For purposes of illustration, a 1969 income of $7,000 was used as the salary for entry level supervisors.[34] Table 4 reports the number and minority percentages of the experienced civilian labor force, managers and administrators, and foremen. The data for all workers and for persons who earned less than $7,000 in 1969 are presented.

Table 4. The experienced civilian labor force eligible for supervisory occupations, by salary, in the Richmond SMSA, 1970 Census

Labor force group	Men		Women		Black	
	Number	Percent	Number	Percent	Number	Percent
Total labor force	128,962	59.00	89,602	41.00	50,246	22.99
Experienced labor force	59,591	42.82	79,583	57.18	43,319	31.13
Managers	16,887	85.11	2,955	14.89	1,211	7.17
Eligible managers	3,334	61.59	2,079	38.41	706	13.04
Foremen	4,104	92.83	317	7.17	359	8.12
Eligible foremen	729	76.82	220	23.18	154	27.57

NOTE: For each of the three occupations, the minority percentages of the entire population and of the eligible portion of the occupation (workers earning less than $7,000) were used.

Regardless of whether one considers the general managerial category or the specific occupation of foremen as the appropriate comparison group, it is clear that the minority share of lower level jobholders (thus eligible for promotion) is substantially larger than their percentage of all persons employed in the occupation. Using the "eligible foremen" as a comparison group, we might conclude that the firm promoted enough blacks but women had not received their fair share. Of course, the *dates* of the minority promotions played a major role in the original finding of discrimination which was sustained by the Fourth Circuit.

Although this statistical approach might not have led the Fourth Circuit to reach a different decision in its reversal of the quota remedy, it does give a more realistic measure of the available labor pool for entry level supervisory positions.

Implications

We have seen that the female and minority proportion (p_1) of persons employed in an occupation usually is an underestimate of their proportion (p_2) of the labor pool available for hire into lower level positions within that occupation and that this difference is often substantial enough to change the statistical inference reached by the judiciary. In this section we present formulas for the difference, in standard deviation units, between the actual and expected number of hires when a low availability proportion (p_1) is used instead of p_2 and the number of hires that female and minority plaintiffs consequently lose in legal proceedings because of an underestimate of availability. If minority availability is overestimated, similar formulas yield the number of "excess" minority members firms would need to hire to "pass" the usual standard deviation analysis.[35] Numerical results obtained from these formulas illustrate the important role the assumed availability proportion plays in the statistical analysis once a moderate number of hires is examined. Therefore, we suggest the need for additional labor market data which should aid in improving the accuracy of availability estimates.

Letting S denote the number of standard deviations from the expected number of hires when M minorities are observed among n hires calculated under the assumption that the minority function of the available labor pool is p_1, and letting T denote the corresponding number of standard deviations from expected assuming that minority availability is p_2, we have

$$(1.1)\quad S = \frac{(M - np_1)}{[np_1(1-p_1)]^{1/2}},\quad T = \frac{(M - np_2)}{[np_2(1-p_2)]^{1/2}}$$

and

$$(1.2)\ T = -n^{1/2}\frac{(p_2-p_1)}{[p_2(1-p_2)]^{1/2}} + S\left[\frac{p_1(1-p_1)}{p_2(1-p_2)}\right]^{1/2}$$

When p_1 is less than p_2 and n is of reasonable size, the value of T is less than S; for example the plaintiff is required to show a disparity of more than 2 or 3 standard deviations from the expected number of hires in order to establish a prima facie case under the *Hazelwood* criteria. Conversely, a defendant employer is similarly disadvantaged when minority availability is overestimated.

Another measure of the potential minority loss in employment from using p_1 instead of p_2 as the minority availability fraction is the difference between the minimum number of minority hires a firm needs to "pass" the 2 standard deviation criterion. For any value of p, this minimum number is given by

$$(1.3)\ np - 2[np(1-p)]^{1/2}$$

so using p_1 instead of p_2 (when $p_1 < p_2$) leads to an expected loss of

$$(1.4)\ n(p_2-p_1) - 2n^{1/2}[(p_2(1-p_2))^{1/2} - (p_1(1-p_1))^{1/2}]$$

jobs in a legal action. This loss in jobs is usually slightly less than the difference, np_2-np_1, between the expected number of minority hires calculated using the different availability fractions, as the statistical allowance for chance effects has been taken into account.

In table 5, we present the true number (T) of standard deviations from the expected number of hires when the number of standard deviations (S) is calculated assuming an availability fraction p_1, while the true availability is p_2 (larger than p_1). The results are given for sample size (n=100, 300, 1000) and for several choices of p_1 and p_2 and values of S=0 and −1. The number of legally missed hires (equation 1.4) is also reported. To avoid the problem of rejecting the null hypothesis for insubstantial differences we have selected values of p_1 and p_2 which obey $p_1/p_2 \leq 0.8$[36] and sample sizes which are reasonably, but not overly, large. The results show that when S=−1 (for example, minority hires are one standard deviation below expectation) a difference of 5 percentage points between p_1 and p_2 would yield significance according to the 2 standard deviation criterion for samples of size 100 and a difference of 3 percentage points yields significance using the 3 STD criterion for samples of 300. Thus, comparatively small errors in the determination of the minority fraction (p) of the available labor pool can have a large effect on the ultimate statistical inference. It should be noted that the effect of the "statistical allowance" (the second term in (1.4) or the difference between $n(p_2-p_1)$ and the lost hires in table 4) depends on the actual values of p_1 and p_2. Indeed, for pairs (p_1, p_2) with the same difference p_2-p_1, it is larger for the smaller values; that is, the allowance is larger for (p_1, p_2) = (.1, .15) than for (.2, .25). Hence, the statistical allowance for chance effects increases the importance of properly determining the minority availability (p) when p is small. The results also indicate the influence of sample size upon the degree of statistical significance.

To develop more accurate estimates of minority availability (p), statisticians and labor economists will require more data of a longitudinal nature. Even our refinement of the data on currently employed persons (to a yield a more realistic estimate of the race-sex mix of job changers) is just one step in the process because new hires come from other components of the labor force (table 1). Moreover, about 10 percent of all workers change jobs during a year and the occupational mobility rate varies by occupation, age, education, and to a lesser extent by race.[37] Because it is virtually impossible to obtain precise estimates of mobility for very specific jobs (for example, waiters), one can use data showing that 30 to 40 percent of job changers move to other jobs within the same broad occupational category to aid in the development of a weighting model or transition matrix. Some types of information which will enable us to develop more precise availability estimates include:

1. The proportion of new hires in an occupation coming from each of the three components of the labor force.
2. The previous jobs and the salary in both old and new jobs for job changers.
3. For the new and re-entrant portions of the labor force, data on the nature of the job sought and qualifications required (for example, training, previous employment).

Much of the data could be obtained by additional tabulations of the gross flow data by broad occupational categories and by making the CPS supplements on occu-

Table 5. True number of standard deviations from expected value and lost hires when the number of standard deviations was calculated assuming a low value of P_1

Low P P_1	True P P_2	P_2-P_1	Population = 100			Population = 300			Population = 1000		
			S = 0	S = −1	Lost hires	S = 0	S = −1	Lost hires	S = 0	S = −1	Lost hires
.10	.15	.05	−1.40	−2.24	3.86	−2.43	−3.27	13.02	−4.43	−5.27	46.39
.20	.25	.05	−1.15	−2.08	4.34	−2.00	−2.92	13.85	−3.65	−4.58	47.91
.10	.20	.10	−2.50	−3.25	8.00	−4.33	−5.08	26.54	−7.91	−8.66	93.68
.20	.30	.10	−2.18	−3.06	8.83	−3.78	−4.65	27.98	−6.90	−7.77	96.32
.30	.40	.10	−2.04	−2.98	9.37	−3.45	−4.47	28.90	−6.45	−7.39	98.00

pational mobility and job search regular yearly surveys.

As all the above-mentioned labor market information may not be readily available, other possible approaches that could yield more accurate availability estimates than the raw census data on employed persons are:

1. For entry-level jobs an age-weighted labor force model can be developed using the age distribution of new hires in a weighted average of the minority proportions in the same age brackets in the relevant labor force. This approach tends to place relatively little weight on senior workers and more on younger workers, most of whom were hired in the post-Civil Rights Act era and who do more job changing. Because of Age Discrimination in Employment Act, one might wish to use this method to supplement another approach.
2. For some occupations (for example, lawyers and pharmacists), data on new degree recipients[38] or on persons employed in various types of jobs within an occupation[39] may be useful.
3. Memberships rosters of professional societies[40] and National Research Council data on scientists and engineers may also be helpful. However, using the demographic mix of all persons on these registers as a referent for new hires will typically underestimate minority availability as does raw census data. Hence, an adjustment based on current position and salary may be needed.

In situations where several reasonable methodologies yield slightly differing availability estimates, the actual hiring data can be tested against all values of p. Frequently, the ultimate statistical conclusions, at the usual .05 and .01 levels of significance, will agree. □

FOOTNOTES

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[1] Distilled from three methods established in *Green v. Missouri Pac. R.R. Co.*, 523 F.2d 1290 (8th Cir. 1975).

[2] Mark Rosenblum, "The Use of Labor Statistics and Analysis in Title VII Cases: Rios, Chicago and Beyond," *Industrial Relations Labor Journal, Vol. 1,* 1977, pp. 685–710.

[3] Kenneth T. Lopatka, "A 1977 Primer on the Federal Regulation of Employment Discrimination," *University of Illinois Law Forum,* 1977, pp. 60–168.

[4] For example, in *Jones v. Tri-County Electric Cooperative,* 512 F.2d 1 (5th Cir. 1975) the court noted that although 8 of 23 black applicants were hired in contrast with 35 of 159 white applicants so that blacks had a larger hire rate (34 percent vs. 22 percent), the black fraction of hires was only 18.6 percent, less than half of their fraction (40 percent) of the population. Moreover, during the first seven years the Civil Rights Act was in effect the defendant had employed only one black person. Thus, the fifth circuit reversed the district court decision, which apparently relied on the applicant-hire percentages, when it found the firm innocent of violating Title VII.

[5] *Hazelwood School District v. United States,* 97 S. Ct. 2736 (1977), and *International Brotherhood of Teamsters v. United States,* 431 U.S. 324 (1977).

[6] Marcy Hallock, "The Numbers Game—The Use of and Misuse of Statistics in Civil Rights Litigation," *Villanova Law Review,* Vol. 23, 1977, pp. 5–34; and Mark Rosenblum, "The External Measures of Labor Supply: Recent Issues and Trends," *Connecticut Law Review,* Vol. 10, 1978, pp. 892–919.

[7] Several courts have noted this explicitly; for example *Greenspan v. Automobile Club of Michigan,* 22 FEP Cases 184 (1980), at 192; *Smith v. Union Oil Co. of California,* FEP 960 Cases (1978), at 967. The fact that the defendant city had hired a black as a fireman or in an administrative capacity prior to 1974 played a role in Judge Keady's decision to rely on applicant flow data rather than the demographic method in *NAACP v. City of Corinth,* 20 FEP Cases 1044 (1979), at 1056.

[8] In *Hoard v. Teletype,* 20 FEP Cases 1070 (1978), Judge Heany noted that the "Managerial" census category included higher level managers, for example, vice presidents, while no black had ever held supervisory positions higher than section chief. The reverse situation may occur when senior positions are being filled; see *Agarwal v. McKee,* 19 FEP Cases 501 (N.D. Ca., 1977).

[9] See Carl Rosenfeld, "The extent of job search by employed workers," *Monthly Labor Review,* March 1977, p. 57, who reports that the most common reason given by employed workers seeking a new job is the desire for higher pay. Moreover, low pay is the most frequent reason given by unemployed persons for declining a job. See Carl Rosenfeld, "Job search of the unemployed, May 1976," *Monthly Labor Review,* November 1977, p. 39.

[10] For more information concerning the potential usefulness of and problems inherent in the gross flow data, see T. F. Bradshaw, "Employment in perspective: a cyclical analysis of gross flows in the labor force," Report 508 (Washington, U.S. Department of Labor, 1977); Harvey J. Hilaski, "The status of research on gross changes in the labor force," *Employment and Earnings,* October 1968; and R. E. Smith and J. E. Vanski, "Gross change data: the neglected data base" (Washington, National Commission on Employment and Unemployment Statistics, 1975). Also see Barbara Bailar, "The Effects of Rotation Group Bias on Estimates for Panel Surveys," *Journal of the American Statistical Association,* March 1975, pp. 23–30.

[11] Courts have taken different views on the issue of which of the two approaches is the more relevant, in part, because they do not wish to penalize an employer for taking affirmative action in recruitment. Some relevant cases are: *Hill v. Western Electric Co.,* 12 FEP Cases 1175 (E.D. Va., 1976), at 1179, 19 FEP Cases 596 F.2d 99; *Hester v. Southern Railway Co.,* 497 F.2d 1374 (5th Cir, 1974); *Robinson v. Union Carbide,* 538 F.2d 652 (5th Cir., 1976); and *Pate v. Transit District,* 21 FEP Cases 1228 (N.D. Cal., 1979) at 1231.

[12] See *Patterson v. American Tobacco Co.,* 8 FEP Cases 778; 12 FEP Cases 314, 535 F.2d 257; 18 FEP Cases 378. *Smith v. Union Oil Co. of California,* 17 FEP Cases 960 (1978) and cases using employment data from comparable employers, for example, *Garcia v. Victoria Independent School District,* 17 EPD 8544.

[13] See *U.S. v. County of Fairfax,* 23 FEP 485 (4th Cir. 1980); *Greenspan v. Automobile Club of Michigan,* 22 FEP Cases 184 (1980); *EEOC v. Radiator Speciality Co.,* 21 FEP Cases 351 (1979) at 357.

[14] 433 U.S. 299 (1977).

[15] Two post-*Hazelwood* decisions which illustrate the effect of emphasizing postact hiring data rather than employment statistics are *El Concilio v. Modesto School District,* 17 FEP Cases 819 (1978) and *Drayton v. City of Petersburgh,* 20 FEP Cases 1495 (M.D. Fla., 1979).

[16] These data are not published regularly due to technical difficulties noted in the article cited in footnote 10; however, it is available on request.

[17] See Carl Rosenfeld's articles cited in footnote 9.

[18] See "Measurement and Significance of Labor Turnover" (Washington, National Commission on Employment and Unemployment Statistics, 1979), Background paper 27.

[19] See Carl Rosenfeld's first article cited in footnote 9.

[20] Because some persons are willing to take small pay cuts to move to jobs offering better opportunities for advancement or having a con-

venient location, we will usually include persons making 10 to 15 percent more than the beginning wage in the available labor pool. The author has not seen any data showing that a sizable fraction of job changers is willing to move to jobs involving a large percentage pay decrease.

[21] 12 FEP Cases 1175 (E.D. Va., 1976). Although this part of the district court's decision was reversed on grounds of standing.

[22] Unfortunately, the entry level salary was not reported so we are using a relatively high salary (in 1969 dollars) for such jobs. For a more recent case in which the applicant flow approach was preferred, in part, because most new hires were given low paying production jobs, see *Vaughn v. Westinghouse,* 19 FEP Cases 1475 (1979).

[23] For further discussion of modifications of census labor force data to account for commuting patterns, see Joseph Gastwirth and Sheldon Haber, "Defining the labor market for equal employment standards," *Monthly Labor Review,* March 1976, pp. 32–36; and discussions in *Markey v. Tenneco Oil Co.,* 439 F. Supp. 219, 234–235 (E.D. La., 1977); *Gay v. Waiter's Union Local 30,* 22 FEP Cases 281 (N.D. Cal., 1980), at 296–7; and *EEOC v. North Hills Passavant Hospital,* 19 FEP Cases 212 (W.D. Pa., 1979).

[24] 21 FEP Cases 1392 (E.D. Va., 1977), 21 FEP Cases 1405 (4th Cir. 1980).

[25] See the original opinion at 1400. The Court relied on a Virginia Employment Commission report for 1975. The author reproduced these numbers from tables 86 and 93 from the General Social Economic Statistics Volume of the 1970 Census for Virginia. Thus, the Court was incorrect in criticizing the original opinion. Indeed, the State agency report may have misled the Court about the currentness of the data.

[26] *Patterson v. American Tobacco Co.,* 18 FEP Cases 378 (1979); *Hill v. Western Electric,* 19 FEP Cases 490 (1979).

[27] David C. Baldus and Joseph W. L. Cole, *Statistical Proof of Discrimination* (New York, McGraw-Hill, 1980).

[28] *Garcia v. Victoria Independent School District,* 17 EPD Cases 8544.

[29] *Kyriazi v. Western Electric Co.,* 18 FEP Cases 924; *St. Marie v. E.R.R. Ass'n,* 458 F. Supp. 1147 (S.D. N.Y., 1978).

[30] *Smith v. Union Oil Co.,* cited in footnote 12.

[31] 8 FEP Cases 778 (1974).

[32] The source of the data quoted was not reported. The author could not reproduce the percentages from published census data.

[33] 18 FEP Cases 378 (1979), at 383.

[34] The entry level salary used (1969) for the position appears reasonable, perhaps conservative. In legal proceedings, the actual salary should be used.

[35] Since *Hazelwood,* this technique has become a standard method of statistical proof. For more discussion and additional cases, see Chapter 9 of Baldus and Cole cited in footnote 27; and Michael O. Finkelstein, "The Application of Statistical Decision Theory to the Jury Discrimination Cases," *Harvard Law Review,* Vol. 80, 1966, pp. 338–76. And, Judge Higgenbotham's opinion, in *Vuyanich v. Republic National Bank,* 24 FEP Cases 128 (1980), interprets the meaning of statistical significance at 223–24, and illustrates the importance of properly determining the availability fraction, p, at 243–44.

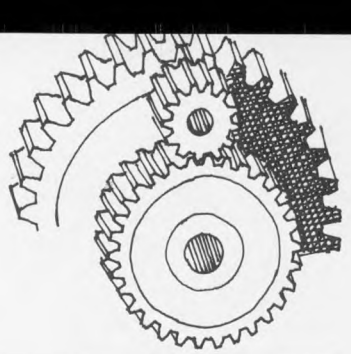
[36] For further discussion of the "four-fifths rule" and the EEOC testing guidelines, see Jacob Van Bowen and C. Riggins, "A Technical Look at the Eighty Percent Rule as Applied to Employee Selection Procedures," *University of Richmond Law Review,* Vol. 12, 1978, pp. 647–56.

[37] See Carl Rosenfeld, "Occupational mobility during 1977," *Monthly Labor Review,* December 1979, pp. 44–48; Patrick Wash, "Occupational mobility of health workers," *Monthly Labor Review,* May 1977, pp. 25–29; and Dixie Sommers and Alan Eck, "Occupational mobility in the American labor force," *Monthly Labor Review,* January 1977, pp. 3–19.

[38] These are published by the National Center of Educational Statistics; the 1975 survey of recent doctorates was used to determine availability of *Cooper v. University of Texas at Dallas,* 22 FEP Cases 1064.

[39] For example, the Bureau of Health Manpower in the Department of Health and Human Services issued data on type of position held by Pharmacists in the report, *Pharmacy Manpower Resources* (for 1974) and in separate reports for each State.

[40] Membership data in the AAUP were used in *Cooper v. University of Texas at Dallas,* 22 FEP Cases 1064 to compare the percentage of tenured female professors with the national average.



Productivity Reports

Productivity slows or drops in 1979 in more than half of industries measured

ARTHUR S. HERMAN

Productivity, as measured by output per employee hour, declined or grew at a lower rate in 1979 than in 1978 in more than half of the industries surveyed by the Bureau of Labor Statistics. However, during 1974–79, more than half of the industries reported productivity gains. Over the long-term (1947- or 1958–79), all of the industries posted gains.

Changes in 1979

Most mining, retail trade, and service industries posted declines, as did some transportation and large manufacturing industries. Conversely, gains were recorded in a few of the larger industries, including air transportation and telephone communications, and in a majority of the manufacturing industries covered. The slowdown is consistent with productivity in the nonfarm business sector, which declined 0.8 percent during the year. Table 1 shows productivity trends in industries measured by the Bureau, including new measures for the fabricated structural metal, construction machinery, drug and proprietary stores, ball and roller bearings, and bus carrier industries.[1] Also included, for the first time, is a series for electric utilities and gas utilities. These indexes were developed by disaggregating the existing measure for gas and electric utilities.

Manufacturing. Both steel and motor vehicles, which are among the larger industries covered, had productivity declines in 1979. In the steel industry, productivity fell 1.3 percent as output dropped 0.3 percent and employee hours went up 1.0 percent. Demand for steel was strong in the first half of the year, but fell off sharply in the second half. In the motor vehicles industry, productivity declined for the second consecutive year, falling 3.7 percent, as output declined more than employee hours. Motor vehicle production was high in the first quarter, but demand began to fall in the second quarter, in part, because of lower supplies and higher prices for petroleum; as a result, output decreased sharply during the remainder of the year. Other large manufacturing industries posting productivity declines in 1979 were: sawmills, −3.1 percent; petroleum refining, −2.2 percent; gray iron foundries, −0.8 percent; pulp and paper, −0.4 percent; and construction machinery, −0.3 percent. These industries, except paper, had declines in output in 1979.

These large manufacturing industries posted productivity gains in 1979: fabricated structural metal, 6.0 percent; fluid milk, 5.3 percent; motors and generators, 3.6 percent; household appliances, 3.0 percent; tires, 2.9 percent; household furniture, 2.8 percent; bakery products, 1.6 percent; footwear, 1.1 percent; soft drinks, 0.9 percent; and corrugated boxes and pharmaceutical preparations, 0.5 percent each.

Transportation. The productivity situation was mixed among transportation industries. Intercity trucking declined 1.2 percent, and railroads (revenue traffic) dropped 0.1 percent. Conversely, air transportation posted a gain in productivity of 3.4 percent as output increased strongly, petroleum pipelines grew 2.2 percent, and bus carriers increased 0.4 percent.

Utilities. In utilities, the gas and electric industry posted its second consecutive productivity decline, dropping 0.5 percent. Both the gas and the electric utility components of this industry had productivity declines in 1979. Telephone communications registered a gain of 3.6 percent, with output continuing its high rate of growth.

Mining. Most mining industries experienced productivity declines. Coal mining dropped 9.5 percent. Although coal output posted a significant gain, production worker hours grew even more as the industry recovered from a major strike in 1978. Copper mining (recoverable metal) and nonmetallic minerals recorded large productivity declines of 10.0 and 3.7 percent, respectively. In contrast, iron mining (usable ore) grew 6.9 percent as output posted an above-average gain.

Trade and services. Productivity declined in most retail trade and service industries, with laundry and cleaning

Arthur S. Herman is an economist in the Office of Productivity and Technology, Bureau of Labor Statistics.

Table 1. Indexes of output per employee hour in selected industries, 1973–79, and percent changes, 1978–79 and 1974–79

SIC Code [1]	Industry	1973	1974	1975	1976	1977	1978	1979 [2]	Percent change 1978–79	Average annual percent change 1974–79
	Mining [3]									
1011	Iron mining, crude ore	130.6	124.0	129.7	130.6	126.0	135.1	147.0	8.8	2.7
1011	Iron mining, usable ore	123.6	114.2	118.6	116.8	110.5	121.4	129.9	6.9	1.9
1021	Copper mining, crude ore	118.6	114.7	122.2	140.5	145.4	158.6	148.6	−6.3	6.2
1021	Copper mining, recoverable metal	97.8	86.9	91.3	110.6	117.1	125.2	112.7	−10.0	6.8
111, 121	Coal mining	85.8	84.1	72.7	71.4	69.5	76.1	68.8	−9.5	−2.5
121	Bituminous coal and lignite mining	85.9	83.9	72.1	70.8	69.0	75.8	68.2	−10.0	−2.6
14	Nonmetallic minerals	128.5	123.3	120.7	126.4	130.4	136.6	131.5	−3.7	2.1
142	Crushed and broken stone	141.6	138.6	139.6	140.2	148.0	161.7	150.1	−7.2	2.6
	Manufacturing									
2026	Fluid milk	140.1	143.6	150.3	156.1	156.1	165.8	174.7	5.3	3.7
203	Preserved fruits and vegetables	125.6	123.0	124.9	132.7	131.9	135.5	(4)	(4)	[5] 2.5
2033	Canned fruits and vegetables	130.3	128.1	126.0	138.9	135.2	138.6	(4)	(4)	[5] 2.3
204	Grain mill products	116.1	124.4	125.5	131.0	137.5	136.2	(4)	(4)	[5] 2.8
2041	Flour and other grain mill products	113.7	119.2	120.8	119.7	140.3	144.7	150.2	3.8	5.4
2043	Cereal breakfast foods	111.0	105.3	107.7	112.8	112.2	111.8	(4)	(4)	[5] 1.6
2044	Rice milling	100.3	115.2	111.7	109.7	123.8	114.6	(4)	(4)	[5] 0.9
2045	Blended and prepared flour	103.5	116.4	104.6	108.0	95.2	87.5	(4)	(4)	[5] −6.4
2046	Wet corn milling	123.3	150.6	152.7	168.7	198.3	203.3	(4)	(4)	[5] 9.0
2047, 48	Prepared feeds for animals and fowls	118.5	127.1	129.5	136.9	140.9	138.7	(4)	(4)	[5] 2.6
205	Bakery products	113.1	112.9	112.7	112.8	120.1	116.8	118.6	1.6	1.2
2061, 62, 63	Sugar	114.0	110.0	108.1	111.4	118.9	117.1	131.0	11.8	3.4
2061, 62	Raw and refined cane sugar	105.6	103.7	97.8	102.0	113.7	110.3	(4)	(4)	[5] 2.8
2063	Beet sugar	127.2	119.7	124.3	128.6	126.2	127.6	(4)	(4)	[5] 1.4
2065	Candy and confectionery products	137.3	149.0	136.0	126.9	149.4	161.5	(4)	(4)	[5] 2.6
2082	Malt beverages	153.2	157.2	175.3	192.9	199.6	201.3	203.0	0.9	5.1
2086	Bottled and canned soft drinks	117.3	119.9	129.6	139.7	147.7	154.3	155.6	0.9	5.5
2111, 21, 31	Tobacco products—total	108.1	111.9	114.2	119.3	122.4	125.0	127.6	2.1	2.8
2111, 31	Cigarettes, chewing and smoking tobacco	104.9	106.5	110.3	114.1	117.5	122.0	122.7	0.5	3.0
2121	Cigars	116.8	128.6	126.5	137.1	139.8	137.0	148.4	8.3	2.8
2251, 52	Hosiery	147.7	168.5	191.6	219.5	208.6	209.5	236.5	12.9	5.6
2421	Sawmills and planing mills, general	112.9	108.2	112.7	118.2	115.3	116.4	112.8	−3.1	0.8
2435, 36	Veneer and plywood	126.7	127.4	142.2	142.4	147.2	147.4	(4)	(4)	[5] 3.3
251	Household furniture	123.3	121.2	123.6	126.3	126.7	131.9	135.6	2.8	2.2
2511, 17	Wood household furniture	127.9	122.8	120.5	124.4	122.9	127.6	(4)	(4)	[5] 1.0
2512	Upholstered household furniture	113.7	114.2	120.8	122.2	124.6	136.1	(4)	(4)	[5] 3.9
2514	Metal household furniture	119.9	114.3	119.0	121.7	126.2	122.8	(4)	(4)	[5] 2.0
2515	Mattresses and bedsprings	138.3	147.8	152.7	156.7	158.8	161.4	(4)	(4)	[5] 2.2
2611, 21, 31, 61	Paper, paperboard and pulp mills	135.4	135.2	128.0	140.2	147.3	152.9	152.3	−0.4	3.4
2643	Paper and plastic bags	125.1	131.8	133.6	135.0	134.6	134.8	(4)	(4)	[5] 0.5
2651	Folding paperboard boxes	114.1	120.4	119.9	124.4	120.3	122.3	127.5	4.2	0.9
2653	Corrugated and solid fiber boxes	130.2	137.7	142.2	148.0	144.0	149.0	149.9	0.5	1.5
2823, 24	Synthetic fibers	176.8	173.1	187.2	198.4	221.0	231.7	251.9	8.7	7.8
2834	Pharmaceutical preparations	132.1	141.3	145.2	155.2	158.2	149.6	150.3	0.5	1.2
2841	Soap and detergents	127.5	132.7	123.3	127.0	127.0	132.0	(4)	(4)	[5] 0.2
2851	Paints and allied products	112.1	123.7	129.1	133.2	137.2	144.2	150.9	4.6	4.0
2911	Petroleum refining	132.4	121.4	123.7	128.3	136.8	138.2	135.1	−2.2	2.7
3011	Tires and inner tubes	116.7	116.3	115.7	127.6	130.0	139.9	143.9	2.9	4.8
314	Footwear	102.0	100.3	104.8	105.5	103.3	106.0	107.1	1.1	1.0
3221	Glass containers	112.9	121.6	120.9	121.2	124.0	125.8	127.1	1.1	1.1
3241	Hydraulic cement	129.7	119.0	110.6	120.7	131.6	132.4	128.5	−2.9	2.9
325	Structural clay products	131.7	134.6	132.0	138.3	146.1	145.9	147.8	1.3	2.4
3251, 53, 59	Clay construction products	133.0	130.7	132.2	140.2	149.2	148.1	148.2	0.1	3.0
3251	Brick and structural clay tile	128.6	132.3	133.7	147.2	144.5	134.4	130.0	−3.3	−0.3
3253	Ceramic wall and floor tile	133.5	128.1	131.8	131.6	149.9	(4)	(4)	(4)	[6] 4.8
3255	Clay refractories	125.6	143.9	127.6	130.3	134.1	136.3	142.7	4.7	0.5
3271, 72	Concrete products	115.9	116.4	113.3	116.3	120.5	120.1	(4)	(4)	[5] 1.3
3273	Ready-mixed concrete	109.0	105.7	102.7	104.0	105.3	108.7	(4)	(4)	[5] 0.8
331	Steel	123.5	123.5	107.6	114.5	115.6	125.7	124.0	−1.3	1.4
3321	Gray iron foundries	124.2	128.0	126.7	125.6	130.4	134.0	133.0	−0.8	1.1
3324, 25	Steel foundries	107.6	118.5	113.6	111.5	105.9	103.4	101.6	−1.7	−3.1
3331, 32, 33	Primary copper, lead, and zinc	140.6	127.6	126.4	142.7	148.6	143.9	149.2	3.7	3.5
3331	Primary copper	129.6	116.1	118.7	136.3	143.7	143.4	146.4	2.1	5.2
3334	Primary aluminum	111.1	122.8	105.8	110.8	108.8	108.4	112.0	3.3	−1.1
3351	Copper rolling and drawing	117.7	106.3	94.7	105.4	120.7	117.1	121.4	3.7	4.2
3353, 54, 55	Aluminum rolling and drawing	154.7	157.9	142.5	166.0	163.7	168.7	161.7	−4.2	1.8
3411	Metal cans	109.2	113.3	116.0	124.6	131.7	136.1	(4)	(4)	[5] 5.1
3441	Fabricated structural metal	116.5	109.7	99.4	100.3	100.8	101.8	107.8	6.0	(7)
3531	Construction machinery	113.2	119.9	111.6	113.4	117.1	120.1	119.7	−0.3	0.7
3562	Ball and roller bearings	119.4	121.1	113.4	115.3	116.8	122.6	120.6	−1.6	0.7
3621	Motors and generators	115.4	114.8	106.7	109.9	114.3	113.1	117.3	3.6	0.9
3631, 32, 33, 39	Major household appliances	135.1	134.9	140.7	145.2	149.8	150.5	155.0	3.0	2.7
3631	Household cooking equipment	134.9	138.4	152.8	156.1	153.6	152.8	142.0	−7.1	0.3

Table 1. Continued—Indexes of output per employee hour in selected industries

SIC Code[1]	Industry	1973	1974	1975	1976	1977	1978	1979[2]	Percent change 1978–79	Average annual percent change 1974–79
3632	Household refrigerators and freezers	141.3	143.1	139.9	139.6	148.4	145.5	170.2	17.0	3.0
3633	Household laundry equipment	131.5	126.0	138.5	145.9	147.4	152.8	153.3	0.3	3.7
3639	Household appliances n.e.c.	126.7	125.9	132.9	140.3	151.2	156.0	149.2	−4.4	4.1
3641	Electric lamps	104.0	104.5	113.3	121.9	119.6	123.2	127.9	3.8	3.6
3645, 46, 47, 48	Lighting fixtures	126.0	120.8	118.9	126.6	132.5	132.9	([4])	([4])	[5]3.0
3651	Radio and television receiving sets	128.7	124.4	125.7	137.3	132.9	146.4	150.7	2.9	4.0
371	Motor vehicles and equipment	123.9	118.8	127.1	136.0	145.1	144.0	138.7	−3.7	3.5
	Other									
401	Railroads, revenue traffic	133.2	129.6	123.9	131.9	138.4	148.6	148.5	−0.1	3.7
401	Railroads, car-miles	119.2	116.2	115.5	117.5	117.5	124.0	122.6	−1.1	1.4
4111, 31, 414	Bus carriers, class I	92.5	95.9	84.5	81.7	87.1	86.8	87.2	0.4	−0.9
4213 PT	Intercity trucking[8]	123.4	119.3	114.1	128.2	127.9	127.6	126.1	−1.2	1.8
4213 PT	Intercity trucking (general freight)[8]	122.1	124.3	117.6	127.9	133.2	131.3	128.7	−2.0	1.6
4511	Air transportation[8]	131.3	133.0	134.6	146.7	153.6	167.9	173.6	3.4	6.0
4612, 13	Petroleum pipelines	150.4	146.6	147.4	146.6	154.0	156.7	160.2	2.2	1.9
4811	Telephone communications	128.8	137.3	149.6	165.8	175.9	187.6	194.3	3.6	7.3
491, 92, 93	Gas and electric utilities	129.9	127.5	131.9	135.8	137.8	136.2	135.5	−0.5	1.2
491, 493 PT	Electric utilities	135.8	133.7	141.4	146.2	152.2	148.0	147.3	−0.4	1.9
492, 493 PT	Gas utilities	117.9	115.1	114.4	116.9	112.9	114.6	114.5	−0.1	−0.2
54	Retail food stores[9]	108.1	104.5	104.8	107.0	106.4	100.9	100.2	−0.8	−0.9
5511	Franchised new car dealers	119.2	116.2	120.5	126.9	131.2	128.5	122.5	−4.7	1.4
5541	Gasoline service stations[9]	136.6	140.5	137.8	151.8	160.9	168.3	169.4	0.6	4.7
58	Eating and drinking places[9]	105.9	100.8	102.0	101.8	98.9	94.6	89.5	−5.5	−2.4
591	Drug stores[9]	146.2	149.4	144.8	150.6	156.7	152.4	153.6	0.8	1.0
7011	Hotels and motels[9]	108.7	103.2	101.9	106.9	106.8	109.1	102.8	−5.8	0.5
721	Laundry and cleaning services[9]	104.0	103.9	103.0	104.5	108.0	108.7	101.8	−6.3	0.3

[1] As defined in the *1972 Standard Industrial Classification Manual*, published by the Office of Management and Budget.
[2] Preliminary.
[3] Mining data refer to output per production worker hour.
[4] Not available.
[5] Rate of change is for 1974–78.
[6] Rate of change is for 1974–77.
[7] Less than 0.05 percent.
[8] Output per employee.
[9] Output per hour of all persons.

NOTE: Although the output per employee-hour measures relate output to the hours of all employees engaged in each industry, they do not measure the specific contributions of labor, capital, or any other single factor of production. Rather, they reflect the joint effects of many influences, including new technology, capital investment, the level of output, capacity utilization, energy use, and managerial skills, as well as the skills and efforts of the work force. Some of these measures use a labor input series that is based on hours paid, and some use a labor input series that is based on plant hours.

services falling 6.3 percent; hotels and motels, 5.8 percent; eating and drinking places, 5.5 percent; and new car dealers, 4.7 percent. These industries, except hotels and motels, had output declines in 1979. Productivity fell 0.8 percent in retail food stores; output rose slightly but was offset by a greater rise in hours. On the other hand, productivity increased 0.8 percent in drug stores, based on small gains in output and hours, and grew 0.6 percent in gasoline service stations, as hours declined more steeply than output.

Trends, 1974–79

During 1974–79, the wet corn milling industry had the highest rate of productivity increase, growing 9.0 percent from 1974–78 (1979 data are not yet available). This growth is based on substantial output gains and declining employee hours. Demand for high fructose syrup, an important industry product, continued to expand during this period and the industry invested in more efficient plant and equipment. The second highest rate of productivity growth during 1974–79 was for synthetic fibers (7.8 percent). Output in this industry was sustained by high domestic and foreign demand while the industry's cost cutting operations led to a falloff in employee hours. High growth rates were also posted by the telephone communications industry, up 7.3 percent; copper mining (recoverable metal), 6.8 percent; and air transportation, 6.0 percent. In telephone communications, productivity growth has been aided by large increases in output and the continuing use of electronic switching equipment for long distance calls. In copper mining (recoverable metal), output grew only slightly; however hours of production workers dropped sharply, in part, because of the closing of inefficient mines. In the air transportation industry, high output growth (because of gains in both passenger travel and freight shipments) coupled with a moderate gain in employment resulted in increased productivity. Other industries with productivity gains of more than 5 percent per year included hosiery, soft drinks, flour milling, malt beverages, and metal cans.

Declining productivity rates were experienced by a number of industries over the 1974–79 period. The blended and prepared flour industry (cake mixes, among other products) posted the largest decline, falling at a 6.4-percent rate. Steel foundries dropped 3.1 percent, coal mining fell 2.5 percent, and eating and drinking places declined 2.4 percent. Smaller declines were experienced by primary aluminum, −1.1 percent; bus carriers and retail food stores, −0.9 percent each;

brick and structural clay tile, −0.3 percent; and gas utilities, −0.2 percent.

A full report, *Productivity Measures for Selected Industries, 1954–1979,* Bulletin 2093, is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. □

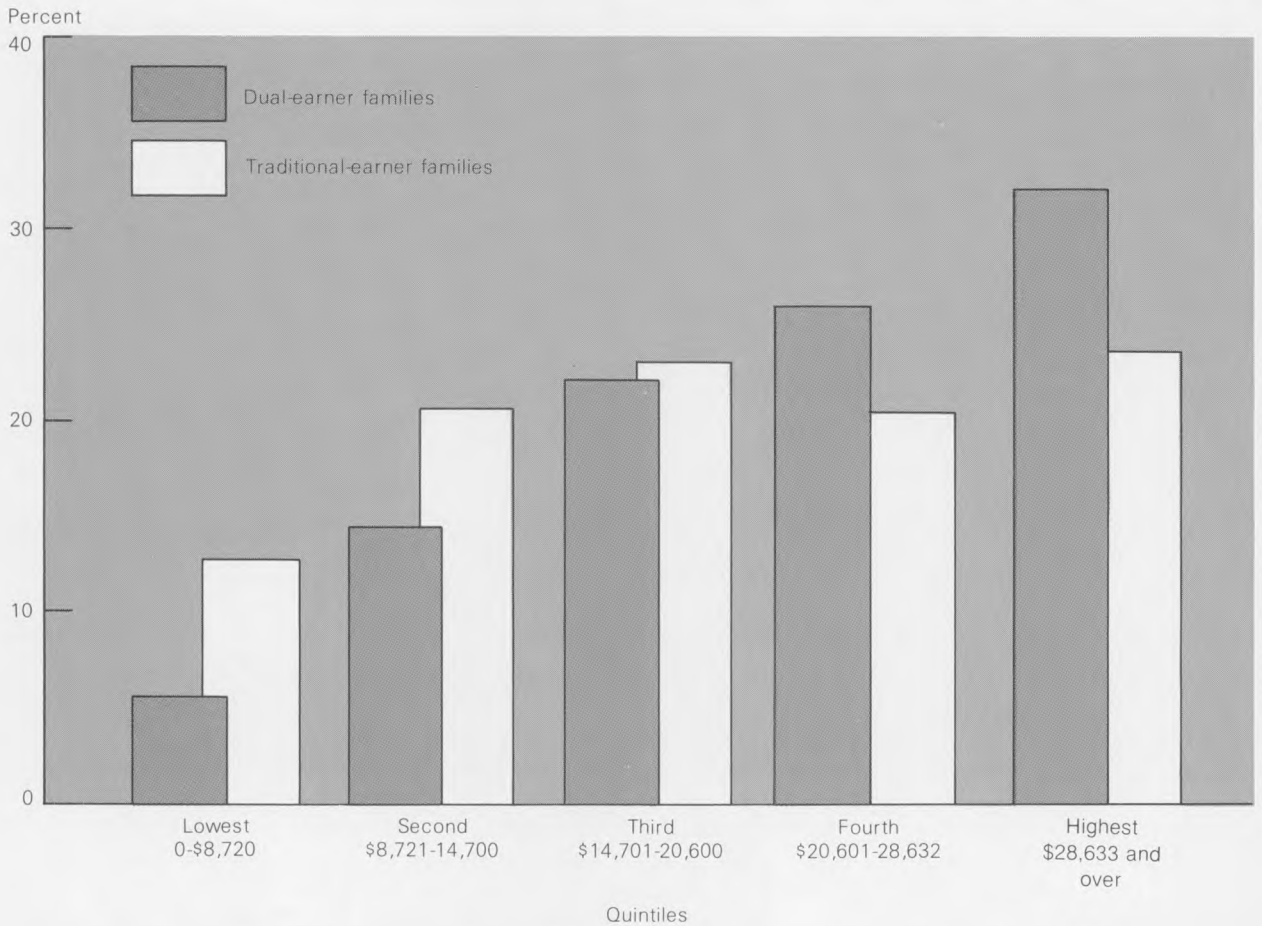
FOOTNOTE

[1] For a detailed report on these industries, see the following *Monthly Labor Review* articles: Horst Brand and Clyde Huffstutler, "The paper and plastic bag industry: two distinct productivity phases," May 1980, pp. 26–30; Phyllis Flohr Otto, "Productivity growth below average in fabricated structural metals," June 1980, pp. 27–31; John Duke "Construction machinery industry posts slow rise in productivity," July 1980, pp. 33–36; Brian L. Friedman, "Productivity gains in the drugstore industry, 1958–79," November 1980, pp. 18–22; and James D. York and Elmer S. Persigehl, "Productivity trends in the ball and roller bearing industry," January 1981, pp. 40–43. Productivity trends for Class I bus carriers will be discussed in a forthcoming article.

Erratum

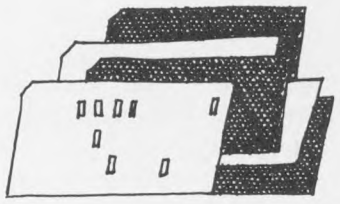
In "Husbands and wives as earners: an analysis of family data," by Howard Hayghe (*Monthly Labor Review,* February 1981), the labels in the legend on chart 1 were inadvertently transposed. A corrected version of the chart appears below.

Chart 1. Distribution of dual-earner and traditional-earner families by family income quintiles, 1978



NOTE: "Dual-earner families" refers to married couples where both husband and wife were earners at sometime during the year. A "traditional-earner family" is one where the husband, but not the wife, was an earner. In both types of families other members may also be earners and there may not be children under age 18.

Research Summaries



Migration of the unemployed: a relocation assistance program

CHARLES F. MUELLER

Would the unemployed be more willing to relocate to jobs if provided with information, support from other people, and cash for moving expenses? Relocation rates were greater for unemployed persons enrolled in a Federal Job Search and Relocation Assistance program than they were for a comparable group of unemployed persons with "potential" for relocation, but who relied on friends and relatives for support. Further, the program's results indicate that among the unemployed, the young, black persons, men, and persons with lower educational levels are more willing than others to relocate in search for work.

The Job Search and Relocation Assistance program provides financial and other assistance to Employment Service registrants who are willing to relocate in order to find employment for which they are qualified by reason of training and experience. The program, administered by the Employment and Training Administration of the U.S. Department of Labor, began in April 1976, shortly after the 1973–75 recession. It is a mobility assistance program for the unemployed.[1]

The Employment and Training Administration's network of local Employment Service offices provides the administrative framework for the program. Forty selected offices in Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee initially provided one of three different levels of assistance. Level 1 offices provided information on out-of-area jobs and long-distance telephone referral service. Level 2 offices provided level 1 services and job search grants (funds for reasonable travel expenses incurred in visits for interviews). Level 3 offices provided level 1 and level 2 services and relocation grants (funds for travel and moving to the location of the new job).

By 1980, 18 offices remained in operation, all providing level 3 services.

Charles F. Mueller is an economist at the Planning Economics Group, Boston, and formerly at the Brookings Institution.

Employment Service registrants were initially screened according to unemployment or underemployment status, regardless of the duration and reason for the status, and for their response to a question about "willingness to relocate" on the standard Employment Service registration form.[2] Those not indicating willingness to relocate were not informed of any of the Job Search and Relocation Assistance program services. Enrollments also partly depended on the judgments of the Employment Service staff who, intentionally or otherwise, try to maximize the number of relocatees for their effort. Thus, Employment Service registrants are likely to be further screened by local staff on whether they are "good prospects" for relocation.

An examination of the characteristics of Job Search and Relocation Assistance enrollees and relocatees suggests that there is screening by local staff. Further, the screening appears to have been counterproductive in that persons with the highest enrollment rates have the lowest relocation rates. This is most apparent when considering education and occupation. (See table 1.) The Job Search and Relocation ratio (a group's share in total relocatees relative to its share in total enrollees) is much higher for persons with 12 or fewer years of education, than for those with more. And the ratio is much lower for professionals and managers than for craftworkers and operatives. It seems that more relocations would have been made if more enrollees had not more than 12 years of education, or were operatives or craftworkers.

The program's ultimate success is yet to be determined, as data collection and program evaluation continue. No cost-benefit assessment is attempted here. Nonetheless, some rough judgments of its performance to date can be made. Although program enrollees and comparison group members (Employment Service registrants in selected offices where no relocation assistance was offered) have similar characteristics, mobility was much greater for enrollees, as table 1 indicates. This was especially the case for the young, black persons, men, and persons with lower levels of education.

The upgrading of services to level 3 led to greater increases in Job Search and Relocation Assistance activities than did upgrading services from level 1 to level 2. And, except for high-volume level 3 offices, the performance of level 2 and level 3 offices was similar in terms

of relocation rates and relocations per office-month. Further, the labor market results, employment and wages for the relocatees, tended to be superior to those for both nonmovers and other movers. Indeed, the average wage for relocatees was $5.84 per hour, and the full-time employment rate was 82.6 percent, despite that 38 percent of the relocatees went to a single employer, Ingalls Shipyard in Pascagoula, Miss., where the average hourly wage was $4.46 and the employment rate 73.4 percent.

Cost per relocation was lower in the program's second year of operation than in the first, although it increased during the third year. Perhaps a more efficient handling of job search efforts by Employment Service staff was responsible for the second-year decrease. Lax monitoring of non-program staff activities that were remunerated by the program may have contributed to the third-year increase. As might be expected, the cost per enrollee was higher for level 3 offices (except for the high-volume ones) than for level 2 offices. The cost per relocatee was also higher for level 3 offices, by about 75 percent. Regardless, scale economies seemed to characterize level 3 services, in that the cost per relocatee was only half that for level 2 offices in the two high-volume level 3 offices.

Table 1. Characteristics of and relocation rates for Job Search and Relocation Assistance participants, and migration rates for comparison group members, September 1979

Characteristics	Enrollees	Relocatees	Relocation rate	Job Search and Relocation ratio [1]	Migration rate [2]
Total	5068	1345	27	...	12
Percent					
Sex:					
Male	85	90	28	1.06	12
Female	15	10	18	.67	12
Years of education:					
Less than 12	15	27	48	1.80	12
12 years	26	34	35	1.31	10
More than 12	59	38	17	.64	14
Race:					
White	72	66	24	.92	17
Black	26	32	33	1.23	4
Other	1	1	19	1.00	22
Welfare:					
Yes	2	2	31	1.17	([2])
No	98	98	27	1.00	([2])
Previous migrant:					
Yes	2	*	20	.75	([2])
No	98	99	27	1.01	([2])
Marital status:					
Married	44	47	28	1.07	16
Not married	45	47	28	1.04	10
Age:					
17 to 24	33	39	31	1.18	11
25 to 34	38	39	27	1.03	15
35 to 40	10	8	20	.80	15
41 to 50	13	10	20	.77	12
Over 50	6	5	21	.83	9
Occupation:					
Professional	38	20	14	.53	
Managerial	12	5	11	.42	16
Clerical	5	3	18	.60	
Sales	2	2	19	1.00	7
Craftworkers	23	41	46	1.78	
Operatives	6	8	37	1.33	9
Farmers	([3])	([3])	27	1.03	
Farm labor	([3])	([3])	45	1.71	
Mining labor	([3])	([3])	75	2.83	8
Other labor	8	14	45	1.75	
Food	1	1	41	1.56	
Personal	1	([3])	16	.60	15
Protective	1	2	38	1.41	
Building	([3])	([3])	38	1.45	

[1] Job Search and Relocation ratio is the percent of relocatees relative to the percent of enrollees.

[2] Data were not available by welfare status and previous migrant status for comparison group members.

[3] Less than .5 percent.

SOURCE: *JSRA Third Analytical Report,* Washington, D.C., (U.S. Department of Labor, Employment and Training Administration, 1980), appendix and table 5-1.

Overall, the program seemed to have an impact on mobility, and its performance apparently has improved during its operation. Nonetheless, its operation raised questions. Was the response to the "willingness to relocate" question on the Employment Service registration form an appropriate screening device? Should Employment Service staff, as a policy, have directed their enrollment efforts away from professionals and managers, toward craftworkers and operatives? What role did job search through friends and relatives have compared to other methods, such as consulting Employment Service listings of job openings?[3] Did Job Search and Relocation Assistance merely assist moves that would otherwise successfully have occurred? To shed light on these and other questions on the mobility of job seekers, migratory experiences of the unemployed were analyzed, using data different from that of the Job Search and Relocation Assistance program.

Characteristics of migrants

The migratory behavior of unemployed persons was explored using data from the National Longitudinal Survey, a historical profile of four age-sex cohorts beginning in 1966. Because enrollees in Job Search and Relocation Assistance were predominantly young men, the study was of data from the National Longitudinal Survey cohort of men age 14 to 24 in 1966, numbering 5,225. Unemployed persons, those without a job but looking for work or with a job but on indefinite layoff in the 1970 survey week, were considered "potentials" for relocation.[4] The following is a summary of the experiences of migrants.

Selectivity. Migrants tended to be on welfare rolls less than nonmigrants. None of the unemployed migrants and only 6 percent of all migrants received public assistance or welfare; 14 percent of the unemployed nonmigrants received some public assistance or welfare.

The migration rate of unemployed professionals was substantially greater than that for unemployed craftworkers and operatives.

Surprisingly, unemployed migrants whose economic situation had worsened were no more prone to migrate

than those experiencing an improvement. Nonetheless, migrants appeared to move from areas of poor economic opportunity. About half the migrants in both the unemployed group and the total group originated in labor market areas with low indexes of labor demand.

Willingness to relocate. The attitudinal variable of whether a person was willing to relocate did not seem to be a bellwether of migration. More than half of all movers indicated unwillingness to relocate. Even those whose financial position had worsened were unwilling. Migrant craftworkers and operatives, who had lower migration rates than professionals and managers, were much more likely to indicate willingness than migrant professionals and managers.

Having a job lined up. The risks of moving were certainly tied to whether a migrant had both a job lined up before moving and friends and relatives at the destination. Unemployed migrants seemingly took greater risks than other migrants—half of the unemployed did not have a job lined up before they moved, compared with 38 percent of all migrants. About half the migrants moved to areas where there were friends or relatives. And migrants without job prospects tended to move to areas where there were friends or relatives.

Migrants without job prospects seemed to move to satisfactory destinations. About half of both unemployed and other migrants found work in less than 2 weeks. An additional 20 percent found work in 2 to 4 weeks, and approximately 90 percent were working within 3 months. Unemployed migrants without job prospects tended to find work in less time after the move than they spent looking for work before the move. Overall, migrants without job prospects tended to move further than those with a job lined up.

Motive. Economic incentives played a large role in the migration of the unemployed, 56 percent compared with 38 percent of all migrants. Perhaps because unemployed migrants tended, more so than other migrants, to tie moving to expectations of landing a job rather than to more certain concerns such as the presence of family, their evaluations of the moves were less favorable. Only 6 percent of all migrants felt that the move was a bad idea, but about one-third of the unemployed migrants felt as such.

Implications for program's future

Based on the information on the willingness of unemployed persons to migrate, it seems that Job Search and Relocation Assistance policy of restricting enrollment to persons willing to relocate may be overly exclusionary. More than half of the migrants who responded to an attitudinal question on mobility indicated unwillingness. Additionally, it seems prudent not to encourage the enrollment of craftworkers at the expense of enrolling professionals and managers. Although the relocation rates of craftworkers and operatives were higher, their migration rate was less than that of professionals. Also, because friends and relatives at the destination are an important factor in the migration of those unemployed and without a job lined up, the program should continue to encourage the use of such contacts in placing relocatees.

The above observations suggest that unemployed migrants relocate more than other migrants in response to their economic circumstances, and that they take risks when doing so. And the risks associated with long-distance movement and not having a job waiting are greater for unemployed migrants than for others. To allay these risks, unemployed migrants rely upon the support mechanisms provided by friends and relatives. However, as might be expected when decisions are more risky and outcomes more variant, unemployed migrants, more than others, view their moves as disappointments.

Overall, the disappointing moves made by unemployed migrants point to the potential usefulness of a national program like Job Search and Relocation Assistance, which could reduce the risks of moving for the unemployed by providing the certainty of having a job already waiting. The result would likely be more informed choices and fewer disappointments than at present. □

FOOTNOTES

[1] Job Search and Relocation Assistance is only the most recent of several mobility demonstration projects. For example, the Mississippi Labor Mobility Project moved nearly 2,500 individuals and their families during the late 1960's. See, Cilla J. Reesman and David R. Zimmerman, "Worker Relocation 1965–72: A Review of the Research and Operations Findings of MDTA Experimental and Demonstration Projects," (Springfield, Va. National Technical Information Service, 1975.)

[2] Initially, the registrant needed to have been laid-off and not working for at least 30 days. These conditions were deemed to be too restrictive by project staff and were relaxed.

[3] Two employment service listings, Job Bank Openings Summary (JBOS) and Job Bank Frequently Listed Openings (JOB–FLO), were available to Job Search and Relocation Assistance enrollees. They appeared to be used less successfully in relocation, than other techniques such as enrollees' contacts. Because JBOS and JOB–FLO were not successful resources, an on-line Data Retrieval System (DRS) was established for Job Search and Relocation Assistance purposes. Though DRS has improved the quality of job listings, its usefulness in providing job openings to relocatees is yet to be assessed.

[4] Using our characterization of unemployed-employed, the unemployment rate in the sample was 3 percent during 1970; whereas the national average was 4.9 percent. Alternative characterizations of unemployment were explored and yielded roughly the same sample rate.

Major Agreements Expiring Next Month

This list of collective bargaining agreements expiring in May 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[1]	Number of workers
Allied Construction Employers Association, Inc. (Wisconsin)	Construction	Iron Workers	1,250
Alterman Foods, Inc. (Interstate)	Retail trade	Food and Commercial Workers	2,450
American Hoist & Derrick Co. (St. Paul, Minn.)	Machinery	Machinists	1,200
Anthracite Operators (Pennsylvania)	Mining	Mine Workers (Ind.)	2,000
Associated General Contractors of America, Inc.: Colorado Chapter	Construction	Laborers	4,500
Rhode Island Chapter	Construction	Carpenters	7,700
Western Central Area Chapter (Washington)	Construction	Carpenters	11,500
Wisconsin Chapter	Construction	Operating Engineers	1,050
Association of Telephone Answering Services, Inc. (New York, N.Y.)	Services	Retail, Wholesale and Department Store	1,200
Associated Brick Mason Contractors of Greater New York (New York, N.Y.)	Construction	Bricklayers	2,500
Associated Mechanical Contractors of Chattanooga, Inc. (Interstate)	Construction	Plumbers	1,200
Brewery Proprietors of Milwaukee, Miller-Pabst-Schlitz (Wisconsin)	Food products	Brewery Workers (D.A.L.U.)	3,500
Building Construction Agreement (Colorado)[2]	Construction	Teamsters (Ind.)	1,900
Colonial Stores, Inc. (Interstate)	Retail trade	Food and Commercial Workers	2,200
Colorado Contractors Association, Inc.	Construction	Laborers	1,200
Construction Employers Labor Relations Association (New York, N.Y.)	Construction	Carpenters	1,800
Construction Industry Employers Association, 3 Agreements (New York)	Construction	Laborers; Carpenters; and Iron Workers	3,700
Construction Employers of the Hudson Valley, Inc., and 1 other (New York)	Construction	Carpenters	1,500
Crown Zellerbach Corporation (Camas, Wash.)	Paper	Western Pulp and Paperworkers (Ind.)	2,250
Cummins Engine Co., Inc. (Columbus, Ind.)	Machinery	Diesel Workers (Ind.)	6,700
Dow Chemical Co., Texas Division (Texas)	Chemicals	Operating Engineers	2,050
Erwin Mills (Durham, N.C.)	Textiles	Textile Workers	1,200
General Building Contractors Association, Inc. (Pennsylvania)	Construction	Carpenters	7,000
General Telephone Co. of Northwest-West Coast Telephone of California	Communication	Electrical Workers (IBEW)	3,800
Great Western Sugar Co. (Interstate)	Food products	Teamsters (Ind.)	3,500
Greater New York Association of Meat and Poultry Dealers, Inc., and 1 other (New York)	Wholesale trade	Food and Commercial Workers	2,600
Hercules, Inc. (Hopewell, Va.)	Chemicals	Mine Workers (Ind.)	1,000
Hinky-Dinky Supermarkets, Inc. (Omaha, Nebr.)	Retail trade	Food and Commercial Workers	2,000
Howmet Corp., Misco Division and 3 others (Muskegon County, Mich.)	Transportation equipment	Auto Workers (Ind.)	2,000
Independent Employers-Mason Tenders of Greater New York (New York, N.Y.)[2]	Construction	Laborers	5,000
Independent Non-Association Restaurant Employers (Seattle, Wash.)[2]	Restaurants	Hotel and Restaurant Employees	2,500
Industrial Launderers, Cleaners Association and Linen Companies (Michigan)[2]	Services	Laundry, Dry Cleaning and Dye House Workers	1,700
Illinois Regional Insulation Contractors Association	Construction	Asbestos Workers	1,000
Iron League of Chicago, Inc. (Illinois)	Construction	Iron Workers	1,100
Kroger Co., Atlanta Division (Georgia, Tennessee, and Alabama)	Retail trade	Food and Commercial Workers	2,800
Longview Fibre Co. (Longview, Wash.)	Paper	Western Pulp and Paperworkers (Ind.)	1,550
MARBA of Chicago & Vicinity, 3 other Associations (Illinois)	Construction	Laborers; and Carpenters	11,000
Martin Marietta Aluminum, Inc. (Torrance, Calif.)	Primary metals	Steelworkers	1,350
McDonnell Douglas Corp. (Missouri)	Transportation equipment	Machinists	9,300
Metro Association of Plumbing-Heating-Cooling Constractors (Minnesota)	Construction	Plumbers	1,200
Munsingwear, Inc. (Interstate)	Textiles	Clothing and Textile Workers	1,200

See footnotes at end of table.

Continued—Major Agreements Expiring Next Month

Employer and location	Industry	Union[1]	Number of workers
National Tea Co., Standard Grocery Division (Illinois)	Retail trade	Food and Commercial Workers	1,100
National Electrical Contractors Association, 2 Agreements (Interstate)	Construction	Electrical Workers (IBEW)	7,300
Nestle Co., Inc. (Fulton N.Y.)	Food products	Retail, Wholesale and Department Store	1,100
Owens-Corning Fiberglas Corp. (Newark, Ohio)	Stone, clay, and glass products	Glass Bottle Blowers	2,050
Panhandle Eastern Pipe Line Co. (Interstate)	Stone, clay, and glass products	Oil, Chemical and Atomic Workers	1,400
Plumbing & Heating Contractors Association of Lake-McHenry, and others (Illinois)	Construction	Plumbers	3,650
PPG Industries, Inc., Chemical Division (Lake Charles, La.)	Chemicals	Machinists	1,250
Printing Industries of Northern California	Printing and publishing	Graphic Arts	1,200
Restaurant Association of the State of Washington, King County Chapter (King County, Wash.)	Restaurants	Hotel and Restaurant Employees	1,500
Roofing & Sheet Metal Contractors Association (Pennsylvania and New Jersey)	Construction	Sheet Metal Workers	1,500
S. D. Warren Co., Division of Scott Paper Co. (Westbrook, Maine)	Paper	Paperworkers	1,200
Scott Paper Co., Packaged Products Division (Everett, Wash.)	Paper	Western Pulp and Paperworkers (Ind.)	1,250
Seattle Department Stores Association Inc. (Washington)	Retail trade	Food and Commercial Workers	3,500
Seattle Restaurant Association and Seattle Hotel Association (Washington)	Restaurants	Hotel and Restaurant Employees	5,000
SMACNA Metropolitan Detroit Chapter (Michigan)	Construction	Sheet Metal Workers	1,800
Tecumseh Products Co., Tecumseh Division (Michigan)	Machinery	Tecumseh Products Workers of Tecumseh, Michigan (Ind.)	1,900
Toledo Edison Co. (Toledo, Ohio)	Utilities	Electrical Workers (IBEW)	1,050
Underground Contractors Association (Interstate)	Construction	Laborers	1,600
Ventilating and Air Conditioning Contractors Association of Chicago (Illinois)	Construction	Sheet Metal Workers	5,300
Wholesale Bakers Group, Machine Shop (California)	Food products	Bakery, Confectionery, and Tobacco Workers	1,650
Wisconsin Association of Public Works Contractors, and 1 other (Wisconsin)	Construction	Laborers	2,000

[1] Affiliated with AFL–CIO except where noted as independent (Ind.).
[2] Industry area (group of companies signing same contract).

Developments in Industrial Relations

AFL-CIO offers plan to aid economy

The major item of business at the AFL-CIO Executive Council's winter meeting was the adoption of a plan for countering inflation and unemployment. The Council contended that the plan could attain the goals through "true equality of sacrifice" by all Americans. According to the Council, President's Reagan's proposals for stabilizing the economy, which center on cuts in Federal taxes, spending, and regulatory controls, would require "more sacrifice from those who have little" and would primarily benefit wealthy corporations and individuals.

The Executive Council's plan called for—

- An income tax rebate equal to 20 percent of a worker's share of social security contributions and 5 percent of the employer's share.
- Selective tax reductions to aid industries hardhit by economic conditions.
- Continuation of "basic income-support programs for the unemployed, the poor, and the elderly."
- A reduction in inflation through credit controls, specific steps to hold down energy price increases, and government measures to make housing more affordable.
- Public sector jobs for adult and youth workers to provide new skills and increase employment opportunities.
- A study of investment tax credits for business to assure the best possible results.

In other resolutions, the Executive Council called for indexing the Federal minimum wage by keeping it at a constant percentage of average hourly earnings in manufacturing; for adoption of trade policies including immediate import relief for domestic automobile manufacturers and their parts suppliers; and for revamping of marketing agreements and import restraints in other industries. The Executive Council also established a committee to seek ways to give stronger support to political candidates favored by organized labor.

Container contracts feature 'justice on the job'

About 20,000 workers were covered by a settlement between the Steelworkers and four major can companies that, reportedly, will set a pattern for settlements with other container companies. The contracts contain a "justice and dignity on the job" clause described by the union as a first in any of its contracts. This clause requires the employer to keep an employee on the payroll until the final resolution of any grievance challenging a dismissal or suspension action. According to the union, the wage and benefit provisions of the new contracts are comparable to those in its 1980 settlements with basic steel, aluminum, and copper companies. (See *Monthly Labor Review,* November 1980, p. 51; August 1980, pp. 49–50; and June 1980, pp. 55–56.)

The 3-year accord with American Can Co., Continental Can Co., National Can Corp., and Crown Cork & Seal Co., Inc., provided for an initial wage increase ranging from 25 cents for employees in the lowest pay grade to 49 cents for those in the highest grade. In March 1982, the workers will receive a 20- to 44-cent increase, followed by a 15- to 27-cent increase a year later. Combined, the three increases average 87.5 cents. The cost-of-living clause was retained without change. It provides for quarterly adjustments of 1 cent an hour for each 0.3-point movement in the BLS Consumer Price Index for Urban Wage Earners and Clerical Workers (1967=100).

Pensions for future retirees were increased, in steps, by a total of $4 a month for each year of credited service, bringing the range to $17.50–$21.50 (varying according to pre-retirement pay rates). Pensions also were increased for current retirees, ranging from a 70-percent increase ($140–$145 a month) for those who retired prior to 1964 to 8 percent for those who retired just before the effective date of the new contract.

Other provisions included a $59- to $71-a-week increase in sickness and accident benefits over the contract term and improvements in insurance benefits.

Two western coal producers settle

The United Mine Workers settled with two bituminous coal mine operators for Western operations, but there was no indication of how much the 3-year accords might influence the bargaining between the union and the Bituminous Coal Operators Association (BCOA) for 120,000 Eastern miners. An official of a major coal producer said the Western settlements were "bound to have an impact" on the BCOA talks; however, union president Sam Church said that the settlements will have "nothing to do with the Eastern talks."

The first settlement, which covered about 350 employees of Pittsburgh & Midway Coal Mining Co. in

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

Gallup, N. Mex., and Steamboat Springs, Colo., set a pattern for an accord with Peabody Coal Co. for 950 workers at 5 mines in Colorado, Arizona, and Montana. The Peabody accord was preceded by a 1-month strike. Bargaining was continuing with 10 other Western operators.

The Pittsburgh & Midway agreement provided for a $1.20-an-hour immediate wage increase and for a 65-cent increase in February of 1982 and 1983. The contract did not provide for automatic cost-of-living adjustments linked to the movement of the BLS Consumer Price Index, but the workers will receive six quarterly wage increases (the first in February 1981) of 18 cents an hour, followed by two quarterly increases of 19 cents. (One of the union's major demands in the BCOA talks was for restoration of the cost-of-living clause that had been terminated by the 1978 settlement. (See *Monthly Labor Review,* May 1978, p. 69.)

Other terms of the Pittsburgh & Midway agreement, which expires in February 1984, included 30- and 40-cent-an-hour differentials for the night shifts (formerly 25 and 30 cents); two additional paid personal or sick leave days, bringing the total to 7 a year; 14 days of pay (formerly 13) under the basic vacation provision, which continued to provide for 14 consecutive days off, including 10 work days; $185 a year clothing allowance (was $150); a three-step increase in the $150 a week sickness and accident benefit, bringing it to $200 in the third contract year; $25,000 life insurance (was $12,000); a two-step increase in pensions for future retirees that will bring the benefit to $18 a month for each of the first 10 years of service, $18.50 for each of the next 10 years, $19 for each of the next 10 years, and $19.50 for each year of service in excess of 30 (the previous rates were $13.50, $14, $14.50, and $15, respectively); a flat $25-a-month increase in pensions for current retirees; adoption of the same contributory dental plan that covers employees of the parent Gulf Oil Corp.; and adoption of the same eye care plan that the union and the BCOA established in 1978.

Utility workers end 8-week walkout

One of the longest utility strikes in U.S. history ended when Northern Indiana Public Service Co. and the Steelworkers settled. During the 8-month walkout, the company maintained gas and electric service in the 30-county area by using its 2,000 supervisory employees. One of the major issues prolonging the strike was the company's disciplining of 16 strikers for alleged misconduct. Under the settlement, 11 of the workers will be suspended for 30 to 60 days and the fate of the other five will be decided by binding arbitration.

The 40-month contract provided the 4,200 workers with wage increases of 6 percent on February 2, 1981, 5.5 percent on June 1, 1981, 4 percent on June 1, 1982, and 3 percent on June 1, 1983. In addition, the workers received a 37-cent-an-hour immediate cost-of-living adjustment, the 98 cents in adjustments that was accrued under the previous contract (which expired May 31, 1980) was incorporated into base wage rates, and there was provision for continued quarterly adjustments. Prior to the settlement, the average wage was reportedly $8.95 an hour.

Other improvements included a 1- to 5-day increase in paid vacations; $14,000 life insurance (formerly $12,000); $250,000 major medical coverage (formerly $50,000); adoption of company-financed vision and dental care benefits; and increased pensions for current and future retirees.

George Washington's birthday was added as a paid holiday, but two "personal" holidays were terminated, reducing the total to 11 days a year. The union also agreed to cuts in meal allowances and changes in work rules and overtime pay provisions that will reduce labor costs.

Realty Advisory Board, Service Employees settle

About 30,000 employees of commercial buildings in New York City were covered by a settlement between the Realty Advisory Board on Labor Relations and the Service Employees union. The 3-year contract provided for general wage increases of $26 a week in January 1981, $27 in January 1982, and $28 in January 1983, and for an additional $2 on each date for employees in certain classifications. The cost-of-living clause, which was continued, provides for possible pay adjustments in January of 1982 and 1983, depending on the movement of the BLS Consumer Price Index for New York City-Northeastern New Jersey.

Other terms included an increase in the maximum pension to $300 a month; an increase in life insurance to $8,000; improved dental benefits; establishment of a prescription drug plan; and increased employer contributions to the union's training and safety fund.

The union said that it won changes in layoff procedures. The accord covered maintenance workers, security guards, porters, and elevator starters and operators.

Montgomery Ward cuts pensions of future retirees

Montgomery Ward & Co. announced a reduction in pension rates for future retirees to slow down the cost of its retirement plan. The company said that its annual pension costs had risen 123 percent (to $52.3 million) from 1975 to 1980, compared with a 71.6-percent rise (to $315 million) for all other benefits, including required social security contributions. It estimated that the pension changes will cut costs by $20 million in 1981.

Under the revisions, which apply to employees retiring after 1984, annual pensions will be calculated at 2.25 percent of average annual pre-retirement earnings for each year of service after that year. The portion of their pension based on any earlier service will be calculated by using the 2.5 percent rate that previously applied to all service. Employees retiring after 1984 will also be adversely affected by a change in the provision for offsetting pensions by the amount of primary social benefits. This offset will be reduced by 1.5 percent for each year of credited service, compared with the current 2-percent reduction.

In a change favorable to workers, eligibility for normal retirement was lowered to age 63, from 65. In keeping with this change, the age at which an employee may enter the plan was reduced to age 21, from 25. There was no change in the employee contribution rate of 3 percent of earnings.

Montgomery Ward also made changes in other benefits for its 40,000 employees. The employee contribution for health insurance was reduced from $10 to $7.50 a month for individual coverage and from $20 to $15 for family coverage. Also, eligibility for 3 weeks of paid vacation was reduced to 5 years of service, from 7.

There also were cost reduction developments at a competitor, as Sears, Roebuck & Co. announced that 1,483 of 2,474 mid- and upper-level executives had accepted a one-time offer of early retirement. As of January 1, 1981, employees retiring between the ages of 55 and 62 receive half pay for 3 years and those age 63 receive half pay until age 65. At age 65, retirees in both categories will begin to receive their normal pension.

Sears officials said that the action, combined with mergers of various operations, will reduce the executive staff by 8 percent and reduce costs by about $125 million a year. Sears also expects the early retirement move to aid its affirmative action plan by creating promotion opportunities.

Teamsters locals accept work-rule changes

Members of two Teamsters locals reversed their initial decision and accepted work-rule changes proposed by Yellow Freight Systems' St. Louis terminal. The company had threatened to lay off 400 drivers following the first vote, contending that the existing work rules limited productivity. The feature of the settlement was a provision terminating premium pay for scheduled nonovertime weekend work.

In recent months, a number of organized trucking companies have asked the Teamsters for relief on work rules and pay rates, contending that they are unable to compete with numerous nonunion firms that entered the industry after deregulation. Although a few firms did win relief, the Teamsters turned down an industry request for a reopening of their contract on these issues. (See *Monthly Labor Review,* November 1980, p. 51.)

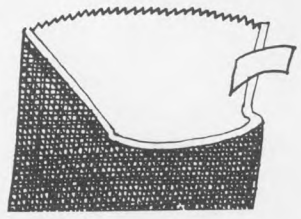
Steps taken to abolish wage-price council

In late January, President Reagan carried out a campaign promise to terminate the authority of the Council on Wage and Price Stability to monitor wage and price movements. In addition to issuing an Executive Order ending the monitoring, the President also moved to abolish the agency by asking Congress to rescind appropriated operating funds.

The council had already severely restricted its activities. In September 1980, it said its monitoring of wages and prices had moderated the rate of inflation somewhat but that the program should be re-evaluated. The council then extended the guidelines for 1 year from the September 30 expiration date, but specified that union and management would be expected to adhere to the standards only until the end of 1980.

The council's annual report assessing the results of its anti-inflation program concluded that the program had been largely thwarted because it had been based on slowing inflation during a period of relatively slack labor and product markets resulting from "fiscal and monetary restraint—the principal ingredients of any rational anti-inflation policy." However, the expected 1979 slowdown in the economy did not occur, which meant that the agency was faced with controlling "an inflationary surge fueled by excess demand, and a worldwide surge in commodity prices," a job "it was never intended to perform." The report also concluded that the program had achieved some success in "preventing a bad situation from becoming worse." For example, over the pay standards 2 year lifetime, it had directly reduced pay increases about 1 percentage point and had reduced price increases by a maximum of half a percentage point. But the council conceded that the wage standards had produced a distortion by permitting workers covered by cost-of-living clauses to receive larger pay increases than those who were not covered. This could negate the beneficial effects of the pay guidelines if the workers not covered by cost-of-living provisions win catch-up wage increases.

The Council on Wage and Price Stability was established in 1974 but assumed responsibility for monitoring formal wage and price guidelines in 1978. □



Book Reviews

A history of the forgotten laborers

Women at Work: The Transformation of Work and Community in Lowell, Massachusetts, 1826–1860. By Thomas Dublin. New York, Columbia University Press, 1979, 312 pp. $17.50.

Wage-Earning Women: Industrial Work and Family Life in the United States, 1900–1930. By Leslie Woodcock Tentler. New York, Oxford University Press, 1979, 226 pp. $14.95.

Now, more married women work outside the home than are full-time housewives. Of even greater social importance, women are now entering occupations that require extensive periods of training and long-term commitment. These apparently dramatic changes have motivated historians to explore the past economic role of women and to seek the causes of these recent transformations. But for most of American history, the labor force participation rate of white married women has been low. Furthermore, these women have been a small fraction (less than 15 percent in 1900) of the total female labor force.

The history of female labor in the United States is primarily the saga of young, single women who were predominantly, but not exclusively, "the daughters of the working class" (Tentler, p. 1). They are forgotten laborers, because their working lives were but brief interludes between their childhood and motherhood. They were not vocal participants in the American labor movement, and their union membership was almost always small. But their market work may have altered and strongly influenced their own lives. They may have married later, had fewer children, and been socialized differently from women who did not work. Their incomes may have enabled their own mothers to remain in the household, and their ability to earn may have enhanced their independence within their parents' homes. Because change did occur, their experiences may help us understand why the female labor force eventually aged, became more educated, and was transformed in a myriad of related ways.

History does repeat itself, and many past generations have also commented on the changing economic role of women. In 1893, Richard T. Ely wrote in a preface to a book on working women that the "importance of this subject . . . cannot well be overestimated. Our age may properly be called the Era of Woman, because everything which affects her receives consideration quite unknown in past centuries." (Helen Campbell, *Women Wage Earners: Their Past, Their Present, and Their Future,* Boston, 1893.) A decade and a half later Edith Abbott justified her book, *Women in Industry,* with the statement that "public opinion in this country has been recently concerned with the increase in gainful employment among women." (*Women in Industry: A Study in American Economic History,* New York, D. Appleton and Co., 1910). Just as each generation has recognized that women have always worked, each has highlighted change and sought its origins. It is within this framework of continual examination and reinterpretation that both Thomas Dublin's *Women at Work,* which was awarded the 1980 Bancroft Prize in history, and Leslie Woodcock Tentler's *Wage-Earning Women* should be read.

Although Tentler argues that the period covered by her book, "the decades between 1900 and 1930" were "a first and critical chapter in the history of modern female industrial employment (p. 3), it is with Dublin's work that this history more justifiably begins. The origins of the sexual segregation of industrial jobs, of the low relative wage of women, and of their weak bargaining position in the labor market are found almost a century before Tentler's history begins. Unlike Tentler's study, which focuses on large cities and by implication "modern" industry, Dublin's Lowell is an industrial town, not a city with industry. The America of his study was predominantly agricultural. Industrial employment was the exception for most male laborers but was, in many localities, the sole paid employment for women and children. Lowell and economically similar towns of its day were unique by early 19th century standards. But the composition of their labor force and the types of work that were performed in their industry are historically significant, both as departures from agricultural employment, the dominant economic activity of the time, and as harbingers of more extensive industrial employment.

Women and children were more important as a percentage of total industrial employment in 1840 than they have been at any time thereafter. Furthermore, more than one-third of the young women in the industrial counties of Massachusetts, particularly in Middlesex, which included Lowell, were employed in man-

ufacturing, primarily in the cotton, wool, paper, and boot and shoe industries, with the cotton industry employing almost 40 percent of female industrial workers. Therefore, a detailed social history of female cotton textile workers during the decades preceding the Civil War should reveal much about the origins of paid employment for women.

Dublin has written a successful history, partly because he has used both quantitative sources and impressionistic materials. His work is not an economic or a quantitative history; it is a social history informed by data. Dublin has meticulously traced female employment in the Hamilton Co. from the cotton mill records housed in Harvard's Baker Library and the U.S. Federal Population Census manuscripts and local censuses for three critical dates—1836, 1850, and 1860. Although other economic historians have used the Baker Library records, only Dublin's work links data on marital status, age, residence, and family background to those on earnings and mill experience. Together with a wide variety of other sources, he is able to describe the social impact of industrial employment on the age at first marriage, traditional family life, migration, and on various aspects of socialization. Dublin finds that millhands married later than was customary at that time, thereby raising the issue of the overall effect of industrial employment on the secular increase during the 19th century in the age at first marriage. Young women resided in boardinghouses (almost 90 percent of those employed by the Hamilton Co. in 1836 did) under strict surveillance, and kin and friendship ties within the boardinghouse were an important part of socialization (the close bonds among the young women were a critical factor in the cohesiveness of the labor movement of the 1840's). Dublin's descriptions of the strict regulations governing the social lives of the millhands and their own "unwritten code of moral conduct" are reminiscent of pre-1970 college life for women, although Dublin views them as unique. Regulations were not the only common feature of college and boardinghouse life: many of the women of the Lowell boardinghouses were so educated that they published a literary magazine.

Manufacturing employment in the pre-1850 period was commonly viewed (from outside the factory) as wholesome and productive for young women and children. But Lucy Larcom and her compatriots worked 11 to 12 hours per day over 300 days a year, and it was only after the labor unrest which began in the 1840's that these mills were seen as dark, satanic fortresses. Labor historians will be particularly interested in these detailed sections on the success of early collective action and its eventual demise with the influx of Irish workers.

Dublin's book is not merely a social history of working women, it also deals with the complex forces that led both to the substitution of men and boys for female industrial labor and to the decline in the employment of native-born white females. His data clearly indicate a rapid shift from native-born laborers to immigrants, particularly the Irish, in the late 1840's. They also show that the employment of boys and men rose, and that the wages for young women plateaued and possibly fell in real terms. Dublin does not adequately analyze the factors causing these labor market changes but instead uses them to lend substance to his social history.

Women at Work is refreshing, a fine combination of old and new methods and materials. Dublin has written a dynamic work in terms of both the lives of the individual millhands and the composition of the cotton mill labor force. This study of Lowell, 1826 to 1860, clearly shows that the modern economic role of women has evolved in a complex and noncontinuous fashion over a long period of time.

Tentler's study, like Dublin's, is a social history—an inquiry into the lives and work of female wage-earners in the early 20th century. By 1900 to 1930, the majority of the American population had become urban, industry had migrated from towns like Lowell and was concentrated in large cities, and the range of industrial employment for women had enlarged. But the fundamental characteristics of the female labor force and the nature of their jobs remained largely unaltered. They were still primarily young, single, and unskilled, and their work was task oriented, sexually segregated, and promised little advancement. Perhaps the most important change during the preceding century was an increase in the numerical importance of female industrial workers. As the urban population grew, the percentage of young women who worked in industry greatly expanded, and the possibility that married women would work in industry increased as well. Social concern mounted—married working women might deprive their children of care, young women might work in unsafe environments, and women living in large cities apart from their families might become public nuisances. Progressive sentiment and the statistical approach to labor reform begun by Carroll Wright, first when he was Commissioner of Labor in Massachusetts and later when he assumed various Federal posts, combined to produce a spate of studies on female workers. Public agencies at both State and Federal levels, along with private foundations, produced hundreds of reports on the condition of workers, based primarily on microlevel surveys of the workers and their families. Tentler rests much of her book on reports dating from 1900 to 1930, and her bibliography provides a valuable and full account of this literature.

Although these reports are based on careful statistical surveys, most of them containing large samples, they are not entirely objective. Each was produced to expose a particular problem, and each was couched in its own rhetoric. Of course, each contains important and reveal-

ing data, but only when interpreted within the proper context. Tentler has chosen to use these sources to describe the harshness of industrial employment and the poverty of the working class. But her description of working class life during 1900 to 1930 is so grim that by implication, life in 1830, when per capita real income was one-quarter its 1930 value, must certainly have been unbearable. Dublin's study as well as the research of economic historians do not support such a conclusion.

Despite these biases, Tentler's analyses of the role of industrial work in socialization, in the sexual division of labor, and in power relationships within the family are sensitive. Tentler suggests that many working daughters had enhanced power in dealing with their parents, "power . . . most often used to gain greater personal freedom during the years preceding marriage" (p. 82). The fact that many young women were "On their Own" (the title of ch. V) indicates that an amiable accord was not always struck within the home. The financial insecurity of old age led many parents to depend upon their children to augment family income and such a strategy frequently led to an underinvestment in the education of both boys and girls. (Readers familiar with the work of Michael Anderson, for example, will gain from relating these issues to the larger topic of the impact of industrialization on the traditional family.)

Although these women may have wielded power within their own homes, they were to Tentler, powerless in the labor market. Their "unique subordination" was a product of their brief working lives, reinforced by societal norms and discrimination. But working class life was harsh for both men and women and for children of both sexes, and Tentler insufficiently disentangles the problems of sex from the problems of poverty.

Elements of change during the period 1900 to 1930 echoed those described by Dublin for 1830 to 1860. The immigration of unskilled men once again reduced relative wages for women; the primary employer had changed—it was the clothing industry instead of the cotton industry—but the economic forces were similar. Technological change had resulted in the continuous flow process, for example, in cigarettes and in food, removing many of the piecework jobs that women had occupied. But of greater importance were the changes that hinted of an evolution of occupations and of alterations in social status. Clerical work came of age during the brief period from 1910 to 1920, and the 1920's were a decade of social change too complex to be neatly summarized.

Social and economic commentators of the early 20th century were as struck by their perceptions of a changing role for women as we are today with ours. But Tentler's portrait of wage-earning women during this period is static; the harsh and discriminatory aspects of the labor market overpower the subtle clues of the eventual transformation.

These two books have much in common. They pose similar questions concerning the role of work in the lives of individual women and their role as a group in labor history. They are also both part of a larger set of works grappling with an issue of current importance—the meaning of recent change in the economic role of women. History warns us to be cautious, and caution is the fundamental message of both books.

—CLAUDIA GOLDIN
Associate Professor of Economics
University of Pennsylvania

Policymaking with a dash of realism

Making Foreign Economic Policy. By I. M. Destler. Washington, The Brookings Institution, 1980. 244 pp.

I. M. Destler has delivered a detailed analysis of the process of foreign economic policymaking using a "bureaucratic politics" model. His analytic method, which has long been used in studies of national security issues, sees policy as the resolution of the competition among bureaucratic interests for power and influence. The model, which was adopted by international relations specialists as a reaction to oversimplified analyses that assumed that foreign policy was made by a rational actor in the business of maximizing some unitary concept of "national interest," injects a healthy realism to studies of any policy decision. However, in foreign affairs it seems better suited to studies of national security and defense policy, where nongovernmental actors are relatively minor influences, than to foreign economic policy where major domestic interest groups (such as organized labor) and semiautonomous transnational economic agents (such as multinational corporations) are involved. I would argue that as traditional foreign policy analysis benefited from the bureaucratic politics model's supersedence of the rational actor paradigm, foreign economic policy would benefit from an even more general polycentric model that explicitly takes into account nongovernmental groups. Destler handles this issue by assuming that nongovernmental interests are constituents of one or another of the bureaucracies. By so doing, he has missed an opportunity to complete the generalization of a model of foreign policy analysis, where internal decisionmaking is polycentric and there exist governmental and nongovernmental external actors.

The extremely high quality of Destler's exposition more than overshadows any methodological contentions this reviewer might have. The substance of the book is

presented in detailed examinations of two major foreign economic issues of the 1970's, food and trade. The studies are comprehensive, desk-by-desk accounts of the policymaking process. Food policy and the officials making it come off in far the worse light. In a word, the food policy process described by Destler was chaotic. In contrast, trade issues, such as the passage of the Trade Act of 1974 and the resulting Multilateral Trade Negotiations, seem well managed, and trade policy seems orderly and purposive. The reader's obvious question is, "What made the difference?"

My reading led me to two reactions, one suggested by the chapters on food, one by the section on trade. The feature that most struck me about the problems with food policy was the lack of information provided to decisionmakers, both in terms of empirical data and of authoritative technical analysis. In one case studied, the hard data were available but were not used because the agency holding them was in some political disgrace. As a member of the information and data community, I must admit it was gratifying to see a case where our inputs, skills, and professional values could have contributed so much.

The key to the relative success of trade policy seemed to lie at a much more fundamental level of the governing process. In this case, far more than in the case of food, the policymakers appeared to play a role of mediating competing interests—cajoling, persuading, and educating various interest groups and lobbies until some rough consensus on a fairly coherent national policy was formed somewhere near the prescriptive norms of the policymakers. In contrast, food policy seemed to react strongly to whatever interest was closest to the relevant official at the propitious moment. The tendency to attempt to respond to every interest group extant (as in food policy) seemed to be a cause of political chaos, while acknowledging the inevitable disappointment of some parties during consensus building (as in trade policy) seemed to yield substantial benefit.

—RICHARD M. DEVENS, JR.
Office of Current Employment Analysis
Bureau of Labor Statistics

Trade union democracy

Governing Trade Unions in Sweden. By Leif Lewin. Cambridge, Mass., Harvard University Press, 1980. 180 pp. $20.

In this brief monograph, Leif Lewin, professor of government at Sweden's University of Uppsala, develops a model of union government. He then draws a sample of Swedish local unions and interviews their membership and leadership. The results are then tested against his model. More than 60 tables and 20 figures are included and are invaluable in understanding this study.

Lewin's basic model—the interactive model—is best described in his own words:

> A key word of this model—one corresponding to the empirical term "oligarchy" used by Michels and to the normative terms "direct democracy," "bureaucratic efficiency," "revolutionary vanguard," "competition of elites" used by Rousseau, Weber, Lenin, and Schumpeter, respectively—is the term "public spirit."
>
> The development of public spirit is the normative postulate for the model of interactive democracy. In order for a political system to be called democratic, the interaction between leadership and membership has to be constituted in such a way that it develops the public spirit of the individual. A methodological consequence of this condition is that the success of democracy is measurable by the extent to which that system has managed to further this public spirit.

In recent decades, the LO (the Swedish trade union confederation) has been following a policy of "wage solidarity," aiming at greater income equality. According to Lewin, this "wage solidarity" policy is the empirical application of the normative postulate of public spirit.

Lewin then adopts several key functional dependent variables designed to characterize each local union. The presence or absence of certain "activities or phenomenon" are then linked with these functional dependent variables. Lewin's seven independent variables are: organizational structure, wages, social-technical conditions, mobility, sex, length of membership, and political preferences. And, then, to quote the author, "the main object of this study is to examine how these seven conditions affect the pattern of interaction between leadership and membership within the Swedish trade union movement."

The author's basic judgment is:

> The main picture of trade union democracy emerging from this study is that of an opinion formation process with certain flaws such as relatively moderate membership activity, limited knowledge of union matters, and, in practice, restricted freedom of opinion. However, there is good consensus building with high agreement of opinion between members and leaders—with the exception of a few special problems in district branches with representational bodies—and a position of authority for the leaders whose actions generally have the support of the membership.

More specifically, he maintains that Swedish local unions as a whole should be characterized as "manipulative" rather than "democratic," "impotent," "therapeutic," or "passive". These designations are based on the responses to questions regarding each local union's operation. The responses are then summed and weighted, and the resulting number is then used to "characterize" each local.

Are democratic practices "more highly developed in those locals that are characterized by a high degree of "public spirit"? Lewin finds that they are. Thus, democracy is not only characterized by the "public spirit" by member participation. Readers acquainted with the American literature on union democracy will not be surprised by this conclusion. Indeed, it closely resembles findings in Arnold Rose's study of a large Teamster local in St. Louis (*Union Solidarity,* University of Minnesota, 1952).

Three difficulties trouble this reviewer. Is it really possible to select a single goal at a particular time and then attribute an acceptance of that goal as an indication of democracy? What happened to the concept of "his majesty's loyal opposition"? Suppose Lewin's study had been conducted at a time when support for wage solidarity was diminishing and the results even suggested a rejection of the goal. Would Lewin conclude that the trade unions were "undemocratic" or simply that a change in policy or leadership or both was needed?

A second troublesome aspect is the scoring of the responses because it seems that the author has unduly weighted the leadership's responses. In selecting the individuals to be interviewed, Lewin samples the local union membership, but almost all of the leadership is included. As a result, the leadership constitutes more than one quarter of the responses. Moreover, the leadership responses are weighed double the membership responsed, thus the leadership constitutes about half of the characterization of the local.

This study, as well as other studies of union attitudes, reveals a divergence between the membership and the leadership. Indeed, several studies of unions focus on these diverging attitudes and their possible implications for union democracy. Lewin acknowledges that the leadership's public spirit is much greater than the membership's, but he does not seem to consider that the divergence cannot be too "great" in a "democratic" environment.

There were many studies focusing on union democracy following World War II in this country, but most concentrated on developing factual information. Few sought to link data within a theoretical framework. Interest in union democracy was revived in the late 1970's. A few research studies have appeared and the Industrial Relations Research Association devoted a session to the topic recently. Lewin's study is undoubtedly a serious contribution—particularly its attempt to combine empirical data into an overall theoretical framework.

—JOSEPH KRISLOV
Department of Economics
University of Kentucky

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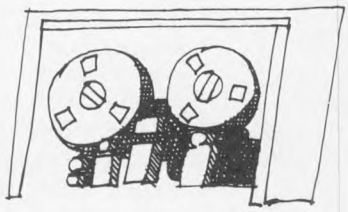
Current Labor Statistics



NOTES ON CURRENT LABOR STATISTICS

This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics. 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 × 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 *Handbook of Labor Statistics 1978,* Bulletin 2000, 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

Title and frequency (monthly except where indicated)	Release date	Period covered	Release date	Period covered	MLR table number
Employment situation	April 3	March	May 8	April	1–11
Producer Price Index	April 3	March	May 8	April	26–30
Consumer Price Index	April 23	March	May 22	April	22–25
Real earnings	April 23	March	May 22	April	14–20
Major collective bargaining settlements (quarterly)	April 27	1st quarter	....	....	35–36
Productivity and costs:					
Nonfarm business and manufacturing	April 27	1st quarter	....	....	31–34
Nonfinancial corporations	....	....	May 27	1st quarter	31–34
Labor turnover in manufacturing	April 29	March	May 27	April	12–13
Work stoppages	April 29	March	May 29	April	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 65,000 households beginning in January 1980, 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 longterm 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.

1. Employment status of the noninstitutional population, 16 years and over, selected years, 1950–80

[Numbers in thousands]

Year	Total non-institutional population	Total labor force		Civilian labor force						Not in labor force
		Number	Percent of population	Total	Employed			Unemployed		
					Total	Agriculture	Nonagri-cultural 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	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
TOTAL															
Total noninstitutional population[1]	163,620	166,246	165,298	165,506	165,693	165,886	166,105	166,391	166,578	166,789	167,005	167,201	167,396	167,585	167,747
Total labor force	104,996	106,821	106,357	106,261	106,519	107,148	106,683	107,119	107,059	107,101	107,288	107,404	107,191	2,125	2,121
Civilian noninstitutional population[1]	161,532	164,143	163,211	163,416	163,601	163,799	164,013	164,293	164,464	164,667	164,884	165,082	165,272	165,460	165,627
Civilian labor force	102,908	104,719	104,271	104,171	104,427	105,060	104,591	105,020	104,945	104,980	105,167	105,285	105,067	105,543	105,681
Employed	96,945	97,270	97,817	97,628	97,225	97,116	96,780	96,999	97,003	97,180	97,206	97,339	97,282	97,696	97,927
Agriculture	3,297	3,310	3,329	3,337	3,262	3,352	3,232	3,267	3,210	3,399	3,319	3,340	3,394	3,403	3,281
Nonagricultural industries	93,648	93,960	94,488	94,291	93,963	93,764	93,548	93,732	93,793	93,781	93,887	93,999	93,888	94,294	94,646
Unemployed	5,963	7,448	6,454	6,543	7,202	7,944	7,811	8,021	7,942	7,800	7,961	7,946	7,785	7,847	7,754
Unemployment rate	5.8	7.1	6.2	6.3	6.9	7.6	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3
Not in labor force	58,623	59,425	58,940	59,245	59,174	58,739	59,422	59,273	59,519	59,687	59,717	59,797	60,205	59,917	59,946
Men, 20 years and over															
Civilian noninstitutional population[1]	68,293	69,607	69,140	69,238	69,329	69,428	69,532	69,664	69,756	69,864	69,987	70,095	70,198	70,320	70,413
Civilian labor force	54,486	55,234	55,017	54,966	55,127	55,440	55,182	55,344	55,403	55,475	55,495	55,539	55,470	55,443	55,445
Employed	52,264	51,972	52,436	52,230	51,935	51,871	51,624	51,714	51,791	51,823	51,963	52,007	52,045	52,091	52,134
Agriculture	2,350	2,355	2,418	2,386	2,334	2,337	2,301	2,306	2,301	2,389	2,351	2,372	2,331	2,378	2,289
Nonagricultural industries	49,913	49,617	50,018	49,844	49,601	49,494	49,323	49,408	49,490	49,434	49,612	49,635	49,714	49,713	49,844
Unemployed	2,223	3,261	2,581	2,736	3,192	3,569	3,558	3,630	3,612	3,652	3,532	3,532	3,425	3,352	3,312
Unemployment rate	4.1	5.9	4.7	5.0	5.8	6.4	6.4	6.6	6.5	6.6	6.4	6.4	6.2	6.0	6.0
Not in labor force	13,807	14,373	14,123	14,272	14,202	13,988	14,350	14,320	14,353	14,389	14,492	14,556	14,728	14,877	14,968
Women, 20 years and over															
Civilian noninstitutional population[1]	76,860	78,295	77,766	77,876	77,981	78,090	78,211	78,360	78,473	78,598	78,723	78,842	78,959	79,071	79,175
Civilian labor force	38,910	40,243	39,871	39,845	40,098	40,193	40,182	40,383	40,523	40,317	40,486	40,629	40,570	40,942	41,090
Employed	36,698	37,696	37,560	37,550	37,597	37,600	37,613	37,728	37,890	37,804	37,754	37,909	37,820	38,191	38,410
Agriculture	591	575	568	557	560	598	550	564	555	592	576	574	665	621	615
Nonagricultural industries	36,107	37,120	36,992	36,973	37,037	37,002	37,063	37,164	37,335	37,212	37,178	37,335	37,155	37,570	37,794
Unemployed	2,213	2,547	2,311	2,295	2,501	2,593	2,569	2,655	2,633	2,513	2,732	2,720	2,750	2,750	2,680
Unemployment rate	5.7	6.3	5.8	5.8	6.2	6.5	6.4	6.6	6.5	6.2	6.7	6.7	6.8	6.7	6.5
Not in labor force	37,949	38,052	37,895	38,031	37,883	37,897	38,029	37,977	37,950	38,281	38,237	38,213	38,389	38,129	38,085
Both sexes, 16 - 19 years															
Civilian noninstitutional population[1]	16,379	16,242	16,305	16,302	16,291	16,281	16,271	16,268	16,235	16,205	16,174	16,145	16,114	16,069	16,039
Civilian labor force	9,512	9,242	9,383	9,360	9,202	9,427	9,227	9,293	9,019	9,188	9,186	9,117	9,027	9,158	9,146
Employed	7,984	7,603	7,821	7,848	7,693	7,645	7,543	7,557	7,322	7,553	7,489	7,423	7,417	7,414	7,384
Agriculture	356	380	343	374	368	377	381	397	354	418	392	394	398	404	376
Nonagricultural industries	7,628	7,223	7,478	7,474	7,325	7,268	7,162	7,160	6,968	7,135	7,097	7,029	7,019	7,010	7,008
Unemployed	1,528	1,640	1,562	1,512	1,509	1,782	1,684	1,736	1,697	1,635	1,697	1,694	1,610	1,744	1,762
Unemployment rate	16.1	17.7	16.6	16.2	16.4	18.9	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3
Not in labor force	6,867	7,000	6,922	6,942	7,089	6,854	7,044	6,975	7,216	7,017	6,988	7,028	7,087	6,911	6,893
White															
Civilian noninstitutional population[1]	141,614	143,657	142,951	143,115	143,254	143,403	143,565	143,770	143,900	144,051	144,211	144,359	144,500	144,651	144,774
Civilian labor force	90,602	92,171	91,873	91,802	92,044	92,501	92,134	92,335	92,288	92,317	92,516	92,562	92,383	92,832	93,035
Employed	86,025	86,380	86,869	86,723	86,389	86,251	86,007	86,075	86,067	86,307	86,371	86,409	86,377	86,620	86,940
Unemployed	4,577	5,790	5,004	5,079	5,655	6,250	6,127	6,260	6,221	6,010	6,145	6,153	6,006	6,213	6,095
Unemployment rate	5.1	6.3	5.4	5.5	6.1	6.8	6.7	6.8	6.7	6.5	6.6	6.6	6.5	6.7	6.6
Not in labor force	51,011	51,486	51,078	51,313	51,210	50,902	51,431	51,435	51,612	51,734	51,695	51,797	52,117	51,819	51,739
Black and other															
Civilian noninstitutional population[1]	19,918	20,486	20,261	20,301	20,346	20,395	20,448	20,523	20,564	20,617	20,673	20,723	20,771	20,809	20,853
Civilian labor force	12,306	12,548	12,395	12,320	12,401	12,546	12,491	12,661	12,630	12,677	12,686	12,706	12,668	12,684	12,598
Employed	10,920	10,890	10,945	10,856	10,838	10,842	10,809	10,902	10,902	10,894	10,884	10,922	10,895	11,051	10,942
Unemployed	1,386	1,658	1,450	1,464	1,563	1,704	1,682	1,759	1,728	1,783	1,802	1,784	1,773	1,634	1,655
Unemployment rate	11.3	13.2	11.7	11.9	12.6	13.6	13.5	13.9	13.7	14.1	14.2	14.0	14.0	12.9	13.1
Not in labor force	7,612	7,938	7,866	7,981	7,945	7,849	7,957	7,862	7,934	7,940	7,987	8,017	8,103	8,125	8,255

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

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1980.

3. Selected employment indicators, seasonally adjusted

[In thousands]

Selected categories	Annual average		1980											1981	
	1979	1980	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
CHARACTERISTIC															
Total employed, 16 years and over	96,945	97,270	97,817	97,628	97,225	97,116	96,780	96,999	97,003	97,180	97,206	97,339	97,282	97,696	97,927
Men	56,499	55,988	56,631	56,489	56,054	55,914	55,597	55,678	55,589	55,754	55,881	55,897	55,920	56,012	56,045
Women	40,446	41,283	41,186	41,139	41,171	41,202	41,183	41,321	41,414	41,426	41,325	41,442	41,362	41,684	41,882
Married men, spouse present	39,090	38,302	38,827	38,706	38,373	38,197	38,220	38,049	37,987	38,027	38,142	38,167	38,231	38,182	38,113
Married women, spouse present	22,724	23,097	23,150	23,171	23,094	23,145	23,131	23,118	23,126	23,027	22,993	23,065	23,063	23,352	23,356
OCCUPATION															
White-collar workers	49,342	50,809	50,447	50,336	50,465	50,627	50,836	51,023	51,307	51,074	51,101	51,148	51,065	51,594	51,698
Professional and technical	15,050	15,613	15,423	15,408	15,528	15,540	15,682	15,717	15,751	15,540	15,780	15,863	15,810	15,965	15,813
Managers and administrators, except farm	10,516	10,919	10,953	10,765	10,773	10,877	10,901	10,999	11,109	11,007	10,979	11,016	11,009	11,363	11,488
Salesworkers	6,163	6,172	6,179	6,132	6,048	6,072	6,046	6,130	6,140	6,316	6,277	6,155	6,175	6,265	6,271
Clerical workers	17,613	18,105	17,892	18,031	18,116	18,138	18,207	18,177	18,307	18,211	18,065	18,114	18,071	18,001	18,125
Blue-collar workers	32,066	30,800	31,669	31,568	31,120	30,800	30,443	30,276	30,232	30,436	30,521	30,550	30,373	30,338	30,446
Craft and kindred workers	12,880	12,529	12,722	12,740	12,713	12,551	12,357	12,403	12,346	12,490	12,485	12,424	12,337	12,306	12,386
Operatives, except transport	10,909	10,346	10,648	10,556	10,450	10,379	10,233	10,189	10,147	10,202	10,210	10,247	10,194	10,331	10,390
Transport equipment operatives	3,612	3,468	3,557	3,551	3,495	3,458	3,429	3,354	3,478	3,434	3,443	3,429	3,402	3,322	3,361
Nonfarm laborers	4,665	4,456	4,742	4,721	4,462	4,412	4,424	4,330	4,261	4,310	4,383	4,450	4,440	4,380	4,309
Service workers	12,834	12,958	13,005	12,982	13,009	12,947	12,941	13,017	12,928	12,943	12,891	12,888	12,982	12,946	13,070
Farmworkers	2,703	2,704	2,745	2,718	2,682	2,730	2,625	2,694	2,620	2,757	2,735	2,729	2,804	2,737	2,662
MAJOR INDUSTRY AND CLASS OF WORKER															
Agriculture:															
Wage and salary workers	1,413	1,384	1,411	1,429	1,377	1,396	1,369	1,360	1,282	1,417	1,363	1,417	1,411	1,465	1,336
Self-employed workers	1,580	1,628	1,636	1,612	1,602	1,642	1,606	1,631	1,640	1,688	1,640	1,612	1,655	1,615	1,610
Unpaid family workers	304	297	293	295	287	292	278	295	280	309	325	324	305	284	325
Nonagricultural industries:															
Wage and salary workers	86,540	86,706	87,192	87,110	86,789	86,722	86,370	86,432	86,490	86,395	86,587	86,643	86,513	87,125	87,236
Government	15,369	15,624	15,539	15,605	15,635	15,720	15,817	15,718	15,531	15,575	15,597	15,651	15,653	15,738	15,589
Private industries	71,171	71,081	71,653	71,505	71,154	71,002	70,553	70,714	70,959	70,820	70,990	70,992	70,860	71,387	71,647
Private households	1,240	1,166	1,181	1,140	1,151	1,197	1,204	1,230	1,196	1,125	1,144	1,148	1,110	1,197	1,176
Other industries	69,931	69,915	70,472	70,365	70,003	69,805	69,349	69,484	69,763	69,695	69,846	69,844	69,750	70,190	70,471
Self-employed workers	6,652	6,850	6,841	6,807	6,804	6,698	6,728	6,801	6,881	6,977	7,005	6,943	6,973	6,839	6,923
Unpaid family workers	455	404	400	385	363	406	445	426	403	416	417	405	396	422	371
PERSONS AT WORK [1]															
Nonagricultural industries	88,133	88,325	88,830	88,505	88,041	87,974	87,994	87,431	88,195	88,246	88,488	88,694	88,468	89,499	89,441
Full-time schedules	72,647	72,022	72,937	72,618	71,986	71,501	71,454	70,825	71,526	71,929	72,071	72,265	72,131	72,807	72,945
Part time for economic reasons	3,281	3,965	3,454	3,470	3,803	4,276	3,969	4,086	4,143	4,183	4,220	4,176	4,218	4,474	4,145
Usually work full time	1,325	1,669	1,415	1,481	1,680	1,998	1,734	1,794	1,709	1,701	1,685	1,620	1,647	1,698	1,622
Usually work part time	1,956	2,296	2,039	1,989	2,123	2,278	2,235	2,292	2,434	2,482	2,535	2,556	2,571	2,776	2,523
Part time for noneconomic reasons	12,205	12,338	12,439	12,417	12,252	12,197	12,571	12,520	12,526	12,134	12,197	12,253	12,119	12,218	12,351

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

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1980.

4. Selected unemployment indicators, seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1980											1981	
	1979	1980	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
CHARACTERISTIC															
Total, 16 years and over	5.8	7.1	6.2	6.3	6.9	7.6	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3
Men, 20 years and over	4.1	5.9	4.7	5.0	5.8	6.4	6.4	6.6	6.5	6.6	6.4	6.4	6.2	6.0	6.0
Women, 20 years and over	5.7	6.3	5.8	5.8	6.2	6.5	6.4	6.6	6.5	6.2	6.7	6.7	6.8	6.7	6.5
Both sexes, 16 - 19 years	16.1	17.7	16.6	16.2	16.4	18.9	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3
White, total	5.1	6.3	5.4	5.5	6.1	6.8	6.7	6.8	6.7	6.5	6.6	6.6	6.5	6.7	6.6
Men, 20 years and over	3.6	5.2	4.1	4.5	5.2	5.8	5.7	5.8	5.8	5.8	5.7	5.7	5.5	5.5	5.4
Women, 20 years and over	5.0	5.6	5.2	5.0	5.5	5.7	5.7	5.8	5.8	5.5	5.8	5.8	5.9	6.0	5.7
Both sexes, 16 - 19 years	13.9	14.8	14.2	14.1	14.8	17.1	16.1	16.5	16.6	15.1	16.0	16.4	15.4	16.8	17.4
Black and other, total	11.3	13.2	11.7	11.9	12.6	13.6	13.5	13.9	13.7	14.1	14.2	14.0	14.0	12.9	13.1
Men, 20 years and over	8.4	11.4	9.5	9.5	10.8	11.7	12.2	12.5	12.5	13.2	12.1	12.0	11.6	10.5	10.8
Women, 20 years and over	10.1	11.1	9.3	10.5	11.1	11.6	10.9	11.3	10.9	10.6	12.3	12.2	12.3	11.0	11.9
Both sexes, 16 - 19 years	33.5	35.8	36.9	33.7	31.8	35.3	34.8	35.9	37.6	37.8	37.4	36.6	37.5	36.5	35.4
Married men, spouse present	2.7	4.2	3.2	3.4	4.0	4.6	4.6	4.9	4.8	4.7	4.6	4.4	4.3	4.2	4.1
Married women, spouse present	5.1	5.8	5.4	5.4	5.7	6.1	6.0	6.1	6.0	5.7	6.0	5.9	5.8	6.2	5.8
Women who head families	8.3	9.1	8.5	8.6	9.0	8.3	8.5	8.8	9.0	9.0	10.2	9.9	10.4	10.5	9.6
Full-time workers	5.3	6.8	5.8	5.9	6.5	7.3	7.2	7.4	7.3	7.3	7.3	7.4	7.3	7.1	7.1
Part-time workers	8.7	8.7	8.8	8.4	8.8	9.0	8.8	8.8	8.7	8.7	9.1	8.6	8.2	9.2	9.1
Unemployed 15 weeks and over	1.2	1.7	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.2	2.2	2.2	2.3	2.2	2.1
Labor force time lost[1]	6.3	7.9	6.6	6.8	7.6	8.6	8.1	8.4	8.3	8.2	8.4	8.3	8.2	8.2	8.1
OCCUPATION															
White-collar workers	3.3	3.7	3.4	3.4	3.7	3.8	3.7	3.7	3.7	3.8	3.9	3.9	4.0	3.9	3.7
Professional and technical	2.4	2.5	2.3	2.3	2.4	2.6	2.5	2.4	2.4	2.5	2.6	2.5	2.6	2.8	2.6
Managers and administrators, except farm	1.9	2.4	2.2	2.4	2.6	2.6	2.5	2.6	2.5	2.4	2.5	2.4	2.5	2.4	2.4
Salesworkers	3.9	4.4	4.3	4.0	4.5	4.4	4.4	4.2	4.2	4.3	4.6	4.8	4.7	4.4	4.0
Clerical workers	4.6	5.3	4.7	4.8	5.1	5.3	5.2	5.4	5.4	5.4	5.6	5.6	5.8	5.7	5.3
Blue-collar workers	6.9	10.0	7.9	8.2	9.6	10.9	11.1	11.3	11.1	10.8	10.8	10.7	10.5	10.2	10.1
Craft and kindred workers	4.5	6.6	5.1	5.5	6.5	7.5	7.5	7.2	7.6	7.4	7.1	7.1	7.1	6.8	7.2
Operatives, except transport	8.4	12.2	9.3	9.4	11.6	13.7	13.4	14.4	13.3	13.0	13.2	13.0	12.9	12.1	11.9
Transport equipment operatives	5.4	8.8	6.8	6.9	8.4	8.7	10.0	10.0	9.8	10.4	10.6	10.6	8.8	9.1	8.3
Nonfarm laborers	10.8	14.6	12.5	13.3	14.1	14.9	15.7	15.8	16.1	15.2	15.3	15.0	14.8	15.0	14.9
Service workers	7.1	7.9	7.0	7.2	7.8	8.2	8.1	8.3	8.5	8.1	8.3	8.3	7.8	8.0	8.7
Farmworkers	3.8	4.4	3.9	4.2	4.8	4.7	4.5	4.6	5.5	4.3	4.4	4.0	4.0	5.0	4.7
INDUSTRY															
Nonagricultural private wage and salary workers[2]	5.7	7.4	6.2	6.3	7.0	8.0	8.0	8.0	8.0	7.8	7.8	7.8	7.7	7.5	7.5
Construction	10.2	14.2	10.9	13.1	14.5	16.6	15.6	15.8	17.3	15.9	14.6	14.8	13.8	13.3	13.2
Manufacturing	5.5	8.5	6.7	6.6	7.9	9.7	9.7	9.8	9.3	9.2	9.2	8.9	8.8	8.4	8.4
Durable goods	5.0	8.9	6.5	6.5	8.3	10.4	10.9	10.7	10.1	10.0	9.5	9.0	9.0	8.3	8.5
Nondurable goods	6.4	7.9	6.9	6.8	7.3	8.6	7.9	8.5	8.0	7.9	8.9	8.6	8.5	8.5	8.2
Transportation and public utilities	3.7	4.9	4.5	3.9	4.7	5.0	5.1	5.6	5.6	5.3	5.3	4.9	4.9	5.8	5.5
Wholesale and retail trade	6.5	7.4	6.6	6.4	7.0	7.5	7.7	7.6	7.7	7.7	7.8	8.2	8.3	7.6	7.6
Finance and service industries	4.9	5.3	4.7	4.9	5.1	5.6	5.6	5.6	5.5	5.4	5.6	5.5	5.5	5.8	6.0
Government workers	3.7	4.1	4.0	4.1	4.3	4.2	3.5	4.1	4.0	4.1	4.4	4.2	4.1	4.4	4.3
Agricultural wage and salary workers	9.1	10.8	9.5	10.3	11.7	11.4	10.4	10.8	13.2	10.7	11.1	10.1	10.6	11.5	12.1

[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.

NOTE: The monthly data in this table have been revised to reflect seasonal experience through 1980.

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

Sex and age	Annual average		1980											1981	
	1979	1980	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Total, 16 years and over	5.8	7.1	6.2	6.3	6.9	7.6	7.5	7.6	7.6	7.4	7.6	7.5	7.4	7.4	7.3
16 to 19 years	16.1	17.7	16.6	16.2	16.4	18.9	18.3	18.7	18.8	17.8	18.5	18.6	17.8	19.0	19.3
16 to 17 years	18.1	20.0	18.8	17.7	19.0	21.2	20.0	20.5	22.1	20.1	20.9	21.4	19.9	21.0	21.4
18 to 19 years	14.6	16.1	15.2	15.1	14.5	17.4	17.6	17.4	16.5	16.0	16.7	16.5	16.4	17.5	17.9
20 to 24 years	9.0	11.5	9.9	9.9	11.3	12.5	12.1	12.1	12.0	12.0	12.3	12.1	11.7	11.9	11.8
25 years and over	3.9	5.0	4.2	4.4	5.0	5.3	5.4	5.5	5.4	5.4	5.4	5.4	5.3	5.3	5.1
25 to 54 years	4.1	5.4	4.6	4.8	5.3	5.6	5.8	5.9	5.9	5.9	5.9	5.9	5.8	5.7	5.5
55 years and over	3.0	3.3	2.8	2.8	3.3	3.4	3.3	3.4	3.4	3.4	3.4	3.3	3.5	3.5	3.6
Men, 16 years and over	5.1	6.9	5.6	5.8	6.7	7.5	7.5	7.6	7.6	7.6	7.4	7.4	7.2	7.2	7.1
16 to 19 years	15.8	18.2	16.0	15.2	16.3	19.4	19.1	19.5	19.9	18.9	19.8	19.8	19.0	20.3	20.1
16 to 17 years	17.9	20.4	18.2	16.5	18.8	21.5	21.5	20.9	23.7	21.2	21.8	22.3	20.5	23.0	22.1
18 to 19 years	14.2	16.7	14.5	14.5	14.4	17.6	18.8	18.4	17.1	16.9	18.1	17.8	17.8	18.5	18.7
20 to 24 years	8.6	12.5	10.3	10.7	12.3	13.5	13.4	13.2	13.6	13.5	13.8	13.2	12.5	12.8	12.7
25 years and over	3.3	4.7	3.7	4.0	4.7	5.1	5.2	5.4	5.3	5.4	5.1	5.1	4.9	4.9	4.8
25 to 54 years	3.4	5.1	3.9	4.3	4.9	5.4	5.6	5.8	5.7	6.0	5.6	5.6	5.4	5.2	5.2
55 years and over	2.9	3.3	2.8	2.8	3.3	3.4	3.6	3.6	3.6	3.5	3.3	3.3	3.3	3.4	3.4
Women, 16 years and over	6.8	7.4	6.9	6.9	7.2	7.6	7.4	7.7	7.6	7.2	7.7	7.7	7.7	7.7	7.6
16 to 19 years	16.4	17.2	17.4	17.2	16.5	18.3	17.3	17.7	17.6	16.6	17.0	17.2	16.5	17.5	18.4
16 to 17 years	18.3	19.5	19.4	19.2	19.3	20.9	18.3	20.1	20.2	18.8	19.8	20.3	19.3	18.7	20.5
18 to 19 years	15.0	15.6	16.1	15.8	14.8	17.2	16.3	16.2	15.9	15.1	15.1	15.1	14.8	16.4	17.0
20 to 24 years	9.6	10.3	9.4	9.0	10.1	11.3	10.6	10.9	10.2	10.2	10.6	10.8	10.8	10.8	10.8
25 years and over	4.8	5.5	5.0	5.1	5.4	5.5	5.5	5.7	5.7	5.4	5.9	5.8	5.9	5.8	5.6
25 to 54 years	5.2	5.9	5.4	5.5	5.8	6.0	6.0	6.1	6.2	5.9	6.4	6.2	6.3	6.3	5.9
55 years and over	3.2	3.2	2.9	2.9	3.3	3.3	2.9	3.1	3.1	3.3	3.4	3.4	3.9	3.6	3.9

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

[Numbers in thousands]

Reason for unemployment	1980											1981	
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
NUMBER OF UNEMPLOYED													
Lost last job	2,979	3,102	3,581	4,164	4,468	4,364	4,319	4,387	4,240	4,229	4,226	3,847	3,896
On layoff	1,087	1,135	1,422	1,771	1,954	1,832	1,699	1,744	1,692	1,453	1,470	1,258	1,267
Other job losers	1,892	1,967	2,159	2,393	2,514	2,532	2,620	2,643	2,548	2,776	2,756	2,590	2,629
Left last job	831	804	905	930	887	866	890	855	870	897	813	907	884
Reentered labor force	1,797	1,812	1,909	1,975	1,834	1,868	1,883	1,844	2,013	1,896	1,869	2,039	1,970
Seeking first job	825	815	752	871	872	893	870	862	880	890	868	1,000	928
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	46.3	47.5	50.1	52.4	55.4	54.6	54.2	55.2	53.0	53.5	54.3	49.4	50.7
On layoff	16.9	17.4	19.9	22.3	24.2	22.9	21.3	21.9	21.1	18.4	18.9	16.1	16.5
Other job losers	29.4	30.1	30.2	30.1	31.2	31.7	32.9	33.3	31.8	35.1	35.4	33.2	34.2
Job leavers	12.9	12.3	12.7	11.7	11.0	10.8	11.2	10.8	10.9	11.3	10.5	11.6	11.5
Reentrants	27.9	27.7	26.7	24.9	22.8	23.4	23.6	23.2	25.2	24.0	24.0	26.2	25.7
New entrants	12.8	12.5	10.5	11.0	10.8	11.2	10.9	10.8	11.0	11.2	11.2	12.8	12.1
UNEMPLOYED AS A PERCENT OF THE CIVILIAN LABOR FORCE													
Job losers	2.9	3.0	3.4	4.0	4.3	4.2	4.1	4.2	4.0	4.0	4.0	3.6	3.7
Job leavers	.8	.8	.9	.9	.8	.8	.8	.8	.8	.9	.8	.9	.8
Reentrants	1.7	1.7	1.8	1.9	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.9	1.9
New entrants	.8	.8	.7	.8	.8	.9	.8	.8	.8	.8	.8	.9	.9

7. Duration of unemployment, seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1980											1981	
	1979	1980	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Less than 5 weeks	2,869	3,208	3,049	3,005	3,258	3,714	3,281	3,317	3,255	3,042	3,186	3,108	3,115	3,259	3,203
5 to 14 weeks	1,892	2,411	2,134	2,207	2,373	2,589	2,812	2,649	2,533	2,586	2,500	2,524	2,217	2,264	2,324
15 weeks and over	1,202	1,829	1,299	1,391	1,599	1,686	1,777	1,935	2,150	2,295	2,292	2,329	2,378	2,358	2,250
15 to 26 weeks	684	1,028	794	796	931	980	1,024	1,093	1,239	1,366	1,256	1,213	1,231	1,079	992
27 weeks and over	518	802	505	595	668	706	753	842	911	929	1,036	1,116	1,147	1,279	1,257
Average (mean) duration, in weeks	10.9	11.9	10.7	11.0	11.2	10.6	11.7	11.8	12.5	13.0	13.3	13.6	13.5	14.4	14.4

NOTE: The monthly data in these tables have been revised to reflect seasonal experience through 1980.

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 1980 data, published in the August 1980 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 1980 and seasonally adjusted data from January 1974 through March 1980) 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 1978–80, see *Employment and Earnings,* March 1980, 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	89,886	960	4,483	21,062	5,141	20,269	5,204	15,066	4,974	17,078	15,920	2,773	13,147
1980	90,657	1,025	4,469	20,361	5,156	20,573	5,281	15,292	5,162	17,741	16,170	2,868	13,304

[1]Data include Alaska and Hawaii beginning in 1959.

9. Employment by State

[Nonagricultural payroll data, in thousands]

State	Jan. 1980	Dec. 1980	Jan. 1981 p	State	Jan. 1980	Dec. 1980	Jan. 1981 p
Alabama[1]	1,357.3	1,366.9	1,355.5	Montana	274.0	280.7	274.9
Alaska[1]	153.5	163.9	160.2	Nebraska	623.3	634.1	619.8
Arizona[1]	998.6	1,028.6	1,011.0	Nevada[1]	386.3	403.5	396.3
Arkansas[1]	737.9	749.7	739.7	New Hampshire	375.6	391.6	382.5
California[1]	9,733.3	9,967.3	9,817.1	New Jersey	3,002.0	3,060.5	2,994.9
Colorado	1,255.2	1,266.5	1,251.6	New Mexico[1]	462.9	470.8	463.4
Connecticut[1]	1,409.0	1,442.4	1,420.5	New York[1]	7,086.0	7,269.9	7,093.9
Delaware[1]	250.1	263.2	254.6	North Carolina[1]	2,371.9	2,416.1	2,380.6
District of Columbia[1]	603.8	616.5	608.9	North Dakota	238.0	248.1	241.1
Florida[1]	3,515.7	3,711.6	3,691.6	Ohio[1]	4,398.1	4,420.1	4,306.6
Georgia[1]	2,126.7	2,176.2	2,154.9	Oklahoma[1]	1,112.0	1,159.6	1,150.8
Hawaii	403.5	407.7	402.8	Oregon	1,039.9	1,027.8	1,007.8
Idaho	329.9	331.9	322.8	Pennsylvania	4,789.0	4,788.7	4,677.9
Illinois[1]	4,866.7	4,879.4	4,722.2	Rhode Island[1]	392.0	404.3	392.7
Indiana[1]	2,149.9	2,145.1	2,105.9	South Carolina[1]	1,177.4	1,195.5	1,175.7
Iowa	1,111.3	1,097.0	1,071.5	South Dakota	234.2	234.5	231.5
Kansas	948.3	956.8	940.0	Tennessee[1]	1,740.0	1,736.8	1,702.1
Kentucky[1]	1,205.0	1,222.3	1,199.9	Texas[1]	5,710.2	6,027.2	5,997.8
Louisiana[1]	1,534.7	1,616.9	1,603.4	Utah	542.8	564.4	552.6
Maine[1]	405.6	421.2	409.6	Vermont[1]	197.6	204.0	203.1
Maryland	1,666.1	1,716.8	1,665.6	Virginia	2,097.2	2,150.4	2,112.5
Massachusetts	2,609.3	2,696.9	2,636.4	Washington	1,584.5	1,613.9	....
Michigan	3,506.1	3,535.9	....	West Virginia[1]	638.3	650.1	633.5
Minnesota[1]	1,744.6	1,769.7	1,724.2	Wisconsin[1]	1,926.0	1,959.3	1,913.2
Mississippi[1]	830.7	838.8	826.4	Wyoming	198.8	207.2	204.8
Missouri[1]	1,956.1	1,965.1	1,925.4				
				Virgin Islands[1]	37.1	36.9	36.3

[1] Revised series, not strictly comparable with previously published data.

10. Employment by industry division and major manufacturing group

[Nonagricultural payroll data, in thousands]

Industry division and group	Annual average		1980											1981	
	1979	1980	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]
TOTAL	89,886	90,657	89,781	90,316	90,761	90,849	91,049	89,820	90,072	90,729	91,332	91,693	91,846	90,098	90,147
MINING	960	1,025	987	996	1,006	1,024	1,049	1,030	1,029	1,035	1,039	1,055	1,064	1,067	1,068
CONSTRUCTION	4,483	4,469	4,109	4,150	4,311	4,471	4,611	4,633	4,712	4,690	4,700	4,618	4,431	4,078	3,969
MANUFACTURING	21,062	20,361	20,730	20,793	20,533	20,250	20,201	19,754	20,044	20,269	20,302	20,368	20,316	20,158	20,146
Production workers	15,085	14,277	14,678	14,727	14,466	14,172	14,093	13,657	13,947	14,182	14,204	14,260	14,199	14,053	14,065
Durable goods	12,772	12,215	12,599	12,647	12,414	12,150	12,065	11,774	11,827	12,028	12,100	12,195	12,186	12,112	12,085
Production workers	9,120	8,468	8,869	8,909	8,672	8,409	8,307	8,025	8,075	8,281	8,343	8,430	8,413	8,341	8,329
Lumber and wood products	766.1	686.9	718.9	716.9	678.4	654.8	668.0	666.8	683.0	689.2	686.9	682.8	679.8	667.7	667.9
Furniture and fixtures	499.3	473.7	494.6	494.1	488.7	469.1	460.8	438.1	454.6	466.6	470.3	473.8	475.8	474.2	473.8
Stone, clay, and glass products	709.7	667.9	674.7	679.0	675.5	668.1	666.2	656.0	663.2	667.4	665.5	667.2	654.3	636.2	632.0
Primary metal industries	1,250.2	1,133.3	1,205.1	1,203.7	1,193.8	1,149.8	1,112.9	1,055.5	1,059.6	1,081.8	1,093.1	1,111.9	1,124.6	1,127.0	1,127.3
Fabricated metal products	1,723.7	1,627.1	1,699.4	1,703.8	1,671.4	1,619.8	1,598.6	1,538.4	1,567.6	1,594.5	1,604.6	1,615.6	1,614.6	1,598.5	1,598.2
Machinery, except electrical	2,481.6	2,488.8	2,536.5	2,539.9	2,523.5	2,509.3	2,486.1	2,440.2	2,417.8	2,449.6	2,456.7	2,475.2	2,492.5	2,491.4	2,497.2
Electric and electronic equipment	2,124.3	2,126.3	2,157.7	2,167.7	2,156.2	2,120.2	2,102.2	2,066.5	2,080.7	2,103.5	2,119.3	2,134.9	2,143.9	2,143.4	2,143.5
Transportation equipment	2,082.8	1,889.8	1,983.1	2,005.6	1,891.1	1,835.1	1,847.0	1,810.2	1,785.4	1,857.9	1,885.7	1,912.2	1,888.4	1,870.2	1,842.1
Instruments and related products	688.9	699.7	700.5	703.6	702.2	699.4	702.9	698.3	697.8	695.5	695.9	700.6	702.2	701.3	698.5
Miscellaneous manufacturing	445.6	422.0	428.8	432.9	433.0	424.6	420.1	404.0	417.6	422.2	422.1	421.2	410.1	402.2	404.3
Nondurable goods	8,290	8,146	8,131	8,146	8,119	8,100	8,136	7,980	8,217	8,241	8,202	8,173	8,130	8,046	8,061
Production workers	5,965	5,809	5,809	5,818	5,794	5,763	5,786	5,632	5,872	5,901	5,861	5,830	5,786	5,712	5,736
Food and kindred products	1,728.1	1,690.4	1,644.1	1,641.1	1,626.2	1,638.5	1,676.8	1,709.5	1,795.3	1,790.5	1,738.8	1,696.6	1,667.2	1,624.0	1,615.7
Tobacco manufactures	69.9	69.0	67.1	64.4	62.9	62.7	64.6	63.9	71.3	75.5	76.4	75.6	74.7	71.9	69.8
Textile mill products	888.5	863.8	884.6	886.9	882.1	870.6	853.2	820.6	854.1	854.7	856.8	859.4	858.3	853.2	856.9
Apparel and other textile products	1,312.5	1,296.5	1,305.8	1,318.4	1,304.2	1,299.0	1,310.5	1,236.9	1,299.9	1,309.2	1,307.5	1,302.3	1,281.7	1,266.9	1,282.7
Paper and allied products	706.7	693.9	701.9	701.8	698.8	692.4	695.0	682.3	688.7	688.6	690.7	691.6	691.7	687.5	687.5
Printing and publishing	1,239.5	1,271.7	1,270.4	1,272.1	1,270.4	1,267.8	1,271.3	1,264.5	1,264.3	1,267.9	1,272.2	1,281.0	1,291.6	1,282.6	1,289.0
Chemicals and allied products	1,110.7	1,112.6	1,112.1	1,118.1	1,120.6	1,119.5	1,122.2	1,112.0	1,108.4	1,106.3	1,104.9	1,106.1	1,107.6	1,106.5	1,108.4
Petroleum and coal products	210.0	197.3	155.9	153.1	173.6	203.4	209.1	212.0	212.4	210.9	210.4	210.2	207.8	207.8	203.1
Rubber and miscellaneous plastics products	775.6	710.7	746.3	746.5	737.2	702.4	688.5	659.3	680.4	695.8	703.4	708.3	710.3	708.5	709.3
Leather and leather products	248.0	240.1	242.6	243.4	243.3	243.2	244.7	218.9	242.6	241.1	240.6	241.5	238.8	236.7	238.9
TRANSPORTATION AND PUBLIC UTILITIES	5,141	5,156	5,130	5,143	5,147	5,167	5,185	5,145	5,144	5,170	5,178	5,158	5,163	5,081	5,080
WHOLESALE AND RETAIL TRADE	20,269	20,573	20,155	20,226	20,373	20,497	20,562	20,506	20,579	20,692	20,708	20,937	21,313	20,575	20,403
WHOLESALE TRADE	5,204	5,281	5,250	5,269	5,265	5,263	5,287	5,278	5,284	5,291	5,313	5,313	5,318	5,273	5,280
RETAIL TRADE	15,066	15,292	14,905	14,957	15,108	15,234	15,275	15,228	15,295	15,401	15,395	15,624	15,995	15,302	15,123
FINANCE, INSURANCE, AND REAL ESTATE	4,974	5,162	5,061	5,085	5,104	5,137	5,201	5,229	5,232	5,194	5,204	5,215	5,229	5,223	5,223
SERVICES	17,078	17,741	17,317	17,478	17,636	17,747	17,846	17,973	17,966	17,915	17,949	17,951	17,978	17,790	17,928
GOVERNMENT	15,920	16,170	16,292	16,445	16,651	16,556	16,394	15,550	15,366	15,764	16,252	16,391	16,352	16,126	16,320
Federal	2,773	2,866	2,803	2,869	3,103	2,963	2,995	2,949	2,862	2,754	2,774	2,776	2,782	2,758	2,734
State and local	13,147	13,304	13,489	13,576	13,548	13,593	13,399	12,601	12,504	13,010	13,478	13,615	13,570	13,368	13,586

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

[Nonagricultural payroll data, in thousands]

Industry division and group	1980											1981	
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. P	Feb. P
TOTAL	91,186	91,144	90,951	90,468	90,047	89,867	90,142	90,384	90,710	90,961	91,125	91,499	91,550
MINING	1,007	1,009	1,012	1,023	1,029	1,013	1,013	1,028	1,037	1,054	1,072	1,084	1,090
CONSTRUCTION	4,659	4,529	4,467	4,436	4,379	4,322	4,359	4,404	4,442	4,475	4,508	4,608	4,500
MANUFACTURING	20,957	20,938	20,642	20,286	20,014	19,828	19,940	20,044	20,157	20,282	20,312	20,350	20,370
Production workers	14,871	14,850	14,550	14,186	13,931	13,759	13,872	13,972	14,065	14,179	14,195	14,226	14,260
Durable goods	12,715	12,707	12,442	12,140	11,947	11,819	11,860	11,955	12,043	12,146	12,160	12,192	12,198
Production workers	8,967	8,961	8,686	8,386	8,205	8,084	8,123	8,212	8,288	8,381	8,386	8,409	8,424
Lumber and wood products	745	737	689	654	648	650	662	674	677	683	688	693	692
Furniture and fixtures	495	494	491	472	461	449	456	464	466	469	472	474	474
Stone, clay, and glass products	705	700	680	663	647	641	648	655	656	661	660	662	660
Primary metal industries	1,214	1,209	1,193	1,144	1,096	1,049	1,059	1,074	1,096	1,119	1,133	1,135	1,135
Fabricated metal products	1,711	1,711	1,678	1,620	1,584	1,551	1,569	1,587	1,595	1,606	1,608	1,608	1,611
Machinery, except electrical	2,529	2,530	2,518	2,517	2,476	2,448	2,437	2,452	2,469	2,475	2,480	2,484	2,490
Electric and electronic equipment	2,168	2,176	2,167	2,127	2,094	2,079	2,083	2,091	2,107	2,120	2,135	2,150	2,154
Transportation equipment	2,006	2,006	1,885	1,819	1,831	1,839	1,840	1,851	1,873	1,901	1,868	1,865	1,866
Instruments and related products	702	705	703	700	696	698	697	697	697	701	701	703	701
Miscellaneous manufacturing	440	439	438	424	414	415	409	410	407	411	415	418	415
Nondurable goods	8,242	8,231	8,200	8,146	8,067	8,009	8,080	8,089	8,114	8,136	8,152	8,158	8,172
Production workers	5,904	5,889	5,864	5,800	5,726	5,675	5,749	5,760	5,777	5,798	5,809	5,817	5,836
Food and kindred products	1,713	1,704	1,690	1,691	1,677	1,683	1,690	1,672	1,682	1,686	1,684	1,679	1,683
Tobacco manufactures	68	68	69	70	71	69	67	68	69	71	70	70	71
Textile mill products	888	888	884	869	843	833	851	851	856	856	857	858	860
Apparel and other textile products	1,313	1,316	1,302	1,291	1,287	1,276	1,296	1,299	1,292	1,291	1,291	1,290	1,290
Paper and allied products	709	708	702	692	685	680	682	686	690	692	693	694	695
Printing and publishing	1,273	1,274	1,272	1,268	1,269	1,266	1,266	1,269	1,272	1,278	1,284	1,285	1,292
Chemicals and allied products	1,121	1,123	1,123	1,120	1,112	1,103	1,100	1,104	1,105	1,108	1,112	1,115	1,117
Petroleum and coal products	161	157	175	203	205	207	208	208	209	209	210	213	209
Rubber and miscellaneous plastics products	751	749	740	703	681	663	680	692	699	705	711	713	714
Leather and leather products	245	244	243	239	237	229	240	240	240	240	240	241	241
TRANSPORTATION AND PUBLIC UTILITIES	5,198	5,202	5,178	5,167	5,134	5,114	5,129	5,124	5,147	5,132	5,137	5,148	5,147
WHOLESALE AND RETAIL TRADE	20,637	20,610	20,531	20,487	20,459	20,506	20,589	20,620	20,641	20,660	20,638	20,782	20,892
WHOLESALE TRADE	5,302	5,301	5,286	5,268	5,245	5,247	5,263	5,280	5,292	5,297	5,302	5,310	5,333
RETAIL TRADE	15,335	15,309	15,245	15,219	15,214	15,259	15,326	15,340	15,349	15,363	15,336	15,472	15,559
FINANCE, INSURANCE, AND REAL ESTATE	5,101	5,115	5,119	5,137	5,150	5,167	5,180	5,194	5,214	5,225	5,245	5,265	5,275
SERVICES	17,540	17,580	17,618	17,659	17,652	17,760	17,788	17,861	17,913	17,969	18,068	18,135	18,164
GOVERNMENT	16,087	16,161	16,384	16,273	16,230	16,157	16,144	16,109	16,159	16,164	16,145	16,127	16,112
Federal	2,826	2,886	3,115	2,960	2,951	2,893	2,828	2,765	2,788	2,790	2,789	2,786	2,753
State and local	13,261	13,275	13,269	13,313	13,279	13,264	13,316	13,344	13,371	13,374	13,356	13,341	13,359

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	...	P 3.4	...	...	...	...	...	...	...	...	...	...	...
	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	2.1	2.1	2.4	2.1	2.5	2.6	2.2	1.6	1.2
1981	...	P 1.8	...	...	...	...	...	...	...	...	...	...	...
	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	.5	.5
1980	1.1	1.1	.9	.9	.8	1.0	1.2	1.4	1.7	1.4	1.1	.9	.8
1981	...	P 1.4	...	...	...	...	...	...	...	...	...	...	...
	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	3.7	3.0	3.1
1981	...	P 3.5	...	...	...	...	...	...	...	...	...	...	...
	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	...	...	...	...	...	...	...	...	...	...	...
	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	1.4	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	...	P 1.5	...	...	...	...	...	...	...	...	...	...	...

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		
	Jan. 1980	Dec. 1980	Jan. 1981 P	Jan. 1980	Dec. 1980	Jan. 1981 P	Jan. 1980	Dec. 1980	Jan. 1981 P	Jan. 1980	Dec. 1980	Jan. 1981 P	Jan. 1980	Dec. 1980	Jan. 1981 P	Jan. 1980	Dec. 1980	Jan. 1981 P
MANUFACTURING	3.8	2.2	3.4	2.4	1.2	1.8	1.1	0.8	1.4	4.1	3.1	3.5	1.6	0.9	1.2	1.6	1.6	1.5
Seasonally adjusted	3.9	3.6	3.5	2.8	2.2	2.2	...	...	...	4.1	3.3	3.5	1.9	1.5	1.5	1.3	1.1	1.2
Durable goods	3.5	1.9	3.2	2.1	1.0	1.6	1.0	.7	1.4	3.9	2.6	3.3	1.4	.7	1.0	1.7	1.4	1.5
Lumber and wood products	4.7	2.8	4.6	2.9	1.6	2.7	1.6	1.0	1.6	6.0	4.9	5.3	2.4	1.4	2.0	2.6	2.8	2.2
Furniture and fixtures	4.6	2.9	4.2	3.6	1.7	2.6	.7	1.0	1.2	4.9	3.2	3.8	2.5	1.3	1.8	1.3	1.3	1.1
Stone, clay, and glass products	3.6	2.0	3.8	1.9	1.1	1.5	1.5	.8	2.2	4.8	4.7	5.1	1.4	.8	1.0	2.6	3.1	3.3
Primary metal industries	3.1	2.3	3.2	1.2	.5	1.0	1.6	1.5	2.0	3.1	2.5	2.6	.7	.3	.5	1.6	1.6	1.3
Fabricated metal products	4.0	1.9	3.3	2.5	1.1	1.7	1.2	.7	1.5	4.4	2.9	3.8	1.6	.8	1.1	1.9	1.6	1.8
Machinery, except electrical	2.9	1.7	2.6	2.1	1.0	1.5	.5	.5	.9	2.8	1.7	2.5	1.2	.5	.9	.8	.6	.9
Electric and electronic equipment	3.1	1.8	2.7	2.1	1.0	1.4	.5	.5	.8	3.4	2.1	2.9	1.4	.7	1.0	1.0	.8	1.0
Transportation equipment	3.4	1.7	...	1.5	.6	...	1.4	.6	...	4.8	2.5	...	.9	.4	...	3.0	1.4	...
Instruments and related products	3.0	1.5	2.2	2.3	1.2	1.7	.4	.2	.4	2.5	1.5	2.2	1.4	.7	1.0	.4	.3	.5
Miscellaneous manufacturing	5.7	2.5	6.1	3.1	1.5	2.1	2.4	.8	3.7	6.2	5.8	6.1	2.0	1.1	1.5	3.1	3.9	3.4
Nondurable goods	4.2	2.5	3.7	2.8	1.5	2.2	1.2	.9	1.3	4.4	3.8	3.9	2.0	1.2	1.6	1.5	2.1	1.6
Food and kindred products	4.8	3.4	4.5	2.9	1.8	2.4	1.6	1.4	1.8	6.0	6.1	5.6	2.4	1.5	1.9	2.7	4.0	2.9
Tobacco manufacturers	3.9	5.0	...	1.6	1.6	...	1.9	2.8	...	4.5	3.9	...	1.0	.3	...	2.7	3.0	...
Textile mill products	4.5	2.0	3.2	3.5	1.4	2.3	.7	.4	.7	4.4	2.6	3.4	2.5	1.1	1.6	.8	.9	1.0
Apparel and other products	6.8	3.0	5.6	4.0	1.5	3.0	2.5	1.4	2.4	5.8	5.3	5.3	2.9	1.5	2.2	2.0	3.2	2.3
Paper and allied products	2.7	1.7	2.5	1.5	.9	1.2	1.0	.6	1.1	2.7	2.4	2.7	1.0	.5	.9	.9	1.4	1.2
Printing and publishing	3.4	2.5	3.0	2.8	1.9	2.2	.5	.5	.6	3.3	3.0	3.2	1.9	1.4	1.7	.8	1.0	.8
Chemicals and allied products	1.6	1.1	1.8	1.2	.8	1.2	.3	.2	.5	1.6	1.4	1.5	.7	.4	.6	.3	.5	.3
Petroleum and coal products	1.9	1.4	2.2	1.6	1.1	1.8	.2	.2	.3	2.1	2.0	1.9	.7	.5	.5	.6	1.0	.8
Rubber and miscellaneous plastics products	4.8	2.6	3.9	3.1	1.4	2.3	1.4	1.0	1.3	5.4	3.5	3.9	2.1	1.1	1.4	2.1	1.7	1.7
Leather and leather products	7.0	3.4	7.5	4.4	2.3	3.5	2.3	1.0	3.8	7.1	5.9	5.8	3.3	1.8	2.5	2.7	3.4	2.5

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	219.30	35.6	6.16	365.50	43.0	8.50	342.99	37.0	9.27	268.94	40.2	6.69
1980	235.10	35.3	6.66	396.58	43.2	9.18	367.78	37.0	9.94	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	325.98	39.9	8.17	164.96	32.6	5.06	190.77	36.2	5.27	175.27	32.7	5.36
1980	352.04	39.6	8.89	175.91	32.1	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	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. p	Feb. p
TOTAL PRIVATE	35.6	35.3	35.1	35.2	35.0	35.0	35.3	35.3	35.5	35.3	35.3	35.3	35.6	35.0	34.9
MINING	43.0	43.2	43.2	43.4	42.8	42.7	43.2	41.9	43.1	43.5	43.5	43.5	44.1	43.7	42.8
CONSTRUCTION	37.0	37.0	35.7	36.2	36.7	36.9	37.9	37.7	37.3	37.9	37.9	36.8	37.1	36.3	34.6
MANUFACTURING	40.2	39.7	39.8	39.8	39.4	39.3	39.4	38.8	39.3	39.7	39.8	40.2	40.8	39.9	39.5
Overtime hours	3.3	2.8	2.9	3.0	2.7	2.5	2.5	2.4	2.7	3.0	2.9	3.1	3.3	2.9	2.8
Durable goods	40.8	40.2	40.3	40.3	39.9	39.7	39.8	39.1	39.7	40.2	40.3	40.7	41.5	40.4	39.9
Overtime hours	3.5	2.8	3.0	3.1	2.7	2.5	2.4	2.3	2.6	2.9	2.9	3.1	3.4	2.9	2.8
Lumber and wood products	39.4	38.6	38.5	38.3	37.1	37.6	38.4	38.2	39.2	39.3	39.2	39.2	39.6	38.7	37.8
Furniture and fixtures	38.7	38.1	38.4	38.5	37.9	37.3	37.3	36.2	37.6	38.3	38.5	38.4	39.6	38.0	38.1
Stone, clay, and glass products	41.5	40.8	40.1	40.7	40.4	40.6	41.0	40.3	40.7	41.1	41.3	41.4	41.6	40.3	39.8
Primary metal industries	41.4	40.1	40.7	40.7	40.6	39.3	39.1	38.6	39.0	39.9	39.9	40.8	41.6	41.2	40.6
Fabricated metal products	40.7	40.4	40.4	40.6	40.2	39.9	40.1	39.2	40.0	40.5	40.5	40.9	41.6	40.4	40.0
Machinery except electrical	41.8	41.1	41.5	41.5	41.1	40.8	40.8	40.0	40.4	41.0	40.7	41.3	42.2	41.2	40.9
Electric and electronic equipment	40.3	39.8	40.2	40.0	39.6	39.3	39.4	38.5	39.2	39.7	39.9	40.4	41.0	40.1	39.5
Transportation equipment	41.1	40.6	40.4	40.4	39.8	39.9	39.9	39.5	40.0	40.7	41.1	41.7	43.1	41.2	40.2
Instruments and related products	40.8	40.5	40.8	40.6	40.4	40.3	40.5	39.6	39.9	40.1	40.3	40.9	41.2	40.5	40.0
Miscellaneous manufacturing	38.8	38.7	38.6	38.8	38.4	38.2	38.3	37.8	38.5	39.1	38.9	39.1	39.5	38.6	38.7
Nondurable goods	39.3	39.0	38.9	38.9	38.7	38.7	38.8	38.5	38.9	39.1	39.1	39.3	39.8	39.1	38.8
Overtime hours	3.1	2.8	2.8	2.9	2.7	2.5	2.5	2.6	2.9	3.0	2.9	3.0	3.1	2.9	2.8
Food and kindred products	39.9	39.7	39.1	39.0	38.9	39.7	39.6	39.9	40.3	40.3	39.7	40.1	40.3	40.0	39.4
Tobacco manufactures	38.0	38.1	36.9	37.7	38.2	38.7	38.3	36.5	36.8	38.2	40.1	40.0	38.1	38.4	38.3
Textile mill products	40.4	40.0	40.8	40.9	39.9	39.8	39.6	38.5	39.2	39.8	39.9	40.3	40.8	39.8	39.7
Apparel and other textile products	35.3	35.4	35.4	35.4	35.3	35.3	35.6	35.3	35.4	35.2	35.4	35.4	35.9	35.1	35.0
Paper and allied products	42.6	42.3	42.4	42.4	42.2	41.6	41.7	41.4	41.8	42.4	42.2	42.8	43.7	43.0	42.6
Printing and publishing	37.5	37.1	37.0	37.2	36.8	36.9	36.7	36.8	37.2	37.3	37.2	37.2	38.1	37.1	37.0
Chemicals and allied products	41.9	41.5	41.6	41.7	41.6	41.3	41.2	40.7	40.9	41.3	41.4	42.0	42.1	41.3	41.4
Petroleum and coal products	43.8	41.8	39.7	39.4	41.1	42.3	42.3	42.7	42.2	43.4	43.7	43.6	43.3	42.6	42.4
Rubber and miscellaneous plastics products	40.5	40.1	39.9	40.0	39.7	39.0	39.3	38.6	40.0	40.3	40.7	41.1	41.6	41.1	40.3
Leather and leather products	36.5	36.7	36.8	36.4	36.7	37.0	37.4	36.4	36.6	36.2	36.5	36.3	36.9	36.5	36.9
TRANSPORTATION AND PUBLIC UTILITIES	39.9	39.6	39.4	39.5	39.5	39.3	39.6	39.9	39.7	39.7	39.8	39.7	40.0	39.2	39.4
WHOLESALE AND RETAIL TRADE	32.6	32.1	31.9	32.0	31.8	31.9	32.3	32.5	32.7	32.1	32.1	32.0	32.4	31.6	31.7
WHOLESALE TRADE	38.8	38.5	38.4	38.4	38.4	38.5	38.2	38.2	38.4	38.5	38.7	38.6	38.9	38.5	38.2
RETAIL TRADE	30.6	30.1	29.8	29.9	29.7	29.9	30.4	30.7	30.9	30.1	30.0	30.0	30.5	29.5	29.6
FINANCE, INSURANCE, AND REAL ESTATE	36.2	36.2	36.3	36.3	36.2	36.1	36.4	36.2	36.3	36.1	36.3	36.3	36.3	36.2	36.4
SERVICES	32.7	32.6	32.5	32.5	32.4	32.3	32.8	33.1	33.1	32.5	32.6	32.6	32.6	32.4	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	
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. P	Feb. P
TOTAL PRIVATE	35.5	35.4	35.3	35.1	35.0	34.9	35.1	35.2	35.3	35.4	35.4	35.5	35.2
MINING	43.2	43.4	42.8	42.7	43.2	41.9	43.1	43.5	43.5	43.5	44.1	43.7	42.8
CONSTRUCTION	37.1	36.6	36.7	36.8	37.1	36.8	36.5	37.4	37.0	37.2	37.1	38.4	35.9
MANUFACTURING	40.1	39.8	39.8	39.3	39.1	39.0	39.4	39.6	39.7	39.9	40.1	40.4	39.8
Overtime hours	3.0	3.1	3.0	2.6	2.4	2.5	2.7	2.7	2.8	2.9	3.1	3.1	2.9
Durable goods	40.6	40.3	40.3	39.7	39.5	39.4	39.9	40.1	40.1	40.5	40.6	40.9	40.2
Overtime hours	3.1	3.2	3.0	2.5	2.4	2.4	2.6	2.7	2.8	3.0	3.2	3.1	2.9
Lumber and wood products	39.1	38.7	37.3	37.5	37.6	38.1	38.9	38.8	38.7	39.3	39.4	40.0	38.3
Furniture and fixtures	39.0	38.5	38.5	37.6	37.0	36.6	37.4	38.0	38.0	38.0	38.6	38.8	38.7
Stone, clay, and glass products	41.2	40.9	40.6	40.3	40.4	40.2	40.3	40.9	40.9	41.1	41.3	41.5	40.8
Primary metal industries	40.8	40.7	40.6	39.2	38.8	38.6	39.2	39.7	40.1	40.9	41.4	41.3	40.7
Fabricated metal products	40.8	40.7	40.8	39.9	39.7	39.6	40.1	40.4	40.4	40.6	40.6	40.7	40.4
Machinery, except electrical	41.5	41.3	41.5	41.0	40.7	40.6	40.8	40.9	40.7	41.0	41.0	41.3	40.9
Electric and electronic equipment	40.3	40.0	39.9	39.5	39.2	39.0	39.4	39.5	39.9	40.0	40.2	40.4	39.6
Transportation equipment	40.8	40.4	40.5	39.7	39.5	39.6	40.9	40.6	40.8	41.4	41.3	42.2	40.6
Instruments and related products	40.9	40.4	40.7	40.3	40.4	40.1	40.1	40.1	40.2	40.5	40.5	40.9	40.1
Miscellaneous manufacturing	39.1	38.6	38.5	38.3	38.2	38.3	38.6	38.9	38.7	38.6	39.0	39.0	39.1
Nondurable goods	39.4	39.0	39.1	38.9	38.6	38.5	38.7	38.8	39.0	39.0	39.3	39.6	39.3
Overtime hours	2.9	3.0	3.0	2.6	2.5	2.6	2.8	2.7	2.8	2.9	3.0	3.1	3.0
Food and kindred products	39.7	39.3	39.6	39.9	39.6	39.7	39.8	39.7	39.6	39.8	39.8	40.3	40.0
Tobacco manufactures	37.9	37.7	38.2	38.2	37.3	38.5	37.3	37.5	39.5	38.9	37.2	39.6	39.3
Textile mill products	41.1	40.8	40.3	39.7	39.1	38.8	39.2	39.7	39.9	40.0	40.3	40.4	40.0
Apparel and other textile products	35.9	35.3	35.8	35.3	35.2	35.1	35.1	35.1	35.3	35.0	35.6	35.9	35.5
Paper and allied products	42.9	42.6	42.5	41.7	41.4	41.4	41.8	42.2	42.2	42.6	43.0	43.3	43.1
Printing and publishing	37.4	37.2	37.2	37.1	36.8	36.9	37.1	36.9	37.1	36.8	37.4	37.7	37.4
Chemicals and allied products	41.9	41.8	41.5	41.3	41.1	40.8	41.0	41.3	41.4	41.7	41.7	41.6	41.6
Petroleum and coal products	40.7	39.7	41.1	42.5	42.3	42.2	42.2	42.7	43.1	43.2	43.2	43.4	43.4
Rubber and miscellaneous plastics products	40.0	39.9	40.1	39.3	39.2	39.0	40.2	40.1	40.4	40.8	40.9	41.5	40.3
Leather and leather products	37.2	36.9	37.3	36.7	36.7	36.1	36.5	36.2	36.5	36.2	36.6	37.0	37.3
TRANSPORTATION AND PUBLIC UTILITIES	39.4	39.5	39.5	39.3	39.6	39.9	39.7	39.7	39.8	39.7	40.0	39.2	39.4
WHOLESALE AND RETAIL TRADE	32.4	32.3	32.0	32.1	31.9	31.8	32.0	32.1	32.2	32.2	32.1	32.2	32.2
WHOLESALE TRADE	38.8	38.5	38.5	38.6	38.0	38.0	38.2	38.5	38.5	38.6	38.7	38.8	38.6
RETAIL TRADE	30.4	30.3	30.0	30.1	30.0	29.8	30.1	30.1	30.2	30.2	30.0	30.2	30.2
FINANCE, INSURANCE, AND REAL ESTATE	36.3	36.3	36.2	36.1	36.4	36.2	36.3	36.1	36.3	36.3	36.3	36.2	36.4
SERVICES	32.7	32.7	32.6	32.5	32.6	32.6	32.6	32.5	32.6	32.7	32.6	32.6	32.6

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	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. p	Feb. p
TOTAL PRIVATE	$6.16	$6.66	$6.46	$6.51	$6.53	$6.57	$6.61	$6.64	$6.68	$6.80	$6.86	$6.93	$6.94	$7.03	$7.04
MINING	8.50	9.18	8.90	8.95	9.10	9.08	9.16	9.08	9.18	9.32	9.37	9.51	9.58	9.78	9.84
CONSTRUCTION	9.27	9.94	9.61	9.68	9.69	9.77	9.81	9.91	10.05	10.19	10.25	10.25	10.35	10.42	10.34
MANUFACTURING	6.69	7.27	7.00	7.06	7.09	7.13	7.20	7.29	7.30	7.42	7.49	7.59	7.69	7.72	7.72
Durable goods	7.13	7.76	7.46	7.54	7.56	7.60	7.69	7.77	7.78	7.93	8.02	8.13	8.24	8.24	8.25
Lumber and wood products	6.08	6.56	6.33	6.35	6.28	6.40	6.56	6.72	6.76	6.80	6.76	6.79	6.77	6.82	6.85
Furniture and fixtures	5.06	5.48	5.32	5.37	5.39	5.42	5.49	5.52	5.54	5.58	5.59	5.62	5.69	5.72	5.77
Stone, clay, and glass products	6.85	7.51	7.14	7.27	7.34	7.45	7.53	7.60	7.64	7.69	7.74	7.82	7.83	7.86	7.86
Primary metal industries	8.97	9.76	9.44	9.45	9.53	9.61	9.65	9.82	9.84	9.95	10.09	10.28	10.35	10.35	10.44
Fabricated metal products	6.84	7.44	7.14	7.24	7.27	7.32	7.42	7.42	7.48	7.62	7.68	7.75	7.86	7.86	7.90
Machinery, except electrical	7.32	8.04	7.69	7.76	7.81	7.91	7.97	8.05	8.07	8.28	8.36	8.44	8.57	8.59	8.61
Electric and electronic equipment	6.32	6.96	6.71	6.78	6.79	6.78	6.87	6.96	7.02	7.14	7.20	7.29	7.39	7.42	7.39
Transportation equipment	8.54	9.34	8.86	9.04	9.04	9.06	9.24	9.34	9.35	9.56	9.77	9.89	10.11	9.96	9.89
Instruments and related products	6.17	6.81	6.59	6.63	6.63	6.72	6.80	6.86	6.86	6.92	6.95	7.02	7.14	7.20	7.22
Miscellaneous manufacturing	5.03	5.45	5.30	5.34	5.37	5.40	5.42	5.46	5.46	5.51	5.55	5.60	5.72	5.81	5.81
Nondurable goods	6.00	6.54	6.27	6.30	6.36	6.42	6.48	6.60	6.62	6.69	6.72	6.80	6.86	6.94	6.94
Food and kindred products	6.27	6.86	6.64	6.68	6.75	6.82	6.84	6.89	6.90	6.93	6.95	7.09	7.13	7.21	7.22
Tobacco manufactures	6.65	7.66	7.36	7.57	7.79	7.64	7.97	8.06	7.74	7.42	7.56	7.74	8.00	8.44	8.35
Textile mill products	4.66	5.07	4.90	4.92	4.91	4.90	4.93	5.06	5.19	5.24	5.26	5.30	5.33	5.34	5.33
Apparel and other textile products	4.23	4.57	4.45	4.49	4.46	4.45	4.51	4.50	4.60	4.70	4.73	4.75	4.81	4.89	4.89
Paper and allied products	7.13	7.85	7.52	7.55	7.63	7.65	7.79	7.97	7.99	8.06	8.09	8.18	8.28	8.27	8.28
Printing and publishing	6.95	7.54	7.29	7.34	7.34	7.44	7.46	7.53	7.63	7.73	7.75	7.79	7.88	7.91	7.94
Chemicals and allied products	7.60	8.29	8.01	8.05	8.12	8.17	8.24	8.35	8.39	8.46	8.52	8.59	8.68	8.71	8.75
Petroleum and coal products	9.36	10.09	9.37	9.29	9.83	10.07	10.22	10.25	10.22	10.33	10.39	10.52	10.37	11.02	11.18
Rubber and miscellaneous plastics products	5.96	6.49	6.25	6.27	6.30	6.34	6.39	6.48	6.57	6.63	6.70	6.79	6.89	6.95	6.96
Leather and leather products	4.22	4.57	4.47	4.51	4.52	4.53	4.54	4.54	4.59	4.61	4.64	4.68	4.73	4.85	4.86
TRANSPORTATION AND PUBLIC UTILITIES	8.17	8.89	8.58	8.62	8.71	8.72	8.75	8.90	8.95	9.04	9.20	9.28	9.31	9.34	9.38
WHOLESALE AND RETAIL TRADE	5.06	5.48	5.36	5.40	5.40	5.42	5.43	5.48	5.48	5.56	5.59	5.64	5.61	5.79	5.81
WHOLESALE TRADE	6.39	6.97	6.77	6.83	6.87	6.89	6.95	6.99	7.01	7.08	7.10	7.20	7.24	7.31	7.35
RETAIL TRADE	4.53	4.88	4.78	4.81	4.80	4.82	4.83	4.88	4.89	4.95	4.98	5.02	4.99	5.17	5.18
FINANCE, INSURANCE, AND REAL ESTATE	5.27	5.78	5.60	5.68	5.68	5.70	5.77	5.77	5.82	5.87	5.91	6.01	6.00	6.12	6.21
SERVICES	5.36	5.85	5.70	5.75	5.75	5.79	5.81	5.79	5.81	5.93	6.00	6.10	6.12	6.21	6.28

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

[Seasonally adjusted data: 1967=100]

Industry	1980											1981		Jan. 1981 to Feb. 1981	Feb. 1980 to Feb. 1981
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. p	Feb. p		
TOTAL PRIVATE (in current dollars)	242.4	245.2	246.2	248.3	250.9	252.1	254.0	255.4	257.9	260.9	261.9	264.2	265.6	0.5	9.6
Mining	278.5	280.9	283.7	284.2	286.3	285.3	288.9	290.4	294.4	298.7	302.3	306.6	307.5	.3	10.4
Construction	229.8	232.2	233.0	234.2	235.3	236.7	239.0	239.3	241.6	243.0	245.3	247.7	246.2	−.6	7.1
Manufacturing	247.8	250.2	252.4	255.0	258.3	260.6	262.4	264.5	266.6	268.9	270.4	272.3	273.3	.4	10.3
Transportation and public utilities	262.4	265.9	267.2	268.7	270.6	272.8	273.2	274.0	280.2	283.4	284.1	285.9	287.1	.4	9.4
Wholesale and retail trade	235.2	237.8	238.0	239.8	241.8	243.5	245.3	246.5	247.7	250.9	250.9	254.1	255.4	.5	8.6
Finance, insurance, and real estate	221.1	225.7	224.9	226.3	230.2	229.0	232.7	233.1	234.8	239.3	238.0	240.9	244.0	1.3	10.4
Services	239.7	242.7	243.0	245.7	248.4	247.6	249.8	251.7	254.2	258.5	259.4	261.2	264.2	1.1	10.2
TOTAL PRIVATE (in constant dollars) r	102.2	102.1	101.0	101.5	101.6	102.1	102.0	101.5	101.4	101.5	100.8	100.9	...	...	...

r = revised.

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	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]
TOTAL PRIVATE	$219.30	$235.10	$226.75	$229.15	$228.55	$229.95	$233.33	$234.39	$237.14	$240.04	$242.16	$244.63	$247.06	$246.05	$245.70
MINING	365.50	396.58	384.48	388.43	389.48	387.72	395.71	380.45	395.66	405.42	407.60	413.69	422.48	427.39	421.15
CONSTRUCTION	342.99	367.78	343.08	350.42	355.62	360.51	371.80	373.61	374.87	386.20	388.48	377.20	383.99	378.25	357.76
MANUFACTURING	268.94	288.62	278.60	280.99	279.35	280.21	283.68	282.85	286.89	294.57	298.10	305.12	313.75	308.03	304.94
Durable goods	290.90	311.95	300.64	303.86	301.64	301.72	306.06	303.81	308.87	318.79	323.21	330.89	341.96	332.90	329.18
Lumber and wood products	239.55	253.22	243.71	243.21	232.99	240.64	251.90	256.70	264.99	267.24	264.99	266.17	268.09	263.93	258.93
Furniture and fixtures	195.82	208.79	204.29	206.75	204.28	202.17	204.78	199.82	208.30	213.71	215.22	215.81	225.32	217.36	219.84
Stone, clay, and glass products	284.28	306.41	286.31	295.89	296.54	302.47	308.73	306.28	310.95	316.06	319.66	323.75	325.73	316.76	312.83
Primary metal industries	371.36	391.38	384.21	384.62	386.92	377.67	377.32	379.05	383.76	397.01	402.59	419.42	430.56	426.42	423.86
Fabricated metal products	278.39	300.58	288.46	293.94	292.25	292.07	297.54	290.86	299.20	308.61	311.04	316.98	326.98	317.54	316.00
Machinery except electrical	305.98	330.44	319.14	322.04	320.21	322.73	325.18	322.00	326.03	339.48	340.25	348.57	361.65	353.91	352.15
Electric and electronic equipment	254.70	277.01	269.74	271.20	268.88	266.45	270.68	267.96	275.18	283.46	287.28	294.52	302.99	297.54	291.91
Transportation equipment	350.99	379.20	357.94	365.22	359.79	361.49	368.68	368.93	374.00	389.09	401.55	412.41	435.74	410.35	397.58
Instruments and related products	251.74	275.81	268.87	269.18	267.85	270.82	275.40	271.66	273.71	277.49	280.09	287.12	294.17	291.60	288.80
Miscellaneous manufacturing	195.16	210.92	204.58	207.19	206.21	206.28	207.59	206.39	210.21	215.44	215.90	218.96	225.94	224.27	224.85
Nondurable goods	235.80	255.06	243.90	245.07	246.13	248.45	251.42	254.10	257.52	261.58	262.75	267.24	273.03	271.35	269.27
Food and kindred products	250.17	272.34	259.62	260.52	262.58	270.75	270.86	274.91	278.07	279.28	275.92	284.31	287.34	288.40	284.47
Tobacco manufactures	252.70	291.85	271.58	285.39	297.58	295.67	305.25	294.19	284.83	283.44	303.16	309.60	304.80	324.10	319.81
Textile mill products	188.26	202.80	199.92	201.23	195.91	195.02	195.23	194.81	203.45	208.55	209.87	213.59	217.46	212.53	211.60
Apparel and other textile products	149.32	161.78	157.53	158.95	157.44	157.09	160.56	158.85	162.84	165.44	167.44	168.15	172.68	171.64	171.15
Paper and allied products	303.74	332.06	318.85	320.12	321.99	318.24	324.84	329.96	333.98	341.74	341.40	350.10	361.84	355.61	352.73
Printing and publishing	260.63	279.73	269.73	273.05	270.11	274.54	273.78	277.10	283.84	288.33	288.30	289.79	300.23	293.46	293.78
Chemicals and allied products	318.44	344.04	333.22	335.69	337.79	337.42	339.49	339.85	343.15	349.40	352.73	360.78	365.43	359.72	362.25
Petroleum and coal products	409.97	421.76	371.99	366.03	404.01	425.96	432.31	437.68	431.28	448.32	454.04	458.67	449.02	469.45	474.03
Rubber and miscellaneous plastics products	241.38	260.25	249.38	250.80	250.11	247.26	251.13	250.13	262.80	267.19	272.69	279.07	286.62	285.65	280.49
Leather and leather products	154.03	167.72	164.50	164.16	165.88	167.61	169.80	165.26	167.99	166.88	169.36	169.88	174.54	177.03	179.33
TRANSPORTATION AND PUBLIC UTILITIES	325.98	352.04	338.05	340.49	344.05	342.70	346.50	355.11	355.32	358.89	366.16	368.42	372.40	366.13	369.57
WHOLESALE AND RETAIL TRADE	164.96	175.91	170.98	172.80	171.72	172.90	175.39	178.10	179.20	178.48	179.44	180.48	181.76	182.96	184.18
WHOLESALE TRADE	247.93	268.35	259.97	262.27	263.81	265.27	265.49	267.02	269.18	272.58	274.77	277.92	281.64	281.44	280.77
RETAIL TRADE	138.62	146.89	142.44	143.82	142.56	144.12	146.83	149.82	151.10	149.00	149.40	150.60	152.20	152.52	153.33
FINANCE, INSURANCE, AND REAL ESTATE	190.77	209.24	203.28	206.18	205.62	205.77	210.03	208.87	211.27	211.91	214.53	218.16	217.80	221.54	226.04
SERVICES	175.27	190.71	185.25	186.88	186.30	187.02	190.57	191.65	192.31	192.73	195.60	198.86	199.51	201.20	203.47

20. Gross and spendable weekly earnings, in current and 1967 dollars, 1960 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	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars	Current dollars	1967 dollars
1960	$80.67	$90.95	$65.59	$73.95	$72.96	$82.25	$89.72	$101.15	$72.57	$81.82	$80.11	$90.32
1961	82.60	92.19	67.08	74.87	74.48	83.13	92.34	103.06	74.60	83.26	82.18	91.72
1962	85.91	94.82	69.56	76.78	76.99	84.98	96.56	106.58	77.86	85.94	85.53	94.40
1963	88.46	96.47	71.05	77.48	78.56	85.67	99.23	108.21	79.51	86.71	87.25	95.15
1964	91.33	98.31	75.04	80.78	82.57	88.88	102.97	110.84	84.40	90.85	92.18	99.22
1965	95.45	101.01	79.32	83.94	86.63	91.67	107.53	113.79	89.08	94.26	96.78	102.41
1966	98.82	101.67	81.29	83.63	88.66	91.21	112.19	115.42	91.45	94.08	99.33	102.19
1967	101.84	101.84	83.38	83.38	90.86	90.86	114.49	114.49	92.97	92.97	100.93	100.93
1968	107.73	103.39	86.71	83.21	95.28	91.44	122.51	117.57	97.70	93.76	106.75	102.45
1969	114.61	104.38	90.96	82.84	99.99	91.07	129.51	117.95	101.90	92.81	111.44	101.49
1970	119.83	103.04	96.21	82.73	104.90	90.20	133.33	114.64	106.32	91.42	115.58	99.38
1971	127.31	104.95	103.80	85.57	112.43	92.69	142.44	117.43	114.97	94.78	124.24	102.42
1972	136.90	109.26	112.19	89.54	121.68	97.11	154.71	123.47	125.34	100.03	135.57	108.20
1973	145.39	109.23	117.51	88.29	127.38	95.70	166.46	125.06	132.57	99.60	143.50	107.81
1974	154.76	104.78	124.37	84.20	134.61	91.14	176.80	119.70	140.19	94.92	151.56	102.61
1975	163.53	101.45	132.49	82.19	145.65	90.35	190.79	118.36	151.61	94.05	166.29	103.16
1976	175.45	102.90	143.30	84.05	155.87	91.42	209.32	122.77	167.83	98.43	181.32	106.35
1977	189.00	104.13	155.19	85.50	169.93	93.63	228.90	126.12	183.80	101.27	200.06	110.23
1978	203.70	104.30	165.39	84.69	180.71	92.53	249.27	127.63	197.40	101.08	214.87	110.02
1979	219.30	100.73	177.55	81.56	194.35	89.27	268.94	123.54	212.43	97.58	232.07	106.60
1980	235.10	95.18	188.82	76.45	206.40	83.56	288.62	116.85	225.79	91.41	247.01	100.00
1980: February	226.75	95.88	182.98	77.37	200.07	84.60	278.60	117.80	218.99	92.60	239.40	101.23
March	229.15	95.52	184.67	76.98	201.89	84.16	280.99	117.13	220.61	91.96	241.22	100.55
April	228.55	94.21	184.25	75.95	201.43	83.03	279.35	115.15	219.49	90.47	239.97	98.92
May	229.95	93.82	185.23	75.57	202.49	82.62	280.21	114.32	220.08	89.79	240.63	98.18
June	233.33	94.16	187.59	75.70	205.06	82.75	283.68	114.48	222.43	89.76	243.26	98.17
July	234.39	94.51	188.33	75.94	205.86	83.01	282.85	114.05	221.87	89.46	242.63	97.83
August	237.14	95.01	190.25	76.22	207.95	83.31	286.89	114.94	224.61	89.99	245.69	98.43
September	240.04	95.29	192.28	76.33	210.15	83.43	294.57	116.94	229.82	91.23	251.52	99.85
October	242.16	95.30	193.76	76.25	211.76	83.34	298.10	117.32	232.22	91.39	254.20	100.04
November	244.63	95.41	195.48	76.24	213.63	83.32	305.12	119.00	236.98	92.43	259.52	101.22
December	247.06	95.50	197.18	76.22	215.47	83.29	313.75	121.28	242.60	93.78	265.84	102.76
1981: January[p]	246.05	94.38	195.20	74.88	213.43	81.87	308.03	118.15	237.35	91.04	260.07	99.76
February[p]	245.70	....	194.95	....	213.16	....	304.94	....	235.28	....	257.80	....

[1]Not available.

NOTE: The earnings expressed in 1967 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 Calculation," **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

UNEMPLOYMENT INSURANCE DATA are compiled monthly by the Employment and Training Administration of the U.S. Department of Labor from records of State and Federal unemployment insurance claims filed and benefits paid. 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 unemployed. 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
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
All programs:													
Insured unemployment	3,740	3,730	3,652	3,629	3,680	3,790	4,140	3,911	3,961	3,661	3,726	4,085	4,623
State unemployment insurance program:[1]													
Initial claims[2]	2,837	1,818	1,705	2,190	2,248	2,319	2,737	1,829	1,702	1,808	1,673	2,544	....
Insured unemployment (average weekly volume)	3,537	3,518	3,356	3,278	3,343	3,455	3,692	3,408	3,087	2,903	2,983	3,321	3,845
Rate of insured unemployment	4.1	4.1	3.9	3.8	3.9	4.0	4.3	3.9	3.6	3.3	3.4	3.8	4.4
Weeks of unemployment compensated	13,792	12,801	13,170	12,689	12,302	12,441	14,398	12,786	11,689	11,443	r9,514	12,595	....
Average weekly benefit amount for total unemployment	$96.41	$98.39	$99.15	$99.52	$99.55	$99.88	$98.75	$99.68	$99.86	$92.32	r$101.96	$101.41	....
Total benefits paid	$1,283,946	$1,229,877	$1,218,231	$1,232,173	$1,196,836	$1,213,595	$1,397,508	$1,249,782	$1,144,885	$1,125,416	r$1,055,065	$1,242,957	....
Unemployment compensation for ex-servicemen:[3]													
Initial claims[1]	25	21	21	21	20	23	27	23	25	23	17	21	....
Insured unemployment (average weekly volume)	60	58	63	52	50	45	58	55	56	56	54	55	57
Weeks of unemployment compensated	299	255	249	246	220	122	331	244	245	255	216	267	....
Total benefits paid	$29,635	$25,308	$24,928	$24,518	$22,025	$11,761	$33,342	$24,560	$24,804	$25,880	r$21,024	$27,015	....
Unemployment compensation for Federal civilian employees:[4]													
Initial claims	19	11	12	11	12	14	17	15	19	21	14	18	....
Insured unemployment (average weekly volume)	34	32	30	25	22	20	26	25	29	32	35	37	41
Weeks of unemployment compensated	150	129	123	108	88	50	124	93	105	130	118	156	....
Total benefits paid	$14,118	$12,226	$11,901	$10,323	$8,280	$4,665	$11,296	$8,707	$9,699	$11,917	r$11,351	$14,735	....
Railroad unemployment insurance:													
Applications	22	7	5	4	6	24	44	13	10	9	7	11	....
Insured unemployment (average weekly volume)	40	39	30	27	23	27	44	39	40	38	38	39	....
Number of payments	80	71	68	62	54	55	66	86	89	84	70	83	....
Average amount of benefit payment	$199.01	$208.73	$210.79	$201.87	$193.44	$199.06	$207.08	$211.87	$211.99	$208.49	$209.00	$212.27	....
Total benefits paid	$14,967	$14,573	$13,884	$13,002	$9,953	$10,140	$13,320	$17,336	$18,809	$17,789	$14,269	$18,046	....
Employment service:[5]													
New applications and renewals	5,980	7,285	8,708	10,021	11,446	12,864	14,249	15,431	....	....	....	....	....
Nonfarm placements	1,314	1,561	1,853	2,143	2,413	2,730	3,105	3,445	....	....	....	....	....

[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. Exludes data on claims and payments made jointly with State programs

[5] Cumulative total for fiscal year (October 1-September 30).

r = revised

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

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, 1967–79

[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

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
	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
All items	233.2	249.4	251.7	253.9	256.2	258.4	260.5	233.3	249.6	251.9	254.1	256.4	258.7	260.7
Food and beverages	237.5	252.0	254.2	255.5	257.4	259.3	261.4	237.8	252.5	255.1	256.6	258.7	260.5	262.1
Housing	247.3	265.8	267.7	271.1	273.8	279.9	279.1	247.3	265.8	267.6	271.0	273.7	277.1	279.1
Apparel and upkeep	171.0	178.6	182.2	183.9	184.8	183.9	181.1	169.8	177.9	181.4	182.8	183.3	182.9	180.8
Transportation	233.5	252.7	254.7	256.1	259.0	261.1	264.7	234.1	253.5	255.2	256.6	259.7	261.9	265.7
Medical care	253.9	268.4	270.6	272.8	274.5	275.8	279.5	254.9	270.0	272.2	274.3	276.3	277.6	281.4
Entertainment	195.3	208.0	209.8	210.9	211.2	212.0	214.4	193.9	205.6	208.1	209.2	209.9	210.1	212.2
Other goods and services	206.3	214.5	220.6	221.5	222.8	224.6	226.2	206.0	214.0	219.0	219.9	221.0	223.0	224.4
Commodities	222.4	236.7	239.0	240.7	242.5	243.8	245.4	222.3	236.9	239.2	240.8	242.9	244.3	245.8
Commodities less food and beverages	212.0	226.0	228.4	230.2	232.0	232.9	234.3	212.0	226.2	228.4	230.0	232.0	233.1	234.7
Nondurables less food and beverages	224.6	242.6	244.1	244.4	245.3	246.8	250.2	226.3	244.8	246.0	246.1	247.1	248.8	252.6
Durables	201.3	212.4	215.3	218.1	220.6	221.1	221.0	199.6	210.5	213.5	216.3	218.9	219.7	219.5
Services	253.1	272.5	274.8	277.9	280.9	284.7	287.7	253.6	273.3	275.4	278.6	281.5	285.5	288.4
Rent, residential	184.1	193.2	195.1	197.1	198.3	199.6	200.9	183.9	193.0	194.8	196.8	198.0	199.4	200.6
Household services less rent	295.1	321.5	322.6	327.4	331.9	338.4	342.3	297.2	324.2	325.3	330.3	334.8	341.9	345.5
Transportation services	226.8	246.4	249.4	250.8	253.3	255.8	258.7	226.6	246.3	248.2	249.6	252.2	254.7	257.7
Medical care services	274.4	289.8	292.3	294.8	296.6	297.9	302.1	275.6	291.7	294.3	296.6	298.7	300.0	304.3
Other services	209.0	219.2	225.3	226.7	227.2	228.1	230.4	209.3	219.5	225.4	227.4	227.9	228.4	230.2
Special indexes:														
All items less food	229.9	246.3	248.6	250.9	253.2	255.5	257.6	230.0	246.6	248.7	251.0	253.4	255.7	257.9
All items less mortgage interest costs	224.3	239.0	241.5	243.0	244.5	245.9	247.8	224.7	239.6	242.0	243.5	245.1	246.7	248.5
Commodities less food	210.4	224.2	226.6	228.3	230.0	231.0	232.4	210.3	224.4	226.5	228.2	230.1	231.2	232.7
Nondurables less food	220.5	237.8	239.3	239.6	240.5	242.0	245.3	222.1	239.9	241.1	241.3	242.2	243.9	247.5
Nondurables less food and apparel	248.6	270.9	271.3	271.1	272.1	274.7	281.1	250.2	272.9	273.0	272.8	273.9	276.6	283.0
Nondurables	232.0	248.3	250.2	251.0	252.4	254.1	256.9	232.9	249.6	251.5	252.3	253.8	255.6	258.3
Services less rent	266.1	287.4	289.8	293.2	296.4	300.7	304.2	266.7	288.6	290.7	294.2	297.4	302.0	305.2
Services less medical care	249.2	268.7	271.0	274.2	277.2	281.2	284.2	249.5	269.4	271.4	274.7	277.7	281.9	284.7
Domestically produced farm foods	229.2	243.5	246.2	247.3	249.2	251.1	252.4	229.0	242.9	246.1	247.0	249.1	251.1	252.1
Selected beef cuts	265.7	274.5	278.8	276.8	278.9	276.2	276.2	268.1	275.9	280.8	279.0	280.7	278.4	277.9
Energy	327.9	370.7	370.1	368.0	366.1	370.4	381.7	331.5	374.2	373.1	371.1	369.5	373.7	385.2
All items less energy	225.9	240.0	242.5	245.1	247.7	249.7	251.2	225.3	239.4	242.0	244.5	247.2	249.3	250.6
All items less food and energy	220.6	234.3	236.9	239.7	242.4	244.5	245.7	219.6	233.4	235.9	238.7	241.5	243.6	244.8
Commodities less food and energy	193.7	204.3	207.2	209.4	211.2	211.7	211.5	192.4	202.9	205.7	207.8	209.9	210.6	210.4
Energy commodities	361.5	404.2	401.7	399.1	400.2	404.9	420.5	362.8	405.5	402.7	400.3	401.3	405.9	421.3
Services less energy	251.6	269.0	271.3	274.9	278.6	282.4	285.4	252.2	269.9	271.9	275.6	279.3	283.4	286.2
Purchasing power of the consumer dollar, 1967 = $1	$0.429	$0.401	$0.397	$0.394	$0.390	$0.387	$0.384	$0.429	$0.401	$0.397	$0.394	$0.390	$0.387	$0.384

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
	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
FOOD AND BEVERAGES	237.5	252.0	254.2	255.5	257.4	259.3	261.4	237.8	252.5	255.1	256.6	258.7	260.5	262.1
Food	243.8	258.7	261.1	262.4	264.5	266.4	268.6	244.0	259.2	261.9	263.4	265.7	267.6	269.2
Food at home	240.6	256.3	258.9	260.0	262.1	263.9	265.6	240.1	255.6	258.6	259.7	262.0	263.9	265.1
Cereals and bakery products	234.2	249.2	250.3	253.7	255.8	258.5	262.9	234.7	249.6	251.1	254.3	256.8	259.5	263.0
Cereals and cereal products (12/77 = 100)	125.0	136.3	137.1	137.5	138.7	140.8	143.2	126.1	136.8	137.8	138.5	139.7	142.3	144.5
Flour and prepared flour mixes (12/77 = 100)	125.7	133.6	133.3	133.2	132.9	133.5	135.9	126.9	133.9	134.1	133.8	133.6	134.4	136.8
Cereal (12/77 = 100)	123.7	137.6	138.5	139.3	141.1	143.8	145.8	124.2	137.7	138.6	139.3	141.5	145.0	147.2
Rice, pasta, and cornmeal (12/77 = 100)	126.4	136.8	138.4	138.9	140.5	143.1	146.0	127.9	138.4	140.2	141.6	142.7	145.8	147.8
Bakery products (12/77 = 100)	123.5	130.4	130.9	133.1	134.3	135.4	137.7	123.6	130.5	131.2	133.3	134.7	135.7	137.5
White bread	208.6	217.9	219.6	222.7	224.9	226.3	229.5	207.4	217.2	219.3	222.6	225.2	226.6	229.4
Other breads (12/77 = 100)	123.8	129.7	130.9	132.5	133.1	134.1	137.1	126.9	133.3	134.3	135.8	137.0	137.9	139.4
Fresh biscuits, rolls, and muffins (12/77 = 100)	124.8	130.0	129.2	133.4	134.6	135.4	137.6	123.1	128.9	128.1	132.1	134.1	135.1	136.4
Fresh cakes and cupcakes (12/77 = 100)	121.7	129.8	129.5	132.5	133.4	135.3	138.5	120.8	129.4	129.7	132.6	133.1	134.2	136.8
Cookies (12/77 = 100)	119.7	128.7	129.9	131.0	133.1	134.9	138.0	121.5	130.1	131.7	132.5	134.5	136.1	139.0
Crackers and bread and cracker products (12/77 = 100)	117.5	124.6	124.2	126.4	125.6	126.9	127.0	118.4	124.7	124.5	126.5	125.7	126.5	126.8
Fresh sweetrolls, coffeecake, and donuts (12/77 = 100)	122.2	131.4	131.6	133.4	135.3	135.9	138.0	124.1	131.6	132.0	134.1	136.1	136.4	138.5
Frozen and refrigerated bakery products and fresh pies, tarts, and turnovers (12/77 = 100)	125.7	131.4	132.1	135.3	136.2	137.5	139.7	122.5	129.2	129.9	130.9	132.4	134.0	135.2
Meats, poultry, fish, and eggs	238.0	245.4	251.8	252.6	254.9	255.7	255.1	237.5	244.3	251.2	251.8	254.2	255.0	254.1
Meats, poultry, and fish	243.0	251.0	257.7	259.0	260.7	259.9	260.6	242.5	249.8	257.1	258.1	259.9	259.2	259.4
Meats	244.1	251.1	257.8	258.7	261.1	260.0	259.7	243.7	250.0	257.2	258.1	260.3	259.3	259.2
Beef and veal	264.6	273.1	277.5	275.8	277.9	275.3	275.3	266.7	274.1	279.1	277.4	279.1	276.8	276.4
Ground beef other than canned	271.4	272.9	276.8	275.8	277.1	276.1	276.3	272.7	275.6	279.9	278.9	280.4	281.0	279.3
Chuck roast	274.7	279.8	287.7	284.4	291.7	288.5	285.3	283.6	287.9	295.4	294.0	301.9	296.0	295.2
Round roast	241.9	248.8	248.0	250.6	251.2	245.7	250.0	245.1	248.2	249.0	251.1	249.9	246.6	249.6
Round steak	249.8	258.0	260.7	258.9	263.8	260.2	262.4	249.4	256.4	261.4	257.9	261.8	257.6	255.5
Sirloin steak	250.9	274.1	280.9	270.7	271.8	267.6	264.9	253.5	278.8	282.2	272.8	274.9	269.7	266.3
Other beef and veal (12/77 = 100)	151.8	159.0	161.8	161.0	161.8	160.4	160.3	151.9	157.6	161.2	160.3	160.3	159.2	159.5
Pork	206.4	212.0	222.7	225.8	228.6	229.1	228.2	206.8	212.0	222.8	225.8	228.5	228.8	228.5
Bacon	194.5	201.5	220.1	224.7	229.5	231.9	228.1	195.3	205.6	223.0	226.0	232.3	234.1	232.5
Pork chops	192.1	199.9	206.2	207.8	208.5	208.7	211.6	194.8	198.5	205.0	207.3	204.8	206.8	210.2
Ham other than canned (12/77 = 100)	99.1	98.4	102.2	105.5	107.9	107.8	104.1	96.5	96.3	100.7	103.5	106.0	105.7	102.2
Sausage	256.6	262.5	277.9	282.4	283.5	285.6	287.8	260.3	263.6	280.0	283.2	285.9	287.2	288.5
Canned ham	220.8	217.0	225.1	232.5	237.7	238.4	241.1	219.3	219.1	225.9	235.2	242.2	242.6	243.3
Other pork (12/77 = 100)	116.2	123.1	128.6	127.6	128.4	127.6	127.4	116.2	122.7	128.5	127.9	128.8	127.4	127.9
Other meats	243.2	247.8	254.9	259.4	261.8	262.8	262.9	239.3	244.1	251.5	255.8	259.0	259.4	260.4
Frankfurters	239.0	245.8	256.1	260.9	262.6	264.0	262.5	239.5	245.9	254.3	260.3	262.6	263.4	262.6
Bologna, liverwurst, and salami (12/77 = 100)	134.1	138.5	143.5	146.5	148.4	149.1	151.2	130.5	134.5	141.2	143.6	145.7	145.2	148.0
Other lunchmeats (12/77 = 100)	121.2	123.7	125.7	127.8	129.7	129.9	130.3	118.7	121.5	123.5	125.5	127.5	127.7	128.1
Lamb and organ meats (12/77 = 100)	141.6	140.4	143.8	146.1	146.1	146.6	145.0	142.5	140.8	145.0	146.5	147.7	148.5	147.8
Poultry	187.8	197.5	205.2	209.1	204.1	202.7	202.4	184.3	195.1	203.3	205.4	201.4	201.1	199.2
Fresh whole chicken	191.1	205.3	214.0	216.7	208.7	206.9	202.5	183.8	199.9	209.6	210.5	203.5	202.2	197.2
Fresh and frozen chicken parts (12/77 = 100)	120.7	127.8	134.0	134.7	131.8	131.6	132.7	118.7	128.1	134.1	133.5	131.6	132.3	131.3
Other poultry (12/77 = 100)	119.3	120.3	122.9	128.7	128.0	126.6	128.7	120.1	119.1	122.0	127.1	126.5	126.2	127.9
Fish and seafood	316.7	331.8	335.8	336.6	343.0	346.9	358.0	315.4	327.3	333.4	333.8	340.0	343.1	350.0
Canned fish and seafood (12/77 = 100)	118.5	131.2	133.2	133.9	136.0	136.4	137.4	118.4	129.3	131.0	131.2	133.5	133.7	135.3
Fresh and frozen fish and seafood (12/77 = 100)	121.9	123.6	124.8	124.8	127.5	129.6	135.7	121.2	121.8	124.5	124.6	127.0	128.8	132.0
Eggs	178.2	178.3	179.9	175.3	185.2	206.6	190.2	177.0	177.1	178.4	174.4	185.7	206.6	190.1
Dairy products	218.4	229.7	230.6	232.7	235.4	238.0	240.1	218.9	229.9	230.9	233.1	235.9	238.8	240.7
Fresh milk and cream (12/77 = 100)	123.2	127.9	128.0	129.1	130.4	131.9	133.0	123.2	128.0	128.2	129.1	130.4	132.2	133.4
Fresh whole milk	202.3	209.8	209.7	211.3	213.3	216.2	218.2	201.8	209.7	209.8	211.0	213.0	216.5	218.5
Other fresh milk and cream (12/77 = 100)	122.1	127.1	127.7	129.1	130.5	131.4	132.1	122.8	127.6	128.3	129.5	131.0	131.9	132.9
Processed dairy products (12/77 = 100)	123.8	132.5	133.6	134.9	136.9	138.2	139.6	124.5	132.9	134.1	135.8	137.9	139.2	140.1
Butter	216.9	231.2	236.2	238.9	241.5	241.0	242.7	219.8	233.7	238.8	242.5	244.4	244.1	246.5
Cheese (12/77 = 100)	123.5	130.4	132.3	133.4	135.9	137.0	138.2	123.6	130.9	132.7	133.8	136.2	137.4	138.3
Ice cream and related products (12/77 = 100)	124.0	137.0	135.7	138.0	139.1	141.4	143.6	125.6	136.1	135.4	139.1	140.9	143.2	144.3
Other dairy products (12/77 = 100)	119.8	128.3	128.9	129.0	130.6	132.4	133.3	120.4	128.8	129.3	129.4	131.9	133.1	132.9
Fruits and vegetables	229.8	258.4	257.4	254.2	253.3	255.6	257.6	227.2	256.6	255.8	252.3	251.4	253.9	255.1
Fresh fruits and vegetables	227.2	273.0	269.6	262.3	258.3	262.0	263.9	224.9	270.8	267.8	259.6	255.7	260.2	260.3
Fresh fruits	233.6	302.3	286.3	272.9	258.6	251.8	245.6	232.7	300.1	284.9	270.4	255.5	248.6	241.1
Apples	230.4	340.8	295.2	242.2	213.5	218.8	220.8	230.1	342.2	295.3	243.7	213.0	216.9	216.8
Bananas	221.9	234.0	238.0	233.4	235.7	244.1	237.8	219.5	228.0	234.3	230.2	232.0	239.2	228.9
Oranges	236.2	297.1	296.5	312.9	316.6	299.3	272.9	231.3	285.5	284.2	301.5	300.4	287.0	258.9
Other fresh fruits (12/77 = 100)	122.5	158.5	150.8	145.4	134.9	128.6	127.8	122.7	157.9	151.9	145.6	136.4	129.2	128.4
Fresh vegetables	221.2	245.6	253.9	252.4	258.0	271.5	281.1	217.9	244.4	252.4	249.9	256.0	270.9	277.8
Potatoes	203.8	327.1	313.2	295.6	293.0	297.7	326.1	200.9	325.4	309.2	292.0	289.9	298.0	322.9
Lettuce	197.6	213.1	265.9	249.1	273.5	255.3	234.2	193.2	209.3	262.5	241.3	267.2	253.8	229.9
Tomatoes	216.7	205.4	214.2	237.3	192.2	206.1	247.2	213.2	199.6	210.8	235.6	188.9	204.5	239.8
Other fresh vegetables (12/77 = 100)	132.0	126.2	127.1	129.7	139.6	156.3	157.8	130.5	127.0	127.6	129.6	140.0	156.2	156.9
Processed fruits and vegetables	234.7	244.5	246.3	247.5	250.1	250.9	253.0	231.8	242.9	244.6	246.4	248.8	249.0	251.3
Processed fruits (12/77 = 100)	122.9	126.9	127.4	127.8	129.1	129.0	129.9	122.4	127.2	127.6	128.5	129.4	129.1	129.9
Frozen fruit and fruit juices (12/77 = 100)	117.2	119.2	119.3	118.8	120.5	120.6	120.7	116.5	118.1	118.5	118.8	120.7	119.9	119.6
Fruit juices and other than frozen (12/77 = 100)	125.1	130.1	130.8	131.0	131.9	131.6	133.2	124.5	130.7	131.0	131.9	132.3	132.2	133.2
Canned and dried fruits (12/77 = 100)	125.3	130.0	130.7	132.0	133.3	133.1	134.1	124.8	130.7	131.5	132.7	133.5	133.3	134.7
Processed vegetables (12/77 = 100)	113.0	118.8	120.1	120.8	122.2	123.1	124.2	111.2	117.5	118.7	119.6	121.0	121.5	123.0
Frozen vegetables (12/77 = 100)	111.9	119.6	119.7	120.3	121.8	122.1	124.1	111.4	119.2	119.4	120.3	121.7	121.2	123.3

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
	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
FOOD AND BEVERAGES—Continued														
Food—Continued														
Food at home—Continued														
Fruits and vegetables—Continued														
Cut corn and canned beans except lima (12/77=100)	114.5	119.4	121.4	122.5	124.1	124.5	126.0	112.7	118.1	119.6	120.9	121.8	122.8	124.5
Other canned and dried vegetables (12/77=100)	112.9	118.0	119.6	120.3	121.5	122.9	123.4	110.4	116.4	117.9	118.5	120.3	121.0	122.1
Other foods at home	283.5	307.8	309.2	311.5	314.8	317.1	320.5	282.6	307.4	309.1	311.7	315.7	317.8	320.8
Sugar and sweets	289.8	355.1	361.1	369.0	381.3	386.3	385.4	289.6	356.6	361.8	369.8	383.9	388.9	387.3
Candy and chewing gum (12/77=100)	121.3	132.6	134.2	134.7	135.7	136.9	138.6	121.2	133.2	134.7	135.4	136.8	137.4	139.4
Sugar and artificial sweeteners (12/77=100)	122.2	194.6	200.2	209.4	225.9	230.3	222.8	122.7	195.1	199.7	209.5	225.9	231.4	223.4
Other sweets (12/77=100)	118.7	128.3	129.2	131.5	132.5	133.7	137.1	117.5	126.9	127.7	129.2	131.9	133.1	135.5
Fats and oils (12/77=100)	233.9	242.0	243.6	246.0	247.4	251.9	260.4	234.9	242.4	244.6	247.0	248.2	252.6	261.8
Margarine	248.3	249.3	249.2	254.2	254.9	253.6	256.9	248.8	251.5	251.8	256.6	256.9	254.6	257.4
Nondairy substitutes and peanut butter (12/77=100)	115.3	124.7	125.8	125.6	127.4	139.6	156.0	116.1	124.8	125.8	125.5	128.0	139.9	156.4
Other fats, oils, and salad dressings (12/77=100)	121.9	126.2	127.4	128.5	129.0	129.1	130.3	122.3	125.7	127.4	128.7	128.8	129.1	131.0
Nonalcoholic beverages	378.5	402.8	403.9	404.9	405.5	405.2	409.7	375.6	403.0	403.6	405.8	407.8	407.4	410.7
Cola drinks, excluding diet cola	249.5	275.2	276.7	280.4	284.0	285.2	290.8	246.5	274.7	274.9	279.6	283.6	284.0	288.2
Carbonated drinks, including diet cola (12/77=100)	119.9	131.3	132.5	133.9	133.8	134.8	137.5	116.4	128.8	130.2	131.8	133.2	133.5	135.0
Roasted coffee	443.2	433.9	426.1	411.8	399.2	389.7	380.7	440.1	430.4	423.1	409.3	395.5	386.2	376.4
Freeze dried and instant coffee	378.2	380.3	376.1	368.1	364.9	356.5	354.6	376.8	379.7	374.8	366.3	364.0	358.1	355.8
Other noncarbonated drinks (12/77=100)	116.8	123.1	124.5	125.8	126.7	127.5	129.1	116.2	122.3	123.8	125.3	126.2	127.7	129.6
Other prepared foods	218.8	234.9	235.2	236.6	239.9	242.4	244.9	219.1	234.2	235.6	236.9	240.4	242.8	245.1
Canned and packaged soup (12/77=100)	116.5	123.7	123.8	124.1	125.1	127.2	128.1	116.8	124.2	124.7	124.9	125.6	128.0	127.9
Frozen prepared foods (12/77=100)	126.0	134.6	133.9	133.9	136.6	137.6	138.6	125.1	131.7	131.6	131.9	133.5	134.8	136.9
Snacks (12/77=100)	121.8	129.3	129.8	130.6	135.2	138.6	141.1	122.8	129.9	130.4	131.0	136.1	140.1	141.7
Seasonings, olives, pickles, and relish (12/77=100)	121.4	129.4	130.7	131.9	133.5	134.2	135.2	121.1	127.8	129.5	132.2	132.8	133.4	134.5
Other condiments (12/77=100)	120.8	131.8	133.0	133.4	133.3	133.5	134.4	121.4	133.4	135.0	135.3	136.5	136.3	136.3
Miscellaneous prepared foods (12/77=100)	119.6	130.9	130.6	132.0	133.5	133.8	135.4	199.7	130.2	131.1	131.7	133.8	133.5	135.2
Other canned and packaged prepared foods (12/77=100)	119.4	127.5	126.9	127.9	128.6	130.3	131.6	119.5	126.8	127.2	128.2	128.9	130.2	132.1
Food away from home	256.1	269.5	271.4	273.1	275.3	277.7	280.9	258.0	272.8	274.9	277.4	279.5	281.8	284.2
Lunch (12/77=100)	124.6	131.2	132.1	132.9	134.3	135.7	137.2	125.7	131.8	132.9	134.4	135.7	137.3	138.5
Dinner (12/77=100)	124.8	130.7	131.9	132.4	133.4	134.4	136.2	125.6	132.8	133.8	135.1	136.1	136.7	138.2
Other meals and snacks (12/77=100)	122.5	130.0	130.4	131.8	132.5	133.7	134.7	123.7	132.3	133.3	133.9	134.5	135.6	136.4
Alcoholic beverages	179.3	188.7	189.6	190.4	190.9	191.6	193.7	179.7	190.6	191.7	192.5	192.8	193.7	195.5
Alcoholic beverages at home (12/77=100)	116.8	123.1	123.6	124.0	124.4	124.9	126.1	117.6	124.6	125.1	125.6	125.9	126.5	127.6
Beer and ale	179.0	190.1	190.8	191.7	192.0	192.9	194.5	178.8	191.1	191.9	192.0	192.2	192.9	194.5
Whiskey	131.6	136.9	137.6	137.7	138.9	138.9	140.0	132.9	137.8	138.5	139.0	139.8	140.2	141.5
Wine	201.6	213.9	214.7	215.4	215.2	217.6	221.7	203.8	218.1	219.8	224.2	224.0	227.2	229.4
Other alcoholic beverages (12/77=100)	107.1	111.2	111.7	112.5	112.9	112.7	113.7	106.4	111.1	111.2	111.6	112.0	112.1	113.2
Alcoholic beverages away from home (12/77=100)	118.0	123.5	124.5	125.1	125.3	125.8	127.6	115.9	123.6	124.8	125.3	125.5	126.2	127.4
HOUSING	247.3	265.8	267.7	271.1	273.8	276.9	279.1	247.3	265.8	267.6	271.0	273.7	277.1	279.1
Shelter	264.0	283.3	285.3	290.4	294.7	298.5	300.1	265.1	284.8	286.8	292.0	296.4	300.4	301.7
Rent, residential	184.1	193.2	195.1	197.1	198.3	199.6	200.9	183.9	193.0	194.8	196.8	198.0	199.4	200.6
Other rental costs	251.1	267.5	268.9	268.8	268.3	267.7	273.9	251.1	267.3	268.6	268.8	268.4	267.3	273.6
Lodging while out of town	267.0	286.4	287.0	286.0	284.2	282.6	291.5	266.1	285.1	285.6	284.9	283.3	281.0	289.9
Tenants' insurance (12/77=100)	116.2	122.2	124.7	125.4	126.5	126.9	127.6	116.8	122.7	125.2	126.0	126.8	127.2	128.0
Homeownership	292.5	315.4	317.6	323.8	329.4	334.2	335.8	294.6	318.1	320.2	326.7	332.3	337.5	338.6
Home purchase	242.1	258.1	261.5	265.5	267.3	267.2	266.2	242.3	258.6	262.1	266.4	268.2	268.0	266.4
Financing, taxes, and insurance	359.8	393.6	393.5	404.7	416.9	429.4	435.2	363.4	398.8	398.9	410.8	423.1	436.0	441.3
Property insurance	327.7	355.9	359.8	362.0	364.5	365.8	369.8	328.8	357.9	362.9	365.3	367.8	369.0	373.2
Property taxes	186.7	190.3	191.2	192.0	192.8	194.5	196.0	188.2	192.0	193.0	193.8	194.7	196.4	197.9
Contracted mortgage interest cost	452.8	501.8	500.9	518.1	536.7	555.5	563.5	453.7	504.2	503.6	521.2	539.7	558.7	565.9
Mortgage interest rates	183.7	192.0	188.9	192.6	198.0	205.1	209.0	183.8	192.5	189.5	193.0	198.4	205.5	209.4
Maintenance and repairs	270.6	288.5	291.6	292.8	294.2	296.8	296.8	271.9	287.7	290.3	290.4	291.1	294.2	294.1
Maintenance and repair services	293.2	312.4	315.9	317.0	318.6	321.5	321.3	295.9	312.1	315.6	315.1	315.9	320.3	319.8
Maintenance and repair commodities	217.6	232.7	234.9	236.3	237.1	239.1	239.7	218.4	233.2	233.9	235.0	235.6	236.2	236.7
Paint and wallpaper, supplies, tools, and equipment (12/77=100)	122.5	134.4	135.6	136.9	137.4	139.2	139.5	122.2	133.1	132.7	133.1	134.7	134.9	135.1
Lumber, awnings, glass, and masonry (12/77=100)	115.9	120.1	122.2	122.4	122.3	123.2	123.4	118.6	120.4	121.8	122.5	122.0	122.9	122.7
Plumbing, electrical, heating, and cooling supplies (12/77=100)	114.7	122.7	123.2	123.8	124.2	124.8	125.2	117.0	126.6	126.1	126.6	124.6	124.9	124.5
Miscellaneous supplies and equipment (12/77=100)	115.4	122.1	122.7	123.3	123.7	124.2	124.7	113.2	123.9	125.2	125.9	126.4	126.3	127.9
Fuel and other utilities	258.6	286.8	288.2	287.6	285.7	289.9	296.7	259.2	287.4	288.7	288.0	286.3	290.7	297.5
Fuels	318.0	362.5	364.5	362.8	358.7	364.7	375.4	318.1	362.1	363.8	362.1	358.2	364.5	375.0
Fuel oil, coal, and bottled gas	514.0	561.5	561.5	558.7	567.0	585.3	625.9	515.1	562.7	562.9	559.9	568.3	587.0	627.9
Fuel oil	534.4	586.1	585.4	581.5	589.8	610.0	656.0	534.9	586.4	585.9	581.8	590.3	610.9	657.1
Other fuels (6/78 = 100)	132.7	140.8	142.1	143.1	145.7	148.4	152.3	133.7	142.5	143.8	144.8	147.3	150.1	154.1
Gas (piped) and electricity	273.0	316.1	318.4	317.1	310.5	313.9	318.5	273.0	315.4	317.4	316.0	309.8	313.4	317.7
Electricity	226.6	268.3	269.2	265.3	258.7	262.3	266.9	226.8	268.6	269.6	265.3	258.4	262.1	266.5
Utility (piped) gas	335.1	375.2	380.2	384.6	379.0	381.5	385.3	333.8	372.0	376.1	380.9	376.7	379.7	383.3

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
	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
HOUSING—Continued														
Fuel and other utilities—Continued														
Other utilities and public services	161.5	166.5	167.1	167.8	169.0	170.6	171.9	161.5	166.4	167.1	167.8	169.1	170.7	172.0
Telephone services	133.4	136.5	137.0	137.5	138.7	140.3	141.1	133.4	136.4	136.9	137.4	138.7	140.3	141.1
Local charges (12/77 = 100)	102.6	105.4	106.0	106.6	108.3	110.5	111.6	102.6	105.2	105.9	106.5	108.3	110.6	111.7
Interstate toll calls (12/77 = 100)	97.7	101.9	102.1	102.1	101.7	101.8	101.8	97.7	101.9	102.1	102.1	101.8	101.8	101.9
Intrastate toll calls (12/77 = 100)	100.8	99.9	100.1	100.1	100.6	100.9	101.0	100.6	99.7	100.0	99.9	100.5	100.7	100.8
Water and sewerage maintenance	250.0	263.5	264.5	266.2	267.0	267.8	271.4	250.5	264.5	265.5	267.3	268.0	268.7	272.5
Household furnishings and operations	196.9	207.2	209.2	210.1	211.0	211.6	212.6	194.9	204.5	206.0	206.8	208.1	209.0	209.7
Housefurnishings	167.6	175.2	177.3	177.9	178.1	178.3	178.7	166.5	173.5	175.0	175.6	176.4	176.9	176.9
Textile housefurnishings	176.7	189.1	194.1	195.9	192.4	193.2	191.9	175.3	189.6	192.5	195.1	195.7	196.6	193.4
Household linens (12/77 = 100)	105.4	114.1	118.4	119.5	117.3	117.2	114.6	106.0	114.7	117.7	119.5	122.6	122.7	117.0
Curtains, drapes, slipcovers, and sewing materials (12/77 = 100)	115.1	121.9	123.6	124.9	122.7	123.8	124.9	113.2	122.4	122.7	124.1	121.2	122.4	124.6
Furniture and bedding	184.0	192.6	195.7	195.2	196.5	197.0	196.6	183.6	189.9	192.0	192.5	193.9	194.4	193.6
Bedroom furniture (12/77 = 100)	119.1	125.8	127.9	127.4	128.6	129.2	128.3	116.8	123.6	124.5	124.6	125.5	125.7	125.1
Sofas (12/77 = 100)	108.2	111.3	112.7	113.8	114.2	115.3	114.2	110.6	110.4	111.1	113.0	113.6	114.7	113.2
Living room chairs and tables (12/77 = 100)	108.9	111.6	114.1	113.0	113.3	113.1	113.1	109.4	112.3	115.1	114.4	115.6	115.2	114.3
Other furniture (12/77 = 100)	118.1	125.7	127.5	127.0	127.9	127.8	128.7	117.8	122.5	123.6	123.6	124.6	124.7	125.6
Appliances including TV and sound equipment	137.8	141.4	142.0	142.3	142.6	142.4	143.1	137.2	140.6	141.2	141.2	141.4	142.0	142.7
Television and sound equipment (12/77 = 100)	105.3	106.6	107.0	107.1	107.4	107.2	107.4	104.9	105.2	105.7	105.6	106.1	106.1	106.5
Television	103.7	105.0	105.0	104.7	105.1	105.2	105.6	102.2	103.3	103.2	103.2	103.8	103.7	104.2
Sound equipment (12/77 = 100)	107.8	109.1	109.8	110.3	110.6	110.1	110.2	108.2	107.9	108.8	108.7	109.1	109.2	109.4
Household appliances	158.5	164.6	165.5	166.0	166.2	165.9	167.2	157.7	164.5	165.2	165.3	165.2	166.3	167.6
Refrigerators and home freezer	156.7	164.4	164.8	165.8	166.1	166.5	168.0	159.4	168.0	169.1	169.4	169.2	170.9	171.7
Laundry equipment (12/77 = 100)	114.1	120.2	120.9	121.5	122.0	123.4	123.6	113.8	120.1	120.0	120.2	120.2	121.4	121.9
Other household appliances (12/77 = 100)	110.5	113.3	114.2	114.2	114.2	113.1	114.2	108.6	112.0	112.5	112.5	112.4	112.8	114.0
Stoves, dishwashers, vacuums, and sewing machines (12/77 = 100)	110.0	111.8	111.8	112.4	113.0	112.0	114.8	109.2	111.4	111.8	112.1	112.6	113.9	115.7
Office machines, small electric appliances, and air conditioners (12/77 = 100)	111.1	115.1	117.0	116.2	115.5	114.3	113.6	107.8	112.6	113.4	113.0	112.1	111.5	112.0
Other household equipment (12/77 = 100)	114.6	121.7	123.0	124.1	124.6	124.8	125.6	113.3	120.5	121.6	122.2	123.2	123.1	123.8
Floor and window coverings, infants' laundry cleaning and outdoor equipment (12/77 = 100)	113.1	121.7	123.0	123.3	124.3	124.6	125.7	108.9	115.3	116.8	118.2	119.0	118.4	118.9
Clocks, lamps, and decor items (12/77 = 100)	111.6	119.8	120.6	121.6	121.4	121.7	122.3	109.4	117.1	118.2	119.4	119.2	118.8	119.2
Tableware, serving pieces, and nonelectric kitchenware (12/77 = 100)	119.9	125.8	128.2	130.0	130.6	130.8	131.9	117.3	125.1	126.3	126.3	127.4	127.6	128.0
Lawn equipment, power tools, and other hardware (12/77 = 100)	110.6	117.1	117.2	117.9	118.4	118.7	118.7	113.0	119.6	120.3	120.9	122.3	122.3	123.8
Housekeeping supplies	231.1	249.9	252.0	253.6	256.0	257.7	259.5	228.8	247.8	249.6	251.2	253.5	256.0	257.5
Soaps and detergents	224.1	240.1	243.7	248.7	252.4	254.0	255.6	222.2	236.8	241.1	245.6	248.2	252.3	253.4
Other laundry and cleaning products (12/77 = 100)	116.1	124.4	125.6	125.7	126.7	127.6	128.8	115.6	123.9	125.0	125.1	126.2	127.6	129.0
Cleansing and toilet tissue, paper towels and napkins (12/77 = 100)	120.6	132.2	133.8	134.2	135.6	136.1	137.3	121.8	135.1	135.8	136.2	136.6	137.6	139.2
Stationery, stationery supplies, and gift wrap (12/77 = 100)	111.6	117.4	118.0	118.6	118.3	119.5	119.9	109.0	117.4	116.9	118.2	118.8	120.0	120.7
Miscellaneous household products (12/77 = 100)	117.7	127.7	129.0	129.5	131.1	132.5	132.6	115.0	125.5	126.6	126.7	128.4	129.5	129.3
Lawn and garden supplies (12/77 = 100)	114.4	127.5	127.1	126.9	128.0	128.4	130.0	111.3	121.4	120.5	121.0	122.5	122.5	122.7
Housekeeping services	260.0	271.6	273.3	274.5	276.1	277.1	279.6	259.2	269.0	270.2	271.0	272.5	273.8	276.4
Postage	257.3	257.3	257.3	257.3	257.3	257.3	257.3	257.2	253.7	257.3	257.3	257.3	257.3	257.3
Moving, storage, freight, household laundry, and drycleaning services (12/77 = 100)	122.9	131.3	132.8	133.3	134.6	134.4	137.0	123.3	129.7	130.3	130.2	131.4	131.8	134.3
Appliance and furniture repair (12/77 = 100)	114.0	119.4	119.8	120.3	120.7	121.4	122.4	114.4	118.3	118.7	119.2	119.7	120.6	121.5
APPAREL AND UPKEEP	171.0	178.6	182.2	183.9	184.8	183.9	181.1	169.8	177.9	181.4	182.8	183.3	182.9	180.0
Apparel commodities	164.3	171.0	174.9	176.4	177.2	176.0	172.6	163.6	170.7	174.4	175.6	176.0	175.3	172.6
Apparel commodities less footwear	161.1	167.8	171.8	173.1	173.9	172.5	168.9	160.2	167.3	171.1	172.2	172.5	171.6	168.7
Men's and boys'	162.8	167.9	171.7	173.9	174.8	174.3	171.1	162.4	168.4	171.6	173.8	174.8	174.4	171.7
Men's (12/77 = 100)	102.6	105.6	108.1	109.5	110.1	109.8	107.5	102.3	106.1	108.3	109.3	110.2	109.9	107.9
Suits, sport coats, and jackets (12/77 = 100)	98.8	99.2	103.2	104.3	104.7	103.5	99.9	94.9	95.2	98.3	99.7	99.4	98.2	95.1
Coats and jackets (12/77 = 100)	95.5	96.7	99.9	100.4	100.5	99.7	95.2	95.6	98.0	100.0	101.3	101.9	101.9	97.4
Furnishings and special clothing (12/77 = 100)	112.2	119.3	120.8	122.9	123.3	123.9	123.9	109.3	116.3	117.5	118.8	119.7	120.0	119.9
Shirts (12/77 = 100)	108.6	114.9	116.9	118.3	119.6	119.7	115.4	108.3	115.1	117.4	118.5	120.4	120.7	116.7
Dungarees, jeans, and trousers (12/77 = 100)	98.2	99.5	101.2	102.6	103.5	103.4	103.4	102.2	105.0	107.1	108.3	108.7	108.1	108.2
Boys' (12/77 = 100)	105.6	109.5	111.4	113.0	113.3	113.1	112.0	104.7	108.6	110.2	112.0	112.7	112.6	111.6
Coats, jackets, sweaters, and shirts (12/77 = 100)	99.3	106.0	108.1	109.2	109.4	108.6	104.8	99.8	107.1	109.6	111.2	112.5	111.8	107.9
Furnishings (12/77 = 100)	111.5	114.6	116.6	118.1	118.4	118.7	119.1	109.7	112.9	113.7	115.1	115.2	116.2	115.8
Suits, trousers, sport coats, and jackets (12/77 = 100)	108.2	110.3	111.9	113.9	114.3	114.3	114.8	106.6	108.2	109.4	111.5	111.9	112.0	112.9
Women's and girls'	151.5	153.7	159.0	159.7	159.9	157.4	152.1	149.9	154.1	159.8	160.3	159.9	158.2	153.9
Women's (12/77 = 100)	100.8	101.7	105.7	106.1	106.3	104.4	100.8	100.1	102.5	107.0	107.0	106.6	105.3	102.3
Coats and jackets	166.4	164.0	168.9	167.0	164.7	161.4	150.4	165.0	170.2	177.0	176.5	175.5	172.2	162.1
Dresses	161.3	158.3	168.5	170.0	168.1	163.8	155.5	150.0	151.1	156.8	157.5	157.7	154.3	147.3
Separates and sportswear (12/77 = 100)	96.1	98.5	102.2	101.6	102.9	101.4	98.2	97.1	99.7	104.6	103.6	102.8	98.2	95.5
Underwear, nightwear, and hosiery (12/77 = 100)	108.6	114.2	114.6	114.9	116.7	116.8	116.0	109.1	114.3	114.8	115.3	116.4	116.6	115.6
Suits (12/77 = 100)	91.0	86.5	95.4	98.2	97.4	91.9	87.8	94.0	91.3	105.7	106.8	102.8	98.2	95.5
Girls (12/77 = 100)	100.5	104.5	105.8	107.0	106.5	106.1	102.9	97.9	102.3	103.3	105.1	105.3	104.9	102.5
Coats, jackets, dresses, and suits (12/77 = 100)	97.5	103.4	102.1	103.2	102.7	101.3	96.0	91.9	99.5	97.3	99.0	99.1	98.6	94.4
Separates and sportswear (12/77 = 100)	99.9	102.0	105.3	106.7	105.9	106.1	103.6	99.8	100.7	104.2	106.3	106.8	106.6	104.4
Underwear, nightwear, hosiery, and accessories (12/77 = 100)	106.7	111.2	113.0	113.8	114.0	113.8	113.1	104.4	109.6	111.3	112.8	112.6	112.2	112.2

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
	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
APPAREL AND UPKEEP—Continued														
Apparel commodities—Continued														
Apparel commodities less footwear—Continued														
Infants' and toddlers'	224.9	243.9	242.4	244.1	248.9	250.1	249.7	229.1	252.6	248.3	249.2	254.0	255.4	256.9
Other apparel commodities	184.4	209.9	210.5	211.8	213.7	213.3	214.2	185.5	204.1	204.4	204.1	204.0	204.4	205.3
Sewing materials and notions (12/77 = 100)	103.2	110.2	110.9	111.9	110.3	110.6	111.9	101.2	110.0	110.7	112.0	110.2	110.0	110.8
Jewelry and luggage (12/77 = 100)	126.1	146.5	146.8	147.5	149.9	149.5	149.7	128.4	142.0	142.0	141.1	141.8	142.3	142.8
Footwear	183.7	190.3	193.2	196.1	196.5	196.6	194.9	183.3	190.0	193.3	195.6	196.4	196.7	195.5
Men's (12/77 = 100)	117.8	121.3	123.6	124.7	125.4	124.6	124.4	119.3	123.4	124.9	125.8	126.7	126.0	126.1
Boys' and girls' (12/77 = 100)	117.3	122.8	123.3	125.8	126.2	126.6	125.7	116.9	123.9	124.6	126.9	127.4	127.8	127.0
Womens' (12/77 = 100)	111.6	115.4	117.7	119.6	119.4	120.0	118.1	109.4	111.7	115.1	116.3	116.5	117.5	115.9
Apparel services	220.7	235.4	237.3	240.0	241.9	243.4	246.3	216.9	233.7	234.5	238.1	239.9	242.2	245.5
Laundry and drycleaning other than coin operated (12/77 = 100)	129.3	138.3	140.0	141.1	142.4	143.5	145.3	129.0	138.4	139.1	140.9	141.6	143.2	145.5
Other apparel services (12/77 = 100)	119.6	126.9	126.9	129.2	130.0	130.5	131.7	115.1	125.0	125.1	127.4	129.1	129.9	131.1
TRANSPORTATION	233.5	252.7	254.7	256.1	259.0	261.1	264.7	234.1	253.5	255.2	256.6	259.7	261.9	265.7
Private	233.5	251.6	253.2	254.5	257.4	259.4	262.9	234.1	252.7	254.1	255.5	258.6	260.8	264.4
New cars	173.9	181.1	181.7	181.9	184.3	184.5	185.3	174.1	181.9	182.3	182.0	184.5	184.6	185.7
Used cars	197.2	206.4	214.6	222.7	230.8	234.4	234.0	197.2	206.4	214.6	222.7	230.8	234.4	234.0
Gasoline	334.6	375.9	373.0	370.5	370.5	373.3	385.2	335.9	377.1	373.9	371.7	371.7	374.4	386.6
Automobile maintenance and repair	255.1	271.1	273.8	276.0	278.4	280.1	282.7	256.2	272.2	273.9	276.6	278.9	280.6	283.2
Body work (12/77 = 100)	125.0	133.0	133.8	135.0	136.1	136.8	137.3	124.3	132.4	133.0	134.6	135.9	136.7	137.3
Automobile drive train, brake, and miscellaneous mechanical repair (12/77 = 100)	121.8	129.0	130.9	132.7	133.6	134.0	135.8	123.6	131.5	131.8	133.9	135.0	135.6	137.5
Maintenance and servicing (12/77 = 100)	120.2	128.4	129.4	130.0	131.0	131.6	132.5	120.4	128.4	129.5	130.2	131.1	131.7	132.7
Power plant repair (12/77 = 100)	120.4	127.3	128.7	129.8	131.3	132.7	134.4	120.9	127.5	128.5	129.6	130.8	132.2	133.5
Other private transportation	209.8	224.7	226.0	226.5	228.8	231.0	232.4	210.6	226.8	227.6	228.0	230.6	233.2	235.0
Other private transportation commodities	188.4	198.3	200.9	200.9	203.1	203.6	203.7	188.0	200.6	201.9	201.4	203.4	205.7	206.2
Motor oil, coolant, and other products (12/77 = 100)	120.9	136.3	137.5	136.5	137.8	138.8	139.1	122.4	136.1	135.6	135.4	137.3	139.0	139.2
Automobile parts and equipment (12/77 = 100)	121.9	127.0	128.8	128.9	130.3	130.6	130.6	121.4	128.7	129.8	129.4	130.6	132.0	132.4
Tires	165.8	175.9	178.8	179.2	181.7	182.1	181.5	166.3	179.9	181.5	180.8	182.5	184.7	184.8
Other parts and equipment (12/77 = 100)	126.6	126.2	127.3	126.9	127.3	127.6	128.6	124.0	125.2	125.8	125.7	126.9	127.8	128.9
Other private transportation services	217.6	233.9	234.9	235.6	237.9	240.6	242.4	218.7	236.0	236.7	237.3	240.1	242.9	244.9
Automobile insurance	237.1	250.2	251.3	251.5	251.9	252.5	252.3	236.8	249.9	250.9	251.2	251.5	252.0	251.8
Automobile finance charges (12/77 = 100)	129.9	148.2	148.6	149.9	154.4	159.4	163.4	129.4	147.5	147.5	148.3	153.2	157.9	161.7
Automobile rental, registration, and other fees (12/77 = 100)	109.1	114.0	114.5	114.6	115.0	115.8	116.2	109.8	115.4	115.8	116.3	116.7	117.5	118.2
State registration	144.2	146.5	146.5	146.5	146.6	146.9	146.9	144.1	146.4	146.5	146.5	146.6	147.0	146.9
Drivers' license (12/77 = 100)	104.7	104.9	104.9	104.9	105.0	105.3	105.3	104.5	104.6	104.6	104.7	104.7	105.1	105.1
Vehicle inspection (12/77 = 100)	117.5	122.8	122.8	122.9	123.2	124.3	124.8	118.3	123.5	123.5	123.6	123.9	125.1	125.6
Other vehicle related fees (12/77 = 100)	118.8	128.3	129.8	130.0	130.7	132.7	133.7	123.8	136.6	137.8	139.1	140.0	142.0	144.1
Public	226.8	261.5	271.0	273.6	277.0	280.1	286.4	221.9	256.9	264.4	266.5	269.2	271.8	279.0
Airline fare	251.1	289.8	310.3	315.0	321.8	327.4	331.9	251.0	287.9	308.6	313.0	319.8	325.7	330.2
Intercity bus fare	284.7	297.9	304.7	307.1	308.0	310.1	310.7	284.8	298.0	304.5	306.9	308.0	309.8	310.6
Intracity mass transit	198.5	234.1	234.8	235.6	236.1	237.1	247.1	196.7	233.8	234.4	235.2	235.6	236.5	246.5
Taxi fare	243.1	266.2	266.8	267.9	269.2	269.7	271.0	248.9	273.0	273.6	274.7	275.6	275.9	277.5
Intercity train fare	237.2	255.4	255.5	255.6	255.6	270.1	276.4	237.1	255.6	255.6	255.7	255.7	270.3	276.8
MEDICAL CARE	253.9	268.4	270.6	272.8	274.5	275.8	279.5	254.9	270.0	272.2	274.3	276.3	277.6	281.4
Medical care commodities	160.5	170.2	171.3	172.5	173.8	175.1	176.7	161.0	170.8	171.8	173.0	174.1	175.6	177.5
Prescription drugs	147.9	156.4	157.5	158.5	159.6	160.7	162.7	148.8	157.4	158.5	159.5	160.2	161.5	163.4
Anti-infective drugs (12/77 = 100)	115.8	120.5	122.4	124.1	124.6	124.7	127.7	118.2	121.6	123.4	125.1	125.6	126.4	128.6
Tranquilizers and sedatives (12/77 = 100)	119.9	126.1	126.3	127.1	128.9	130.2	130.7	119.7	125.4	125.4	126.2	127.7	128.6	129.4
Circulatories and diuretics (12/77 = 100)	112.4	116.0	116.9	117.3	118.3	119.1	120.6	113.0	118.2	118.9	119.3	119.9	120.2	121.3
Hormones, diabetic drugs, biologicals, and prescription and supplies (12/77 = 100)	126.0	138.2	138.9	139.6	140.4	142.3	143.9	124.8	137.0	138.1	138.8	139.6	141.7	143.8
Pain and symptom control drugs (12/77 = 100)	118.8	125.2	125.6	126.3	126.7	126.9	128.7	119.0	127.6	128.1	128.7	128.3	129.6	131.4
Supplements, cough and cold preparations, and respiratory agents (12/77 = 100)	112.6	119.9	120.5	120.4	121.2	122.4	123.2	114.2	121.2	121.8	122.1	122.3	123.1	123.8
Nonprescription drugs and medical supplies (12/77 = 100)	115.3	122.6	123.3	124.4	125.3	126.2	127.1	115.6	122.9	123.6	124.4	125.5	126.5	127.9
Eyeglasses (12/77 = 100)	111.5	119.9	120.5	121.0	121.2	120.8	121.5	111.4	118.4	119.0	119.6	120.2	120.4	121.1
Internal and respiratory over-the-counter drugs	179.1	190.4	191.2	193.5	195.8	198.1	199.3	179.0	191.6	192.4	194.0	195.8	198.0	200.4
Nonprescription medical equipment and supplies (12/77 = 100)	113.8	119.9	120.8	121.3	121.5	122.5	123.6	115.0	119.9	121.2	121.8	123.0	123.7	125.1
Medical care services	274.4	289.8	292.3	294.8	296.6	297.9	302.1	275.6	291.7	294.3	296.6	298.7	300.0	304.3
Professional services	238.9	254.7	257.3	259.0	260.4	261.7	254.7	241.7	257.8	260.4	261.9	263.8	265.0	268.7
Physicians' services	256.0	272.2	274.2	276.0	278.0	280.3	283.9	260.3	277.6	280.5	281.8	283.8	285.7	290.0
Dental services	227.4	242.2	245.8	247.5	248.0	248.6	251.4	229.5	244.5	247.3	249.0	250.4	251.3	254.9
Other professional services (12/77 = 100)	116.6	126.0	126.7	127.6	128.5	128.5	129.3	115.9	123.9	124.5	125.1	126.7	126.6	127.6
Other medical care services	317.4	332.3	334.7	338.0	340.5	341.6	347.3	317.3	333.3	335.6	339.2	341.6	342.9	347.8
Hospital and other medical services (12/77 = 100)	125.6	135.4	137.1	139.3	141.1	141.7	144.5	124.9	134.9	136.4	138.9	140.5	141.3	143.7
Hospital room	395.3	424.0	428.4	435.8	441.0	443.7	453.8	393.9	422.4	427.2	435.3	439.8	443.1	451.9
Other hospital and medical care services (12/77=100)	124.7	135.1	137.0	139.0	140.9	141.4	143.7	123.8	134.4	136.0	138.4	140.2	140.6	142.7

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
	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
ENTERTAINMENT	195.3	208.0	209.8	210.9	211.2	212.0	214.4	193.9	205.6	208.1	209.2	209.9	210.1	212.2
Entertainment commodities	197.6	210.8	212.8	213.7	214.5	215.3	217.1	194.2	206.4	208.6	209.0	210.2	210.9	213.0
Reading materials (12/77 = 100)	116.7	123.2	126.1	127.0	127.6	128.2	130.0	116.2	122.7	125.5	126.6	127.1	127.6	129.6
Newspapers	226.8	240.7	242.3	245.3	245.6	246.2	249.7	226.4	239.9	241.5	244.6	244.9	245.5	249.4
Magazines, periodicals, and books (12/77 = 100)	118.1	124.0	129.3	129.6	130.7	131.5	133.4	117.8	123.7	129.3	129.6	130.8	131.5	133.5
Sporting goods and equipment (12/77 = 100)	113.8	120.9	121.1	121.8	122.8	122.9	123.5	108.6	115.3	115.8	116.3	117.0	117.8	118.5
Sport vehicles (12/77 = 100)	(1)	122.2	(1)	(1)	(1)	(1)	(1)	(1)	113.5	(1)	(1)	(1)	(1)	(1)
Indoor and warm weather sport equipment (12/77 = 100)	107.6	113.5	113.8	114.5	114.7	116.2	115.7	106.4	111.7	112.1	112.5	112.2	113.4	114.5
Bicycles	170.5	183.6	184.7	185.3	185.7	184.7	185.9	170.5	183.2	184.9	185.4	185.8	184.9	186.7
Other sporting goods and equipment (12/77 = 100)	111.8	116.5	117.2	118.2	119.9	120.4	120.9	111.9	116.9	117.4	117.8	119.1	119.3	119.2
Toys, hobbies, and other entertainment (12/77 = 100)	113.2	121.8	122.6	122.8	122.8	123.5	124.4	112.6	120.3	121.3	120.9	121.6	121.8	122.9
Toys, hobbies, and music equipment (12/77 = 100)	112.1	120.4	121.4	120.9	120.7	121.3	122.4	110.9	117.8	119.0	117.4	118.4	118.5	119.4
Photographic supplies and equipment (12/77 = 100)	110.8	122.5	123.1	123.1	121.8	122.0	121.5	111.2	121.7	121.8	122.3	122.7	122.4	122.3
Pet supplies and expense (12/77 = 100)	116.8	123.9	124.4	125.8	127.3	128.4	130.1	116.7	123.8	125.2	126.4	126.8	127.6	129.7
Entertainment services	192.5	204.3	206.1	207.2	206.9	207.8	210.9	194.4	205.2	208.4	210.6	210.5	209.7	212.0
Fees for participant sports (12/77 = 100)	114.6	123.2	124.5	125.5	125.2	125.7	128.1	115.6	121.8	124.7	127.0	126.7	125.9	127.8
Admissions (12/77 = 100)	117.9	122.1	122.6	122.7	122.6	123.1	124.7	119.4	124.2	124.1	124.2	124.3	124.0	125.2
Other entertainment services (12/77 = 100)	109.1	117.4	118.3	119.0	118.7	119.4	120.1	109.3	119.1	120.8	121.6	121.6	121.8	122.0
OTHER GOODS AND SERVICES	206.3	214.5	220.6	221.5	222.8	224.6	226.2	206.0	214.0	219.0	219.9	221.0	223.0	224.4
Tobacco products	196.7	204.5	204.5	204.5	207.3	210.8	211.9	197.1	204.4	204.3	204.3	206.8	210.4	211.7
Cigarettes	199.7	207.0	206.8	206.8	209.6	213.5	214.6	200.3	207.0	206.8	206.7	209.3	213.2	214.5
Other tobacco products and smoking accessories (12/77 = 100)	113.9	122.0	122.8	123.2	124.3	124.9	125.4	113.4	121.7	122.7	123.1	123.9	124.5	125.4
Personal care	204.2	215.4	216.7	217.8	219.0	220.9	222.5	204.4	214.7	216.6	218.0	218.5	220.0	221.1
Toilet goods and personal care appliances	196.4	209.0	210.3	211.8	212.4	215.2	216.9	196.2	208.8	210.4	212.1	212.7	214.3	216.1
Products for the hair, hairpieces and wigs (12/77 = 100)	114.2	121.7	121.8	124.5	124.5	125.2	126.3	114.0	122.5	123.6	123.6	123.2	125.3	126.2
Dental and shaving products (12/77 = 100)	117.8	125.2	125.3	126.0	127.2	128.4	130.8	115.3	123.6	124.0	125.3	125.9	125.4	128.3
Cosmetics, bath and nail preparations, manicure and eye makeup implements (12/77 = 100)	112.9	119.6	121.3	121.3	120.8	122.6	122.9	112.9	118.5	119.7	121.1	121.0	121.4	222.2
Other toilet goods and small personal care appliances (12/77 = 100)	112.1	119.9	120.8	120.8	122.2	124.8	125.5	114.0	121.5	122.1	123.6	125.3	126.8	126.6
Personal care services	211.6	221.7	223.1	223.8	225.5	226.8	228.3	212.7	220.7	222.9	224.0	224.4	225.8	226.3
Beauty parlor services for women	213.3	222.5	224.5	225.2	227.5	228.7	230.1	214.2	222.0	225.0	225.6	226.1	227.5	227.6
Haircuts and other barber shop services for men (12/77 = 100)	118.1	124.8	124.8	125.3	125.6	126.4	127.3	118.8	123.4	123.9	125.0	125.2	126.0	126.7
Personal and educational expenses	226.3	231.4	249.5	251.1	251.3	251.5	253.6	226.2	231.8	249.8	251.2	251.4	251.7	254.0
School books and supplies	206.0	207.7	221.0	221.9	221.9	222.1	228.6	209.8	211.5	224.8	225.6	225.6	225.8	232.4
Personal and educational services	231.4	237.1	256.2	257.8	258.1	258.2	259.7	230.6	237.1	256.1	257.5	257.8	258.1	259.6
Tuition and other school fees	118.3	119.4	131.6	132.2	132.2	132.2	132.6	118.4	119.5	131.8	132.4	132.4	132.4	132.8
College tuition (12/77 = 100)	117.6	118.7	130.7	131.5	131.5	131.5	132.0	117.6	118.7	130.7	131.5	131.5	131.5	132.0
Elementary and high school tuition (12/77 = 100)	120.9	122.0	134.4	134.4	134.4	134.4	134.4	120.7	121.8	134.3	134.3	134.3	134.3	134.3
Personal expenses (12/77 = 100)	120.1	130.7	130.5	132.4	133.0	133.4	135.7	117.7	128.5	129.7	131.0	131.6	132.2	134.4
Special indexes:														
Gasoline, motor oil, coolant, and other products	329.9	370.7	367.9	365.5	365.5	368.3	379.9	331.3	371.8	368.7	366.6	366.7	369.4	381.2
Insurance and finance	310.5	338.3	338.6	346.4	355.3	364.5	368.9	310.0	338.7	339.0	346.7	355.6	364.7	368.8
Utilities and public transportation	225.0	251.9	254.8	254.9	253.1	255.8	259.4	224.4	251.2	253.6	253.5	251.6	254.4	258.0
Housekeeping and home maintenance services	284.7	300.8	303.6	304.7	306.4	308.4	309.5	286.0	299.7	302.3	302.4	303.5	306.6	307.4

[1] Not available.

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)		
	1980			1980			1980			1980		
	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.	Aug.	Oct.	Dec.
Northeast												
EXPENDITURE CATEGORY												
All items	129.1	130.5	132.8	134.8	137.2	139.8	138.3	141.2	143.8	134.1	135.6	137.8
Food and beverages	129.5	131.0	132.8	131.0	133.7	135.8	133.4	134.7	137.7	130.4	131.5	132.8
Housing	131.2	131.8	135.2	139.7	141.9	144.6	148.4	151.0	153.7	138.7	139.9	142.0
Apparel and upkeep	112.0	116.2	114.8	113.1	116.2	116.8	113.9	124.6	124.8	115.0	118.6	120.3
Transportation	138.0	139.4	141.9	143.5	145.3	149.4	140.3	142.8	146.5	141.4	143.1	146.5
Medical care	125.1	126.3	128.0	124.4	127.2	129.3	125.0	129.1	130.1	125.2	126.9	130.7
Entertainment	118.3	120.0	120.7	121.1	122.7	123.2	118.9	120.1	120.4	124.4	125.2	126.7
Other goods and services	117.2	121.2	122.7	120.0	124.0	127.5	123.3	127.8	130.3	118.3	122.0	124.4
COMMODITY AND SERVICE GROUP												
Commodities	130.4	131.8	133.7	136.1	138.3	140.8	136.9	139.9	142.1	135.1	136.6	138.1
Commodities less food and beverages	131.0	132.3	134.3	138.5	140.5	143.2	138.6	142.3	144.1	137.3	139.1	140.7
Services	127.4	128.8	131.6	132.8	135.4	138.3	140.4	143.4	146.7	132.5	134.0	137.3
North Central												
EXPENDITURE CATEGORY												
All items	136.8	140.8	143.3	134.7	137.6	140.0	132.9	135.1	136.6	131.7	134.6	136.2
Food and beverages	131.5	133.1	135.0	129.8	130.8	132.9	131.8	133.7	135.1	133.9	135.8	139.1
Housing	145.4	151.9	155.3	139.4	143.7	146.0	135.3	137.9	139.1	131.5	135.3	135.9
Apparel and upkeep	109.0	112.1	110.8	112.9	118.2	118.8	112.0	115.3	114.8	113.6	115.5	116.2
Transportation	141.0	143.2	146.4	141.3	143.0	146.8	141.6	142.9	146.2	140.4	142.2	145.4
Medical care	127.8	129.1	130.5	128.8	129.6	131.4	129.1	130.6	132.4	133.7	133.3	134.6
Entertainment	122.4	124.5	125.1	118.6	121.1	121.3	122.7	124.3	124.0	116.9	121.1	120.8
Other goods and services	118.6	122.6	124.2	124.4	128.4	130.3	118.8	122.5	123.9	122.9	128.4	129.8
COMMODITY AND SERVICE GROUP												
Commodities	134.5	138.1	139.9	132.4	135.0	136.5	131.9	133.9	135.2	129.8	132.6	133.4
Commodities less food and beverages	135.9	140.4	142.3	133.4	136.8	138.0	131.9	134.0	135.3	128.0	131.2	130.9
Services	140.3	144.9	148.4	138.4	141.8	145.6	134.5	137.1	138.9	134.8	137.7	140.6
South												
EXPENDITURE CATEGORY												
All items	134.8	136.7	139.0	135.4	138.1	140.9	133.7	136.1	138.6	131.9	134.1	136.5
Food and beverages	132.3	134.6	136.8	131.3	133.0	135.4	132.8	134.8	137.2	132.4	134.5	136.9
Housing	138.2	139.8	143.1	140.5	143.5	146.7	137.1	139.7	142.5	132.4	133.7	137.5
Apparel and upkeep	116.7	119.9	120.0	114.1	116.4	117.3	109.4	111.8	114.1	105.6	110.5	108.9
Transportation	143.5	145.0	146.8	142.0	144.5	147.9	141.1	143.0	145.7	140.4	142.2	144.8
Medical care	125.4	126.8	127.9	127.5	130.9	132.1	128.8	132.7	133.7	133.9	140.2	140.7
Entertainment	119.5	120.2	120.4	124.0	125.3	127.9	122.0	125.0	127.5	130.5	132.4	130.7
Other goods and services	122.3	126.4	128.1	121.3	126.8	128.8	121.6	124.7	126.7	125.1	128.2	129.9
COMMODITY AND SERVICE GROUP												
Commodities	133.1	135.4	137.2	132.7	135.2	137.5	131.9	134.1	136.3	131.3	133.4	135.6
Commodities less food and beverages	133.5	135.8	137.3	133.3	136.1	138.3	131.5	133.8	135.9	130.9	133.0	135.0
Services	137.1	138.4	141.5	139.5	142.6	146.1	136.4	139.2	142.3	132.7	135.0	138.0
West												
EXPENDITURE CATEGORY												
All items	135.5	137.7	140.7	136.8	139.5	141.4	134.2	136.3	138.4	135.4	136.9	139.8
Food and beverages	130.5	132.7	134.3	133.1	135.0	136.5	129.5	131.7	132.7	132.9	135.6	137.3
Housing	139.2	141.6	146.0	140.9	144.7	146.7	137.2	139.4	142.1	135.6	136.2	140.6
Apparel and upkeep	116.4	117.9	117.9	119.5	121.5	123.8	108.5	111.2	112.0	126.3	129.1	129.0
Transportation	142.8	144.9	146.7	142.4	144.3	146.6	143.6	145.9	148.5	143.5	145.9	148.0
Medical care	130.6	133.0	134.3	129.0	130.7	133.1	132.2	133.3	134.5	134.1	134.9	136.6
Entertainment	120.8	122.3	123.8	125.9	125.7	125.0	125.2	126.9	126.3	131.5	131.2	133.5
Other goods and services	122.8	126.2	127.7	125.7	128.1	129.0	120.2	122.3	125.2	124.5	128.1	130.4
COMMODITY AND SERVICE GROUP												
Commodities	132.3	134.2	135.3	134.6	136.3	137.5	132.2	134.1	135.2	134.1	135.7	137.2
Commodities less food and beverage	133.1	134.8	135.7	135.2	136.8	138.0	133.3	135.1	136.2	134.6	135.7	137.1
Services	139.7	142.5	147.8	140.0	144.0	146.7	137.1	139.5	142.9	137.3	138.7	143.8

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
	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Jan.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
U.S. city average[2]	233.2	249.4	251.7	253.9	256.2	258.4	260.5	233.3	249.6	251.9	254.1	256.4	258.7	260.7
Anchorage, Alaska (10/67=100)	218.2	...	230.9	...	236.5	...	240.1	215.9	...	226.7	...	232.0	...	235.0
Atlanta, Ga.	...	246.5	...	250.2	...	258.3	...	...	249.7	...	252.4	...	260.3	...
Baltimore, Md.	234.4	...	255.0	...	258.4	...	264.3	234.5	...	253.2	...	257.4	...	262.6
Boston, Mass.	227.3	...	244.4	...	248.8	...	256.4	226.9	...	244.5	...	249.2	...	255.7
Buffalo, N.Y.	...	236.8	...	239.6	...	246.5	...	...	235.5	...	238.2	...	245.2	...
Chicago, Ill.-Northwestern Ind.	230.3	245.2	250.1	253.7	259.9	260.3	258.9	229.9	245.4	249.5	252.8	258.9	258.9	258.1
Cincinnati, Ohio-Ky.-Ind.	239.5	...	259.9	...	262.1	...	264.5	241.0	...	261.7	...	236.5	...	266.3
Cleveland, Ohio	...	253.9	...	264.6	...	266.5	...	...	254.4	...	264.2	...	266.7	...
Dallas-Ft. Worth, Tex.	...	258.5	...	264.9	...	269.5	...	...	257.4	...	262.9	...	268.2	...
Denver-Boulder, Colo.	247.3	...	266.6	...	271.9	...	277.3	250.9	...	270.9	...	276.7	...	282.2
Detroit, Mich.	237.2	255.1	259.5	264.3	266.4	269.7	268.5	236.4	253.8	257.7	261.4	263.6	265.5	264.4
Honolulu, Hawaii	...	230.1	...	234.6	...	236.1	...	...	229.5	...	233.5	...	237.0	...
Houston, Tex.	...	268.6	...	272.3	...	274.8	...	...	265.5	...	269.4	...	272.1	...
Kansas City, Mo.-Kansas	...	250.8	...	254.8	...	259.1	...	...	249.3	...	253.0	...	257.2	...
Los Angeles-Long Beach, Anaheim, Calif.	232.6	247.3	249.6	252.6	255.5	258.7	259.4	235.0	250.1	252.0	254.9	258.4	262.2	262.7
Miami, Fla. (11/77=100)	123.3	...	133.1	...	133.9	...	137.3	124.9	...	134.9	...	135.6	...	138.8
Milwaukee, Wis.	236.4	...	258.4	...	262.1	...	266.2	240.8	...	263.2	...	267.5	...	271.9
Minneapolis-St. Paul, Minn.-Wis.	...	250.1	...	255.5	...	259.0	...	...	250.6	...	256.6	...	260.6	...
New York, N.Y.-Northeastern N.J.	226.1	240.8	241.8	243.1	244.7	247.3	249.4	225.5	240.7	241.5	242.6	244.2	247.2	249.1
Northeast, Pa. (Scranton)	224.4	...	243.1	...	247.0	...	252.4	225.8	...	246.9	...	249.5	...	255.1
Philadelphia, Pa.-N.J.	227.2	246.0	247.2	247.9	249.2	250.5	253.2	228.0	247.3 251.2	248.3	249.5	251.1	252.3	255.5
Pittsburgh, Pa.	...	250.7	...	256.3	...	262.0	...	...	...	...	257.6	...	262.9	...
Portland, Oreg.-Wash.	244.6	...	256.9	...	261.9	...	266.4	243.5	...	255.4	...	260.7	...	265.0
St. Louis, Mo.-Ill.	232.7	...	252.4	...	253.8	...	255.7	233.5	...	252.7	...	254.2	...	255.9
San Diego, Calif.	254.0	...	271.8	...	279.1	...	287.7	251.0	...	267.7	...	275.1	...	282.9
San Francisco-Oakland, Calif.	...	251.0	...	251.9	...	254.9	...	...	251.4 ...	...	252.6	...	255.7	...
Seattle-Everett, Wash.	236.0	...	258.1	...	262.6	...	264.9	233.8	...	254.6	...	259.4	...	262.3
Washington, D.C.-Md.-Va.	231.9	...	249.2	...	253.6	...	257.2	233.0	...	251.8	...	255.7	...	259.4

[1] The 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.

[2] Average of 85 cities.

26. Producer Price Indexes, by stage of processing

[1967 = 100]

Commodity grouping	Annual average 1980	1980											1981	
		Feb	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.[1]	Nov.	Dec.	Jan.	Feb.
FINISHED GOODS														
Finished goods	246.8	237.7	240.0	242.1	243.4	244.9	249.3	251.4	251.4	r255.4	255.6	256.9	259.8	262.4
Finished consumer goods	248.8	239.7	242.2	243.7	245.2	246.8	251.7	254.1	254.1	r257.0	257.4	258.6	261.4	264.0
Finished consumer foods	239.4	232.1	233.6	230.1	231.9	233.0	241.6	246.5	247.4	r248.0	248.5	248.8	250.6	250.9
Crude	237.1	221.2	230.6	224.1	229.1	224.5	240.9	247.0	259.8	r237.8	250.4	254.6	257.3	265.0
Processed	237.7	231.2	232.0	228.8	230.3	231.8	239.7	244.4	244.3	r246.9	246.3	246.3	247.9	247.6
Nondurable goods less foods	283.9	268.6	275.6	281.5	284.2	285.9	288.4	290.0	290.9	r291.7	293.8	296.0	301.1	307.1
Durable goods	205.9	202.6	200.8	202.3	201.9	204.1	207.5	208.1	206.2	r214.0	212.3	213.0	213.8	213.9
Consumer nondurable goods less food and energy	192.1	205.7	207.4	209.9	211.1	212.7	214.7	215.9	216.6	r217.8	219.1	219.9	223.2	226.1
Capital equipment	239.5	230.5	232.2	236.2	236.7	237.8	240.6	241.9	241.8	r249.2	248.9	250.8	253.9	256.3
INTERMEDIATE MATERIALS														
Intermediate materials, supplies, and components	280.1	271.9	274.3	275.7	277.0	278.8	281.6	284.3	285.3	r287.7	288.6	291.7	295.5	297.8
Materials and components for manufacturing	265.5	259.6	259.6	260.6	262.5	264.3	265.6	268.9	269.5	r273.3	273.5	275.5	278.7	279.7
Materials for food manufacturing	263.7	248.1	243.8	241.5	255.3	259.7	264.4	277.9	275.8	r295.1	296.2	277.0	277.9	273.8
Materials for nondurable manufacturing	259.5	248.6	252.4	258.1	260.4	261.0	261.7	263.4	263.2	r265.0	266.9	268.4	273.4	275.8
Materials for durable manufacturing	301.0	308.4	302.3	296.1	294.1	297.0	297.3	299.2	300.5	r304.7	304.1	304.2	306.9	305.5
Components for manufacturing	231.4	222.4	224.7	227.6	229.0	230.3	232.4	235.6	237.0	r238.4	237.4	246.4	249.0	251.7
Materials and components for construction	268.2	262.5	265.9	265.5	265.2	266.9	269.6	271.4	271.7	r272.4	273.7	276.4	279.2	280.2
Processed fuels and lubricants	502.7	471.1	489.8	496.6	498.2	502.0	514.2	517.4	519.5	r516.2	519.8	538.7	551.4	568.3
Manufacturing industries	425.3	399.2	411.2	415.2	420.9	425.4	431.0	436.0	440.8	r440.6	442.4	456.8	468.8	481.5
Nonmanufacturing industries	570.7	534.5	557.9	566.7	565.9	569.6	586.1	588.4	588.9	r583.7	588.5	610.9	624.2	644.8
Containers	254.5	245.7	247.4	253.2	254.4	256.2	257.0	257.4	257.9	r260.1	259.6	261.1	264.7	268.0
Supplies	244.5	237.3	239.4	239.7	240.0	241.2	245.3	247.7	250.3	r252.3	254.9	254.9	257.3	257.5
Manufacturing industries	231.8	222.8	225.5	229.0	230.5	232.8	234.2	235.4	236.1	r237.5	238.4	239.5	242.2	244.6
Nonmanufacturing industries	251.1	244.8	246.6	245.4	245.0	245.7	251.1	254.1	257.6	r259.9	263.5	262.8	265.1	264.3
Feeds	229.2	222.2	218.8	205.2	207.5	205.1	225.2	234.7	246.8	r250.3	259.6	251.8	252.2	238.1
Other supplies	253.5	247.5	250.7	253.0	251.9	253.4	254.7	255.8	256.9	r258.8	260.8	262.1	264.9	267.6
CRUDE MATERIALS														
Crude materials for further processing	304.2	298.5	293.6	286.2	289.3	288.4	304.3	317.0	319.3	r322.8	323.2	320.8	321.3	335.5
Foodstuffs and feedstuffs	259.1	253.1	246.5	235.8	243.0	243.0	263.4	276.8	276.6	r279.1	277.3	271.6	270.6	267.1
Nonfood materials	399.9	394.7	393.8	393.4	387.5	384.6	390.8	401.9	409.8	r415.4	420.3	425.2	428.7	481.7
Nonfood materials except fuel	344.5	346.0	344.9	342.0	333.3	328.9	333.9	344.8	351.4	r355.6	358.4	363.1	365.8	428.1
Manufacturing industries	355.8	358.3	356.9	353.5	343.8	338.9	343.9	355.4	362.6	r367.1	370.0	375.1	377.5	445.7
Construction	237.2	228.7	229.9	232.4	232.8	234.1	239.1	243.7	244.8	245.3	247.5	247.8	254.3	257.9
Crude fuel	614.9	579.8	579.8	591.4	600.0	604.0	615.1	626.3	639.1	r650.9	665.1	670.3	677.6	679.0
Manufacturing industries	690.2	645.0	644.3	659.0	670.3	675.7	690.5	705.4	722.0	r738.1	755.9	763.0	772.2	773.1
Nonmanufacturing industries	566.9	539.5	540.0	549.3	555.9	558.8	567.1	575.5	585.4	r593.8	605.4	609.1	614.9	616.8
SPECIAL GROUPINGS														
Finished goods excluding foods	247.7	238.0	240.6	244.5	245.6	247.3	250.2	251.4	251.1	r256.2	256.3	258.0	261.2	264.4
Finished consumer goods excluding foods	248.5	238.1	241.0	244.9	246.2	248.1	251.0	252.2	251.8	r255.8	256.1	257.6	260.9	264.3
Finished consumer goods less energy	216.9	213.4	213.9	214.0	214.9	216.5	221.2	223.5	223.5	r226.6	226.6	227.2	229.3	230.5
Intermediate materials less foods and feeds	281.3	273.4	276.3	278.3	278.8	280.6	282.9	285.0	285.8	r287.3	288.1	292.5	296.6	299.5
Intermediate materials less energy	265.8	259.3	260.3	261.1	262.3	263.9	265.9	268.7	269.5	r272.5	273.3	275.1	278.1	279.0
Intermediate foods and feeds	252.2	239.3	235.3	229.5	239.7	242.0	251.4	263.7	265.9	r280.3	283.9	268.3	269.0	261.9
Crude materials less agricultural products	480.3	411.4	411.1	409.8	402.7	401.2	406.9	418.5	425.1	r433.6	438.3	442.1	447.5	509.0
Crude materials less energy	256.7	257.7	251.5	241.3	243.7	241.6	258.9	271.4	272.8	r275.4	274.7	270.4	268.8	265.4

[1] Data for October 1980 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	
			Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.[1]	Nov.	Dec.	Jan.	Feb.
	All commodities	268.6	260.2	261.9	262.8	264.2	265.6	270.4	273.8	274.6	r277.8	278.4	280.3	283.5	286.9
	All commodities (1957–59 = 100)	285.0	275.6	277.4	278.8	280.3	281.8	286.9	290.5	291.4	r294.7	295.4	297.4	300.8	304.4
	Farm products and processed foods and feeds	244.6	237.0	234.9	229.3	233.8	234.3	246.6	255.1	256.5	r259.4	260.1	256.5	257.3	254.9
	Industrial commodities	274.5	265.9	268.6	271.3	271.9	273.5	276.2	278.2	278.8	r282.0	282.7	286.1	289.9	294.8
	FARM PRODUCTS AND PROCESSED FOODS AND FEEDS														
01	Farm products	249.3	242.3	239.3	228.9	233.5	233.4	254.3	263.8	267.0	r263.6	264.9	265.3	264.4	262.3
01-1	Fresh and dried fruits and vegetables	238.5	220.6	218.5	223.2	244.0	233.5	252.0	254.0	266.2	r240.9	246.4	244.7	257.7	270.4
01-2	Grains	239.0	223.3	217.9	210.8	219.0	215.3	244.8	256.5	260.6	269.2	270.9	265.2	277.7	267.5
01-3	Livestock	252.7	257.2	251.8	230.5	233.3	240.0	260.5	275.7	266.8	263.0	254.8	251.4	244.3	244.6
01-4	Live poultry	202.1	184.6	180.1	171.9	171.3	166.6	227.2	224.5	241.0	222.9	221.0	218.9	213.1	220.8
01-5	Plant and animal fibers	271.1	269.5	254.9	266.9	272.7	247.0	267.0	280.8	295.2	278.5	287.2	294.1	284.1	268.4
01-6	Fluid milk	271.2	263.8	263.1	265.4	265.4	265.5	265.8	271.6	275.5	280.9	284.7	290.5	288.4	289.5
01-7	Eggs	171.0	150.4	184.2	153.3	140.5	146.8	159.3	176.9	188.4	175.2	194.0	217.5	185.7	184.8
01-8	Hay, hayseeds, and oilseeds	247.1	224.7	215.9	205.1	206.9	207.4	251.4	261.5	280.7	284.4	298.3	310.2	311.8	295.0
01-9	Other farm products	298.1	304.7	311.5	304.8	311.0	309.4	292.4	282.7	292.0	r285.8	296.6	296.0	296.1	295.1
02	Processed foods and feeds	241.0	233.1	231.6	228.6	233.1	233.9	241.5	249.4	249.8	r256.1	256.5	250.8	252.4	250.0
02-1	Cereal and bakery products	235.9	229.9	231.8	232.4	234.7	233.2	234.7	235.8	238.3	r241.5	245.4	248.5	250.8	251.7
02-2	Meats, poultry, and fish	243.0	239.6	239.2	226.0	224.5	226.6	248.5	259.9	257.8	r256.0	250.8	248.0	248.8	243.9
02-3	Dairy products	230.7	220.8	223.0	227.5	228.5	229.5	230.1	232.6	233.7	r238.0	240.6	242.7	245.2	245.5
02-4	Processed fruits and vegetables	228.9	223.3	223.7	224.6	225.4	227.2	229.8	230.7	231.3	r233.8	235.2	237.1	237.4	244.1
02-5	Sugar and confectionery	321.2	287.5	264.1	275.0	327.8	325.4	313.5	347.1	341.4	r404.7	403.4	334.6	338.6	324.7
02-6	Beverages and beverage materials	232.4	224.8	225.9	227.9	231.2	234.3	234.6	237.1	236.1	r239.5	238.1	238.1	240.4	242.2
02-7	Fats and oils	226.8	226.4	222.6	214.5	212.0	212.8	226.9	240.2	238.3	r231.0	237.9	234.3	230.4	228.3
02-8	Miscellaneous processed foods	227.2	223.5	224.7	225.1	223.7	223.4	223.5	224.0	226.8	230.6	235.0	240.5	244.2	248.0
02-9	Manufactured animal feeds	226.9	219.8	216.6	205.0	207.2	205.0	223.9	232.4	243.4	r246.9	254.9	247.3	247.9	235.3
	INDUSTRIAL COMMODITIES														
03	Textile products and apparel	183.4	176.5	179.3	181.2	182.0	183.0	184.7	185.6	186.6	r188.1	189.3	190.2	192.4	193.1
03-1	Synthetic fibers (12/75 = 100)	134.8	127.2	129.1	130.4	133.2	134.5	136.0	137.5	139.5	r140.2	141.4	141.5	147.3	147.8
03-2	Processed yarns and threads (12/75 = 100)	122.2	118.0	119.3	122.1	124.2	122.8	122.4	123.2	124.3	r125.1	124.9	127.6	129.2	129.6
03-3	Gray fabrics (12/75 = 100)	137.7	132.3	136.8	137.0	136.5	134.8	135.7	137.5	141.0	r143.5	144.3	143.3	142.8	143.1
03-4	Finished fabrics (12/75 = 100)	115.7	111.1	113.2	114.5	115.3	115.8	116.6	116.8	117.0	r118.3	119.0	120.0	121.5	122.2
03-81	Apparel	172.2	166.8	168.0	170.0	170.2	172.7	174.4	175.1	175.0	r176.2	176.0	177.0	178.6	179.3
03-82	Textile housefurnishings	208.3	199.7	201.3	201.6	202.6	202.7	210.7	211.0	212.9	r213.8	218.0	218.5	223.9	225.4
04	Hides, skins, leather, and related products	248.6	250.9	246.8	243.5	240.7	240.9	245.1	251.3	247.8	r251.2	255.5	256.6	258.5	257.4
04-1	Hides and skins	370.9	404.8	348.7	328.6	289.7	315.7	356.6	398.4	356.1	381.5	409.1	392.8	377.8	367.3
04-2	Leather	311.6	340.3	311.0	297.6	290.4	284.4	292.2	314.2	298.1	r301.9	317.3	332.4	332.6	310.0
04-3	Footwear	233.2	228.0	231.8	231.9	231.9	231.9	232.7	233.7	235.5	r236.6	237.7	237.1	238.6	240.8
04-4	Other leather and related products	218.1	214.8	217.8	216.2	217.4	215.9	217.5	218.7	218.8	r221.8	222.6	223.5	230.7	235.8
05	Fuels and related products and power	573.4	532.7	553.5	566.6	572.1	576.5	585.5	590.6	593.5	r592.9	597.6	611.7	625.9	663.8
05-1	Coal	467.5	459.6	461.7	465.2	466.5	466.6	467.5	468.7	471.3	r470.7	475.7	475.7	477.5	480.8
05-2	Coke	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6	430.6
05-3	Gas fuels[1]	160.4	716.6	716.6	730.1	745.1	749.2	762.1	772.6	786.2	r802.2	826.5	841.8	857.9	858.8
05-4	Electric power	321.6	299.3	305.5	310.1	316.5	326.0	331.1	333.6	338.3	r337.4	332.0	337.9	341.7	345.4
05-61	Crude petroleum[2]	551.7	515.1	522.8	533.9	540.1	549.0	551.4	566.8	571.3	579.6	580.7	596.0	615.2	842.9
05-7	Petroleum products, refined[3]	674.4	620.4	659.0	678.0	680.9	681.7	693.9	697.6	696.4	r690.4	696.8	716.3	736.0	767.8
06	Chemicals and allied products	260.2	248.7	252.8	259.8	262.5	262.8	263.3	264.4	263.4	r264.8	266.9	267.9	273.6	277.2
06-1	Industrial chemicals[4]	323.8	307.9	313.3	322.1	328.5	329.5	328.7	330.0	327.5	r330.0	333.4	334.6	342.8	349.4
06-21	Prepared paint	235.4	223.3	228.7	231.5	238.8	238.8	238.8	238.8	239.3	r239.3	241.7	241.7	243.3	246.9
06-22	Paint materials	273.8	263.4	267.5	272.1	273.9	275.0	277.2	278.4	278.9	r279.6	279.5	280.9	283.1	286.4
06-3	Drugs and pharmaceuticals	174.4	167.6	168.9	172.6	172.8	174.4	175.7	176.1	176.8	r178.4	181.1	181.8	184.7	187.4
06-4	Fats and oils, inedible	297.9	302.2	299.9	298.2	294.7	255.8	260.0	307.6	304.5	302.0	308.2	316.0	310.6	289.7
06-5	Agricultural chemicals and chemical products	256.9	248.0	256.1	258.5	258.5	257.6	258.7	260.0	260.6	r260.6	260.4	262.8	265.8	271.3
06-6	Plastic resins and materials	279.4	272.1	274.5	287.6	288.4	287.6	285.7	281.5	276.5	r276.1	277.1	274.4	275.2	276.1
06-7	Other chemicals and allied products	224.6	211.3	215.0	223.1	224.8	226.9	228.5	229.0	229.1	r230.9	232.6	234.2	244.1	246.7
07	Rubber and plastic products	217.3	210.7	212.7	214.1	215.0	217.3	218.8	220.5	222.0	r222.8	223.0	223.5	224.9	226.5
07-1	Rubber and rubber products	237.7	231.5	231.5	233.4	234.7	236.8	239.0	240.2	242.6	r244.6	245.8	245.9	246.9	249.2
07-11	Crude rubber	263.9	263.9	255.8	264.7	263.9	264.1	263.4	264.3	267.3	r271.7	270.0	267.5	278.0	280.8
07-12	Tires and tubes	236.6	231.6	231.6	231.8	233.2	235.6	238.0	238.0	242.1	r245.2	244.7	244.7	240.5	243.1
07-13	Miscellaneous rubber products	227.6	217.8	220.6	222.1	224.0	226.4	229.3	232.0	232.1	r232.0	236.1	237.1	241.1	243.0
07-2	Plastic products (6/78 = 100)	120.9	116.7	119.0	119.7	119.9	121.4	122.0	123.2	123.7	r123.6	123.1	123.6	124.7	125.3
08	Lumber and wood products	288.8	294.7	294.9	275.6	272.1	279.8	289.2	296.1	292.2	r289.0	293.4	299.4	296.6	294.5
08-1	Lumber	325.6	341.4	340.6	310.1	301.4	313.0	327.2	333.7	328.0	r320.6	325.0	333.0	331.6	327.8
08-2	Millwork	260.5	258.0	262.2	257.5	251.8	253.0	255.9	260.3	264.5	r264.5	270.0	273.3	273.6	273.8
08-3	Plywood	246.6	243.4	240.0	219.8	230.6	241.7	252.8	266.0	252.6	r252.9	256.6	263.5	251.1	248.6
08-4	Other wood products	239.1	243.4	243.1	241.7	240.7	238.7	236.9	236.2	236.8	236.7	236.6	236.2	238.5	238.1

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	
			Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.[1]	Nov.	Dec.	Jan.	Feb.
	INDUSTRIAL COMMODITIES—Continued														
09	Pulp, paper, and allied products	249.3	239.2	242.6	247.8	249.2	251.1	251.7	252.4	252.8	r254.3	255.5	257.4	262.0	266.2
09-1	Pulp, paper, and products, excluding building paper and board	250.7	240.8	244.1	249.4	250.6	252.4	252.9	253.8	254.1	r255.6	256.7	258.6	261.0	264.6
09-11	Woodpulp	381.1	356.4	356.8	385.6	385.6	387.7	388.3	388.3	388.2	r389.6	392.6	392.6	392.6	392.6
09-12	Wastepaper	208.5	223.4	224.9	242.5	226.1	206.6	194.0	193.8	192.5	r193.5	191.7	190.8	191.5	186.1
09-13	Paper	256.9	247.2	250.3	253.5	256.1	257.9	258.2	258.6	258.7	r262.1	264.4	269.8	271.0	273.1
09-14	Paperboard	235.0	223.7	227.4	232.1	235.5	238.9	237.1	238.4	239.5	r239.9	243.2	241.1	251.0	253.2
09-15	Converted paper and paperboard products	238.6	229.5	233.0	236.7	237.6	239.8	241.2	242.3	242.7	r243.7	243.8	245.2	247.0	252.0
09-2	Building paper and board	206.0	191.7	198.7	201.3	206.8	208.9	211.8	210.3	210.2	r212.7	215.6	219.1	219.1	225.2
10	Metals and metal products	286.2	288.9	286.8	284.4	281.8	281.9	282.5	285.1	287.3	r291.9	290.7	290.7	293.6	293.7
10-1	Iron and steel	305.1	300.3	301.8	307.2	304.8	303.4	300.6	302.6	304.5	r310.5	312.5	316.0	322.8	323.0
10-13	Steel mill products	302.7	294.2	295.5	304.1	305.5	305.8	301.0	301.0	301.0	307.5	309.5	313.4	322.7	322.9
10-2	Nonferrous metals	304.2	337.7	321.4	298.3	289.7	288.8	292.6	298.4	302.2	r309.4	301.0	294.4	290.6	286.2
10-3	Metal containers	298.6	284.4	288.5	304.1	302.7	302.7	303.0	303.2	303.2	304.4	303.3	303.3	311.4	313.8
10-4	Hardware	240.1	230.4	231.5	237.3	238.4	240.5	242.6	243.3	245.9	r246.6	247.9	249.6	252.5	256.0
10-5	Plumbing fixtures and brass fittings	246.6	236.7	242.4	243.8	247.5	248.6	249.7	250.4	250.6	250.6	251.8	254.4	255.5	259.0
10-6	Heating equipment	206.2	202.6	202.6	204.2	204.0	205.0	296.2	208.0	208.8	r210.6	211.2	212.6	215.4	216.1
10-7	Fabricated structural metal products	270.4	259.7	265.1	269.1	269.9	270.1	272.2	273.0	274.1	r276.9	277.6	279.2	283.0	285.6
10-8	Miscellaneous metal products	250.2	241.6	244.2	246.1	246.7	250.4	251.1	253.2	255.0	r256.3	257.7	258.4	261.3	264.0
11	Machinery and equipment	239.6	230.2	232.5	236.4	237.6	239.2	241.5	242.6	244.7	r246.8	247.7	249.5	252.7	254.8
11-1	Agricultural machinery and equipment	258.1	249.9	252.0	254.4	256.4	257.1	258.6	259.9	263.9	r265.4	266.1	269.5	273.5	277.2
11-2	Construction machinery and equipment	289.2	278.3	279.5	284.2	285.9	287.6	291.5	293.4	295.7	r299.1	299.7	301.1	304.9	308.4
11-3	Metalworking machinery and equipment	274.3	261.8	264.1	270.2	272.9	275.4	278.0	278.8	280.2	r282.5	283.7	285.6	289.3	291.2
11-4	General purpose machinery and equipment	264.3	253.3	256.7	261.1	262.8	264.8	266.1	267.0	270.0	r272.5	273.2	275.2	278.2	279.9
11-6	Special industry machinery and equipment	275.9	263.2	265.5	271.9	273.0	274.3	276.7	277.1	283.0	r286.0	287.9	291.2	295.3	299.3
11-7	Electrical machinery and equipment	201.7	194.3	196.5	198.9	199.9	201.6	203.7	205.0	206.0	207.0	207.4	208.9	211.9	213.6
11-9	Miscellaneous machinery	229.8	221.1	223.2	227.2	227.3	228.2	231.1	232.1	233.6	r236.5	238.1	239.2	241.8	243.7
12	Furniture and household durables	187.3	185.6	185.7	184.4	185.4	186.5	188.0	188.9	189.5	r190.9	190.4	192.3	193.2	194.6
12-1	Household furniture	204.2	198.5	198.9	200.3	203.0	204.0	206.5	208.0	208.5	r209.8	209.1	210.4	211.3	212.1
12-2	Commercial furniture	235.9	231.4	232.8	233.6	233.9	235.5	237.2	237.3	237.8	r241.4	241.5	242.4	246.1	251.2
12-3	Floor coverings	163.0	158.5	160.8	162.2	161.9	162.1	163.2	163.8	163.9	r164.4	165.7	170.2	172.3	172.4
12-4	Household appliances	173.8	168.9	169.9	171.1	173.2	175.5	175.8	176.3	177.2	r177.5	177.2	178.2	181.0	182.3
12-5	Home electronic equipment	91.0	91.2	91.3	91.4	92.0	91.8	91.7	91.3	91.6	r91.5	91.1	91.0	91.0	91.7
12-6	Other household durable goods	277.7	295.3	288.3	267.3	265.6	266.5	271.5	275.9	276.2	r281.8	278.4	285.1	278.3	280.2
13	Nonmetallic mineral products	282.8	274.0	276.5	283.7	284.0	283.4	284.8	286.0	286.8	r288.6	288.4	290.7	296.3	297.7
13-11	Flat glass	196.5	191.0	191.4	195.3	195.3	193.6	194.3	199.5	199.7	200.7	203.1	203.0	203.9	204.3
13-2	Concrete ingredients	273.4	266.6	267.5	271.7	272.4	273.2	275.9	278.6	278.9	r279.0	278.5	278.7	287.5	289.6
13-3	Concrete products	273.9	266.7	269.1	272.9	275.2	275.8	275.9	276.0	277.3	r277.5	277.6	277.8	285.6	286.6
13-4	Structural clay products excluding refractories	231.5	231.0	231.4	235.0	230.0	230.1	230.1	229.7	230.1	r233.3	233.6	234.1	240.0	240.4
13-5	Refractories	264.9	251.1	253.9	261.7	264.4	265.8	268.7	270.6	270.6	r273.2	274.1	274.1	283.5	294.4
13-6	Asphalt roofing	396.7	372.5	388.8	408.9	401.1	400.9	413.8	411.2	407.9	r408.5	396.9	394.5	404.1	389.3
13-7	Gypsum products	256.3	262.2	267.6	264.0	256.5	257.1	253.1	251.8	251.8	249.5	253.3	252.7	259.6	257.3
13-8	Glass containers	292.7	274.3	274.3	294.3	294.3	294.3	294.3	294.3	294.6	r306.2	306.5	311.5	311.5	311.5
13-9	Other nonmetallic minerals	394.0	381.7	387.0	399.6	400.7	394.8	396.9	397.1	400.7	r402.7	402.0	415.7	417.9	424.7
14	Transportation equipment (12/68 = 100)	206.6	198.2	198.8	203.2	202.5	203.1	206.2	208.8	204.4	r217.4	216.0	224.1	226.4	228.5
14-1	Motor vehicles and equipment	208.7	200.1	200.7	205.4	204.5	205.2	208.6	211.7	205.6	r218.2	218.0	225.9	228.5	230.2
14-4	Railroad equipment	313.0	299.3	302.1	309.9	310.5	312.2	316.4	318.0	320.0	323.3	323.6	323.6	327.8	334.4
15	Miscellaneous products	258.7	262.9	256.1	252.8	251.7	258.0	261.7	260.1	265.1	266.0	263.8	265.4	263.0	263.2
15-1	Toys, sporting goods, small arms, ammunition	198.4	193.5	194.5	195.4	196.0	197.5	200.2	201.3	202.3	r202.7	202.8	205.6	207.8	209.5
15-2	Tobacco products	245.5	237.2	237.3	238.1	247.7	248.1	248.2	248.2	248.2	r249.4	253.9	254.2	254.3	255.3
15-3	Notions	217.2	203.2	207.2	216.8	217.0	217.0	221.7	223.8	223.9	224.0	224.1	225.0	227.0	247.3
15-4	Photographic equipment and supplies	203.0	218.6	219.1	212.3	199.6	201.7	201.6	200.9	200.9	r200.8	207.1	207.0	207.3	209.6
15-51	Mobile homes (12/74 = 100)	149.9	146.8	147.1	149.4	150.4	150.6	151.2	151.4	151.7	r153.2	152.0	152.4	152.3	152.5
15-9	Other miscellaneous products	363.3	378.3	351.3	340.9	340.2	360.2	370.9	364.6	381.9	r383.4	368.2	371.5	359.5	353.2

[1] Data for October 1980 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] Prices for natural gas are lagged 1 month.

[3] Includes only domestic production.

[4] Most prices for refined petroleum products are lagged 1 month.

[5] 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	
		Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.[1]	Nov.	Dec.	Jan.	Feb.
All commodities — less farm products	269.4	260.9	262.9	264.8	265.9	267.5	270.9	273.8	274.3	r278.1	278.7	280.7	284.2	288.0
All foods	244.5	235.8	234.8	231.9	237.3	237.7	245.9	254.1	254.3	r258.8	259.3	253.9	255.1	253.9
Processed foods	246.6	238.6	236.9	234.1	239.0	239.9	247.3	255.7	254.9	r261.7	261.4	255.1	256.4	254.2
Industrial commodities less fuels	243.4	238.0	238.9	240.5	240.6	242.0	243.9	245.6	246.0	r249.6	249.8	252.2	255.0	256.6
Selected textile mill products (Dec. 1975 = 100)	124.4	119.3	121.3	122.2	122.9	123.7	125.5	126.0	126.6	r127.5	128.5	129.6	131.8	132.7
Hosiery	123.3	119.4	120.3	121.1	121.5	122.2	123.5	125.9	126.4	r126.2	126.7	126.7	129.2	130.1
Underwear and nightwear	185.5	177.4	182.1	182.4	182.8	187.1	188.3	189.3	189.5	r189.7	190.5	190.9	199.5	201.2
Chemicals and allied products, including synthetic rubber and manmade fibers and yarns	250.7	239.2	243.2	250.0	252.8	253.8	254.2	254.7	254.0	r255.4	257.3	258.2	264.2	268.0
Pharmaceutical preparations	167.1	160.3	161.7	165.6	165.9	167.6	168.1	168.4	168.8	170.8	173.7	174.6	177.1	179.7
Lumber and wood products, excluding millwork and other wood products	303.8	313.9	312.2	284.7	282.0	293.5	306.9	315.5	307.4	r302.3	306.5	314.2	309.2	305.7
Special metals and metal products	258.3	256.0	255.1	255.8	254.0	254.4	256.2	259.0	257.8	r265.7	265.0	268.4	271.3	272.2
Fabricated metal products	258.2	248.4	252.0	255.9	256.8	258.6	259.9	261.2	262.6	r264.3	265.2	266.3	270.0	272.6
Copper and copper products	222.1	260.7	240.9	222.0	212.2	208.5	214.5	220.4	214.1	r216.5	216.9	210.9	207.8	205.9
Machinery and motive products	230.1	220.9	222.5	226.7	227.1	228.3	231.0	232.9	232.1	r239.2	239.0	243.8	246.7	248.8
Machinery and equipment, except electrical	261.8	251.1	253.5	258.2	259.6	261.2	263.7	264.6	270.2	r273.0	271.3	273.3	276.6	278.9
Agricultural machinery, including tractors	266.2	257.2	260.0	261.9	263.9	264.7	266.3	268.1	272.9	r274.8	275.4	279.1	283.3	285.8
Metalworking machinery	299.5	284.4	287.5	293.6	296.8	299.7	303.3	304.5	306.5	r309.6	311.4	314.4	318.9	320.0
Numerically controlled machine tools (Dec. 1971 = 100)	225.6	215.4	216.7	223.8	226.9	228.5	228.7	229.3	230.0	231.7	232.4	230.9	235.0	235.4
Total tractors	286.5	275.1	276.6	280.8	282.9	284.0	288.3	291.1	295.8	r298.3	296.8	299.4	304.8	310.2
Agricultural machinery and equipment less parts	260.2	251.5	254.1	256.2	258.0	258.7	260.8	262.2	266.5	r268.3	268.8	272.2	276.3	279.0
Farm and garden tractors less parts	268.0	257.5	261.5	263.7	264.7	264.8	267.2	270.3	277.3	r278.0	276.9	280.8	283.6	286.4
Agricultural machinery excluding tractors less parts	265.0	257.3	258.9	260.7	263.6	265.0	265.9	266.6	269.7	r272.5	274.5	277.9	283.3	285.5
Industrial valves	287.1	273.5	280.0	287.8	288.4	290.1	291.1	291.3	292.4	r294.6	293.7	296.3	297.9	302.7
Industrial fittings	291.8	280.4	282.8	289.9	291.5	295.9	296.1	296.1	296.1	r298.6	298.6	298.6	298.6	296.0
Abrasive grinding wheels	...	244.0	244.0	261.4	261.3	261.3	261.5	261.5	261.3	263.4	273.0	273.8	([2])	([2])
Construction materials	266.3	262.6	265.1	262.3	261.8	264.2	267.0	269.6	269.3	r269.9	271.8	273.9	276.7	277.1

[1] Data for October 1980 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.

29. Producer Price Indexes, by durability of product

[1967=100]

Commodity grouping	Annual average 1980	1980											1981	
		Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.[1]	Nov.	Dec.	Jan.	Feb.
Total durable goods	251.2	247.1	247.0	247.7	247.1	248.7	251.2	253.1	253.7	r258.4	257.8	260.8	261.9	263.1
Total nondurable goods	282.3	270.2	273.4	274.4	277.6	278.8	285.6	290.3	291.2	r293.0	294.8	295.8	300.7	306.0
Total manufactures	261.4	253.2	255.2	257.0	258.3	259.8	263.0	265.7	265.8	r269.6	270.1	271.9	276.4	278.7
Durable	250.5	245.7	245.6	246.7	246.7	248.5	251.0	252.7	253.1	r257.8	257.1	260.2	261.5	262.7
Nondurable	272.9	260.8	265.2	267.9	270.7	271.7	275.9	279.5	279.5	r282.1	283.9	284.2	292.5	295.9
Total raw or slightly processed goods	305.4	295.9	295.4	290.4	292.7	293.8	307.7	315.7	319.9	r319.6	321.8	324.3	318.6	328.9
Durable	278.0	305.3	303.4	286.0	262.2	249.9	255.2	265.8	274.9	282.7	285.9	284.1	275.7	275.7
Nondurable	306.4	294.2	293.8	289.8	294.0	296.1	310.6	318.4	322.2	321.3	323.3	326.2	320.7	331.7

[1] Data for October 1980 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.

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	
			Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.[1]	Nov.	Dec.	Jan.	Feb.
	MINING														
1011	Iron ores (12/75 = 100)	152.9	147.3	152.6	152.6	152.6	152.6	155.8	155.8	155.8	155.8	155.8	155.8	155.8	168.1
1092	Mercury ores (12/75 = 100)	331.2	335.4	330.0	337.5	337.5	322.9	331.2	329.1	335.4	338.7	343.7	325.0	297.9	324.5
1211	Bituminous coal and lignite	466.8	459.6	461.7	464.6	466.0	466.0	466.9	467.9	470.3	r469.7	474.5	474.3	475.8	478.3
1311	Crude petroleum and natural gas	640.2	598.0	600.6	612.5	619.6	631.5	638.0	656.7	667.6	r681.8	690.6	705.5	722.9	885.6
1442	Construction sand and gravel	252.0	243.2	243.9	248.6	249.3	250.0	254.8	255.8	258.5	r261.8	263.5	263.4	269.0	271.7
1455	Kaolin and ball clay (6/76 = 100)	136.0	136.6	136.6	136.6	136.6	136.6	136.6	136.6	136.6	137.2	132.1	133.7	137.1	137.1
	MANUFACTURING														
2011	Meatpacking plants	244.3	240.1	238.9	225.6	227.2	230.0	249.1	265.3	257.1	r258.0	251.3	248.9	245.8	237.3
2013	Sausages and other prepared meats	219.9	207.8	209.4	197.9	193.3	190.9	213.7	233.0	240.0	r247.0	249.0	246.8	235.3	232.7
2016	Poultry dressing plants	191.9	178.2	173.5	164.5	164.7	164.2	214.2	212.1	226.0	211.3	205.9	201.8	201.9	208.3
2021	Creamery butter	258.5	242.8	243.4	252.7	253.7	255.7	256.3	268.5	265.8	273.2	273.3	274.8	273.7	273.5

See footnote 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	
			Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.[1]	Nov.	Dec.	Jan.	Feb.
	MANUFACTURING—Continued														
2022	Cheese natural and processed (12/72 = 100)	205.0	192.9	195.7	201.9	201.9	202.5	203.4	206.8	208.0	r213.7	216.8	217.9	217.8	217.4
2024	Ice cream and frozen desserts (12/72 = 100)	193.3	181.5	185.0	191.3	192.1	195.2	195.2	195.5	196.1	199.5	199.8	207.5	210.1	210.6
2033	Canned fruits and vegetables	221.7	213.6	214.7	216.3	217.3	219.9	222.9	223.4	224.3	r227.6	231.8	232.8	233.7	238.3
2034	Dehydrated food products (12/73 = 100)	160.2	159.0	156.4	157.5	156.4	156.3	157.7	159.6	159.9	162.6	168.7	170.5	172.9	170.1
2041	Flour mills (12/71 = 100)	189.1	183.6	181.6	175.0	182.3	180.8	188.6	193.1	196.1	201.5	205.1	199.5	203.4	198.0
2044	Rice milling	243.4	233.0	258.0	260.4	254.5	236.0	225.3	219.9	225.9	237.2	265.8	287.2	289.6	289.6
2048	Prepared foods, n.e.c. (12/75 = 100)	124.3	122.6	121.5	116.5	116.9	116.2	122.2	126.6	129.6	r129.2	133.6	134.2	132.9	129.7
2061	Raw cane sugar	414.1	374.9	276.0	320.2	456.1	402.4	381.8	484.0	458.9	588.2	563.8	402.9	418.0	367.1
2063	Beet sugar	349.6	293.2	305.7	296.6	339.9	348.0	342.3	365.5	384.5	r460.1	476.2	389.6	375.6	403.1
2067	Chewing gum	290.7	262.3	281.9	282.0	282.0	282.0	282.4	282.4	302.4	322.4	322.9	322.9	323.0	323.0
2074	Cottonseed oil mills	192.9	184.4	170.4	154.7	150.4	155.1	191.3	215.1	232.9	218.7	231.7	228.0	221.2	193.7
2075	Soybean oil mills	244.2	230.4	222.3	211.9	212.9	208.6	37.4	256.9	275.2	r279.2	290.5	270.2	272.0	253.0
2077	Animal and marine fats and oils	290.1	292.6	297.4	274.0	262.9	238.9	274.5	297.4	307.0	311.0	317.2	310.8	310.8	287.2
2083	Malt	249.9	244.1	244.1	244.1	244.1	244.1	244.1	244.1	244.1	267.4	267.4	267.4	286.1	286.1
2085	Distilled liquor, except brandy (12/75 = 100)	123.0	118.7	118.7	118.7	118.9	120.5	121.0	127.7	127.7	127.9	128.5	129.2	129.2	133.9
2091	Canned and cured seafoods (12/73 = 100)	174.0	164.0	165.7	170.2	173.1	175.3	175.9	177.5	178.6	180.0	183.1	183.4	187.0	186.8
2092	Fresh or frozen packaged fish	367.1	385.5	391.6	370.5	360.0	361.2	363.7	365.2	355.0	r353.8	353.8	354.4	375.4	367.2
2095	Roasted coffee (12/72 = 100)	269.3	273.9	274.0	273.9	273.9	283.1	274.5	274.7	263.9	257.0	252.5	248.5	238.2	238.3
2098	Macaroni and spaghetti	233.8	227.7	227.7	230.5	230.5	230.5	230.5	230.5	239.3	243.6	243.6	243.6	243.6	243.6
2111	Cigarettes	254.6	245.9	246.0	246.3	257.3	257.4	257.4	257.4	257.4	r257.8	263.4	263.5	263.5	263.9
2121	Cigars	157.7	154.2	154.4	155.3	155.3	159.8	159.9	159.9	159.9	r163.7	161.3	162.4	163.6	162.6
2131	Chewing and smoking tobacco	278.2	265.1	267.3	279.2	278.6	278.6	279.5	279.7	279.7	r295.0	290.2	294.0	294.2	310.4
2211	Weaving mills, cotton (12/72 = 100)	215.6	206.9	209.5	211.3	212.9	212.9	217.7	219.0	221.9	r223.4	223.9	224.8	227.2	230.2
2221	Weaving mills, synthetic (12/77 = 100)	124.5	118.3	122.7	123.0	122.4	121.2	123.0	124.9	127.7	r130.7	132.5	132.0	131.5	131.8
2251	Women's hosiery, except socks (12/75 = 100)	106.4	103.3	104.3	105.0	105.4	105.4	105.4	108.8	108.8	r108.7	109.0	109.0	109.1	109.2
2254	Knit underwear mills	190.0	184.1	186.5	186.8	187.1	190.4	192.6	192.9	194.1	r194.2	194.6	195.0	205.5	208.6
2257	Circular knit fabric mills (6/76 = 100)	104.5	100.4	103.4	104.0	104.4	105.0	105.4	105.7	105.8	r106.7	106.8	107.2	107.9	108.2
2261	Finishing plants, cotton (6/76 = 100)	135.1	129.6	131.9	132.4	134.5	134.6	137.2	137.3	136.9	r139.1	139.3	140.1	142.4	144.5
2262	Finishing plants, synthetics, silk (6/76 = 100)	113.6	109.4	110.4	110.7	111.8	112.1	113.8	114.1	115.3	117.3	117.9	120.4	121.6	123.0
2272	Tufted carpets and rugs	138.1	134.5	137.0	137.3	137.1	137.4	137.7	138.3	138.3	r138.8	140.3	145.3	148.1	148.2
2281	Yarn mills, except wool (12/71= 100)	203.5	197.8	199.5	203.7	204.5	202.8	202.9	204.3	206.2	r207.9	209.9	215.2	217.0	218.1
2282	Throwing and winding mills (6/76 = 100)	114.8	110.6	112.0	114.8	118.1	115.8	115.0	115.8	117.2	r118.2	116.0	118.4	121.5	121.6
2284	Thread mills (6/76 = 100)	139.1	129.2	130.0	134.6	143.0	142.9	143.0	143.1	143.1	143.8	143.9	143.9	144.1	144.3
2298	Cordage and twine (12/77 = 100)	123.6	117.2	118.5	123.6	123.8	125.0	125.0	125.0	125.0	127.1	129.2	129.3	129.3	129.3
2311	Men's and boys' suits and coats	212.5	208.1	208.3	209.7	210.9	211.6	214.9	214.9	214.9	r216.2	215.9	216.1	218.1	219.7
2321	Men's and boys' shirts and nightwear	204.1	196.2	199.3	204.0	203.7	205.1	206.5	206.7	207.7	r208.0	207.5	208.4	203.1	203.9
2322	Men's and boys' underwear	208.0	202.0	204.0	204.2	204.3	208.5	211.1	211.2	212.8	212.8	212.8	212.8	224.8	229.0
2323	Men's and boys' neckwear (12/75 = 100)	112.6	112.4	112.4	112.4	112.4	112.4	112.4	112.4	112.4	112.4	112.4	115.4	115.4	115.4
2327	Men's and boys' separate trousers	174.5	174.2	174.3	174.9	174.9	175.1	175.3	175.3	175.3	r180.2	175.3	180.3	180.4	180.4
2328	Men's and boys' work clothing	240.4	233.6	235.4	241.2	241.8	242.6	244.8	244.1	243.9	r244.3	243.9	244.3	241.6	241.7
2331	Women's and misses' blouses and waists (6/78 = 100)	110.0	106.6	106.7	107.6	107.6	107.8	111.4	112.6	112.6	r114.0	112.8	114.0	114.8	114.8
2335	Women's and misses' dresses (12/77 = 100)	114.7	113.8	113.8	113.9	113.9	114.0	114.0	115.4	115.4	116.3	116.3	116.3	116.4	116.7
2341	Women's and children's underwear (12/72 = 100)	154.5	150.0	153.1	153.1	153.2	155.0	155.4	156.9	155.4	156.0	157.1	158.7	166.1	168.0
2342	Brassieres and allied garments (12/75 = 100)	126.6	122.9	124.9	125.4	125.4	126.6	127.8	129.0	129.0	r129.0	129.5	129.5	132.1	133.2
2361	Children's dresses and blouses (12/77 = 100)	109.8	105.3	105.5	106.3	105.6	108.0	112.7	112.7	112.2	r112.7	114.8	117.0	117.1	117.7
2381	Fabric dress and work gloves	268.6	261.7	265.0	267.5	271.1	271.1	271.1	271.1	271.1	271.1	272.1	272.1	284.9	289.1
2394	Canvas and related products (12/77 = 100)	124.0	122.8	123.4	123.4	123.4	123.4	123.4	123.4	123.9	r125.1	125.6	126.6	127.4	127.4
2396	Automotive and apparel trimmings (12/77 = 100)	122.4	114.3	122.3	122.3	122.3	122.3	122.3	122.3	122.3	122.3	131.0	131.0	131.0	131.0
2421	Sawmills and planing mills (12/71 = 100)	227.5	239.5	239.1	215.8	209.4	218.1	228.9	234.2	229.0	r223.2	226.8	233.5	232.4	230.0
2436	Softwood veneer and plywood (12/75 = 100)	144.6	143.7	139.8	121.9	130.3	140.5	150.4	160.7	149.6	r149.1	152.3	158.2	149.8	147.0
2439	Structural wood members, n.e.c. (12/75 = 100)	155.8	158.2	158.3	158.2	152.1	152.1	152.1	152.2	155.5	r156.2	157.0	157.1	157.1	157.0
2448	Wood pallets and skids (12/75 = 100)	160.1	167.0	166.3	164.6	162.8	159.7	157.1	156.0	154.9	154.6	154.7	154.1	153.8	152.8
2451	Mobile homes (12/74 = 100)	150.0	146.9	147.2	149.5	150.5	150.7	151.3	151.4	151.8	r153.2	152.1	152.4	152.4	152.5
2492	Particleboard (12/75 = 100)	161.1	150.7	158.9	161.9	167.3	171.7	168.7	169.4	163.7	r159.8	161.6	164.7	162.7	169.1
2511	Wood household furniture (12/71 = 100)	183.6	178.2	178.9	180.0	182.2	183.5	185.1	186.4	187.7	r188.1	188.6	189.8	191.2	191.7
2512	Upholstered household furniture (12/71 = 100)	162.6	158.7	158.7	160.9	161.1	162.5	166.1	166.2	166.2	r167.7	165.8	167.6	166.9	167.2
2515	Mattresses and bedsprings	179.0	170.5	170.5	172.8	176.0	176.0	180.8	186.4	186.4	r186.5	186.4	186.4	186.2	188.2
2521	Wood office furniture	235.3	233.8	233.8	233.9	233.9	234.0	235.5	235.5	235.5	r239.7	239.6	240.8	244.0	250.3
2611	Pulp mills (12/73 = 100)	240.8	225.1	225.5	243.8	243.9	243.9	244.5	244.5	244.4	r246.1	249.0	249.1	249.1	249.1
2621	Paper mills, except building (12/74 = 100)	145.6	139.8	142.5	145.0	145.8	146.2	146.4	146.7	146.7	r148.2	149.5	151.0	152.0	152.8
2631	Paperboard mills (12/74 = 100)	139.1	132.3	134.6	137.9	139.5	141.2	140.3	141.1	141.7	r142.3	143.7	142.8	148.3	149.4
2647	Sanitary paper products	322.3	303.9	311.7	316.7	319.3	321.2	327.4	331.1	331.1	r332.6	335.6	339.2	339.2	343.6
2654	Sanitary food containers	216.4	204.8	208.9	212.9	215.5	217.2	218.2	220.3	222.3	r222.3	223.4	226.5	233.2	236.5
2655	Fiber cans, drums, and similar products (12/75 = 100)	151.0	143.2	143.3	146.6	148.7	150.6	155.2	155.2	155.2	155.5	155.5	159.4	157.7	159.7
2812	Alkalies and chlorine (12/73 = 100)	249.3	226.5	233.7	241.2	246.5	250.0	251.9	257.3	257.2	r257.9	272.3	267.8	282.5	290.5
2821	Plastics materials and resins (6/76 = 100)	143.1	139.7	140.8	146.4	147.3	146.9	146.1	144.4	141.5	r141.5	142.0	141.1	142.7	143.5
2822	Synthetic rubber	255.5	244.2	244.7	256.8	259.3	259.6	259.8	260.5	260.1	r260.9	259.3	261.5	274.6	279.5
2824	Organic fiber, noncellulosic	132.6	124.7	126.9	128.5	131.7	132.8	133.4	134.9	137.1	r138.0	139.3	139.6	144.8	145.4
2873	Nitrogenous fertilizers (12/75 = 100)	124.1	119.8	122.1	123.6	124.5	123.4	122.6	123.7	127.2	130.3	130.0	131.8	135.1	137.9
2874	Phosphatic fertilizers	237.1	233.2	235.0	237.2	236.3	235.7	234.8	240.6	240.8	r239.3	239.2	244.9	247.5	248.4
2875	Fertilizers, mixing only	246.6	239.8	242.5	245.2	248.5	249.0	249.8	249.3	250.2	r250.6	251.7	251.8	255.9	267.2
2892	Explosives	269.7	255.2	260.2	271.4	272.8	273.7	273.8	273.4	273.3	r273.5	272.8	282.7	288.7	295.3
2911	Petroleum refining (6/76 = 100)	248.5	228.4	242.3	250.5	253.0	253.3	255.9	256.9	256.4	r254.6	256.1	261.2	268.1	279.1
2951	Paving mixtures and blocks (12/75 = 100)	171.5	161.5	167.9	172.7	172.7	172.6	174.7	175.1	176.0	r176.2	176.5	181.5	182.1	185.4
2952	Asphalt felts and coatings (12/75) = 100)	173.3	162.7	169.9	178.2	174.8	175.0	180.9	179.8	178.3	r178.6	173.5	172.5	176.5	170.0
3011	Tires and inner tubes (12/73 = 100)	202.9	198.7	198.8	199.1	200.1	202.2	204.1	204.1	207.4	r209.9	209.5	209.7	206.6	209.0

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

[1967=100 unless otherwise specified]

1972 SIC code	Industry description	Annual average 1979	1980											1981	
			Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.[1]	Nov.	Dec.	Jan.	Feb.
3021	Rubber and plastic footwear (12/71 = 100)	178.0	173.6	173.6	173.7	173.7	173.8	181.8	181.9	182.0	r182.0	183.1	183.0	183.2	183.7
3031	Reclaimed rubber (12/73 = 100)	184.0	180.0	184.9	185.9	186.5	186.5	186.5	185.9	185.9	r184.0	182.0	184.7	188.3	192.1
3079	Miscellaneous plastic products (6/78 = 100)	121.5	117.0	119.1	120.3	120.5	122.2	122.7	123.9	124.4	r124.2	123.8	124.2	125.1	125.6
3111	Leather tanning and finishing (12/77 = 100)	147.1	160.8	146.7	140.8	137.9	134.6	137.7	147.9	140.0	(2)	149.3	156.6	157.0	145.5
3142	House slippers (12/75 = 100)	149.6	145.4	145.4	145.4	145.4	145.4	151.1	151.1	151.1	r153.5	159.7	154.9	(2)	(2)
3143	Men's footwear, except athletic (12/75 = 100)	159.9	157.9	158.5	158.5	158.5	158.5	158.5	159.5	161.5	r161.6	162.4	162.4	164.7	166.4
3144	Women's footwear, except athletic	213.5	206.3	213.5	213.8	213.8	213.8	214.2	214.3	215.2	217.1	217.1	217.2	217.9	220.0
3171	Women's handbags and purses (12/75 = 100)	137.9	131.9	132.1	132.1	140.8	140.9	140.9	140.0	140.9	140.9	140.9	140.9	149.5	149.5
3211	Flat glass (12/71 = 100)	161.3	157.6	157.9	160.8	160.8	158.9	159.5	162.6	162.8	163.8	166.4	166.3	167.1	167.5
3221	Glass containers	292.6	274.3	274.3	294.2	294.2	294.2	294.2	294.2	294.2	r306.1	306.4	311.4	311.4	311.4
3241	Cement, hydraulic	309.8	305.9	306.3	312.6	313.8	313.8	313.3	313.1	312.3	r311.8	307.6	307.6	319.2	319.1
3251	Brick and structural clay tile	277.3	270.4	271.9	276.4	278.5	278.5	278.5	277.6	278.5	282.6	283.0	283.8	287.5	287.0
3253	Ceramic wall and floor tile (12/75 = 100)	122.5	130.4	130.4	130.4	117.6	117.6	117.6	117.6	117.6	120.1	120.1	120.1	127.1	127.1
3255	Clay refractories	274.1	259.4	263.7	273.9	275.6	275.9	279.2	279.5	279.7	r280.2	282.1	282.1	293.1	306.9
3259	Structural clay products, n.e.c.	202.8	198.1	196.4	203.1	204.1	204.4	204.7	205.0	204.8	r204.9	205.4	205.6	209.9	213.3
3261	Vitreous plumbing fixtures	234.8	224.6	226.7	227.6	236.1	235.8	237.2	240.4	241.1	241.5	242.6	245.0	244.7	248.9
3262	Vitreous china food utensils	317.3	308.2	308.2	313.4	313.4	318.6	318.3	318.3	318.7	327.4	327.4	327.4	327.4	327.4
3263	Fine earthenware food utensils	295.4	294.3	294.3	295.1	293.9	294.7	294.6	294.6	296.4	r297.9	297.6	297.6	298.3	298.3
3269	Pottery products, n.e.c. (12/75 = 100)	152.6	150.1	150.1	151.4	151.5	152.7	152.7	152.7	153.3	r155.4	155.4	155.4	155.4	155.4
3271	Concrete block and brick	257.3	250.6	252.3	259.3	259.4	259.4	259.5	259.5	260.5	r259.4	259.4	259.4	264.1	264.9
3273	Ready-mixed concrete	279.9	272.6	275.5	278.8	281.5	282.5	282.6	282.6	283.6	r282.7	282.8	283.3	294.0	295.4
3274	Lime (12/75 = 100)	157.8	153.5	155.6	157.1	157.3	157.7	159.6	160.2	158.8	r160.8	161.0	162.0	165.8	171.9
3275	Gypsum products	256.7	262.8	268.1	264.6	257.0	257.5	253.5	252.3	252.2	250.0	253.7	253.1	259.9	257.6
3291	Abrasive products (12/71 = 100)	212.6	203.3	203.9	212.0	211.8	213.5	215.2	215.7	217.1	r218.8	220.2	220.6	222.7	226.9
3297	Nonclay refractories (12/74 = 100)	161.2	153.3	154.2	157.4	159.7	161.2	162.8	164.9	164.8	r167.8	167.6	167.6	172.4	177.5
3312	Blast furnaces and steel mills	310.4	302.9	304.1	312.0	313.3	313.5	308.6	308.5	308.6	314.8	316.6	320.0	328.7	328.9
3313	Electrometallurgical products (12/75 = 100)	117.7	117.8	118.0	118.7	118.6	118.7	117.1	117.1	117.2	117.3	117.3	117.3	119.9	119.9
3316	Cold finishing of steel shapes	283.9	277.1	277.2	285.9	288.1	288.2	282.2	282.3	282.3	288.1	288.5	293.0	302.8	303.1
3317	Steel pipes and tubes	291.0	281.0	283.2	286.8	286.9	290.4	292.4	292.6	292.6	r294.2	302.4	308.5	315.0	315.7
3321	Gray iron foundries (12/68 = 100)	282.0	276.9	277.2	279.8	280.5	282.5	283.0	283.2	283.3	r289.7	288.6	289.2	291.9	293.0
3333	Primary zinc	269.9	272.4	279.6	274.3	268.2	268.6	255.9	255.9	264.0	269.9	279.3	287.5	289.4	296.3
3334	Primary aluminum	298.3	267.0	267.8	276.0	287.0	290.1	312.1	312.2	313.0	r325.6	329.9	329.4	333.9	334.9
3351	Copper rolling and drawing	227.6	253.1	238.6	227.4	222.8	220.2	222.8	226.2	220.2	r222.0	223.1	223.1	221.9	215.4
3353	Aluminum sheet plate and foil (12/75 = 100)	158.2	153.5	155.5	157.8	157.6	157.8	158.2	157.6	157.6	r161.5	163.3	165.1	169.3	170.7
3354	Aluminum extruded products (12/75 = 100)	167.7	158.9	160.9	167.7	167.7	167.7	168.3	168.4	168.2	r173.2	176.3	176.4	176.8	177.1
3355	Aluminum rolling, drawing, n.e.c. (12/75 = 100)	146.2	141.0	141.1	143.8	145.2	146.7	147.4	147.6	147.5	r150.7	151.3	151.2	155.5	157.5
3411	Metal cans	291.6	277.3	279.9	295.1	295.2	294.9	295.6	295.9	296.1	297.9	297.2	297.4	302.1	303.0
3425	Hand saws and saw blades (12/72 = 100)	182.0	174.6	176.4	178.0	181.5	181.9	183.5	185.4	185.8	r186.8	186.9	190.2	195.0	195.1
3431	Metal sanitary ware	248.3	242.1	243.1	245.5	249.7	249.9	250.9	251.4	251.4	251.5	252.1	253.7	255.9	256.3
3465	Automotive stampings (12/75 = 100)	137.0	132.4	132.7	133.5	133.8	137.8	137.8	139.8	140.1	r140.2	141.2	141.5	143.3	144.1
3482	Small arms ammunition (12/75 = 100)	146.8	143.2	142.6	141.7	141.4	144.6	145.1	147.3	145.3	r145.8	151.1	161.3	158.2	163.2
3493	Steel springs, except wire	230.2	226.6	228.6	229.2	229.2	230.3	230.3	230.8	231.9	r233.0	232.9	233.9	238.2	239.0
3494	Valves and pipe fittings (12/71 = 100)	229.7	219.6	223.1	229.4	229.9	231.8	232.5	232.7	233.3	r235.8	235.6	237.6	239.0	240.8
3498	Fabricated pipe and fittings	315.5	301.8	303.5	313.0	313.1	313.8	317.2	317.2	319.9	325.0	329.9	329.9	335.7	335.7
3519	Internal combustion engines, n.e.c.	274.9	261.8	266.1	270.6	271.6	271.7	276.8	278.6	283.2	r285.2	287.1	288.5	293.0	294.2
3531	Construction machinery (12/76 = 100)	140.9	135.7	136.3	138.6	139.5	140.3	141.8	142.7	143.8	r146.0	145.8	146.7	148.9	150.4
3532	Mining machinery (12/72 = 100)	258.3	247.1	247.8	256.0	257.3	258.2	259.4	262.0	264.1	r266.0	267.9	269.6	271.9	273.5
3533	Oilfield machinery and equipment	337.7	316.2	318.9	329.8	333.1	337.4	342.6	345.7	347.3	r352.9	357.8	360.9	366.5	373.7
3534	Elevators and moving stairways	239.2	226.1	229.1	232.6	234.1	242.8	244.2	243.8	246.4	248.3	248.4	249.5	250.3	250.3
3542	Machine tools, metal forming types (12/71 = 100)	279.6	268.1	269.4	274.3	275.1	279.2	284.3	285.3	285.6	r286.8	287.9	292.5	298.1	298.5
3546	Power driven hand tools (12/76 = 100)	132.0	126.6	127.4	129.0	131.2	131.1	133.5	134.5	135.3	r136.6	136.4	137.6	141.7	143.9
3552	Textile machinery (12/69 = 100)	216.6	205.2	207.0	213.4	213.6	217.0	221.7	222.1	222.3	r223.8	224.5	226.0	231.1	233.7
3553	Woodworking machinery (12/72 = 100)	212.6	201.6	205.1	212.3	212.1	213.7	215.9	216.0	216.0	r217.0	218.1	221.9	222.9	223.1
3576	Scales and balances, excluding laboratory	212.7	205.8	206.6	207.5	208.2	208.6	215.4	226.2	226.2	r226.3	217.7	218.0	219.8	221.1
3592	Carburetors, pistons, rings, valves (6/76 = 100)	156.5	147.8	148.6	152.6	153.0	153.5	158.6	159.3	160.1	r164.9	165.0	167.4	168.7	170.6
3612	Transformers	185.0	176.6	177.5	180.5	181.5	182.9	186.0	190.6	190.7	r193.9	192.8	193.4	195.2	197.0
3623	Welding apparatus, electric (12/72 = 100)	209.7	203.3	206.0	207.0	209.2	211.0	212.1	212.1	211.7	r214.4	214.2	215.5	218.3	220.0
3631	Household cooking equipment (12/75 = 100)	133.0	129.3	129.4	129.7	133.1	134.7	134.9	134.4	134.7	r134.8	134.9	137.1	140.1	140.8
3632	Household refrigerators, freezers (6/76 = 100)	120.9	118.5	118.6	119.3	119.4	122.0	122.2	122.2	123.3	r124.1	123.7	123.8	126.2	126.1
3633	Household laundry equipment (12/73 = 100)	162.0	156.6	158.3	160.3	161.7	162.3	161.2	163.6	165.5	166.1	166.6	167.3	169.7	170.1
3635	Household vacuum cleaners	152.2	149.7	151.3	148.6	149.3	155.8	158.4	158.5	158.6	r158.8	152.2	152.5	152.6	149.9
3636	Sewing machines (12/75 = 100)	128.9	129.2	129.2	129.2	129.2	129.2	130.0	130.0	130.0	r130.3	129.7	129.7	129.7	129.7
3641	Electric lamps	260.1	252.4	251.8	252.3	251.3	258.1	266.3	268.1	269.2	r268.7	269.3	266.2	265.9	271.2
3644	Noncurrent-carrying wiring devices (12/72 = 100)	220.3	215.2	215.3	217.4	218.2	220.4	220.3	220.7	220.9	r221.8	225.0	231.2	235.3	238.5
3646	Commercial lighting fixtures (12/75 = 100)	139.3	134.3	136.2	138.0	138.5	139.2	139.2	140.4	142.3	r142.8	143.4	145.0	145.6	148.5
3648	Lighting equipment, n.e.c. (12/75 = 100)	139.9	133.2	134.6	139.4	140.2	140.7	140.7	140.9	143.2	r143.3	144.5	144.9	146.3	146.8
3671	Electron tubes receiving type	251.8	229.4	229.7	254.0	254.7	255.2	255.5	255.6	255.7	264.6	264.8	272.7	284.3	284.5
3674	Semiconductors and related devices	90.6	88.5	89.3	90.4	91.2	92.0	92.1	91.8	92.0	r91.8	91.1	91.1	90.6	90.8
3675	Electronic capacitors (12/75 = 100)	162.6	149.1	151.3	157.0	160.7	160.5	168.6	172.6	174.0	r170.1	170.1	170.1	170.3	170.6
3676	Electronic resistors (12/75 = 100)	134.1	128.8	131.8	131.9	133.0	135.2	135.3	136.3	136.9	137.7	137.7	137.8	138.1	138.8
3678	Electronic connectors (12/75 = 100)	146.2	146.4	146.7	146.5	146.8	148.7	148.9	149.1	149.6	r149.7	150.0	150.1	152.6	153.7
3692	Primary batteries, dry and wet	176.5	176.5	176.6	176.8	176.4	176.4	176.4	176.7	176.8	176.9	176.9	176.9	179.0	183.3
3711	Motor vehicles and car bodies (12/75 = 100)	136.6	131.6	131.8	135.5	134.5	134.6	137.3	137.9	131.4	r144.5	144.1	143.6	145.0	145.1
3942	Dolls (12/75 = 100)	126.8	125.4	125.6	127.7	128.4	128.4	128.4	128.4	128.4	r128.3	126.6	126.6	129.0	129.1
3944	Games, toys, and children's vehicles	204.5	203.8	204.0	205.0	205.3	205.9	206.0	206.0	206.6	r207.0	205.2	205.4	210.4	214.7
3955	Carbon paper and inked ribbons (12/75 = 100)	132.9	128.2	128.3	131.5	133.3	136.4	135.0	135.0	135.0	135.0	135.0	135.0	133.1	136.4
3995	Burial caskets (6/76 = 100)	131.2	128.3	128.3	128.4	130.3	132.2	132.2	132.2	132.9	132.9	132.9	135.0	135.0	135.0
3996	Hard surface floor coverings (12/75 = 100)	143.7	138.7	138.7	143.2	143.3	143.3	146.1	146.6	146.6	146.6	146.6	146.6	148.6	148.6

[1] Data for October 1980 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.

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, 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	99.4	99.0
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	119.2	131.1
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	99.5	96.4
Unit labor cost	39.8	45.2	52.1	53.3	67.6	75.2	84.2	90.2	94.8	100.0	108.6	119.9	132.4
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	r118.1
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	99.0	r98.4
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	118.8	130.4
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	99.2	95.9
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	r117.4
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	r127.8
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	r100.3	p100.6
Compensation per hour	(1)	(1)	36.3	43.0	58.3	70.8	77.6	85.5	92.5	100.0	108.2	r118.6	p130.4
Real compensation per hour	(1)	(1)	74.2	82.6	91.0	96.5	95.4	96.3	98.5	100.0	100.5	99.0	p95.9
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	p129.6
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	p117.0
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	p125.2
Manufacturing:													
Output per hour of all persons	r49.5	r56.5	r60.1	r74.6	r79.2	93.1	r90.9	r93.5	r97.7	100.0	100.9	r101.9	r101.4
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	118.7	131.2
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	99.1	96.5
Unit labor cost	r43.4	r51.0	61.1	r57.4	r72.7	r74.2	r84.1	r91.4	r94.6	100.0	r107.3	r116.5	r129.3
Unit nonlabor payments	r55.1	r59.4	r62.0	70.3	r66.0	71.6	r70.4	r88.5	r95.1	100.0	r104.7	r105.7	(1)
Implicit price deflator	r46.8	r53.4	61.3	61.2	70.7	73.4	r80.1	r90.6	r94.7	100.0	106.5	r113.4	(1)

[1] Not available.

r = revised.

32. Annual changes in productivity, hourly compensation, unit costs, and prices, 1969–79

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	−0.4	r −0.4	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	9.9	10.0	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	−1.2	−3.1	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	r 10.5	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	r 6.4	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	−0.8	r −0.6	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	9.6	r 9.7	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	−1.5	−3.3	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	r 10.4	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	r 8.2	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	r −0.1	p 0.3	(1)	p 2.0
Compensation per hour	6.8	6.5	5.8	7.7	9.7	10.1	8.2	8.1	8.2	r 9.6	p 9.9	(1)	p 6.7
Real compensation per hour	0.8	2.1	2.5	1.4	−1.1	0.9	2.3	1.5	0.5	r −1.5	p −3.2	(1)	p 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	p 9.6	(1)	p 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	p 8.0	(1)	p 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	p 9.1	(1)	p 4.3
Manufacturing:													
Output per hour of all persons	r −0.2	r 6.1	r 5.0	r 5.4	r −2.4	r 2.9	4.4	r 2.4	r 0.9	r 1.0	r 0.5	2.5	2.4
Compensation per hour	6.8	6.1	5.4	7.2	10.6	11.9	8.0	8.3	8.2	9.7	10.5	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	−1.4	−2.7	2.0	1.5
Unit labor cost	r 7.0	r 0.0	r 0.3	r 1.7	r 13.3	r 8.8	r 3.4	r 5.7	r 7.3	r 8.6	11.0	3.1	r 4.2
Unit nonlabor payments	−2.5	r 11.2	r 0.8	r −3.3	r −1.8	r 25.9	r 7.4	r 5.2	r 4.7	r 0.9	(1)	4.6	r 8.3
Implicit price deflator	r 4.3	r 3.1	r 0.5	r 0.3	r 9.0	r 13.1	r 4.6	r 5.6	6.5	r 6.4	(1)	4.5	7.6

[1] Not available.

r = revised.

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

[1977=100]

Item	Annual average		Quarterly indexes										
			1978			1979				1980			
	1979	1980	II	III	IV	I	II	III	IV	I	II	III	IV
Private business sector:													
Output per hour of all persons	99.4	99.0	99.9	100.0	99.9	99.7	99.6	99.2	99.0	99.3	98.8	99.2	r 98.5
Compensation per hour	119.2	131.1	107.1	109.4	111.9	115.0	118.0	120.5	123.0	126.0	129.7	132.8	135.5
Real compensation per hour	99.5	96.4	100.5	100.5	100.5	100.5	100.1	99.0	97.9	96.5	96.2	96.8	95.9
Unit labor cost	119.9	132.4	107.3	109.4	112.1	115.4	118.5	121.4	124.2	127.0	131.3	133.9	137.3
Unit nonlabor payments	110.9	r 118.1	104.8	106.7	109.1	109.6	110.4	111.5	112.3	115.3	116.0	119.8	122.7
Implicit price deflator	116.9	127.6	106.4	108.5	111.1	113.4	115.8	118.1	120.2	123.0	126.1	129.1	r 132.2
Nonfarm business sector:													
Output per hour of all persons	99.0	r 98.4	99.9	99.9	99.8	99.5	99.1	98.7	98.6	98.6	97.9	98.8	r 98.3
Compensation per hour	118.8	130.4	107.2	109.4	111.9	114.9	117.6	119.9	122.7	125.6	129.0	131.9	135.0
Real compensation per hour	99.2	95.9	100.6	100.5	100.5	100.4	99.8	98.6	97.7	96.2	95.7	96.1	95.6
Unit labor cost	120.0	132.4	107.3	109.5	112.2	115.4	118.7	121.5	124.4	127.4	131.8	133.5	r 137.3
Unit nonlabor payments	108.5	r 117.4	103.2	105.1	107.0	107.1	107.7	109.3	110.2	114.0	115.2	119.2	r 121.0
Implicit price deflator	116.2	r 127.4	105.9	108.0	110.5	112.6	115.1	117.4	119.7	122.9	126.3	128.8	r 131.9
Nonfinancial corporations:													
Output per hour of all employees	r 100.3	p 100.6	100.8	100.4	100.5	100.6	100.6	100.3	99.7	100.0	99.8	101.5	(1)
Compensation per hour	r 118.6	p 130.4	r 107.0	109.2	111.5	r 114.5	117.5	119.8	122.4	125.3	128.9	132.1	(1)
Real compensation per hour	99.0	p 95.9	100.5	100.2	100.1	r 100.1	99.6	98.5	97.5	95.9	95.6	96.3	(1)
Total unit costs	116.8	p 129.8	105.4	107.6	109.6	112.2	115.3	118.2	121.3	124.2	129.2	131.1	(1)
Unit labor cost	118.2	p 129.6	106.2	108.7	111.0	113.8	116.8	119.5	122.8	125.4	129.1	130.2	(1)
Unit nonlabor costs	112.7	p 130.4	103.0	104.4	106.0	107.8	111.2	114.6	117.2	120.9	129.3	133.8	(1)
Unit profits	99.0	p 88.9	105.5	105.9	108.9	105.6	100.7	97.5	92.2	95.5	83.4	89.1	(1)
Implicit price deflator	114.8	p 125.2	105.4	107.4	109.6	111.5	r 113.7	115.9	118.1	121.0	124.1	126.4	(1)
Manufacturing:													
Output per hour of all persons	r 101.9	r 101.4	r 100.6	101.7	r 102.0	r 101.4	r 102.3	r 101.9	r 101.9	r 101.7	r 100.5	100.2	r 103.0
Compensation per hour	118.7	131.2	106.9	109.1	111.5	114.5	118.5	119.7	122.0	125.0	129.6	133.5	136.8
Real compensation per hour	99.1	96.5	100.3	100.2	100.1	100.1	100.5	98.4	97.2	95.7	96.1	97.3	r 96.9
Unit labor cost	r 116.5	r 129.3	106.2	107.3	r 109.3	r 112.9	r 115.9	r 117.5	r 119.8	r 122.9	r 128.9	133.2	r 132.8

[1] Not available.

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					
	II 1979 to III 1979	III 1979 to IV 1979	IV 1979 to I 1980	I 1980 to II 1980	II 1980 to III 1980	III 1980 to IV 1980	III 1978 to III 1979	IV 1978 to IV 1979	I 1979 to I 1980	II 1979 to II 1980	III 1979 to III 1980	IV 1979 to IV 1980
Private business sector:												
Output per hour of all persons	−1.5	−1.1	1.3	−1.9	1.5	r −2.8	−0.7	−0.9	−0.4	−0.8	0.0	r −0.5
Compensation per hour	8.5	8.6	10.4	12.2	9.7	r 8.4	10.1	9.9	9.6	9.9	10.2	10.2
Real compensation per hour	−4.4	−4.4	−5.6	−1.3	2.4	−3.4	−1.5	−2.5	−4.0	−3.9	−2.3	−2.0
Unit labor cost	10.1	9.8	9.0	14.4	8.1	r 11.5	10.9	10.9	10.0	10.8	10.3	r 10.7
Unit nonlabor payments	4.2	2.6	11.3	2.6	13.6	r 6.4	4.6	2.9	5.2	5.1	7.4	r 8.4
Implicit price deflator	8.2	7.4	9.7	10.5	9.8	r 9.9	8.8	8.2	8.4	9.0	9.4	r 10.0
Nonfarm business sector:												
Output per hour of all persons	−1.4	−0.3	0.0	−3.0	r 3.8	r −1.9	−1.2	−1.1	−0.9	−1.2	0.1	r −0.3
Compensation per hour	8.1	9.6	9.9	11.2	r 9.3	9.6	9.6	9.6	9.4	9.7	10.0	10.0
Real compensation per hour	−4.7	−3.5	−6.0	−2.2	2.0	−2.3	−1.9	−2.7	−4.2	−4.1	−2.5	−2.2
Unit labor cost	9.7	9.9	9.9	14.6	5.3	r 11.8	10.9	10.9	10.4	11.0	9.9	r 10.4
Unit nonlabor payments	5.9	3.3	14.6	4.2	14.9	r 6.1	4.0	3.0	6.4	6.9	9.1	r 9.8
Implicit price deflator	8.5	7.8	11.3	11.3	8.2	r 10.0	8.7	8.3	9.1	9.7	9.6	r 10.2
Nonfinancial corporations:												
Output per hour of all employees	−1.1	r −2.4	r 1.2	−0.5	r 6.9	([1])	r −0.1	r −0.8	r −0.6	−0.7	r 1.2	([1])
Compensation per hour	8.2	8.9	r 9.8	12.0	10.3	([1])	r 9.8	r 9.8	9.5	r 9.7	10.3	([1])
Real compensation per hour	−4.6	−4.1	r −6.1	−1.5	3.0	([1])	r −1.7	r −2.6	−4.1	r −4.1	−2.2	([1])
Total unit costs	10.3	11.0	9.8	17.0	6.2	([1])	9.9	10.7	10.6	12.0	11.0	([1])
Unit labor costs	9.5	11.6	8.6	12.6	3.2	([1])	9.9	10.7	10.1	10.5	8.9	([1])
Unit nonlabor costs	12.8	9.3	13.5	30.6	14.7	([1])	9.8	10.6	12.2	16.3	16.8	([1])
Unit profits	−12.0	−20.2	15.3	−41.9	30.3	([1])	−7.9	−15.4	−9.5	−17.2	−8.6	([1])
Implicit price deflator	7.9	7.8	10.3	10.5	7.9	([1])	7.9	7.8	8.5	9.1	9.1	([1])
Manufacturing:												
Output per hour of all persons	r −1.6	r 0.1	r 0.7	r −4.6	r −1.1	r 11.7	r 0.2	r 0.1	r −0.3	r −1.7	r −1.6	r 1.1
Compensation per hour	3.9	8.1	10.1	15.5	12.7	r 10.3	9.7	9.4	9.1	9.3	11.6	12.1
Real compensation per hour	−8.4	−4.8	−5.9	1.6	5.2	r −1.8	−1.8	−2.9	−4.4	−4.4	−1.1	−0.3
Unit labor cost	r 5.6	r 8.0	r 10.8	r 21.1	r 14.0	r −1.3	r 9.5	r 9.6	r 8.8	r 11.2	r 13.4	r 10.9

[1] Not available.

r = revised.

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							
						1979				1980 P			
	1976	1977	1978	1979	1980 P	I	II	III	IV	I	II	III	IV
Wage and benefit settlements, all industries:													
First-year settlements	8.5	9.6	8.3	9.0	10.4	2.8	10.5	9.0	8.5	8.6	10.1	11.6	8.3
Annual rate over life of contract	6.6	6.2	6.3	6.6	7.0	5.3	7.8	6.1	6.0	6.4	6.8	7.3	5.9
Wage rate settlements, all industries:													
First-year settlements	8.4	7.8	7.6	7.4	9.5	5.7	8.9	6.8	6.3	7.8	8.7	10.7	8.4
Annual rate over life of contract	6.4	5.8	6.4	6.0	7.1	6.6	7.2	5.1	5.3	6.3	6.8	7.4	6.5
Manufacturing:													
First-year settlements	8.9	8.4	8.3	6.9	7.3	8.7	9.7	6.3	5.6	7.0	6.6	8.7	7.6
Annual rate over life of contract	6.0	5.5	6.6	5.4	5.4	7.7	8.1	4.7	4.2	5.6	4.9	5.5	5.7
Nonmanufacturing (excluding construction):													
First-year settlements	8.6	8.0	8.0	7.6	9.6	3.2	8.5	9.4	7.8	9.1	10.4	9.4	8.9
Annual rate over life of contract	7.2	5.9	6.5	6.2	6.6	5.6	5.8	6.5	7.4	7.1	8.6	5.8	7.4
Construction:													
First-year settlements	6.1	6.3	6.5	8.8	13.6	9.7	8.7	9.7	7.5	9.6	12.7	15.7	14.3
Annual rate over life of contract	6.2	6.3	6.2	8.3	11.5	8.2	8.3	8.5	7.6	9.3	10.3	13.3	12.0

36. Effective wage adjustments going into effect in major collective bargaining units, 1975 to date

[In percent]

Sector and measure	Average annual changes					Average quarterly changes								
	1976	1977	1978	1979	1980 P	1978	1979				1980 P			
						IV	I	II	III	IV	I	II	III	IV
Total effective wage rate adjustment, all industries	8.1	8.0	8.2	9.1	9.3	1.4	1.4	2.6	3.3	1.6	1.5	3.2	3.4	1.2
Change resulting from —														
Current settlement	3.2	3.0	2.0	3.0	3.6	.4	.2	1.1	1.0	.5	.4	1.1	1.6	.5
Prior settlement	3.2	3.2	3.7	3.0	3.1	.5	.6	1.0	1.0	.4	.5	1.2	1.1	.3
Escalator provision	1.6	1.7	2.4	3.1	2.6	.5	.6	.5	1.2	.7	.6	.8	.7	.5
Manufacturing	8.5	8.4	8.6	9.6	9.7	1.9	1.5	2.3	3.2	2.4	1.9	3.4	2.9	1.6
Nonmanufacturing	7.7	7.6	7.9	8.8	9.0	1.1	1.4	2.8	3.4	1.0	1.3	3.0	3.7	1.0

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 P: January	304	576	170	250	3,222	.17
February	332	594	77	248	3,131	.19
March	326	605	98	237	3,230	.16
April	357	649	98	218	2,579	.14
May	388	704	116	172	2,099	.10
June	385	699	173	224	2,441	.13
July	414	733	241	336	3,954	.21
August	374	704	80	211	3,079	.15
September	420	724	126	247	3,407	.20
October	347	630	90	200	2,195	.11
November	201	427	52	101	1,110	.06
December	66	247	18	48	617	.03
1981 P: January	253	297	50	68	614	.03

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