

(\$11.91), and cut-off machine operators.

Pay levels in the second group ranged from \$13.56 an hour for bricklayers to \$9.50 for laborers. The largest group studied—12,000 millwrights—averaged \$12.72. Jobs with at least 4,000 workers included laborers (\$9.50) and motor inspectors (\$12.92).

Incentive workers predominant. Almost four-fifths of the steelworkers surveyed received pay based on wage incentives. This proportion was higher in establishments using the common job evaluation and pay system (nine-tenths) than in mills with other types of formal job evaluation systems (two-thirds). The predominance of incentive workers is traceable to the design of the pay system which provides for direct, indirect, and secondary indirect incentives. The three types are differentiated by the extent to which a worker, alone or as part of a crew, can affect or control the rate of output or the utilization of equipment. For example, furnace operators are direct workers, while millwrights assigned to specific departments are indirect. Maintenance workers and general laborers not assigned by department are secondary indirect employees.⁴

Employee benefits. Virtually all of the workers were in establishments providing paid holidays and vacations and various health and insurance benefits. The most common provisions were 10 paid holidays annually and 1 week of paid vacation after 1 year of service, 2 weeks after 3 years, 3 weeks after 10 years, and 4 weeks after 25 years. Almost all production workers were eligible for life insurance, sickness and accident insurance, hospitalization, surgical and basic and major medical insurance, and retirement pension plans. Supplemental unemployment benefits, dental insurance, and retirement severance plans applied to four-fifths of the workers or more. Most of the health, insurance, and retirement plans were paid for entirely by the employer.

A summary report, *Basic Iron and Steel Mills, August 1983* (Summary 84-6) is available from the Bureau or any of its regional offices. A comprehensive bulletin is scheduled for publication later this year. □

—FOOTNOTES—

¹Earnings data exclude premium pay for overtime and for work on weekends, holidays, and late shifts. Incentive payments, such as those resulting from piecework or production bonus systems and cost-of-living adjustments, were included as part of the workers' regular pay. For a report on the earlier survey, see *Industry Wage Survey: Basic Iron and Steel, 1978-1979*, BLS Bulletin 2064 (Bureau of Labor Statistics, 1980). The 1978 survey was limited to establishments with 250 workers or more; the 1983 study covered establishments with 100 workers or more.

Both surveys included establishments employing workers engaged primarily in manufacturing steel products classified in the following industries as defined in the 1972 *Standard Industrial Classification Manual* (SIC) of the U.S. Office of Management and Budget: (1) Blast furnaces (excluding merchant coke ovens), steelwork, and rolling mills (part of SIC 3312); (2) steel wire drawing and steel nails and spikes (SIC 3315); (3) cold rolled steel sheet, strip, and bars (SIC 3316); and (4) steel pipe and tubes (SIC 3317). Excluded from the surveys were merchant coke ovens (part of SIC 3312), electrometallurgical products (SIC 3313), establishments producing steel solely for use by their parent company and not classified in the steel

industry, and separate auxiliary units such as central offices and warehouses.

²The Bureau's *Employment and Earnings* series reports gross earnings which include premium pay for overtime, holidays, vacations, and sick leave paid directly to the employee.

³The concessions included elimination of a cost-of-living allowance of 6 cents accumulated since November 1982. Cost-of-living adjustments were suspended until at least August 1984, a paid holiday was dropped, and other benefits were reduced. One week of regular paid vacation was eliminated for employees eligible for at least 2 weeks' vacation in 1983, but the week was restored in 1984. The extended vacation plan was discontinued in 1983 and vacation bonuses were eliminated in 1984. In return, steel firms agreed to invest the savings in capital improvements and to increase financing of the Supplemental Unemployment Benefit fund. For details, see *Current Wage Developments*, March 1983, pp. 1-2.

⁴For a detailed discussion of the incentive pay system in the industry, see Joseph Bush, "Incentive pay patterns in the steel industry," *Monthly Labor Review*, August 1974, pp. 75-77.

Area occupational pay in auto dealer repair shops

Occupational pay varies widely in automobile dealer repair shops, according to a Bureau of Labor Statistics' survey. The November 1982 study covered eight occupations in 24 metropolitan areas and found that diverse employee skills, extensive use of incentive pay plans, and pay differences among individual shops contributed to the wide range of earnings.

Journeyman auto mechanics, who repair, rebuild, or overhaul major assemblies of cars and light trucks, averaged from \$14.52 an hour in San Francisco to \$8.59 in Birmingham.¹ (See table 1.) Most commonly, journeyman mechanics averaged 20 to 40 percent more than automotive service mechanics in the same metropolitan area. Average earnings of service mechanics, who perform minor repairs and tuneups, ranged from \$10.99 an hour in Dallas-Fort Worth to \$6.80 in Boston; in most areas, however, averages were between \$7 and \$9 an hour.

Among the jobs studied, body repairers or painters had the highest average in 20 of the 24 areas studied. Averages for painters ranged from over \$15 an hour in three areas—Denver-Boulder (\$16.49), Chicago (\$15.61), and Kansas City (\$15.59)—to \$8.60 in New York and \$8.12 in Memphis. For body repairers, who repair bodies and body parts of automotive vehicles, hourly averages ranged from \$14.68 in San Francisco to \$9 in Indianapolis. Painters typically averaged 8 to 14 percent more than body repairers in the 12 areas where painters held the wage advantage. When body repairers held the edge in an area, their wage advantage was usually 11 percent or less.

Lubricators and new-car get-ready workers, usually the lowest paid, averaged between \$5 and \$8 in a majority of the areas. Service salesworkers, who examine automobiles to determine the need for and cost of repairs, averaged more than \$9 an hour in most of the areas surveyed. Their highest hourly average was found in San Francisco-Oakland (\$13.58)

and their lowest in Pittsburgh (\$7.72). Service salesworkers averaged 15 to 30 percent more than parts clerks in each area but Houston, where parts clerks held a slight edge—\$12.27 to \$12.16.

In the six occupational classifications for which data are available for all areas,² pay levels in November 1982 were most often highest in San Francisco—Oakland and lowest in Birmingham and Pittsburgh. The interarea spread in average earnings, however, differed considerably by occupation. For example, new-car get-ready workers in San Francisco—Oakland averaged 90 percent more than their counterparts in Washington, D.C., whereas the spread between these two areas was 33 percent for journeyman automotive mechanics, 14 percent for body repairers, and 2 percent for painters.

Within the same area and occupation, individual earnings were widely dispersed, especially when the occupation was

typically paid on an incentive basis. In nearly all areas, for example, earnings of the highest paid journeyman mechanic exceeded those of the lowest paid by at least \$9 an hour. In San Francisco, where virtually all journeyman mechanics were time rated, their earnings fell within a comparatively narrow range—\$13 to \$16.50.

The dispersion of individual earnings resulted more from disparate pay levels among establishments than from pay differences within establishments. For example, the earnings of the highest paid body repairer rarely exceeded those of the lowest paid by more than \$6 an hour within individual establishments. However, earnings of the highest paid body repairer in an area exceeded those of the lowest paid by at least \$14 an hour in nearly all areas. As a result of the wide dispersion of earnings within an occupation, there was a considerable overlapping of individual workers' earnings

Table 1. Number of workers and average straight-time hourly earnings¹ in selected occupations in auto dealer repair shops, 24 areas,² November 1982

Area	Body repairers		Lubricators		Mechanics, automotive, journeyman		Mechanics, automotive, service		New-car get-ready workers		Painters		Parts clerks		Service salesworkers	
	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings
Northeast																
Boston	408	\$10.32	60	\$5.32	1,069	\$10.13	100	\$6.80	116	\$6.88	7	\$11.69	357	\$7.10	241	\$8.46
Nassau—Suffolk	101	10.20	7	6.02	663	11.96	342	7.94	121	7.91	28	9.34	263	8.29	193	10.21
New York	236	10.46	64	7.08	1,058	11.39	679	8.85	253	7.42	38	8.60	529	9.13	391	9.49
Philadelphia	366	9.84	27	5.50	1,544	10.10	583	7.01	376	5.77	131	9.78	591	6.69	422	8.20
Pittsburgh	464	10.15	48	4.46	883	10.05	88	6.91	170	5.61	—	—	317	6.12	193	7.72
South																
Atlanta	240	12.06	29	7.46	810	10.95	190	9.47	128	6.65	83	11.70	320	8.12	204	10.32
Birmingham	86	9.50	17	5.44	224	8.59	90	8.53	40	4.66	14	10.62	114	8.60	75	10.74
Dallas—Fort Worth	481	13.23	47	8.24	702	11.65	771	10.99	212	9.49	191	11.94	565	10.56	348	12.30
Houston	571	13.55	65	8.50	1,310	12.74	114	10.06	419	7.48	175	13.70	614	12.27	293	12.16
Memphis	96	12.09	18	5.53	234	8.65	76	7.04	60	4.97	41	8.12	155	8.47	60	8.74
Miami	171	12.51	19	6.49	436	11.36	67	8.17	99	7.15	57	11.43	201	8.11	132	10.42
Washington	580	12.90	12	3.74	1,801	10.90	264	7.50	370	5.15	170	14.54	630	7.70	424	9.60
North Central																
Chicago	783	13.67	33	7.67	1,997	12.34	151	7.21	256	6.62	93	15.61	738	7.29	510	9.35
Detroit	756	12.53	107	7.04	1,292	12.24	514	8.68	129	6.85	301	12.48	536	6.83	408	7.86
Indianapolis	204	9.00	22	6.05	403	8.97	90	7.42	55	7.24	58	12.07	192	7.00	91	8.07
Kansas City	281	12.53	43	9.61	561	10.66	44	7.86	54	8.28	43	15.59	193	8.19	146	11.44
Milwaukee	283	11.68	36	6.44	487	11.42	79	7.49	85	5.87	22	11.59	166	6.62	142	8.44
Minneapolis—St Paul	314	12.92	59	8.05	822	12.00	72	8.77	67	8.45	117	13.49	295	8.69	159	10.50
St. Louis	465	12.98	122	9.79	893	11.70	—	—	125	10.16	13	12.71	310	10.47	190	10.95
West																
Denver—Boulder	193	13.71	30	10.60	711	11.74	107	10.43	93	7.41	55	16.49	323	8.31	207	10.98
Los Angeles—Long Beach	817	12.48	194	10.18	3,023	12.39	579	9.73	377	8.02	287	13.76	1,374	9.62	815	12.70
Phoenix	188	11.49	48	6.21	534	9.85	124	8.84	66	7.09	89	11.27	224	8.67	144	10.99
Portland	123	10.78	59	5.58	508	10.87	79	8.13	71	5.56	38	11.60	208	7.93	123	9.69
San Francisco—Oakland	501	14.68	163	9.60	1,742	14.52	24	10.82	102	9.78	124	14.76	509	11.90	383	13.58

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

²The areas used in this survey are defined as follows: **NORTHEAST:** Boston—Suffolk County, 16 communities in Essex County, 34 in Middlesex County, 26 in Norfolk County, and 12 in Plymouth County, Mass.; Nassau—Suffolk—Nassau and Suffolk Counties, N.Y.; New York—New York City (Bronx, Kings, New York, Queens, and Richmond Counties and Putnam, Rockland, and Westchester Counties, N.Y., and Bergen County, N.J.); Philadelphia—Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties, Pa.; and Burlington, Camden, and Gloucester Counties, N.J.; and Pittsburgh—Allegheny, Beaver, Washington, and Westmoreland Counties, Pa.; **SOUTH:** Atlanta—Butts, Cherokee, Clayton, Cobb, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Newton, Paulding, Rockdale, and Walton Counties, Ga.; Birmingham—Jefferson, St. Clair, Shelby, and Walker Counties, Ala. Dallas—Fort Worth—Collin, Dallas, Denton, Ellis, Hood, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties, Tex.; Houston—Brazoria, Fort Bend, Harris, Liberty, Montgomery, and Waller Counties, Tex.; Memphis—Shelby and Tipton Counties, Tenn.; Crittenden County, Ark.; and DeSoto County, Miss.; Miami—Dade County, Fla.; and Washington—The District of Columbia; Charles, Montgomery, and Prince Georges Counties, Md.; and Alexandria, Fairfax, and Falls Church Cities and Arlington, Fairfax,

Loudoun, and Prince William Counties, Va.; **NORTH CENTRAL:** Chicago—Cook, DuPage, Kane, Lake, McHenry, and Will Counties, Ill.; Detroit—Lapeer, Livingston, Macomb, Oakland, St. Clair, and Wayne Counties, Mich.; Indianapolis—Boone, Hamilton, Hancock, Hendricks, Johnson, Marion, Morgan, and Shelby Counties, Ind.; Kansas City—Cass, Clay, Jackson, Platte, and Ray Counties, Mo.; and Johnson and Wyandotte Counties, Kans.; Milwaukee—Milwaukee, Ozaukee, Washington, and Waukesha Counties, Wis.; Minneapolis—St. Paul—Anoka, Carver, Chisago, Dakota, Hennepin, Ramsey, Scott, Washington, and Wright Counties, Minn.; and St. Croix County, Wis.; and St. Louis—St. Louis City; Franklin, Jefferson, St. Charles, and St. Louis Counties, Mo.; and Clinton, Madison, Monroe, and St. Clair Counties, Ill.; **WEST:** Denver—Boulder—Adams, Arapahoe, Boulder, Denver, Douglas, Gilpin, and Jefferson Counties, Colo.; Los Angeles—Long Beach—Los Angeles County, Calif.; Phoenix—Maricopa County, Ariz.; Portland—Clackamas, Multnomah, and Washington Counties, Ore.; and Clark County, Wash.; and San Francisco—Oakland—Alameda, Contra Costa, Marin, San Francisco, and San Mateo Counties, Calif.

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

even among jobs with substantially different pay averages.

Incentive pay systems, most commonly flat-rate hours plans, determined the earnings for just over one-half of the 91,680 service workers covered by the study.³ Under flat-rate hours plans, which applied to three-tenths of the workers, pay is computed by multiplying the number of flat-rate hours predetermined for each task by an established hourly rate. Group bonus and commission plans together covered one-seventh of the service workers. Other incentive systems in auto dealer repair shops include individual bonus plans and flat-rate percent plans. In the latter, workers receive a stipulated proportion (most often 50 percent) of the labor cost charged to the customer. These flat-rate percentage plans applied to fewer than one-tenth of the workers.

Slightly more than two-fifths of the service workers were paid time rates in November 1982, typically under informal plans providing individual rates in specified occupations. Formal time-rated plans providing single rates for specified jobs within establishments were more common than the informal plans in eight areas, including San Francisco; there, single-rate plans applied to four-fifths of the workers.

Paid holidays were provided to at least nine-tenths of the workers in all areas except Denver-Boulder, where the proportion was about seven-tenths. Holiday provisions, however, varied widely by area. In seven areas (Boston, Chicago, Minneapolis, Nassau-Suffolk, New York, San Francisco, and St. Louis), at least two-thirds of the workers received 9 holidays or more annually; in most southern areas, provisions for more than 5 days were rare.

Incentive workers, particularly those paid under flat-rate systems, may receive holiday pay which differs from their usual pay. About one-third of the incentive workers were granted holiday pay which was substantially less than their usual pay. Most of the remainder received holiday pay that equaled, or approached, their regular pay. A few incentive workers received holiday pay that was greater than their regular pay.

Virtually all nonsupervisory service workers were in shops providing paid vacations after qualifying periods of service. Although vacation provisions varied substantially among the areas, typical provisions were 1 week of pay after 1 year of service and 2 weeks after 2 years. Provisions for at least 3 weeks of vacation pay, generally after 10 to 15 years of service, were more common in the Northeastern and North Central areas than in the other two regions. Only in Chicago, Minneapolis, St. Louis, and San Francisco were a majority of the workers covered by 4-week plans.

Almost all service workers were in establishments providing hospitalization, surgical, basic medical, and major medical insurance for which employers paid at least part of the cost. Provisions for life insurance covered nine-tenths of the workers; accidental death and dismemberment insurance, four-fifths; and short-term protection against sickness or accident, two-thirds. As with the other elements of this survey, incidence of certain health and insurance plans

varied widely by area.

Retirement pension plans (other than social security) applied to at least 90 percent of the workers in Minneapolis-St. Paul, St. Louis, and San Francisco. Elsewhere pension plans covered a majority of the workers in eight areas and typically from one-fourth to one-third in the remaining 13, principally in the South.

The 3,363 auto dealers within the scope of the survey—those with at least 20 workers—employed 173,682 workers in November 1982. Included were the repair departments of establishments engaged primarily in selling new, or new and used, automobiles. Dealerships primarily selling trucks and used cars, and general automobile repair shops, were not included. In the 24 areas combined, executive, supervisory, and office personnel made up 24 percent of the work force; auto salesworkers made up 19 percent, and the non-supervisory service workers accounted for 57 percent.

One-third of the areas accounted for about three-fifths of the 91,680 nonsupervisory service workers. The Los Angeles-Long Beach area had the largest number (10,083), followed by Washington (8,024), Chicago (7,080), Houston (6,107), Philadelphia (5,924), Detroit (5,623), Dallas-Fort Worth (5,557), and San Francisco (4,579). In the remaining 16 areas, employment ranged from 3,898 in New York to approximately 1,000 in Birmingham.

Slightly more than one-fifth of the nonsupervisory service workers were covered by labor-management agreements. The proportion was about nine-tenths in San Francisco and St. Louis; between three-fifths and four-fifths in Chicago, Minneapolis, Nassau-Suffolk, and New York; nearly two-fifths in Kansas City; and one-fourth or less in Boston, Detroit, Milwaukee, Philadelphia, and Pittsburgh. In the remaining 12 areas, primarily in the South and West, no establishment visited reported a majority of its nonsupervisory service workers under union contracts. The major unions in the industry were the International Association of Machinists and Aerospace Workers (AFL-CIO) and the International Brotherhood of Teamsters, Chauffeurs, Warehousemen, and Helpers of America (Ind.). In a few areas, both of these unions had bargaining agreements with the same establishment.

A comprehensive report on the survey findings, *Industry Wage Survey: Auto Dealer Repair Shops, November 1982* (Bulletin 2198), is for sale by the Government Printing Office, or by any of the Bureau's regional offices. □

—FOOTNOTES—

¹Earnings data exclude premium pay for overtime and for work on weekends, holidays, and late shifts.

²Data did not meet publication criteria for automotive service mechanics in St. Louis and for painters in Pittsburgh.

³These "nonsupervisory service workers" included working supervisors and nonsupervisory workers in all departments except the office and auto sales departments. Included are workers in departments such as repair, service, and parts.

New Jersey trends in high tech employment

The State of New Jersey has consistently been among the leading centers of high technology industry in the Nation. A recent State study, employing a broad definition of high technology, found that employment in New Jersey's high tech industries rose 3.1 percent annually between 1975 and 1980, compared to a 2.0-percent increase for all other private nonfarm industries. However, because the national rate of growth in high tech jobs was 4.7 percent per year over the same period, the State's share of the U.S. total actually declined from 4.6 percent in 1975 to 4.2 percent by 1980.

Nearly 224,000 persons were employed in New Jersey's high tech industries in 1980, about 31,000 more than in 1975. These workers, who accounted for 1 of every 11 private nonfarm jobs in the State, were distributed among four broad components: manufacturing (69 percent); communications (23 percent); computers and data processing (7 percent); and research (1 percent). The employment performance of the four components was mixed over the study period, with sizable annual increases in computers and data processing and in communications, slower growth in manufacturing, and large absolute declines in the research area.

Manufacturing was the largest component, accounting for 70 percent (155,559) of New Jersey's high technology jobs in 1980. Although the 2.0-percent annual employment growth in the State's high tech manufacturing industries over the study period was modest, it outpaced the 1.2-percent increase recorded for traditional manufacturing, with the result that the high tech share of the State's total manufacturing employment grew from 18.7 percent in 1975 to 19.3 percent by 1980. The drug industry was the largest high tech manufacturing employer with 32,679 workers in 1980, reflecting annual growth of 3.3 percent since 1975. Other numerically important three-digit SIC industries and their 1975-80 compound annual rates of growth:

	1980 employment	Annual rate of growth
Communications equipment	31,042	0.9
Electronic components ..	18,363	3.9
Electrical lighting equipment	11,311	0.4
Computer machinery	9,944	5.5
Surgical instruments	9,230	-0.6
Control instruments	6,970	9.3

Among nonmanufacturing industries, the second largest component of New Jersey's high technology sector was communications, with more than 50,000 employees in 1980 and growth of 5.8 percent per year, 1975-80. Telephone communications accounted for the bulk (44,644) of the workers in 1980, after 5 years of increase at a 4.9-percent

annual rate. Pulling up the average growth rate for the communications component were the small but rapidly growing telegraph communication and communications services industries, which recorded gains of 18.5 percent and 16.3 percent per year over the study period.

The computer and data processing component of the State's high tech sector posted a hefty 8.9-percent yearly rise between 1975 and 1980, employing 15,157 workers in the latter year. In sharp contrast was the performance of the research component, which consisted of research and development laboratories and noncommercial educational, scientific, and research organizations. Employment in R&D labs fell by 8.2 percent annually to 1,089 workers by 1980; noncommercial organizations lost jobs at a 12.3-percent rate, and employed only 524 persons Statewide at the end of the study period. However, the declines noted in the research component should be interpreted with caution, because employment in research units that are divisions of larger firms is often reported under the SIC code of the parent company and cannot be broken out separately for statistical analysis.

The study, based on information from the Census Bureau's *County Business Patterns*, also compared the employment performance of New Jersey and 15 other States with large high tech sectors. Among the salient findings from this portion of the analysis:

- New Jersey ranked seventh of 16 in terms of 1980 high tech jobs—behind California, New York, Illinois, Texas, Massachusetts, and Pennsylvania.
- Declining employment shares in high tech manufacturing between 1975 and 1980 were observed in States whose economies have traditionally been manufacturing based, such as Connecticut, New York, Pennsylvania, Ohio, Illinois, and New Jersey. There thus appears to be a link between the health of a State's overall manufacturing sector and its share of high tech employment. New Jersey ranked seventh among the States in terms of such employment in 1980.
- In terms of 1980 employment, New Jersey ranked eighth in the communications component, eleventh in independent noncommercial scientific and research organizations, and twelfth in research and development laboratories. The State's highest ranking—fifth—was in computer and data processing services.

High tech employment trends over the study period are also presented for each State by major industry component.

New Jersey's High Technology Economy: A Profile of Recent Developments and Comparative Performance was prepared by Theodore A. Minde of the Office of Economic Research, New Jersey Department of Commerce and Economic Development (Trenton, 1983). □