

# Industry Wage Survey: Metalworking Machinery Manufacturing, February 1990



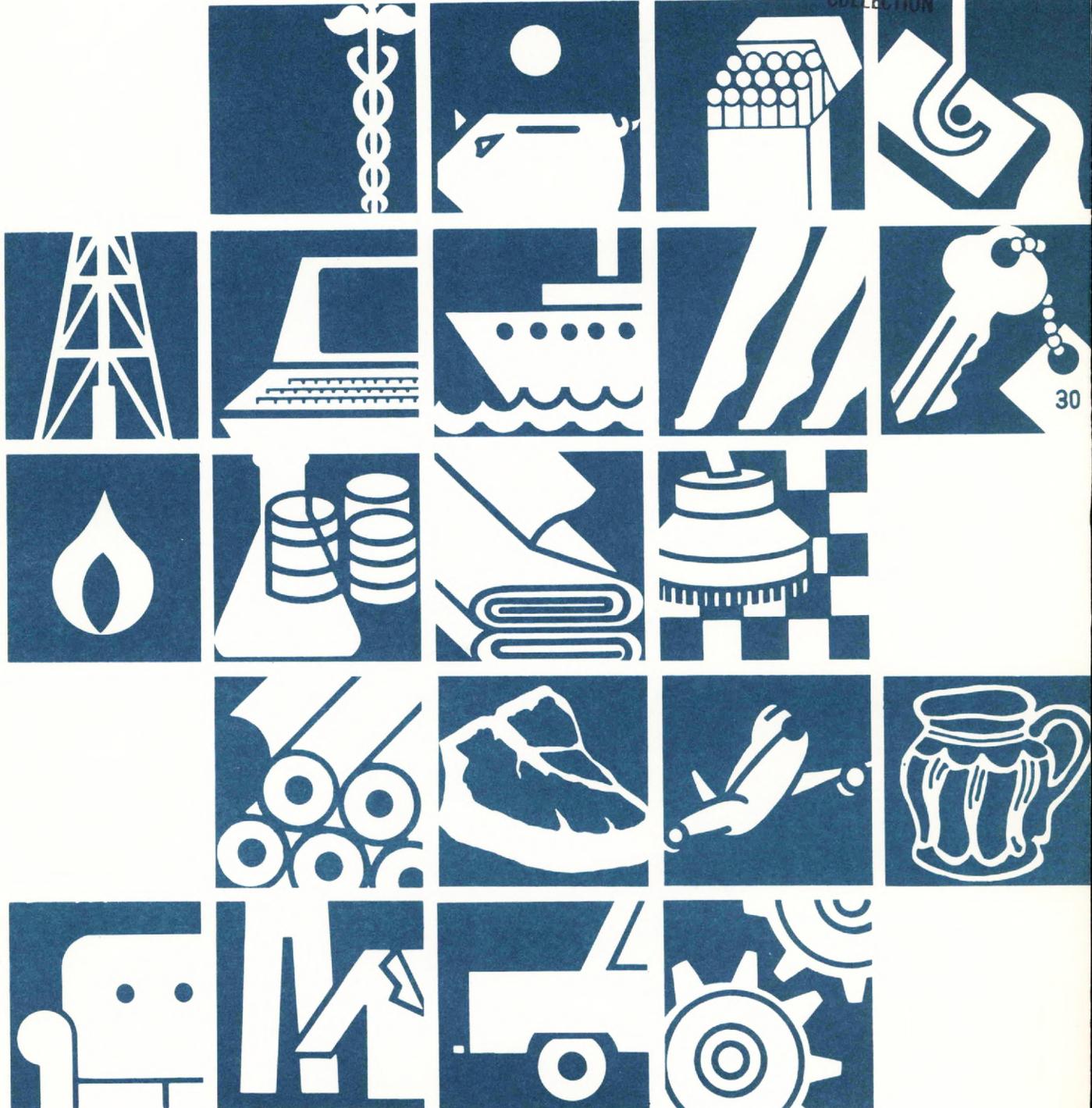
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November 1991

Bulletin 2390

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# Industry Wage Survey: Metalworking Machinery Manufacturing, February 1990



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Bureau of Labor Statistics  
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November 1991

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# Preface

This bulletin summarizes the results of a Bureau of Labor Statistics survey of occupational pay and employee benefits in the metalworking machinery manufacturing industry in February 1990. This survey is the first study of this component of the nonelectrical machinery manufacturing industry. Previous studies of a larger and more dispersed industry reflected a wider range of machinery products, occupational coverage, and staffing patterns. Data are provided separately for 12 centers of industry concentration. Information also is presented for the special dies and tools component of the industry in 7 of these centers.

Separate releases were issued earlier for each area covered by the survey. Copies of these reports are available from the Bureau or any of its regional offices.

The study was conducted in the Bureau's Office of Compensation and Working Conditions. Jonathan W. Kelinson of the Division of Occupational Pay and Employee Benefit Levels analyzed the survey findings and prepared this bulletin. The Bureau's field representatives obtained the data through personal visits to a probability-based sample of establishments within the scope of the survey. Fieldwork for the survey was directed by the Bureau's Assistant Regional Commissioners for Operations.

Other industry wage survey reports are listed at the end of this bulletin, along with information on how to obtain copies.

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# Metalworking Machinery Manufacturing, February 1990

## Earnings

Average straight-time hourly pay of full-time production workers in metalworking machinery manufacturing varied by occupation, skill level, and among 12 centers of industry concentration studied in February 1990. Detroit, the largest metalworking center in the survey, with more than 16,000 production workers (table A-1), was the highest-paying area (table 1). Workers in St. Louis, Milwaukee, Minneapolis-St. Paul, and Los Angeles-Long Beach also ranked among the higher paid; however, exceptions for individual occupations or skill levels were common.

Tool and die makers were the highest paid workers in 10 of the 12 areas studied. Their average hourly earnings ranged from \$16.95 in Detroit to \$12.14 in Pittsburgh.<sup>1</sup> In 10 of the 11 areas for which data were available, at least seven-eighths of the tool and die makers worked in jobbing shops. Generally, these are contract tool and die shops which produce die sets, jigs, or fixtures for another manufacturer as the end product of the metalworking establishment.

Machine-tool operators are the most common occupational group in the industry. They operate any of several types of nonportable, power-driven machine tools that shape metal by progressively removing portions of the stock (the raw material to be machined), by cutting or forming the stock, or through abrasion. (See appendix B for occupational descriptions.) Wage data were collected separately for those performing production work and for those engaged in toolroom work; by the particular type of machine tool operated and the skill and precision levels of work required; and for workers using conventional machine tools or (computer) numerical-control machine tools.

*Production or toolroom work.* Machine-tool operators in a production setting manufacture machine tools and metalworking equipment for sale or use outside of the establishment. Those workers who make metalworking machinery, tools, dies, jigs, or other products for the establishment's own use are classified as doing toolroom work. Hourly

earnings averages for machine-tool operators in the toolroom exceeded those of their production counterparts in each of the 11 areas permitting comparison. The pay advantage for toolroom workers was just over 50 percent in Chicago and Los Angeles-Long Beach, about 5 percent in Boston and Cleveland, and between 8 and 30 percent in the remaining areas. Average pay for machine-tool operators in the toolroom ranged from \$15.94 an hour in St. Louis to \$11.72 an hour in Cleveland. Among production machine-tool operators, those in Detroit had the highest hourly average (\$12.49); workers in Chicago averaged the lowest (\$9.29). For both occupational groups, variation in average pay was about 35 percent among the areas.

*Skill level and type of machine tool.* Production machine-tool operators were identified by the particular machine tool operated and skill level required. Class A machine-tool operators interpret the machining operations from specifications, determine the proper tooling and operation sequences, and adjust the equipment as necessary to assure precise levels of tolerance. They were the highest of three skill levels studied among conventional machine-tool operators. In the 11 areas where data are shown, average pay ranged from \$15.14 an hour in Detroit to \$10.96 an hour in Pittsburgh.

Grinding-machine and milling-machine operators were the two most populous production machine-tool operator classifications studied.<sup>2</sup> The relative pay levels in these two jobs varied, in part, according to the staffing pattern and the mix of skill levels within each category and area. Among class A operators in each occupation, for example, workers employing grinding machines had a pay advantage over those using milling machines in four of the seven areas permitting comparison. When comparisons were expanded to include all skill levels, however, this pay relationship reversed in some localities. In Philadelphia, for example, class A grinding-machine operators had an 11.4-percent wage edge over class A milling-machine operators; however, the overall pay average slightly favored milling-machine operators (by less than 1 percent).

<sup>1</sup> Earnings data exclude premium pay for overtime and for work on weekends, holidays, and late shifts. See appendix A for the scope and method of the survey and for definitions of terms used in this report. This survey excluded establishments employing fewer than 10 workers. See appendix B for occupational descriptions.

<sup>2</sup> Pay comparisons with the 2,600 miscellaneous machine-tool operators were not made, because pay levels for these workers may reflect work performed on multiple machine tools, work performed using machine tools whose operational complexity was not known, or for other occupational characteristics that were not specific to this occupation. See appendix B for occupational descriptions.

*Conventional versus numerical-controlled machine tools.* Computer-numerical-controlled machines, in contrast to manually operated, conventional machines, employ programmed or coded instructions to direct the machine through a sequence of operations. Operators of numerical-controlled machines were identified either as operate only, or as set up and operate. Hourly averages for the higher skilled set-up workers ranged from \$15.61 in Los Angeles–Long Beach to \$11.32 in Hartford–New Britain–Middletown. In 5 of the 10 cases that could be compared, those who set up and operate computer-numerical-control machine tools averaged more than the class A conventional machine-tool operators working in the same area.

Data for selected occupations in the special dies and tools segment of the industry are presented separately for seven of the areas in the study (table 2). Production workers in this industry segment constituted slightly more than half of all workers surveyed in these areas (table A-1). Occupational pay in contract tool and die shops generally was the same as, or slightly less than, the industry-wide average for the same job and area. The more limited staffing pattern shown among tool and die shops reflects a narrower scope of industrial activity.

Earnings among individual workers across all occupations in the industry ranged from under \$4.50 an hour in Los Angeles–Long Beach to at least \$23 an hour in Detroit. Within an individual occupation and area, however, pay ranges were more concentrated (tables 3-21). For example, in Hartford–New Britain–Middletown, CT and Northern New Jersey (tables 9 and 16), where the distribution of earnings was comparatively broad, the hourly earnings of over half of the workers in a given occupation typically fell close to the mean—usually within \$1.50. Contributing to the consolidation of occupational earnings were a narrowly defined skill range for each class or level of work and the relative absence of incentive payment plans. Only Cleveland and St. Louis reported significant proportions of workers on these plans—about two-fifths each (table 22).

## Benefits

Virtually all production workers in 11 of the metalworking machinery manufacturing centers received paid holidays; three-fourths of the workers in Cleveland were in establishments providing paid holidays (table 26). Actual holiday provisions varied within and among the areas studied, ranging from 5 days per year for 2 percent of the workers in Los Angeles–Long Beach to 16 holidays per year for 4 percent of those in Northern New Jersey. At least one-third of the workers in each area, however, received between 9 and 12 paid holidays per year. Paid vacations were provided to nearly all workers studied (table 27). Usual vacation provisions were 1 week after 1 year of service, 2 weeks after 2 years, 3 weeks after 8 years, and 4 weeks or more after a minimum of 20 years of service.

Four-fifths or more of the workers in 10 areas were eligi-

ble for hospitalization, surgical, and medical insurance, while nearly three-fourths of their counterparts in Minneapolis–St. Paul and Los Angeles–Long Beach were provided similar insurance plans (table 28). Establishments which afforded these benefits through membership in a health maintenance organization (HMO) employed no more than one-half of the workers in 10 areas, but to slightly more than four-fifths of the workers in Los Angeles–Long Beach, and to about three-fourths in Cleveland. Life insurance applied to seven-eighths or more of the workers in each area in the survey, except Philadelphia, where three-fourths of the workers were covered. Retirement plans generally covered between four-fifths and one-half of the workers in each area; however, the reported incidence of these plans was as high as nine-tenths in Chicago, Cleveland, and St. Louis. Health, insurance, and retirement plans often were provided at no cost to the employee. Health plan participation levels (table 29) for general health-care benefits, either through standard health insurance or membership in a health maintenance organization, exceeded 90 percent in each area. Among the four specialized health-care programs studied separately, participation was highest for alcohol and drug abuse treatment plans.

Full or partial pay for time off for special circumstances (attending a family funeral, serving as a juror, or military service) varied considerably according to the type of absence and locality (table 30). For example, funeral leave was provided to at least three-fourths of the workers in the Northeast areas, between three-fifths and three-fourths of the workers in most Middle West areas (nine-tenths in St. Louis), and just under two-fifths in Los Angeles–Long Beach. Jury-duty leave generally was less prevalent than funeral leave, except in Boston–Lawrence–Salem and Cleveland. Paid leave for military service, which covered just over half of the workers in Pittsburgh, applied to fewer than one-tenth of the workers in Detroit and Los Angeles–Long Beach. Between one-tenth and one-half of the workers in each of the other industrial centers were eligible for some employer compensation during military training.

Severance pay benefits, providing pay to employees who are separated permanently from their job because of a technological change or a plant closing, generally applied to fewer than 10 percent of the workers in an area, but covered 14 percent of those in Boston–Lawrence–Salem and 25 percent in Northern New Jersey. Formal provisions for automatic wage-rate adjustments, usually based on changes in the BLS Consumer Price Index, applied to 32 percent of the workers in Cleveland, 23 percent in Detroit, and between 3 and 12 percent in Philadelphia, Pittsburgh, Chicago, and Milwaukee. No such plans were reported in establishments in the remaining areas.

## Industry characteristics

The February 1990 survey of metalworking machinery manufacturers is the first study of this component of the

nonelectrical machinery manufacturing industry. Previous studies of a larger and more dispersed industry reflected a wider range of machinery products, occupational coverage, and staffing patterns.<sup>3</sup> The current study focuses more directly on one industry component, metalworking machinery manufacturing, and limits the survey coverage to 12 urban centers of industry concentration. The special dies and tools trade also was studied separately in 7 of these areas. (See appendix A for industry definitions.)

The 12-area study covered just over one-fifth of the production workers employed in metalworking machinery manufacturing establishments nationwide in February 1990.<sup>4</sup> Production worker employment was highest in Detroit (16,228), Chicago (9,062) and Cleveland (7,242). The five smallest centers each had fewer than 2,000 production workers: St. Louis (1,999), Minneapolis-St. Paul (1,846), Hartford-New Britain-Middletown (1,780), Northern New Jersey (1,574), and Boston-Lawrence-Salem (1,433).

Among the 7 centers of special dies and tools manufacturing, production employment ranged from 8,402 in Detroit to 897 in Northern New Jersey. These workers were just over half of the metalworking machinery manufacturing workers in the 7 areas studied and about two-fifths of all metalworking production workers in the 12 survey areas. Production employment in the 7 special dies and tools manufacturing centers accounted for nearly one-fifth of the nationwide production work force of the industry.<sup>5</sup>

The types of products manufactured in the industry varied from heavy construction machinery to precision tools and dies. Production employment, however, was dominated by the special dies and tools industry, except in Cleveland, where electric and gas welding equipment was the principal output for a plurality of production workers, and in New England, where industrial employment was spread more evenly among the nine divisions.<sup>6</sup>

Nearly all production workers in the industry were paid time rates (table 22). Individually determined rates

applied to a majority of workers in just over half of the areas studied. Formal single-rate plans were most prevalent in Pittsburgh and range-of-rate pay plans, usually based on length of service or a combination of length of service and merit review, predominated in Northern New Jersey and St. Louis. In Minneapolis-St. Paul, about one-third of the workers were covered by each of three wage payment plans: Single rates, range-of-rates, and individually determined rates. Incentive pay plans covered just over one-fifth of the workers in Cleveland (individual piecework) and St. Louis (mostly individual bonus).

Weekly work schedules varied considerably among the 12 areas studied (table 23). A majority of workers were in establishments with schedules of 40 hours per week in 10 of the 12 areas studied; however, schedules varied from fewer than 40 hours (covering between 3 and 5 percent of the workers) in Boston-Lawrence-Salem, Northern New Jersey, and Chicago to 58 hours in Detroit (10 percent of the work force). Longer work schedules typically were more common in the special dies and tools industry than in the rest of metalworking machinery manufacturing.

Provisions for second-shift work and extra pay for work performed on such schedules were widespread in metalworking machinery manufacturing (table 24). Similar provisions for third-shift work were less prevalent, covering a majority of production workers in only three areas: Pittsburgh, Cleveland and St. Louis. The type and amount of premium pay varied considerably among the areas studied and, to a lesser degree, within each area. Generally, pay for late-shift work either was at least 40 cents per hour or at least 10 percent above day-shift rates; however, workers in Pittsburgh and Cleveland typically received smaller premiums. Actual second-shift employment was highest in Cleveland (20 percent) and as little as 5 percent of local employment in Hartford-New Britain-Middletown and Northern New Jersey (table 25). Third-shift employment exceeded 5 percent only in Pittsburgh (7.1 percent).

Establishments with collective bargaining agreements generally employed fewer than one-fourth of the production workers in a locality. Labor-management contracts applied to just over one-half of the workers in Pittsburgh and to about two-fifths of those in St. Louis. Most contracts were with the International Association of Machinists and Aerospace Workers, the United Automobile Workers of America, or the United Steelworkers of America, all AFL-CIO affiliates.

<sup>3</sup> See *Industry Wage Survey: Machinery Manufacturing, November 1983*, Bulletin 2229 (April 1985) for the latest survey in the earlier series.

<sup>4</sup> See *Employment, Hours, and Earnings, United States, 1909-90*, Volume I, Bulletin 2370, p. 253.

<sup>5</sup> See *Employment, Hours, and Earnings, United States, 1909-90*, Volume I, Bulletin 2370, pp. 259-260.

<sup>6</sup> See appendix A, Scope of survey, for listing of the nine industry divisions.

**Table 1. Occupational average earnings: Metalworking machinery manufacturing**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 12 selected areas,<sup>2</sup> February 1990)

Occupation and class	Northeast										Middle West	
	Boston-Lawrence-Salem, MA-NH		Hartford-New Britain-Middletown, CT		Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA		Chicago, IL	
	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
<b>Production and toolroom occupations</b>												
Machine-tool operators, production .....	389	\$11.67	520	\$10.87	670	\$10.95	581	\$10.92	400	\$11.25	1,092	\$9.29
Class A .....	137	11.97	277	12.05	203	12.03	189	14.23	125	10.96	334	11.98
Class B .....	113	11.53	149	9.67	105	10.02	73	9.36	231	11.39	245	8.50
Class C .....	53	10.06	-	-	208	9.27	177	7.99	-	-	410	6.85
Computer-numerical-control, set up and operate .....	50	13.18	35	11.32	117	13.04	90	12.14	35	12.29	79	12.82
Computer-numerical-control, operate only .....	36	11.25	-	-	37	10.59	52	8.95	-	-	24	9.89
Automatic-lathe operators .....	33	12.31	30	10.84	60	11.99	40	9.74	-	-	33	12.59
Class A .....	-	-	-	-	-	-	-	-	-	-	-	-
Class B .....	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	16	13.64	21	11.64	18	12.99	-	-	-	-	15	13.12
Boring-machine operators .....	-	-	-	-	57	12.07	-	-	-	-	-	-
Class A .....	-	-	-	-	21	11.42	-	-	-	-	-	-
Drill-press operators, radial .....	-	-	-	-	38	11.24	-	-	-	-	-	-
Class A .....	-	-	-	-	21	11.07	-	-	-	-	-	-
Drill-press operators, spindle .....	-	-	-	-	38	9.11	-	-	-	-	-	-
Class A .....	-	-	-	-	-	-	-	-	-	-	-	-
Class B .....	-	-	-	-	-	-	-	-	-	-	-	-
Class C .....	-	-	-	-	-	-	-	-	-	-	-	-
Engine-lathe operators .....	24	10.69	31	9.90	60	10.35	70	13.57	-	-	109	11.15
Class A .....	18	11.42	14	11.18	19	12.65	38	14.15	-	-	29	13.65
Class B .....	6	8.47	15	8.83	17	9.63	-	-	-	-	-	-
Class C .....	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, operate only .....	-	-	-	-	-	-	-	-	-	-	-	-
Grinding-machine operators .....	180	11.35	235	11.04	115	10.60	157	11.04	91	13.01	616	8.60
Class A .....	59	11.84	136	12.51	48	12.24	68	14.40	-	-	160	11.23
Class B .....	80	11.14	66	9.51	31	9.58	-	-	-	-	222	8.50
Class C .....	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, operate only .....	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 1. Occupational average earnings: Metalworking machinery manufacturing—Continued**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 12 selected areas,<sup>2</sup> February 1990)

Occupation and class	Northeast										Middle West	
	Boston-Lawrence-Salem, MA-NH		Hartford-New Britain-Middletown, CT		Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA		Chicago, IL	
	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
Milling-machine operators .....	44	\$12.04	54	\$10.11	169	\$11.07	114	\$11.11	-	-	82	\$12.06
Class A .....	21	12.99	41	10.65	-	-	30	12.93	-	-	-	-
Class B .....	-	-	-	-	-	-	13	9.60	-	-	-	-
Class C .....	-	-	-	-	44	9.22	40	8.64	-	-	-	-
Computer-numerical-control, set up and operate .....	12	12.88	-	-	51	12.97	29	13.15	-	-	-	-
Computer-numerical-control, operate only .....	-	-	-	-	-	-	-	-	-	-	-	-
Screw-machine operators, automatic ..	10	12.12	-	-	-	-	-	-	-	-	-	-
Class A .....	10	12.12	-	-	-	-	-	-	-	-	-	-
Class B .....	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous machine-tool operators .....	86	12.36	145	11.30	133	10.89	176	10.33	141	\$11.09	-	-
Class A .....	11	12.29	74	12.25	30	14.56	43	15.33	-	-	-	-
Class B .....	-	-	40	11.18	-	-	48	8.50	88	11.04	-	-
Class C .....	15	8.68	-	-	83	9.53	34	7.83	-	-	-	-
Computer-numerical-control, set up and operate .....	-	-	-	-	-	-	18	11.34	-	-	-	-
Computer-numerical-control, operate only .....	-	-	-	-	-	-	33	8.53	-	-	-	-
Machine-tool operators, toolroom .....	130	12.29	251	13.03	-	-	83	12.65	345	12.21	1,338	14.00
Operates one type of machine tool .....	69	11.82	163	13.22	-	-	51	13.02	196	11.87	905	14.03
Automatic-lathe operators .....	-	-	-	-	-	-	-	-	50	13.37	65	13.72
Boring-machine operators .....	-	-	-	-	-	-	7	15.60	-	-	111	14.03
Engine-lathe operators .....	-	-	-	-	-	-	-	-	-	-	76	12.74
Grinding-machine operators .....	-	-	39	13.68	-	-	9	14.56	-	-	398	14.72
Milling-machine operators .....	22	12.67	-	-	-	-	-	-	-	-	230	13.40
Other toolroom machine .....	19	11.20	-	-	-	-	-	-	-	-	18	13.01
Operates multiple machine tools .....	61	12.83	88	12.66	-	-	32	12.07	149	12.66	433	13.94
Machinists, production .....	-	-	64	11.34	39	12.35	116	13.78	-	-	366	16.39
Polishers and buffers, metal .....	-	-	-	-	18	12.16	-	-	-	-	53	15.37
Polishing- and buffing-machine operators .....	-	-	-	-	-	-	-	-	-	-	-	-
Punch-press operators .....	29	10.91	-	-	-	-	89	7.64	-	-	384	8.14
Class A .....	23	10.19	-	-	-	-	10	11.15	-	-	75	10.73
Class B .....	-	-	-	-	-	-	79	7.19	-	-	309	7.51
Tool and die makers .....	84	14.64	140	14.31	270	14.70	407	15.82	46	12.14	1,304	16.73
Jobbing .....	73	14.64	78	14.32	238	14.60	405	15.82	-	-	1,281	16.69
Other than jobbing .....	-	-	-	-	32	15.50	-	-	28	13.67	23	19.28

See footnotes at end of table.

**Table 1. Occupational average earnings: Metalworking machinery manufacturing—Continued**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 12 selected areas,<sup>2</sup> February 1990)

Occupation and class	Northeast										Middle West	
	Boston-Lawrence-Salem, MA-NH		Hartford-New Britain-Middletown, CT		Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA		Chicago, IL	
	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
Welders, hand .....	11	\$11.17	9	\$12.18	-	-	-	-	30	\$10.59	102	\$13.72
Class A .....	-	-	-	-	-	-	-	-	-	-	94	13.91
Class B .....	-	-	-	-	-	-	-	-	19	10.18	-	-
Welders, machine .....	-	-	-	-	-	-	-	-	-	-	-	-
Class B .....	-	-	-	-	-	-	-	-	-	-	-	-
<b>Assembling and inspecting occupations</b>												
Assemblers .....	102	10.63	148	11.56	82	\$9.89	71	\$10.82	158	9.03	232	12.33
Class A .....	36	10.49	123	11.84	34	10.18	-	-	-	-	185	12.51
Class B .....	-	-	-	-	-	-	-	-	-	-	-	-
Class C .....	-	-	-	-	32	8.70	-	-	-	-	-	-
Inspectors .....	39	11.12	62	11.56	38	11.12	35	12.29	38	12.55	129	11.22
Class A .....	16	12.15	41	12.01	9	12.11	26	13.14	27	13.12	-	-
Class B .....	20	10.13	18	10.92	-	-	-	-	11	11.15	29	10.83
Class C .....	-	-	-	-	-	-	-	-	-	-	46	8.28
<b>Maintenance occupations</b>												
Electricians .....	-	-	-	-	8	12.86	-	-	13	12.18	34	13.90
Machinists .....	-	-	-	-	-	-	-	-	9	9.76	14	12.85
Mechanics .....	6	12.88	9	12.00	-	-	-	-	-	-	20	13.49
<b>Material movement and custodial occupations</b>												
Janitors .....	7	8.49	18	9.12	22	8.81	10	8.62	21	6.91	111	8.00
Material handling laborers .....	-	-	7	11.00	12	9.56	-	-	-	-	46	8.13
Power-truck operators .....	-	-	-	-	-	-	-	-	-	-	22	11.01
Forklift .....	-	-	-	-	-	-	-	-	-	-	22	11.01
Shippers .....	13	9.03	-	-	-	-	-	-	-	-	44	9.09
Receivers .....	-	-	-	-	-	-	-	-	-	-	-	-
Shippers and receivers .....	11	10.07	33	9.20	32	11.24	16	10.79	21	10.64	95	8.89
Tool clerks .....	-	-	8	9.51	10	11.03	-	-	-	-	28	9.10
Truckdrivers .....	10	9.31	-	-	7	9.00	24	8.01	-	-	95	8.83
Light truck .....	-	-	-	-	-	-	14	7.65	-	-	71	8.77
Medium truck .....	-	-	-	-	-	-	8	8.73	-	-	-	-
Heavy truck .....	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 1. Occupational average earnings: Metalworking machinery manufacturing—Continued**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 12 selected areas,<sup>2</sup> February 1990)

Occupation and class	Middle West										West	
	Cleveland, OH		Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL		Los Angeles-Long Beach, CA	
	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
<b>Production and toolroom occupations</b>												
Machine-tool operators, production .....	1,623	\$11.22	3,613	\$12.49	946	\$11.89	122	\$11.33	511	\$12.39	1,208	\$9.93
Class A .....	681	11.61	1,668	15.14	475	13.01	-	-	135	15.07	178	14.29
Class B .....	170	9.91	457	10.74	152	11.23	-	-	-	-	420	9.59
Class C .....	106	7.41	649	8.92	203	9.36	-	-	107	8.08	392	6.64
Computer-numerical-control, set up and operate .....	554	12.05	505	12.46	104	12.97	48	12.12	-	-	122	15.61
Computer-numerical-control, operate only .....	112	10.26	334	8.61	12	9.67	-	-	21	11.15	96	9.56
Automatic-lathe operators .....	54	12.06	-	-	77	11.82	-	-	-	-	44	9.99
Class A .....	-	-	-	-	-	-	-	-	-	-	13	11.24
Class B .....	-	-	-	-	20	11.38	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	18	11.80	-	-	27	12.87	-	-	-	-	10	12.35
Boring-machine operators .....	120	12.17	78	16.92	137	14.14	-	-	-	-	-	-
Class A .....	97	12.18	54	17.51	131	14.21	-	-	-	-	-	-
Drill-press operators, radial .....	28	10.13	-	-	-	-	-	-	-	-	16	9.80
Class A .....	-	-	-	-	-	-	-	-	-	-	-	-
Drill-press operators, spindle .....	39	11.04	-	-	-	-	-	-	-	-	15	7.34
Class A .....	21	12.66	-	-	-	-	-	-	-	-	-	-
Class B .....	10	10.30	-	-	-	-	-	-	-	-	-	-
Class C .....	-	-	-	-	-	-	-	-	-	-	10	6.18
Engine-lathe operators .....	93	10.34	238	12.41	38	12.68	-	-	19	12.49	158	10.21
Class A .....	-	-	98	13.97	37	12.77	-	-	-	-	-	-
Class B .....	28	10.19	-	-	-	-	-	-	-	-	67	9.45
Class C .....	-	-	-	-	-	-	-	-	-	-	40	7.10
Computer-numerical-control, set up and operate .....	23	10.71	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, operate only .....	-	-	-	-	-	-	-	-	-	-	20	8.87
Grinding-machine operators .....	464	10.59	1,520	14.36	245	10.89	-	-	50	12.08	275	9.61
Class A .....	298	11.02	1,062	15.78	123	11.91	-	-	33	13.18	45	13.22
Class B .....	80	9.84	116	13.29	67	10.85	-	-	-	-	120	9.52
Class C .....	-	-	280	9.28	-	-	-	-	-	-	73	7.25
Computer-numerical-control, set up and operate .....	-	-	62	14.97	-	-	-	-	-	-	12	13.43
Computer-numerical-control, operate only .....	38	9.83	-	-	-	-	-	-	-	-	25	8.60

See footnotes at end of table.

**Table 1. Occupational average earnings: Metalworking machinery manufacturing—Continued**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 12 selected areas,<sup>2</sup> February 1990)

Occupation and class	Middle West										West	
	Cleveland, OH		Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL		Los Angeles-Long Beach, CA	
	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
Milling-machine operators .....	192	\$10.56	643	\$11.50	87	\$11.92	-	-	111	\$14.14	151	\$9.39
Class A .....	53	11.55	248	13.61	37	12.43	-	-	-	-	13	11.55
Class B .....	-	-	-	-	34	11.73	-	-	-	-	-	-
Class C .....	-	-	100	7.97	-	-	-	-	-	-	47	6.38
Computer-numerical-control, set up and operate .....	73	12.06	139	12.15	-	-	-	-	-	-	36	12.92
Computer-numerical-control, operate only .....	-	-	-	-	-	-	-	-	-	-	13	11.03
Screw-machine operators, automatic ..	26	11.53	71	10.17	-	-	-	-	-	-	46	11.36
Class A .....	22	11.71	-	-	-	-	-	-	-	-	20	14.18
Class B .....	-	-	-	-	-	-	-	-	-	-	14	9.58
Miscellaneous machine-tool operators .....	602	11.80	475	11.81	319	11.58	-	-	102	10.19	421	8.54
Class A .....	121	12.45	85	13.88	99	13.27	-	-	17	14.68	30	11.69
Class B .....	22	10.01	-	-	19	11.48	-	-	11	12.01	158	10.03
Class C .....	-	-	152	9.64	135	9.61	-	-	57	7.80	202	6.47
Computer-numerical-control, set up and operate .....	-	-	118	13.63	63	13.25	-	-	-	-	11	13.12
Computer-numerical-control, operate only .....	-	-	-	-	-	-	-	-	-	-	20	10.32
Machine-tool operators, toolroom .....	417	11.72	1,476	14.56	576	14.18	254	\$13.69	85	15.94	291	15.11
Operates one type of machine tool ....	345	11.82	929	14.48	218	13.85	-	-	49	15.75	189	16.28
Automatic-lathe operators .....	-	-	-	-	-	-	-	-	-	-	-	-
Boring-machine operators .....	-	-	111	15.39	48	14.77	-	-	-	-	-	-
Engine-lathe operators .....	21	12.45	44	13.11	14	14.18	-	-	-	-	21	15.86
Grinding-machine operators .....	184	10.94	405	14.48	36	13.82	-	-	8	13.93	69	16.03
Milling-machine operators .....	-	-	239	14.70	80	13.72	-	-	-	-	24	16.31
Other toolroom machine .....	-	-	60	14.39	-	-	-	-	16	14.42	43	15.55
Operates multiple machine tools .....	72	11.25	547	14.68	358	14.39	131	13.85	36	16.20	102	12.94
Machinists, production .....	9	10.59	-	-	-	-	-	-	-	-	-	-
Polishers and buffers, metal .....	-	-	-	-	12	12.88	-	-	21	10.70	-	-
Polishing- and buffing-machine operators .....	12	9.74	-	-	25	9.79	-	-	-	-	-	-
Punch-press operators .....	-	-	-	-	40	8.22	21	8.65	-	-	132	9.10
Class A .....	-	-	-	-	-	-	7	10.76	-	-	-	-
Class B .....	-	-	-	-	-	-	14	7.59	-	-	116	8.72
Tool and die makers .....	505	14.56	1,721	16.95	752	15.68	423	15.86	201	16.87	234	16.21
Jobbing .....	440	14.77	1,664	16.99	749	15.69	414	15.89	183	16.91	226	16.15
Other than jobbing .....	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 1. Occupational average earnings: Metalworking machinery manufacturing—Continued**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 12 selected areas,<sup>2</sup> February 1990)

Occupation and class	Middle West										West	
	Cleveland, OH		Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL		Los Angeles-Long Beach, CA	
	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
Welders, hand .....	68	\$11.02	68	\$13.37	23	\$12.54	-	-	72	\$13.53	94	\$10.23
Class A .....	54	10.97	43	14.96	22	12.72	-	-	47	15.59	23	15.51
Class B .....	-	-	25	10.65	-	-	-	-	-	-	71	8.52
Welders, machine .....	20	11.34	16	12.41	-	-	-	-	-	-	-	-
Class B .....	7	8.76	-	-	-	-	-	-	-	-	-	-
<b>Assembling and inspecting occupations</b>												
Assemblers .....	528	11.65	513	12.76	339	12.60	87	\$10.18	91	10.72	560	9.68
Class A .....	448	12.00	336	13.95	247	13.42	-	-	42	12.55	172	12.77
Class B .....	79	9.64	124	11.61	54	11.05	-	-	23	10.36	261	8.55
Class C .....	-	-	53	7.89	38	9.45	10	6.34	-	-	-	-
Inspectors .....	295	12.13	216	14.31	88	11.78	32	11.74	43	13.75	97	12.74
Class A .....	160	12.58	119	16.27	39	13.40	18	12.61	31	14.63	55	15.63
Class B .....	115	11.81	91	12.15	45	10.61	-	-	-	-	37	9.45
Class C .....	20	10.38	-	-	-	-	-	-	-	-	-	-
<b>Maintenance occupations</b>												
Electricians .....	-	-	15	15.68	17	14.34	-	-	-	-	7	16.51
Machinists .....	-	-	-	-	-	-	-	-	-	-	-	-
Mechanics .....	-	-	118	14.06	40	13.11	12	11.61	20	13.89	23	15.14
<b>Material movement and custodial occupations</b>												
Janitors .....	42	8.51	136	8.85	45	6.96	19	8.60	26	8.16	68	6.57
Material handling laborers .....	-	-	-	-	14	8.42	-	-	32	7.68	-	-
Power-truck operators .....	-	-	-	-	-	-	-	-	-	-	-	-
Forklift .....	-	-	-	-	-	-	-	-	-	-	-	-
Shippers .....	-	-	-	-	11	9.47	13	10.16	7	9.03	-	-
Receivers .....	-	-	-	-	-	-	-	-	7	8.65	-	-
Shippers and receivers .....	46	10.12	159	10.43	52	10.03	-	-	9	9.62	64	9.46
Tool clerks .....	23	10.61	14	9.35	15	10.80	-	-	12	9.06	16	9.86
Truckdrivers .....	21	8.31	74	9.39	37	8.97	11	8.34	-	-	22	7.34
Light truck .....	14	7.67	-	-	24	8.29	7	7.00	-	-	11	7.29
Medium truck .....	-	-	21	10.25	6	9.03	-	-	-	-	9	6.48
Heavy truck .....	-	-	-	-	6	11.15	-	-	-	-	-	-

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

<sup>2</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall category may include data for subclassifications not shown separately.

**Table 2. Occupational average earnings: Special dies and tools manufacturing**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 7 selected areas,<sup>2</sup> February 1990)

Occupation and class	Northeast				Middle West								West	
	Northern New Jersey		Philadelphia, PA-NJ		Chicago, IL		Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		Los Angeles-Long Beach, CA	
	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
<b>Production and toolroom occupations</b>														
Machine-tool operators, production .....	384	\$11.65	257	\$13.31	-	-	-	-	-	-	-	-	434	\$11.20
Class A .....	140	12.62	150	14.29	-	-	-	-	-	-	-	-	58	15.43
Class B .....	51	9.63	-	-	-	-	-	-	-	-	-	-	179	9.47
Class C .....	70	9.12	20	9.78	-	-	-	-	-	-	-	-	85	7.68
Computer-numerical-control, set up and operate .....	113	13.01	49	13.05	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, operate only .....	-	-	21	10.87	-	-	-	-	-	-	-	-	43	9.35
Automatic-lathe operators .....	29	13.06	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	18	12.99	-	-	-	-	-	-	-	-	-	-	-	-
Boring-machine operators .....	57	12.07	-	-	-	-	-	-	-	-	-	-	-	-
Class A .....	21	11.42	-	-	-	-	-	-	-	-	-	-	-	-
Drill-press operators, radial .....	23	11.19	-	-	-	-	-	-	-	-	-	-	-	-
Class A .....	21	11.07	-	-	-	-	-	-	-	-	-	-	-	-
Engine-lathe operators .....	42	11.57	67	13.55	-	-	-	-	-	-	-	-	79	9.34
Class A .....	19	12.65	36	14.16	-	-	-	-	-	-	-	-	-	-
Class B .....	17	9.63	-	-	-	-	-	-	-	-	-	-	48	8.88
Computer-numerical-control, operate only .....	-	-	-	-	-	-	-	-	-	-	-	-	11	9.20
Grinding-machine operators .....	77	10.55	57	14.45	-	-	-	-	-	-	-	-	95	9.12
Class A .....	39	11.84	53	14.69	-	-	-	-	-	-	-	-	-	-
Class B .....	-	-	-	-	-	-	-	-	-	-	-	-	48	9.29
Class C .....	-	-	-	-	-	-	-	-	-	-	-	-	31	7.91
Milling-machine operators .....	69	12.41	61	12.80	-	-	-	-	-	-	-	-	32	9.85
Class A .....	14	13.13	26	12.76	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	47	12.89	25	13.15	-	-	-	-	-	-	-	-	-	-
Miscellaneous machine-tool operators .....	85	11.47	57	13.01	-	-	-	-	-	-	-	-	121	9.72
Class A .....	21	16.40	-	-	-	-	-	-	-	-	-	-	-	-
Class B .....	-	-	-	-	-	-	-	-	-	-	-	-	68	10.05
Class C .....	44	9.30	12	10.01	-	-	-	-	-	-	-	-	28	8.06
Computer-numerical-control, operate only .....	-	-	-	-	-	-	-	-	-	-	-	-	14	9.58

See footnotes at end of table.

**Table 2. Occupational average earnings: Special dies and tools manufacturing—Continued**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 7 selected areas,<sup>2</sup> February 1990)

Occupation and class	Northeast				Middle West								West	
	Northern New Jersey		Philadelphia, PA-NJ		Chicago, IL		Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		Los Angeles-Long Beach, CA	
	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
Machine-tool operators, toolroom .....	-	-	81	\$12.62	943	\$13.44	1,476	\$14.56	491	\$13.84	254	\$13.69	290	\$15.11
Operates one type of machine tool .....	-	-	49	12.98	601	13.46	929	14.48	207	13.81	-	-	189	16.28
Automatic-lathe operators .....	-	-	-	-	39	13.45	-	-	-	-	-	-	-	-
Boring-machine operators .....	-	-	7	15.60	107	13.88	111	15.39	48	14.77	-	-	-	-
Engine-lathe operators .....	-	-	-	-	61	12.10	44	13.11	14	14.18	-	-	21	15.86
Grinding-machine operators .....	-	-	-	-	202	13.94	405	14.48	32	14.03	-	-	69	16.03
Milling-machine operators .....	-	-	-	-	177	13.19	239	14.70	73	13.50	-	-	24	16.31
Other toolroom machine .....	-	-	-	-	-	-	60	14.39	-	-	-	-	43	15.55
Operates multiple machine tools .....	-	-	32	12.07	342	13.41	547	14.68	284	13.85	131	13.85	101	12.92
Machinists, production .....	-	-	115	13.78	-	-	-	-	-	-	-	-	-	-
Polishers and buffers, metal .....	18	\$12.16	-	-	52	15.40	-	-	11	13.37	-	-	-	-
Punch-press operators .....	-	-	89	7.64	376	8.14	-	-	40	8.22	16	8.31	114	9.28
Class A .....	-	-	10	11.15	71	10.84	-	-	-	-	-	-	-	-
Class B .....	-	-	79	7.19	305	7.51	-	-	-	-	11	7.24	98	8.85
Tool and die makers .....	206	14.66	381	15.73	1,230	16.65	1,535	16.89	737	15.71	378	15.54	226	16.15
Jobbing .....	179	14.52	380	15.72	1,216	16.61	1,522	16.89	737	15.71	378	15.54	226	16.15
Other than jobbing .....	27	15.55	-	-	-	-	-	-	-	-	-	-	-	-
Welders, hand .....	-	-	11	12.45	14	13.99	26	13.58	6	13.63	-	-	48	10.08
Class A .....	-	-	8	12.84	14	13.99	15	15.12	-	-	-	-	-	-
Class B .....	-	-	-	-	-	-	-	-	-	-	-	-	40	8.54
Welders, machine .....	-	-	-	-	-	-	16	12.41	-	-	-	-	-	-
<b>Assembling and inspecting occupations</b>														
Assemblers .....	24	9.58	-	-	-	-	-	-	-	-	10	6.80	28	11.28
Inspectors .....	8	11.85	21	11.60	-	-	61	16.17	26	9.71	20	11.86	44	15.92
Class A .....	-	-	13	12.55	-	-	47	17.29	-	-	10	12.85	29	18.51
Class B .....	-	-	-	-	-	-	-	-	22	8.88	-	-	15	10.90

See footnotes at end of table.

**Table 2. Occupational average earnings: Special dies and tools manufacturing—Continued**

(Number of workers and average straight-time hourly earnings<sup>1</sup> in selected occupations, 7 selected areas,<sup>2</sup> February 1990)

Occupation and class	Northeast				Middle West								West		
	Northern New Jersey		Philadelphia, PA-NJ		Chicago, IL		Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		Los Angeles-Long Beach, CA		
	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	
<b>Maintenance occupations</b>															
Electricians .....	-	-	-	-	-	-	-	-	-	-	-	-	-	6	\$16.64
Machinists .....	-	-	-	-	-	-	-	-	7	\$12.76	-	-	-	-	-
Mechanics .....	-	-	-	-	-	-	11	\$17.53	-	-	-	-	-	13	16.47
<b>Material movement and custodial occupations</b>															
Janitors .....	11	\$8.48	6	\$8.65	52	\$8.22	78	7.63	33	7.20	15	\$8.54	43	6.83	
Material handling laborers .....	9	9.10	-	-	-	-	-	-	-	-	-	-	-	-	
Shippers .....	-	-	-	-	-	-	-	-	-	-	13	10.16	-	-	
Shippers and receivers .....	-	-	7	11.51	47	9.83	20	9.60	15	9.78	-	-	17	9.39	
Tool clerks .....	10	11.03	-	-	10	8.22	8	10.04	11	10.98	-	-	6	10.76	
Truckdrivers .....	-	-	24	8.01	73	8.79	56	8.40	27	8.39	10	7.98	18	7.29	
Light truck .....	-	-	14	7.65	50	8.70	-	-	17	7.59	7	7.00	8	7.19	
Medium truck .....	-	-	8	8.73	-	-	16	9.56	-	-	-	-	8	6.37	

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

yearend bonuses, and other nonproduction bonuses.

<sup>2</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall category may include data for subclassifications not shown separately.

**Table 3. Occupational earnings distribution: Boston-Lawrence-Salem, MA-NH<sup>1</sup>— metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																											
			Under 7.25	7.25 and under 7.50	7.50 - 7.75	7.75 - 8.00	8.00 - 8.25	8.25 - 8.50	8.50 - 8.75	8.75 - 9.00	9.00 - 9.25	9.25 - 9.50	9.50 - 9.75	9.75 - 10.00	10.00 - 10.25	10.25 - 10.50	10.50 - 10.75	10.75 - 11.00	11.00 - 11.50	11.50 - 12.00	12.00 - 12.50	12.50 - 13.00	13.00 - 13.50	13.50 - 14.00	14.00 - 14.50	14.50 - 15.00	15.00 - 15.50	15.50 - 16.00	16.00 and over	
<b>Production and toolroom occupations</b>																														
<b>Machine-tool operators, production</b>	389	\$11.67	-	1	1	1	2	1	2	4	2	2	5	1	4	2	4	4	6	6	12	10	11	5	5	5	2	1	1	
Time	368	11.51	-	1	1	1	2	1	2	4	2	2	6	1	4	2	4	4	7	7	13	10	12	4	4	2	2	1	1	
Class A	137	11.97	-	-	-	-	-	-	-	1	3	3	4	1	7	-	6	1	7	6	23	10	13	2	7	1	1	3		
Class B	113	11.53	-	-	1	4	2	-	2	11	1	1	11	2	1	4	3	4	8	6	5	4	4	4	9	12	4	-		
Time	92	10.84	-	-	1	4	2	-	2	13	1	1	13	2	1	5	3	5	10	8	7	5	4	1	4	4	1	-		
Class C	53	10.06	-	6	2	-	11	4	11	-	4	6	-	2	6	6	-	13	4	13	2	11	-	-	-	-	-	-		
Computer-numerical-control, set up and operate	50	13.18	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	6	2	10	6	28	24	-	6	6	6	-		
Computer-numerical-control, operate only	36	11.25	-	6	-	3	3	-	3	-	6	-	8	-	6	-	6	-	3	3	6	28	22	-	-	-	-	-		
Automatic-lathe operators	33	12.31	-	-	-	-	-	-	3	-	6	-	-	-	9	-	3	3	9	3	18	12	6	3	-	9	6	9		
Computer-numerical-control, set up and operate	16	13.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	13	-	6	6	13	6	-	19	13	19	-		
Engine-lathe operators	24	10.69	-	-	-	8	8	-	-	13	-	17	-	8	8	-	4	-	-	4	4	13	-	4	-	-	-	8		
Class A	18	11.42	-	-	-	-	-	-	-	11	-	22	-	11	6	-	6	-	-	6	6	17	-	6	-	-	-	11		
Class B	6	8.47	-	-	-	33	33	-	17	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Grinding-machine operators	180	11.35	-	-	-	1	2	-	3	6	3	2	8	2	3	3	7	8	8	16	12	7	1	6	2	1	-	-		
Class A	59	11.84	-	-	-	-	-	-	-	7	-	10	-	3	-	3	2	3	2	32	17	10	-	10	-	-	-	-		
Class B	80	11.14	-	-	-	3	-	-	3	14	1	-	10	3	-	6	4	6	11	9	8	6	5	1	5	5	1	-		
Milling-machine operators	44	12.04	-	-	2	2	2	-	-	-	-	2	7	-	5	2	7	-	14	5	11	5	2	14	5	5	7	5		
Class A	21	12.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	5	24	-	5	-	10	10	10	10		
Computer-numerical-control, set up and operate	12	12.88	-	-	-	-	-	-	-	-	-	-	-	-	8	8	-	-	8	-	17	-	50	-	-	8	-	-		
Screw-machine operators, automatic	10	12.12	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	60	-	-	-	30	-	-	-	-	-		
Class A	10	12.12	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	60	-	-	-	30	-	-	-	-	-		
Miscellaneous machine-tool operators	86	12.36	-	3	-	-	3	2	1	-	2	-	5	-	6	2	-	-	1	-	1	12	30	9	7	10	3	-		
Time	65	11.65	-	5	-	-	5	3	2	-	3	-	6	-	8	3	-	-	2	-	2	15	40	8	-	-	-	-		
Class A	11	12.29	-	-	-	-	-	-	-	-	-	-	-	-	27	-	-	-	-	-	-	-	73	-	-	-	-	-		
Class C	15	8.68	-	20	-	-	20	13	7	-	13	-	-	-	13	13	-	-	-	-	-	-	-	-	-	-	-	-		
Machine-tool operators, toolroom	130	12.29	-	-	-	-	-	-	-	-	-	9	8	6	-	8	-	8	22	4	2	-	4	5	4	8	12	2		
Operates one type of machine tool	69	11.82	-	-	-	-	-	-	-	-	-	17	14	4	-	7	-	14	12	-	4	-	-	4	-	7	14	-		
Milling-machine operators	22	12.67	-	-	-	-	-	-	-	-	-	9	23	-	-	23	-	-	-	-	-	-	-	-	-	-	45	-		
Other toolroom machine	19	11.20	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-	-	26	16	-	-	-	-	16	-	-	-		
Operates multiple machine tools	61	12.83	-	-	-	-	-	-	-	-	-	-	-	8	-	8	-	-	33	8	-	-	8	5	8	8	8	5		
Punch-press operators	29	10.91	-	-	-	-	10	10	-	-	-	7	-	10	-	21	-	-	10	-	10	-	10	-	10	-	-	-		
Time	23	10.19	-	-	-	-	13	13	-	-	-	9	-	13	-	26	-	-	13	-	-	-	13	-	-	-	-	-		
Class A	23	10.19	-	-	-	-	13	13	-	-	-	9	-	13	-	26	-	-	13	-	-	-	13	-	-	-	-	-		
Tool and die makers	84	14.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	10	14	13	25	18	10	7		
Jobbing	73	14.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	11	16	14	21	16	11	11	8		
Welders, hand	11	11.17	-	-	-	-	-	-	-	-	-	-	-	36	-	-	-	-	18	36	-	-	9	-	-	-	-	-		

See footnotes at end of table.



**Table 4. Occupational earnings distribution: Chicago, IL<sup>1</sup>—metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>2</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																											
			Under 5.50	5.50 and under 6.00	6.00-6.50	6.50-7.00	7.00-7.50	7.50-8.00	8.00-8.50	8.50-9.00	9.00-9.50	9.50-10.00	10.00-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-12.50	12.50-13.00	13.00-13.50	13.50-14.00	14.00-14.50	14.50-15.00	15.00-15.50	15.50-16.00	16.00-17.00	17.00-18.00	18.00-19.00	19.00-20.00	20.00 and over	
<b>Production and toolroom occupations</b>																														
Machine-tool operators, production .....	1,092	\$9.29	6	4	6	7	6	5	10	7	6	7	3	5	2	3	8	1	2	1	4	3	1	-	1	-	-	1	-	-
Time .....	1,037	9.02	6	5	7	7	5	11	7	7	7	3	5	3	3	8	1	2	1	2	1	2	1	-	1	-	1	-	-	
Class A .....	334	11.98	-	-	-	-	-	1	2	6	11	7	11	4	7	19	2	4	2	7	9	2	-	3	-	2	-	-		
Time .....	288	11.58	-	-	-	-	-	2	2	7	13	9	13	5	8	22	3	5	2	3	-	2	-	3	-	2	-	-		
Class B .....	245	8.50	-	-	1	6	12	33	24	11	9	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Class C .....	410	6.85	4	15	9	17	18	13	5	6	2	6	4	2	1	( <sup>5</sup> )	-	-	-	-	-	-	-	-	-	-	-	-		
Computer-numerical-control, set up and operate .....	79	12.82	-	-	-	-	-	-	-	-	-	-	4	14	8	25	4	6	6	25	8	-	-	-	-	-	-	-		
Computer-numerical-control, operate only .....	24	9.89	-	46	-	-	-	-	-	-	-	-	-	-	-	-	13	13	13	17	-	-	-	-	-	-	-	-		
Automatic-lathe operators .....	33	12.59	-	-	-	-	-	-	-	-	6	6	-	6	6	21	6	18	6	24	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	15	13.12	-	-	-	-	-	-	-	-	-	-	-	-	-	47	-	13	13	27	-	-	-	-	-	-	-	-		
Engine-lathe operators .....	109	11.15	-	-	-	4	4	5	3	5	18	11	4	6	-	6	7	3	3	6	6	8	-	-	6	-	-	-		
Class A .....	29	13.65	-	-	-	-	-	3	3	-	-	-	-	-	-	28	-	-	10	24	10	-	-	21	-	-	-			
Grinding-machine operators .....	616	8.60	( <sup>5</sup> )	6	6	10	11	6	17	7	8	9	3	6	1	1	1	1	1	1	-	1	-	1	( <sup>5</sup> )	-	1	-		
Class A .....	160	11.23	-	-	-	-	-	3	3	12	18	11	18	4	6	4	4	6	3	2	-	4	-	2	-	-	4	-		
Class B .....	222	8.50	-	-	1	6	12	37	17	12	9	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Milling-machine operators .....	82	12.06	-	13	-	-	-	1	2	-	10	-	-	4	-	11	4	4	4	26	22	-	-	-	-	-	-	-		
Time .....	58	11.05	-	19	-	-	-	2	3	-	14	-	-	5	-	16	5	5	5	26	-	-	-	-	-	-	-	-		
Machine-tool operators, toolroom .....	1,338	14.00	-	-	-	( <sup>5</sup> )	-	-	-	( <sup>5</sup> )	1	2	4	8	4	5	7	10	5	10	10	8	4	11	8	2	1	-		
Operates one type of machine tool .....	905	14.03	-	-	-	1	-	-	-	( <sup>5</sup> )	-	3	2	6	5	4	9	12	6	6	9	12	5	10	6	2	1	-		
Automatic-lathe operators .....	65	13.72	-	-	-	-	-	-	-	-	-	-	-	35	-	9	-	3	11	26	-	9	3	3	-	-	-	-		
Boring-machine operators .....	111	14.03	-	-	-	-	-	-	-	-	-	12	-	12	3	3	3	1	12	26	5	11	10	2	2	-	-	-		
Engine-lathe operators .....	76	12.74	-	-	-	8	-	-	-	-	-	-	8	-	4	25	17	3	8	8	-	3	12	5	-	-	-	-		
Grinding-machine operators .....	398	14.72	-	-	-	-	-	-	-	-	2	3	5	3	4	6	9	10	3	7	12	2	16	14	4	2	-	-		
Milling-machine operators .....	230	13.40	-	-	-	-	-	-	-	-	-	-	6	10	-	15	29	4	10	7	11	6	2	-	-	-	-	-		
Other toolroom machine .....	18	13.01	-	-	-	-	-	-	-	11	-	22	-	-	-	11	-	-	-	-	56	-	-	-	-	-	-	-		
Operates multiple machine tools .....	433	13.94	-	-	-	-	-	-	-	-	3	-	8	12	2	7	3	6	1	18	11	( <sup>5</sup> )	4	12	11	2	-	-		
Machinists, production .....	366	16.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	15	2	7	3	40	7	13	2	4		
Polishers and buffers, metal .....	53	15.37	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	6	17	26	-	25	17	2	2	-	-		
Punch-press operators .....	384	8.14	-	5	9	5	18	26	9	6	6	1	1	3	-	8	-	-	3	-	-	-	-	-	-	-	-	-		
Class A .....	75	10.73	-	-	-	8	-	8	13	8	-	-	17	-	28	-	-	-	17	-	-	-	-	-	-	-	-	-		
Class B .....	309	7.51	-	7	11	6	21	33	9	4	6	1	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-		
Tool and die makers .....	1,304	16.73	-	-	-	-	-	-	-	-	-	-	-	( <sup>5</sup> )	1	1	3	2	5	1	5	7	4	16	23	21	10	2		
Jobbing .....	1,281	16.69	-	-	-	-	-	-	-	-	-	-	-	( <sup>5</sup> )	1	1	3	2	5	1	5	7	4	16	23	20	10	1		
Other than jobbing .....	23	19.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	39	-	6	48		
Welders, hand .....	102	13.72	-	-	-	-	-	-	-	-	-	-	1	-	8	43	6	5	-	9	3	-	10	8	8	-	-	-		
Class A .....	94	13.91	-	-	-	-	-	-	-	-	-	-	1	-	47	6	5	-	10	3	-	-	11	9	9	-	-	-		

See footnotes at end of table.

**Table 4. Occupational earnings distribution: Chicago, IL<sup>1</sup>—metalworking machinery manufacturing—Continued**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																															
			Under 5.50	5.50 and under 6.00	6.00-6.50	6.50-7.00	7.00-7.50	7.50-8.00	8.00-8.50	8.50-9.00	9.00-9.50	9.50-10.00	10.00-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-12.50	12.50-13.00	13.00-13.50	13.50-14.00	14.00-14.50	14.50-15.00	15.00-15.50	15.50-16.00	16.00-17.00	17.00-18.00	18.00-19.00	19.00-20.00	20.00 and over					
<b>Assembling and inspecting occupations</b>																																		
Assemblers .....	232	\$12.33	-	-	-	-	1	-	-	1	3	-	-	-	-	14	47	10	20	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Class A .....	185	12.51	-	-	-	-	-	-	-	2	3	-	-	-	-	-	59	13	19	-	4	-	-	-	-	-	-	-	-	-	-	-	-	
Inspectors .....	129	11.22	-	-	9	-	-	-	12	12	9	4	-	2	-	-	6	2	7	22	2	14	-	-	-	-	-	-	-	-	-	-	-	
Class B .....	29	10.83	-	-	-	-	-	-	-	31	21	-	-	10	-	-	-	-	31	-	7	-	-	-	-	-	-	-	-	-	-	-	-	
Class C .....	46	8.28	-	-	24	-	-	-	-	35	13	13	11	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Maintenance occupations</b>																																		
Electricians .....	34	13.90	-	-	-	-	-	-	-	-	-	-	-	9	-	15	-	35	15	-	9	6	-	-	6	-	-	-	-	-	-	-	6	
Machinists .....	14	12.85	-	-	-	-	-	-	-	-	-	14	-	-	-	7	21	36	-	7	9	7	-	-	7	-	-	-	-	-	-	-	-	
Mechanics .....	20	13.49	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	10	30	-	-	-	-	10	-	-	-	-	-	-	-	-	
<b>Material movement and custodial occupations</b>																																		
Janitors .....	111	8.00	-	-	19	14	17	2	15	4	7	6	3	2	8	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Material handling laborers .....	46	8.13	-	-	13	4	35	7	22	2	2	-	-	-	9	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Power-truck operators .....	22	11.01	-	-	-	-	-	-	-	-	-	18	-	36	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forklift .....	22	11.01	-	-	-	-	-	-	-	-	-	18	-	36	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shippers .....	44	9.09	-	-	-	-	-	-	64	-	-	23	-	-	5	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shippers and receivers .....	95	8.89	-	-	8	11	6	23	8	8	-	6	7	-	6	7	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Tool clerks .....	28	9.10	-	-	-	14	-	-	21	-	25	11	11	7	7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truckdrivers .....	95	8.83	-	-	-	-	3	26	15	1	22	14	15	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Light truck .....	71	8.77	-	-	-	-	4	35	-	-	1	28	18	10	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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<sup>1</sup> The Chicago, IL Primary Metropolitan Statistical Area consists of Cook, Du Page, and McHenry Counties.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> Unless otherwise indicated, virtually all workers were time-rated workers.

<sup>4</sup> Workers were distributed as follows: 4 percent were at \$4 and under \$4.50; 7 percent were at \$4.50 and under \$5; and 4 percent were at \$5 and under \$5.50.

<sup>5</sup> Less than 0.5 percent.

<sup>6</sup> Workers were distributed as follows: 26 percent were at \$20 and under \$21; 9 percent were at \$21 and under \$22; and 13 percent were at \$25 and under \$26.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 5. Occupational earnings distribution: Chicago, IL<sup>1</sup>— special dies and tools manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																											
			5.50 and under 6.00	6.00-6.50	6.50-7.00	7.00-7.50	7.50-8.00	8.00-8.50	8.50-9.00	9.00-9.50	9.50-10.00	10.00-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-12.50	12.50-13.00	13.00-13.50	13.50-14.00	14.00-14.50	14.50-15.00	15.00-15.50	15.50-16.00	16.00-16.50	16.50-17.00	17.00-18.00	18.00-19.00	19.00-20.00	20.00 and over	
<b>Production and toolroom occupations</b>																														
Machine-tool operators, toolroom .....	943	\$13.44	-	-	-	1	-	-	-	( <sup>4</sup> )	1	3	5	9	5	6	9	11	5	12	11	5	5	6	1	4	1	-	-	
Operates one type of machine tool .....	601	13.46	-	-	-	1	-	-	-	( <sup>4</sup> )	-	4	3	7	6	4	12	14	7	6	10	7	5	7	1	3	1	-	-	
Automatic-lathe operators .....	39	13.45	-	-	-	-	-	-	-	-	-	-	33	-	-	15	-	-	5	18	18	-	5	-	5	-	-	-	-	
Boring-machine operators .....	107	13.88	-	-	-	-	-	-	-	-	-	12	-	-	3	3	1	12	27	6	11	7	3	-	-	-	-	-	-	
Engine-lathe operators .....	61	12.10	-	-	-	10	-	-	-	-	-	-	10	-	5	31	21	3	5	10	-	3	-	2	-	-	-	-	-	
Grinding-machine operators .....	202	13.94	-	-	-	-	-	-	-	-	-	4	6	9	5	1	7	7	16	1	5	9	3	15	1	7	3	-	-	
Milling-machine operators .....	177	13.19	-	-	-	-	-	-	-	-	-	-	-	8	7	-	20	36	3	8	3	5	8	1	-	-	-	-	-	
Operates multiple machine tools .....	342	13.41	-	-	-	-	-	-	-	-	4	-	9	12	2	8	4	6	1	23	13	1	5	4	1	6	( <sup>4</sup> )	-	-	
Polishers and buffers, metal .....	52	15.40	-	-	-	-	-	-	-	-	-	-	2	2	-	-	2	6	15	27	-	-	21	4	17	2	2	-	-	
Punch-press operators .....	376	8.14	6	9	5	19	26	9	5	6	1	1	3	-	8	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Class A .....	71	10.84	-	-	-	8	-	8	8	8	-	-	18	-	30	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-
Class B .....	305	7.51	7	11	6	21	32	9	4	6	1	1	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tool and die makers .....	1,230	16.65	-	-	-	-	-	-	-	-	-	-	-	( <sup>4</sup> )	1	1	3	2	5	1	5	7	4	5	12	22	20	9	2	
Jobbing .....	1,216	16.61	-	-	-	-	-	-	-	-	-	-	-	( <sup>4</sup> )	1	1	3	2	5	1	5	7	4	5	12	22	20	9	1	
Welders, hand .....	14	13.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	64	21	-	-	-	-	-	-	-	-	-
Class A .....	14	13.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	64	21	-	-	-	-	-	-	-	-	-
<b>Material movement and custodial occupations</b>																														
Janitors .....	52	8.22	-	15	19	12	4	4	2	15	13	-	4	6	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shippers and receivers .....	47	9.83	-	-	13	-	30	-	-	-	9	15	-	4	15	-	-	4	6	-	-	-	-	-	-	4	-	-	-	-
Tool clerks .....	10	8.22	-	-	10	-	-	60	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truckdrivers .....	73	8.79	-	-	-	4	23	19	1	23	4	19	3	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Light truck .....	50	8.70	-	-	-	6	34	-	2	34	6	14	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> The Chicago, IL Primary Metropolitan Statistical Area consists of Cook, Du Page, and McHenry Counties.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> All or virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 6. Occupational earnings distribution: Cleveland, OH<sup>1</sup>—metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			Under 6.25	6.25 and under 6.50	6.50 - 6.75	6.75 - 7.00	7.00 - 7.25	7.25 - 7.50	7.50 - 7.75	7.75 - 8.00	8.00 - 8.25	8.25 - 8.50	8.50 - 8.75	8.75 - 9.00	9.00 - 9.50	9.50 - 10.00	10.00 - 10.50	10.50 - 11.00	11.00 - 11.50	11.50 - 12.00	12.00 - 12.50	12.50 - 13.00	13.00 - 14.00	14.00 - 15.00	15.00 - 16.00	16.00 - 17.00	17.00 - 18.00	18.00 - 19.00	19.00 and over
<b>Production and toolroom occupations</b>																													
Machine-tool operators, production	1,623	\$11.22	1	(*)	1	1	1	1	1	1	1	(*)	2	1	7	4	5	11	12	11	11	7	15	3	1	(*)	-	-	(*)
Class A	681	11.61	-	-	-	-	(*)	(*)	(*)	1	1	-	2	(*)	8	4	3	9	18	14	17	9	12	2	1	-	-	-	(*)
Class B	170	9.91	-	1	-	1	2	5	4	-	1	2	5	3	17	8	8	22	11	5	-	2	1	1	2	-	-	-	-
Class C	106	7.41	8	-	20	9	12	4	13	12	6	-	9	-	3	-	-	-	1	-	1	-	1	-	-	-	-	-	-
Computer-numerical-control, set up and operate	554	12.05	-	-	-	-	-	-	-	-	1	1	1	1	2	1	6	14	8	13	12	9	26	5	2	-	-	-	-
Computer-numerical-control, operate only	112	10.26	3	-	3	-	-	-	1	-	4	-	-	1	19	21	11	10	13	1	-	-	14	-	-	-	-	-	-
Automatic-lathe operators	54	12.06	-	-	-	-	-	-	2	-	7	-	4	4	-	4	-	9	6	6	6	4	37	11	-	2	-	-	-
Computer-numerical-control, set up and operate	18	11.80	-	-	-	-	-	-	-	-	17	-	-	6	-	6	-	-	-	17	6	6	22	22	-	-	-	-	-
Boring-machine operators	120	12.17	-	-	-	-	-	-	1	1	-	-	-	1	2	3	7	6	6	15	21	17	13	4	3	3	-	-	-
Class A	97	12.18	-	-	-	-	-	-	1	1	-	-	-	1	2	2	6	7	7	12	24	16	8	5	3	3	-	-	-
Drill-press operators, radial	28	10.13	4	-	-	4	7	-	-	-	-	-	14	4	-	-	-	14	7	46	-	-	-	-	-	-	-	-	-
Drill-press operators, spindle	39	11.04	5	-	-	-	-	3	-	-	8	-	10	-	3	-	8	8	10	10	-	15	3	15	3	-	-	-	-
Class A	21	12.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	-	19	-	29	5	29	5	-	-	-
Class B	10	10.30	-	-	-	-	-	10	-	-	-	-	-	-	-	-	30	20	40	-	-	-	-	-	-	-	-	-	-
Engine-lathe operators	93	10.34	3	2	-	1	1	1	2	2	5	-	-	-	9	13	8	20	6	8	5	3	6	1	2	-	-	-	-
Class B	28	10.19	-	7	-	4	4	-	7	-	-	-	-	-	21	14	4	-	18	4	-	-	7	4	7	-	-	-	-
Computer-numerical-control, set up and operate	23	10.71	-	-	-	-	-	-	-	-	-	-	-	-	-	9	17	52	-	17	-	4	-	-	-	-	-	-	-
Grinding-machine operators	464	10.59	1	-	1	(*)	1	2	2	1	1	-	4	2	14	5	4	13	25	12	5	3	4	(*)	(*)	-	-	-	-
Class A	298	11.02	-	-	-	-	-	-	-	-	1	-	3	(*)	16	4	3	9	30	14	7	5	7	-	-	-	-	-	-
Class B	80	9.84	-	-	-	-	-	9	5	-	-	-	10	6	11	6	8	28	9	8	-	-	-	-	1	-	-	-	-
Computer-numerical-control, operate only	38	9.83	8	-	8	-	-	-	-	-	-	-	-	-	11	16	8	16	34	-	-	-	-	-	-	-	-	-	-
Milling-machine operators	192	10.56	-	-	10	2	-	2	5	5	2	2	5	2	5	2	1	8	7	9	8	5	9	6	5	-	-	-	-
Class A	53	11.55	-	-	-	-	-	6	-	-	-	-	2	2	2	2	-	-	23	25	30	-	11	-	-	-	-	-	-
Computer-numerical-control, set up and operate	73	12.06	-	-	-	-	-	-	-	-	4	4	4	4	8	4	-	7	-	5	-	14	15	16	14	-	-	-	-
Screw-machine operators, automatic	26	11.53	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	19	27	35	-	4	8	4	-	-	-	-	-
Class A	22	11.71	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	5	32	41	-	5	9	5	-	-	-	-	-
Miscellaneous machine-tool operators	602	11.80	-	-	-	1	2	(*)	-	-	-	-	(*)	(*)	5	4	7	11	6	8	18	10	26	2	-	-	-	-	-
Class A	121	12.45	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	8	1	2	37	18	27	2	-	-	-	-	-
Class B	22	10.01	-	-	-	-	-	-	-	-	-	-	-	-	55	9	14	-	-	5	-	18	-	-	-	-	-	-	-
Machine-tool operators, toolroom	417	11.72	-	-	-	-	5	5	5	-	-	-	-	(*)	(*)	1	5	3	8	12	(*)	18	26	11	-	-	-	-	-
Operates one type of machine tool	345	11.82	-	-	-	-	6	6	6	-	-	-	-	(*)	-	1	3	1	3	8	1	21	31	13	-	-	-	-	-
Engine-lathe operators	21	12.45	-	-	-	-	-	-	-	-	-	-	-	-	-	14	5	5	5	-	-	71	-	-	-	-	-	-	-
Grinding-machine operators	184	10.94	-	-	-	-	12	12	12	-	-	-	-	-	-	2	1	2	13	1	22	-	23	-	-	-	-	-	-
Operates multiple machine tools	72	11.25	-	-	-	-	-	-	-	-	-	-	-	-	1	-	15	8	35	32	-	3	6	-	-	-	-	-	-

See footnotes at end of table.

**Table 6. Occupational earnings distribution: Cleveland, OH<sup>1</sup>— metalworking machinery manufacturing—Continued**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																											
			Under 6.25	6.25 and under 6.50	6.50 - 6.75	6.75 - 7.00	7.00 - 7.25	7.25 - 7.50	7.50 - 7.75	7.75 - 8.00	8.00 - 8.25	8.25 - 8.50	8.50 - 8.75	8.75 - 9.00	9.00 - 9.50	9.50 - 10.00	10.00 - 10.50	10.50 - 11.00	11.00 - 11.50	11.50 - 12.00	12.00 - 12.50	12.50 - 13.00	13.00 - 14.00	14.00 - 15.00	15.00 - 16.00	16.00 - 17.00	17.00 - 18.00	18.00 - 19.00	19.00 and over	
Machinists, production .....	9	\$10.59	-	-	-	-	-	-	-	-	-	-	-	-	22	44	22	-	-	-	-	11	-	-	-	-	-	-	-	-
Polishing- and buffing-machine operators .....	12	9.74	17	-	-	-	33	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-	
Tool and die makers .....	505	14.56	-	-	-	-	-	-	-	-	-	-	-	6	-	( <sup>4</sup> )	5	3	3	9	2	8	7	24	15	9	9	( <sup>4</sup> )	-	
Jobbing .....	440	14.77	-	-	-	-	-	-	-	-	-	-	-	7	-	-	5	2	2	7	( <sup>4</sup> )	5	6	27	17	10	10	-	-	
Welders, hand .....	68	11.02	-	-	-	-	-	-	6	-	-	-	4	3	3	26	4	9	7	3	16	4	4	3	1	4	-	-	-	
Class A .....	54	10.97	-	-	-	-	-	-	-	-	-	6	4	4	33	2	9	7	4	15	6	6	2	2	2	-	-	-	-	
Class B .....	20	11.34	-	-	-	-	-	15	10	-	-	-	-	-	-	-	20	-	-	-	-	55	-	-	-	-	-	-	-	
Class C .....	7	8.76	-	-	-	-	43	29	-	-	-	-	-	-	-	-	14	-	-	-	-	14	-	-	-	-	-	-	-	
<b>Assembling and inspecting occupations</b>																														
Assemblers .....	528	11.65	4	1	-	( <sup>4</sup> )	-	( <sup>4</sup> )	3	1	-	-	2	( <sup>4</sup> )	2	3	3	3	22	9	8	9	23	3	2	1	1	( <sup>4</sup> )	-	
Class A .....	448	12.00	-	-	-	( <sup>4</sup> )	-	( <sup>4</sup> )	2	1	-	-	2	( <sup>4</sup> )	2	3	2	4	25	9	8	10	23	3	2	1	1	( <sup>4</sup> )	-	
Class B .....	79	9.64	<sup>5</sup> 28	5	-	-	-	-	5	3	-	-	3	-	3	1	5	-	1	5	9	3	28	3	-	-	-	-	-	-
Inspectors .....	295	12.13	( <sup>4</sup> )	-	1	-	-	-	( <sup>4</sup> )	-	1	1	3	( <sup>4</sup> )	3	2	3	6	15	12	17	7	16	2	1	5	1	1	1	
Class A .....	160	12.58	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	9	16	27	12	21	2	1	8	-	-	-	-	
Class B .....	115	11.81	-	-	-	-	2	-	1	-	-	-	5	-	3	3	6	15	25	8	6	3	12	1	1	1	2	3	3	
Class C .....	20	10.38	5	-	10	-	-	-	-	-	10	10	15	-	15	5	-	-	-	-	-	-	5	5	10	10	-	-	-	
<b>Material movement and custodial occupations</b>																														
Janitors .....	42	8.51	10	-	-	5	-	-	-	10	12	-	14	12	21	5	7	-	-	-	5	-	-	-	-	-	-	-	-	
Shippers and receivers .....	46	10.12	-	-	2	-	9	9	15	2	2	-	4	-	4	-	-	-	7	-	2	35	4	-	-	-	-	-	-	
Tool clerks .....	23	10.61	-	-	-	-	-	-	9	-	-	-	4	17	17	4	4	13	-	-	4	22	4	-	-	-	-	-	-	
Truckdrivers .....	21	8.31	19	-	5	-	-	-	19	-	5	-	14	19	-	-	10	-	-	-	-	5	-	-	-	-	-	-	-	
Light truck .....	14	7.67	29	-	7	-	-	-	29	-	7	-	21	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	

<sup>1</sup> The Cleveland, OH Primary Metropolitan Statistical Area consists of Cuyahoga, Geauga, Lake, and Medina Counties.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> All or virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

<sup>5</sup> Workers were distributed as follows: 10 percent were at \$5 and under \$5.25; 3 percent were at \$5.25 and under \$5.50; 9 percent were at \$5.50 and under \$5.75; and 6 percent were at \$6 and under \$6.25.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 7. Occupational earnings distribution: Detroit, MI<sup>1</sup>— metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>2</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																												
			Under 6.00	6.00 and under 6.50	6.50-7.00	7.00-7.50	7.50-8.00	8.00-8.50	8.50-9.00	9.00-9.50	9.50-10.00	10.00-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-12.50	12.50-13.00	13.00-13.50	13.50-14.00	14.00-15.00	15.00-16.00	16.00-17.00	17.00-18.00	18.00-19.00	19.00-20.00	20.00-21.00	21.00-22.00	22.00-23.00	23.00 and over		
<b>Production and toolroom occupations</b>																															
Machine-tool operators, production	3,613	\$12.49	2	2	3	2	2	3	5	6	2	2	8	3	3	9	4	3	3	9	5	9	12	3	1	-	-	-	-	-	-
Class A	1,668	15.14	-	-	-	-	-	(*)	1	-	-	1	5	-	2	9	4	7	1	14	8	15	26	6	2	-	-	-	-	-	
Class B	457	10.74	-	3	-	-	3	3	8	11	11	9	17	1	9	8	(*)	(*)	12	3	-	2	-	-	-	-	-	-	-	-	
Class C	649	8.92	6	2	13	2	8	10	14	14	3	1	10	9	4	-	2	-	-	1	2	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate	505	12.46	-	-	-	-	-	-	8	17	2	-	2	8	-	10	12	1	3	13	11	9	2	(*)	-	-	-	-	-	-	
Computer-numerical-control, operate only	334	8.61	<sup>5</sup> 11	11	11	12	7	7	1	-	(*)	-	12	-	(*)	25	1	-	(*)	1	-	-	-	-	-	-	-	-	-	-	
Boring-machine operators	78	16.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	18	3	21	41	-	17	-	-	-	-	-	
Class A	54	17.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	4	19	48	-	24	-	-	-	-	-	
Engine-lathe operators	238	12.41	-	-	-	-	-	-	-	-	-	-	48	-	-	20	-	(*)	1	18	3	9	-	-	-	-	-	-	-	-	-
Class A	98	13.97	-	-	-	-	-	-	-	-	-	-	-	-	-	49	-	-	-	35	1	15	-	-	-	-	-	-	-	-	-
Grinding-machine operators	1,520	14.36	3	-	-	-	1	1	3	5	-	-	4	3	2	4	(*)	6	4	12	10	11	25	5	1	-	-	-	-	-	-
Class A	1,062	15.78	-	-	-	-	-	(*)	(*)	-	-	-	4	-	1	2	-	8	1	13	12	15	35	7	1	-	-	-	-	-	-
Class B	116	13.29	-	-	-	-	-	-	2	1	-	-	-	-	1	32	2	-	48	10	-	4	-	-	-	-	-	-	-	-	-
Class C	280	9.28	<sup>6</sup> 14	-	-	-	4	4	14	27	-	-	9	17	9	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate	62	14.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	55	-	-	-	-	-	-	-	-	-	-
Milling-machine operators	643	11.50	-	-	6	2	2	2	10	2	6	6	8	4	15	13	1	1	6	(*)	4	5	2	-	-	-	-	-	-	-	-
Class A	248	13.61	-	-	-	-	-	-	5	-	-	(*)	15	-	5	19	10	2	3	15	1	6	13	6	-	-	-	-	-	-	-
Class C	100	7.97	-	-	38	12	-	-	38	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate	139	12.15	-	-	-	-	-	-	-	-	-	-	27	-	27	40	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-
Screw-machine operators, automatic	71	10.17	-	4	21	4	-	-	4	-	-	17	-	4	-	34	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous machine-tool operators	475	11.81	-	-	6	(*)	(*)	3	3	8	10	2	8	-	6	17	11	4	3	4	4	9	1	(*)	-	-	-	-	-	-	-
Class A	85	13.88	-	-	-	-	-	-	-	-	-	-	-	-	-	8	45	16	-	1	-	29	-	-	-	-	-	-	-	-	-
Class C	152	9.64	-	-	20	-	-	9	7	9	14	5	26	-	2	-	7	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate	118	13.63	-	-	-	-	-	-	-	10	10	-	-	-	13	3	5	12	14	12	15	4	2	-	-	-	-	-	-	-	-
Machine-tool operators, toolroom	1,476	14.56	-	-	-	-	-	-	-	-	-	-	4	2	9	6	8	11	16	17	15	7	2	2	(*)	-	-	-	-	-	-
Operates one type of machine tool	929	14.48	-	-	-	-	-	-	-	-	-	-	4	4	11	5	8	14	12	14	18	5	2	3	-	-	-	-	-	-	-
Boring-machine operators	111	15.39	-	-	-	-	-	-	-	-	-	-	-	7	14	-	-	-	24	16	4	17	9	8	-	-	-	-	-	-	-
Engine-lathe operators	44	13.11	-	-	-	-	-	-	-	-	-	-	-	16	23	-	-	-	43	18	-	-	-	-	-	-	-	-	-	-	-
Grinding-machine operators	405	14.48	-	-	-	-	-	-	-	-	-	-	-	4	7	5	9	20	12	13	24	5	-	-	-	-	-	-	-	-	-
Milling-machine operators	239	14.70	-	-	-	-	-	-	-	-	-	-	-	13	8	2	13	3	7	18	21	3	3	8	-	-	-	-	-	-	-
Other toolroom machine	60	14.39	-	-	-	-	-	-	-	-	-	-	-	-	15	-	13	25	7	12	28	-	-	-	-	-	-	-	-	-	-
Operates multiple machine tools	547	14.68	-	-	-	-	-	-	-	-	-	-	4	1	5	8	7	7	22	22	11	9	2	1	1	-	-	-	-	-	-
Tool and die makers	1,721	16.95	-	-	-	-	-	-	-	-	-	-	-	-	4	(*)	3	10	12	9	16	7	11	8	5	2	6	5	-	-	
Jobbing	1,664	16.99	-	-	-	-	-	-	-	-	-	-	-	-	4	(*)	3	11	13	7	17	7	12	8	5	2	6	5	-	-	
Welders, hand	68	13.37	-	-	-	-	-	-	-	10	-	-	16	18	-	-	-	9	10	18	16	-	3	-	-	-	-	-	-	-	-
Class A	43	14.96	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	14	16	28	26	-	5	-	-	-	-	-	-	-
Class B	25	10.65	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Welders, machine	16	12.41	-	-	-	-	-	-	-	-	-	19	-	19	-	-	-	50	-	-	13	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.



**Table 8. Occupational earnings distribution: Detroit, MI<sup>1</sup>—special dies and tools manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																												
			Under 6.50	6.50 and under 7.00	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00	12.50	13.00	13.50	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	
<b>Production and toolroom occupations</b>																															
Machine-tool operators, toolroom .....	1,476	\$14.56	-	-	-	-	-	-	-	-	-	-	4	2	9	6	8	11	16	17	15	7	2	2	(*)	-	-	-	-	-	-
Operates one type of machine tool .....	929	14.48	-	-	-	-	-	-	-	-	-	-	4	4	11	5	8	14	12	14	18	5	2	3	-	-	-	-	-	-	
Boring-machine operators .....	111	15.39	-	-	-	-	-	-	-	-	-	-	4	7	14	-	-	14	24	16	4	17	9	8	-	-	-	-	-	-	
Engine-lathe operators .....	44	13.11	-	-	-	-	-	-	-	-	-	-	-	16	23	-	-	43	18	-	-	-	-	-	-	-	-	-	-	-	
Grinding-machine operators .....	405	14.48	-	-	-	-	-	-	-	-	-	-	4	7	5	9	20	12	13	24	5	-	-	-	-	-	-	-	-	-	
Milling-machine operators .....	239	14.70	-	-	-	-	-	-	-	-	-	-	13	-	8	2	13	3	7	18	21	3	3	8	-	-	-	-	-	-	
Other toolroom machine .....	60	14.39	-	-	-	-	-	-	-	-	-	-	-	-	15	-	13	25	7	12	28	-	-	-	-	-	-	-	-	-	
Operates multiple machine tools .....	547	14.68	-	-	-	-	-	-	-	-	-	-	4	1	5	8	7	7	22	22	11	9	2	1	1	-	-	-	-	-	
Tool and die makers .....	1,535	16.89	-	-	-	-	-	-	-	-	-	-	-	-	4	1	4	11	14	6	17	8	11	9	2	2	6	5	1	-	
Jobbing .....	1,522	16.89	-	-	-	-	-	-	-	-	-	-	-	-	5	1	4	11	14	6	17	8	11	9	2	2	7	5	1	-	
Welders, hand .....	26	13.58	-	-	-	-	-	-	-	-	-	-	15	27	-	-	-	-	27	23	-	-	8	-	-	-	-	-	-	-	
Class A .....	15	15.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	40	-	-	13	-	-	-	-	-	-	-	
Welders, machine .....	16	12.41	-	-	-	-	-	-	-	-	-	19	-	19	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Assembling and inspecting occupations</b>																															
Inspectors .....	61	16.17	-	-	-	-	10	-	-	-	-	-	-	-	11	-	-	25	7	3	3	3	3	7	10	3	-	15	-	-	
Class A .....	47	17.29	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	32	-	-	4	-	4	9	13	4	-	19	-	-	
<b>Maintenance occupations</b>																															
Mechanics .....	11	17.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	27	18	-	36	-	-	-	-	-	-	
<b>Material movement and custodial occupations</b>																															
Janitors .....	78	7.63	<sup>5</sup> 23	9	12	17	13	14	3	4	3	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	
Shippers and receivers .....	20	9.60	-	-	-	35	25	-	15	-	-	-	-	15	-	-	-	-	-	5	-	-	-	5	-	-	-	-	-	-	
Tool clerks .....	8	10.04	-	-	-	-	50	-	13	-	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Truckdrivers .....	56	8.40	-	52	-	13	4	-	2	4	4	4	5	4	-	-	-	-	2	5	-	-	-	-	-	-	-	-	-	-	
Medium truck .....	16	9.56	-	-	-	44	-	-	6	-	13	13	-	13	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	

<sup>1</sup> The Detroit, MI Primary Metropolitan Statistical Area consists of Lapeer, Livingston, Macomb, Monroe, Oakland, St. Clair, and Wayne Counties.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> All or virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

<sup>5</sup> Workers were distributed as follows: 10 percent were at \$4.50 and under \$5; and 13 percent were at \$6 and under \$6.50.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 9. Occupational earnings distribution: Hartford-New Britain-Middletown, CT<sup>1</sup>— metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																											
			Under 7.00	7.00 and under 7.25	7.25-7.50	7.50-7.75	7.75-8.00	8.00-8.25	8.25-8.50	8.50-8.75	8.75-9.00	9.00-9.25	9.25-9.50	9.50-9.75	9.75-10.00	10.00-10.25	10.25-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-12.50	12.50-13.00	13.00-13.50	13.50-14.00	14.00-14.50	14.50-15.00	15.00-15.50	15.50-16.00	16.00 and over	
<b>Production and toolroom occupations</b>																														
Machine-tool operators, production .....	520	\$10.87	1	2	1	2	2	3	1	6	1	8	3	5	3	4	2	6	8	8	10	5	10	2	8	1	(*)	(*)	(*)	
Class A .....	277	12.05	-	-	-	-	-	-	(*)	(*)	(*)	5	2	1	1	3	2	5	12	13	16	4	16	3	14	2	(*)	(*)	(*)	
Class B .....	149	9.67	1	5	-	1	1	5	-	16	2	11	6	10	5	6	3	7	3	1	6	4	5	-	-	-	-	-		
Computer-numerical-control, set up and operate .....	35	11.32	-	-	-	-	-	-	-	-	-	-	6	11	17	-	9	9	9	-	34	3	3	-	-	-	-	-		
Automatic-lathe operators .....	30	10.84	-	-	13	-	-	-	-	7	-	-	-	7	3	7	-	10	3	3	3	43	-	-	-	-	-	-		
Computer-numerical-control, set up and operate .....	21	11.64	-	-	-	-	-	-	-	-	-	-	10	-	10	-	14	5	5	-	57	-	-	-	-	-	-	-		
Engine-lathe operators .....	31	9.90	-	6	-	-	-	13	3	-	-	16	3	10	3	-	-	23	19	-	-	3	-	-	-	-	-	-		
Class A .....	14	11.18	-	-	-	-	-	-	-	-	-	7	-	7	-	-	-	36	43	-	-	7	-	-	-	-	-	-		
Class B .....	15	8.83	-	13	-	-	-	27	-	-	-	33	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Grinding-machine operators .....	235	11.04	2	2	(*)	2	3	3	1	3	2	4	4	6	3	5	1	4	8	8	10	3	9	1	14	1	(*)	(*)		
Class A .....	136	12.51	-	-	-	-	-	-	-	-	-	1	1	-	1	1	4	13	13	16	4	15	2	24	1	-	1	1		
Class B .....	66	9.51	-	3	-	3	3	3	-	8	5	14	11	15	5	14	3	8	2	-	3	3	-	-	-	-	-	-		
Milling-machine operators .....	54	10.11	4	7	-	-	-	-	-	4	-	30	2	4	4	2	-	7	4	15	9	2	4	2	2	-	-	-		
Class A .....	41	10.65	-	-	-	-	-	-	-	-	-	34	2	-	5	2	-	10	5	20	12	2	5	-	2	-	-	-		
Miscellaneous machine-tool operators .....	145	11.30	-	1	-	3	1	1	-	1	-	8	2	3	2	6	3	8	8	5	13	4	19	3	3	2	1	-		
Class A .....	74	12.25	-	-	-	-	-	-	-	-	-	1	1	-	5	4	8	12	4	16	3	26	7	7	4	1	-	-		
Class B .....	40	11.18	-	-	-	-	-	5	-	5	-	3	5	3	8	-	5	15	3	5	18	10	18	-	-	-	-	-		
Machine-tool operators, toolroom .....	251	13.03	-	-	-	-	-	-	-	-	-	-	2	-	1	1	9	4	4	15	13	16	6	8	4	14	2	4		
Operates one type of machine tool .....	163	13.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	2	4	13	13	15	4	7	4	18	2	6		
Grinding-machine operators .....	39	13.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	3	15	13	10	-	5	13	13	-	18		
Operates multiple machine tools .....	88	12.66	-	-	-	-	-	-	-	-	-	-	5	-	3	2	5	6	3	18	13	16	9	10	2	6	2	-		
Machinists, production .....	64	11.34	-	-	-	-	-	-	-	-	2	-	-	-	11	-	53	5	2	9	-	9	3	3	2	-	-	2		
Tool and die makers .....	140	14.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	4	-	21	8	21	4	24	7	7		
Jobbing .....	78	14.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	-	27	3	23	1	23	10	8		
Welders, hand .....	9	12.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	11	-	22	11	22	-	11	-	-	-	-		

See footnotes at end of table.



**Table 10. Occupational earnings distribution: Los Angeles-Long Beach, CA<sup>1</sup>— metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			4.25 and under 4.50	4.50 - 5.00	5.00 - 5.50	5.50 - 6.00	6.00 - 6.50	6.50 - 7.00	7.00 - 7.50	7.50 - 8.00	8.00 - 8.50	8.50 - 9.00	9.00 - 9.50	9.50 - 10.00	10.00 - 10.50	10.50 - 11.00	11.00 - 11.50	11.50 - 12.00	12.00 - 13.00	13.00 - 14.00	14.00 - 15.00	15.00 - 16.00	16.00 - 17.00	17.00 - 18.00	18.00 - 19.00	19.00 - 20.00	20.00 - 21.00	21.00 - 22.00	22.00 and over
<b>Production and toolroom occupations</b>																													
<b>Machine-tool operators,</b>																													
production .....	1,208	\$9.93	4	-	3	3	5	5	4	8	8	6	8	5	6	3	4	2	7	5	2	1	2	1	1	( <sup>4</sup> )	( <sup>4</sup> )	4	-
Class A .....	178	14.29	-	-	-	-	-	-	-	-	-	2	7	2	2	5	7	8	13	11	5	2	8	7	6	2	2	10	-
Class B .....	420	9.59	-	-	-	-	1	5	11	13	9	14	10	15	3	3	1	9	4	1	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	-	-	-	-	-
Class C .....	392	6.64	12	-	11	10	16	13	8	11	6	6	3	2	1	2	1	( <sup>4</sup> )	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	122	15.61	-	-	-	-	-	-	-	-	-	-	-	2	3	12	6	12	20	4	1	5	-	2	2	2	30	-	
Computer-numerical-control, operate only .....	96	9.56	-	-	-	-	11	4	1	18	10	20	2	7	4	5	2	4	5	2	3	-	-	-	-	-	-	-	
<b>Automatic-lathe operators</b> .....	44	9.99	-	-	11	2	2	-	2	-	7	5	11	7	9	9	2	11	7	5	9	-	-	-	-	-	-	-	
Class A .....	13	11.24	-	-	-	-	-	-	-	-	8	23	-	8	15	-	15	8	8	15	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	10	12.35	-	-	-	-	-	-	-	-	-	-	-	10	10	10	30	10	10	20	-	-	-	-	-	-	-	-	
Drill-press operators, radial .....	16	9.80	-	-	-	-	19	13	-	19	6	13	-	-	-	-	13	6	-	6	-	-	-	-	-	-	6	-	
Drill-press operators, spindle .....	15	7.34	-	-	-	53	7	-	-	-	13	13	-	-	7	-	-	7	-	-	-	-	-	-	-	-	-	-	
Class C .....	10	6.18	-	-	-	80	10	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Engine-lathe operators</b> .....	158	10.21	-	-	1	-	4	11	6	8	6	11	12	6	3	1	3	1	7	3	3	-	6	-	6	-	3	-	
Class B .....	67	9.45	-	-	-	-	-	4	15	-	13	28	13	6	1	1	-	15	-	1	-	-	-	-	-	-	-	-	
Class C .....	40	7.10	-	-	5	-	18	30	18	8	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	20	8.87	-	-	-	-	30	-	-	45	-	-	-	-	-	15	-	-	5	5	-	-	-	-	-	-	-	-	
<b>Grinding-machine operators</b> .....	275	9.61	( <sup>4</sup> )	-	3	1	3	8	3	10	12	9	11	4	3	4	4	2	8	8	1	-	1	4	-	-	-	-	
Class A .....	45	13.22	-	-	-	-	-	-	-	-	2	-	2	-	11	11	11	22	13	4	-	2	20	-	-	-	-	-	
Class B .....	120	9.52	-	-	-	-	3	7	13	18	10	8	7	6	4	5	-	8	10	-	-	-	1	-	-	-	-	-	
Class C .....	73	7.25	1	-	12	4	12	16	-	16	15	8	10	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	12	13.43	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	25	33	-	-	25	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	25	8.60	-	-	-	-	20	-	4	4	20	48	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Milling-machine operators</b> .....	151	9.39	-	-	8	7	3	5	1	7	19	5	3	5	4	2	2	5	8	11	1	3	1	-	-	-	-	-	
Class A .....	13	11.55	-	-	-	-	-	-	-	-	8	15	15	-	-	8	23	8	-	-	23	-	-	-	-	-	-	-	
Class C .....	47	6.38	-	-	26	23	9	17	2	2	15	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	36	12.92	-	-	-	-	-	-	-	-	-	-	-	3	8	3	6	31	44	-	-	6	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	13	11.03	-	-	-	-	-	-	-	-	8	15	8	31	-	8	8	-	8	8	8	-	-	-	-	-	-	-	
<b>Screw-machine operators,</b>																													
automatic .....	46	11.36	-	-	2	9	-	2	9	-	-	-	-	7	4	4	15	2	7	24	2	2	2	9	-	-	-	-	
Class A .....	20	14.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	10	50	5	5	5	20	-	-	-	-	
Class B .....	14	9.58	-	-	-	-	-	29	-	-	-	-	-	21	14	-	36	-	-	-	-	-	-	-	-	-	-	-	
<b>Miscellaneous machine-tool operators</b> .....	421	8.54	11	-	3	3	10	3	6	10	4	5	8	6	13	3	2	6	2	2	1	1	-	( <sup>4</sup> )	-	-	-	-	
Class A .....	30	11.69	-	-	-	-	-	-	-	-	3	17	3	7	3	17	7	23	7	7	-	7	-	-	-	-	-	-	
Class B .....	158	10.03	-	-	-	-	-	2	8	3	7	17	11	30	3	1	2	9	2	2	1	1	-	1	-	-	-	-	
Class C .....	202	6.47	22	-	6	6	21	6	10	14	2	1	1	3	1	2	1	( <sup>4</sup> )	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	11	13.12	-	-	-	-	-	-	-	-	-	-	-	-	-	36	9	-	9	27	9	9	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	20	10.32	-	-	-	-	-	-	-	35	20	-	-	10	-	-	-	15	10	-	10	-	-	-	-	-	-	-	

See footnotes at end of table.

**Table 10. Occupational earnings distribution: Los Angeles-Long Beach, CA<sup>1</sup>— metalworking machinery manufacturing—Continued**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																											
			4.25 and under 4.50	4.50-5.00	5.00-5.50	5.50-6.00	6.00-6.50	6.50-7.00	7.00-7.50	7.50-8.00	8.00-8.50	8.50-9.00	9.00-9.50	9.50-10.00	10.00-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-13.00	13.00-14.00	14.00-15.00	15.00-16.00	16.00-17.00	17.00-18.00	18.00-19.00	19.00-20.00	20.00-21.00	21.00-22.00	22.00 and over	
<b>Machine-tool operators, toolroom</b> .....	291	\$15.11	-	-	-	-	-	-	-	-	-	-	-	-	17	3	3	(*)	13	1	4	8	14	15	4	10	-	7	(*)	
Operates one type of machine tool .....	189	16.28	-	-	-	-	-	-	-	-	-	-	-	2	4	4	1	11	1	5	10	13	20	6	13	-	10	1		
Engine-lathe operators .....	21	15.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	-	-	24	5	-	5	33	-	-	-		
Grinding-machine operators .....	69	16.03	-	-	-	-	-	-	-	-	-	-	-	6	7	6	1	1	1	6	6	14	28	1	12	-	10	-		
Milling-machine operators .....	24	16.31	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	17	-	-	33	17	4	-	-	-	25	-		
Other toolroom machine .....	43	15.55	-	-	-	-	-	-	-	-	-	-	-	-	7	7	-	21	-	14	2	16	9	5	2	-	14	2		
Operates multiple machine tools .....	102	12.94	-	-	-	-	-	-	-	-	-	-	-	45	-	-	-	16	3	1	5	17	7	1	6	-	-	-		
<b>Punch-press operators</b> .....	132	9.10	-	-	-	-	11	6	6	-	8	8	5	13	16	12	4	3	7	-	-	-	-	-	-	-	-	-	-	
Class B .....	116	8.72	-	-	-	-	13	7	7	-	9	9	6	15	18	14	1	-	1	-	-	-	-	-	-	-	-	-	-	
<b>Tool and die makers</b> .....	234	16.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	15	10	20	15	12	10	8	4	3	1	
Jobbing .....	226	16.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	16	10	20	13	12	11	6	4	3	1	
<b>Welders, hand</b> .....	94	10.23	-	3	6	3	-	14	4	10	3	-	4	1	10	-	6	5	4	6	1	11	2	1	1	2	-	1	-	
Class A .....	23	15.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	13	-	4	43	9	4	4	9	-	4	-	-	
Class B .....	71	8.52	-	4	8	4	-	18	6	13	4	-	6	1	13	-	7	3	6	7	-	-	-	-	-	-	-	-	-	
<b>Assembling and inspecting occupations</b>																														
<b>Assemblers</b> .....	560	9.68	2	3	11	4	2	3	2	3	6	4	5	8	5	6	6	6	7	8	4	1	1	1	2	(*)	-	(*)	-	
Class A .....	172	12.77	-	-	-	-	-	-	-	1	1	6	3	6	3	5	6	8	11	20	13	4	4	2	5	1	-	1	-	
Class B .....	261	8.55	-	3	18	7	3	5	3	5	7	2	3	3	5	6	9	8	8	3	1	-	-	-	-	-	-	-	-	
<b>Inspectors</b> .....	97	12.74	-	4	2	1	2	1	1	3	1	1	1	11	8	1	8	6	6	8	6	-	1	4	6	3	12	-	-	
Class A .....	55	15.63	-	-	-	-	-	-	-	-	-	-	-	2	4	-	7	11	11	7	11	-	2	7	11	5	22	-	-	
Class B .....	37	9.45	-	5	3	-	5	3	-	8	3	3	3	27	16	3	11	-	-	11	-	-	-	-	-	-	-	-	-	
<b>Maintenance occupations</b>																														
<b>Electricians</b> .....	7	16.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	14	14	-	14	-	-	14	14	-	
<b>Mechanics</b> .....	23	15.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	26	9	17	4	4	-	4	13	-	-	
<b>Material movement and custodial occupations</b>																														
<b>Janitors</b> .....	68	6.57	-	13	16	6	3	24	19	3	-	6	7	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Shippers and receivers</b> .....	64	9.46	-	-	-	-	-	2	-	2	19	31	3	9	13	5	13	-	3	2	-	-	-	-	-	-	-	-	-	
<b>Tool clerks</b> .....	16	9.86	-	-	-	-	-	-	-	-	-	25	25	13	13	-	-	-	6	6	-	-	-	-	-	-	-	-	-	
<b>Truckdrivers</b> .....	22	7.34	-	-	-	18	18	23	9	-	5	9	5	9	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	
Light truck .....	11	7.29	-	-	-	-	9	45	9	-	9	18	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Medium truck .....	9	6.48	-	-	-	44	33	-	11	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

<sup>1</sup> The Los Angeles-Long Beach, CA Primary Metropolitan Statistical Area consists Los Angeles County.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> All or virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 11. Occupational earnings distribution: Los Angeles-Long Beach, CA<sup>1</sup>— special dies and tools manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																											
			4.50 and under 5.00	5.00-5.50	5.50-6.00	6.00-6.50	6.50-7.00	7.00-7.50	7.50-8.00	8.00-8.50	8.50-9.00	9.00-9.50	9.50-10.00	10.00-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-12.50	12.50-13.00	13.00-14.00	14.00-15.00	15.00-16.00	16.00-17.00	17.00-18.00	18.00-19.00	19.00-20.00	20.00-21.00	21.00-22.00	22.00 and over	
<b>Production and toolroom occupations</b>																														
<b>Machine-tool operators,</b>																														
production .....	434	\$11.20	-	-	-	2	6	5	11	9	10	11	6	3	2	4	1	5	(*)	4	2	1	1	(*)	1	1	1	1	12	-
Class A .....	58	15.43	-	-	-	-	-	-	-	-	3	16	3	2	7	2	2	7	3	5	3	-	2	-	2	5	7	31	-	
Class B .....	179	9.47	-	-	-	-	-	6	14	9	15	20	13	6	1	-	2	8	-	2	2	1	1	1	-	-	-	-	-	
Class C .....	85	7.68	-	-	-	8	20	7	25	21	11	1	2	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	43	9.35	-	-	-	-	21	9	-	16	16	9	-	-	-	7	2	-	-	7	5	7	-	-	-	-	-	-	-	
Engine-lathe operators .....	79	9.34	-	-	-	9	8	8	11	-	11	23	11	4	-	4	-	-	-	5	1	-	-	-	-	-	-	5	-	
Class B .....	48	8.88	-	-	-	-	-	6	13	-	19	38	19	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	11	9.20	-	-	-	-	55	-	-	-	-	-	-	-	-	27	-	-	-	9	9	-	-	-	-	-	-	-	-	
Grinding-machine operators .....	95	9.12	-	-	-	-	9	4	16	20	16	7	5	-	4	-	1	12	-	1	-	-	3	1	-	-	-	-	-	
Class A .....	48	9.29	-	-	-	-	-	8	15	21	13	15	6	-	2	-	-	17	-	2	-	-	-	2	-	-	-	-	-	
Class B .....	31	7.91	-	-	-	-	19	-	26	29	19	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Milling-machine operators .....	32	9.85	-	-	-	-	19	3	-	19	9	9	6	-	3	-	3	-	-	22	3	3	-	-	-	-	-	-	-	
Miscellaneous machine-tool operators .....	121	9.72	-	-	-	-	4	4	18	12	12	9	7	5	2	4	3	6	1	4	4	3	2	-	1	-	-	-	-	
Class B .....	68	10.05	-	-	-	-	-	4	18	6	10	12	12	7	1	-	4	10	-	4	4	3	1	-	1	-	-	-	-	
Class C .....	28	8.06	-	-	-	-	18	7	36	11	11	4	-	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	14	9.58	-	-	-	-	-	-	-	50	29	-	-	-	-	-	-	-	-	7	-	14	-	-	-	-	-	-	-	
Machine-tool operators, toolroom .....	290	15.11	-	-	-	-	-	-	-	-	-	-	-	17	3	3	(*)	6	7	1	4	8	14	15	4	10	-	7	(*)	
Operates one type of machine tool .....	189	16.28	-	-	-	-	-	-	-	-	-	-	-	2	4	4	1	8	3	1	5	10	13	20	6	13	-	10	1	
Engine-lathe operators .....	21	15.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	-	-	-	24	5	-	5	33	-	-	-	
Grinding-machine operators .....	69	16.03	-	-	-	-	-	-	-	-	-	-	-	6	7	6	1	1	-	1	6	6	14	28	1	12	-	10	-	
Milling-machine operators .....	24	16.31	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	17	-	-	-	33	17	4	-	-	-	25	-	
Other toolroom machine .....	43	15.55	-	-	-	-	-	-	-	-	-	-	-	-	7	7	-	7	14	-	14	2	16	9	5	2	-	14	2	
Operates multiple machine tools .....	101	12.92	-	-	-	-	-	-	-	-	-	-	-	46	-	-	-	2	14	3	1	4	17	7	1	6	-	-	-	
Punch-press operators .....	114	9.28	-	-	-	10	7	4	-	10	5	3	15	18	14	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-
Class B .....	98	8.85	-	-	-	11	8	4	-	11	6	3	17	21	16	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Tool and die makers .....	226	16.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	16	10	20	13	12	11	6	4	3	1	
Jobbing .....	226	16.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	16	10	20	13	12	11	6	4	3	1	
Welders, hand .....	48	10.08	6	13	6	-	19	-	-	6	-	-	2	-	-	8	4	2	6	10	2	-	4	2	2	4	-	-	-	
Class B .....	40	8.54	8	15	8	-	23	-	-	8	-	-	3	-	-	10	5	3	8	13	-	-	-	-	-	-	-	-	-	

See footnotes at end of table.



**Table 12. Occupational earnings distribution: Milwaukee, WI<sup>1</sup>— metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																											
			5.00 and under 5.50	5.50 6.00	6.00 6.50	6.50 7.00	7.00 7.50	7.50 8.00	8.00 8.50	8.50 9.00	9.00 9.50	9.50 10.00	10.00 10.50	10.50 11.00	11.00 11.50	11.50 12.00	12.00 12.50	12.50 13.00	13.00 13.50	13.50 14.00	14.00 14.50	14.50 15.00	15.00 15.50	15.50 16.00	16.00 16.50	16.50 17.00	17.00 17.50	17.50 18.00	18.00 and over	
<b>Production and toolroom occupations</b>																														
<b>Machine-tool operators,</b>																														
production .....	946	\$11.89	-	-	1	2	1	2	5	5	3	3	2	2	8	9	13	11	13	1	15	1	3	-	-	-	-	-	-	
Class A .....	475	13.01	-	-	-	-	-	-	-	-	-	-	1	2	11	11	14	11	16	1	24	1	7	-	-	-	-	-	-	
Class B .....	152	11.23	-	-	-	-	-	-	5	9	7	5	8	9	10	10	-	17	17	2	1	-	-	-	-	-	-	-	-	
Class C .....	203	9.36	-	-	2	7	3	8	17	15	7	11	-	-	6	-	20	2	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	104	12.97	-	-	-	-	-	-	-	-	-	1	-	-	16	13	20	21	2	26	1	-	-	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	12	9.67	-	-	-	-	-	-	-	67	17	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Automatic-lathe operators .....	77	11.82	-	-	-	-	-	-	9	10	3	8	-	8	3	-	21	32	5	1	-	-	-	-	-	-	-	-	-	
Class B .....	20	11.38	-	-	-	-	-	-	5	5	10	25	-	25	-	-	5	10	15	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	27	12.87	-	-	-	-	-	-	-	-	-	4	-	-	4	-	37	48	4	4	-	-	-	-	-	-	-	-	-	
Boring-machine operators .....	137	14.14	-	-	-	-	-	-	-	-	-	-	-	-	1	-	9	1	4	84	1	1	-	-	-	-	-	-	-	
Class A .....	131	14.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	4	87	1	1	-	-	-	-	-	-	-	
Engine-lathe operators .....	38	12.68	-	-	-	-	-	-	-	3	-	-	-	-	11	-	24	-	63	-	-	-	-	-	-	-	-	-	-	
Class A .....	37	12.77	-	-	-	-	-	-	-	-	-	-	-	11	-	24	-	65	-	-	-	-	-	-	-	-	-	-	-	
Grinding-machine operators .....	245	10.89	-	-	2	-	1	2	5	7	5	8	2	7	15	17	5	11	11	( <sup>4</sup> )	-	-	-	-	-	-	-	-	-	-
Class A .....	123	11.91	-	-	-	-	-	-	-	-	-	2	6	28	22	10	22	10	1	-	-	-	-	-	-	-	-	-	-	
Class B .....	67	10.85	-	-	-	-	-	-	9	13	6	6	13	3	21	-	-	22	-	-	-	-	-	-	-	-	-	-	-	
Milling-machine operators .....	87	11.92	-	-	-	-	-	-	2	2	2	2	6	6	21	28	21	10	-	-	-	-	-	-	-	-	-	-	-	
Class A .....	37	12.43	-	-	-	-	-	-	-	-	-	-	-	-	16	62	-	22	-	-	-	-	-	-	-	-	-	-	-	
Class B .....	34	11.73	-	-	-	-	-	-	6	3	-	6	15	15	-	-	53	3	-	-	-	-	-	-	-	-	-	-	-	
Miscellaneous machine-tool operators .....	319	11.58	-	-	-	5	2	3	8	5	3	3	2	1	7	6	17	10	11	( <sup>4</sup> )	8	( <sup>4</sup> )	10	-	-	-	-	-	-	
Class A .....	99	13.27	-	-	-	-	-	-	-	-	-	5	2	7	13	6	11	23	-	-	-	32	-	-	-	-	-	-	-	
Class B .....	19	11.48	-	-	-	-	-	-	11	11	5	5	-	16	-	-	26	26	-	-	-	-	-	-	-	-	-	-	-	
Class C .....	135	9.61	-	-	-	11	4	8	19	11	4	5	-	9	-	26	3	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	63	13.25	-	-	-	-	-	-	-	-	-	-	-	-	6	19	17	13	2	41	2	-	-	-	-	-	-	-	-	
<b>Machine-tool operators, toolroom .....</b>	<b>576</b>	<b>14.18</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(<sup>4</sup>)</b>	<b>(<sup>4</sup>)</b>	<b>-</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>3</b>	<b>6</b>	<b>7</b>	<b>9</b>	<b>5</b>	<b>8</b>	<b>3</b>	<b>10</b>	<b>7</b>	<b>11</b>	<b>7</b>	<b>6</b>	<b>4</b>	<b>(<sup>4</sup>)</b>	
Operates one type of machine tool .....	218	13.85	-	-	-	-	-	-	-	-	-	5	6	8	4	9	4	10	6	5	3	11	9	11	6	3	-	-	1	
Boring-machine operators .....	48	14.77	-	-	-	-	-	-	-	-	-	6	-	-	-	13	-	4	6	8	-	8	29	6	10	8	-	-	-	
Engine-lathe operators .....	14	14.18	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	43	-	7	-	-	-	7	29	-	-	-	-	
Grinding-machine operators .....	36	13.82	-	-	-	-	-	-	-	-	-	-	-	17	6	8	3	14	6	6	8	14	6	3	3	4	1	-	6	
Milling-machine operators .....	80	13.72	-	-	-	-	-	-	-	-	5	10	9	5	8	3	9	6	3	3	3	10	3	24	4	1	-	-	-	
Operates multiple machine tools .....	358	14.39	-	-	-	-	-	1	1	-	2	3	-	6	3	4	8	8	4	10	3	9	6	11	8	7	7	-	-	
<b>Polishers and buffers, metal .....</b>	<b>12</b>	<b>12.88</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>17</b>	<b>8</b>	<b>17</b>	<b>8</b>	<b>-</b>	<b>33</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8</b>	<b>-</b>	<b>-</b>	<b>-</b>	
Polishing- and buffing-machine operators .....	25	9.79	8	-	8	-	-	12	-	16	28	-	-	-	-	-	12	-	-	12	-	5	-	4	-	-	-	-	-	
Punch-press operators .....	40	8.22	-	13	13	-	13	8	-	8	20	23	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	
Tool and die makers .....	752	15.68	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	4	4	10	8	7	9	18	15	11	3	7		
Jobbing .....	749	15.69	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	4	4	10	8	7	9	18	15	11	3	7		
Welders, hand .....	23	12.54	-	-	-	-	-	-	4	-	-	-	-	22	9	13	30	9	-	4	4	-	4	4	-	-	-	-	-	
Class A .....	22	12.72	-	-	-	-	-	-	-	-	-	-	-	23	9	14	32	9	-	-	5	5	-	5	-	-	-	-	-	

See footnotes at end of table.

**Table 12. Occupational earnings distribution: Milwaukee, WI<sup>1</sup>—metalworking machinery manufacturing—Continued**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			5.00 and under 5.50	5.50-6.00	6.00-6.50	6.50-7.00	7.00-7.50	7.50-8.00	8.00-8.50	8.50-9.00	9.00-9.50	9.50-10.00	10.00-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-12.50	12.50-13.00	13.00-13.50	13.50-14.00	14.00-14.50	14.50-15.00	15.00-15.50	15.50-16.00	16.00-16.50	16.50-17.00	17.00-17.50	17.50-18.00	18.00 and over
<b>Assembling and inspecting occupations</b>																													
Assemblers .....	339	\$12.60	1	-	-	1	-	( <sup>4</sup> )	1	2	1	3	1	3	5	2	10	3	48	1	1	10	4	-	-	-	1	-	-
Class A .....	247	13.42	-	-	-	-	-	-	-	-	-	( <sup>4</sup> )	1	( <sup>4</sup> )	-	2	3	4	66	1	2	14	5	-	-	-	2	-	
Class B .....	54	11.05	-	-	-	-	-	-	-	15	6	7	-	2	31	-	31	-	4	4	-	-	-	-	-	-	-	-	
Class C .....	38	9.45	13	-	-	13	-	3	5	-	13	8	24	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	
Inspectors .....	88	11.78	-	-	-	-	2	-	8	3	6	5	2	10	2	3	2	27	8	10	8	-	-	-	-	2	-	-	
Class A .....	39	13.40	-	-	-	-	-	-	-	-	-	-	-	3	-	8	-	41	3	23	18	-	-	-	-	5	-	-	
Class B .....	45	10.61	-	-	-	-	4	-	16	4	9	4	4	18	4	-	4	18	13	-	-	-	-	-	-	-	-	-	
<b>Maintenance occupations</b>																													
Electricians .....	17	14.34	-	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-	-	-	47	-	-	18	6	6	6	-	
Mechanics .....	40	13.11	-	-	-	-	-	-	-	-	13	-	-	-	3	-	13	13	13	10	28	-	-	5	-	5	-	-	
<b>Material movement and custodial occupations</b>																													
Janitors .....	45	6.96	36	11	4	9	9	-	-	9	2	9	7	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	
Material handling laborers .....	14	8.42	-	-	-	-	-	50	36	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	
Shippers .....	11	9.47	-	-	-	-	-	-	-	-	64	18	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Shippers and receivers .....	52	10.03	10	-	-	-	-	-	15	15	8	2	8	-	-	2	23	8	8	-	2	-	-	-	-	-	-	-	
Tool clerks .....	15	10.80	-	-	-	-	13	-	7	-	-	13	-	13	13	7	-	7	13	-	-	-	-	-	-	-	-	-	
Truckdrivers .....	37	8.97	-	11	-	5	-	8	14	11	5	-	30	3	5	-	5	-	3	-	-	-	-	-	-	-	-	-	
Light truck .....	24	8.29	-	17	-	8	-	13	8	17	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Medium truck .....	6	9.03	-	-	-	-	-	-	50	-	33	-	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	
Heavy truck .....	6	11.15	-	-	-	-	-	-	-	-	-	-	33	17	33	-	-	-	17	-	-	-	-	-	-	-	-	-	

<sup>1</sup> The Milwaukee, WI Primary Metropolitan Statistical Area consists of Milwaukee, Ozaukee, Washington, and Waukesha Counties.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> All or virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.







**Table 16. Occupational earnings distribution: Northern New Jersey<sup>1</sup>— metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			6.25 and under 6.50	6.50 - 6.75	6.75 - 7.00	7.00 - 7.25	7.25 - 7.50	7.50 - 8.00	8.00 - 8.50	8.50 - 9.00	9.00 - 9.50	9.50 - 10.00	10.00 - 10.50	10.50 - 11.00	11.00 - 11.50	11.50 - 12.00	12.00 - 12.50	12.50 - 13.00	13.00 - 13.50	13.50 - 14.00	14.00 - 14.50	14.50 - 15.00	15.00 - 15.50	15.50 - 16.00	16.00 - 16.50	16.50 - 17.00	17.00 - 17.50	17.50 - 18.00	18.00 and over
<b>Production and toolroom occupations</b>																													
Machine-tool operators,																													
production .....	670	\$10.95	(*)	-	(*)	1	(*)	4	4	8	9	10	13	5	4	7	6	5	6	3	4	(*)	5	1	1	(*)	1	(*)	(*)
Class A .....	203	12.03	-	-	-	-	-	(*)	7	4	6	2	6	5	3	17	9	10	(*)	3	9	1	7	1	-	1	5	-	-
Class B .....	105	10.02	-	-	-	-	-	-	7	4	16	32	18	3	3	4	2	8	-	4	-	-	-	-	-	-	-	-	-
Class C .....	208	9.27	1	-	1	5	1	14	1	18	15	4	25	4	3	3	1	2	-	-	-	-	-	1	-	-	-	-	-
Computer-numerical-control, set up and operate .....	117	13.04	-	-	-	-	-	-	3	-	2	6	5	2	-	-	13	3	31	9	8	-	14	-	6	-	-	-	-
Computer-numerical-control, operate only .....	37	10.59	-	-	-	-	-	-	-	3	-	30	-	22	35	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Automatic-lathe operators .....	60	11.99	-	-	-	-	-	-	-	-	3	20	2	10	10	10	5	10	7	7	5	-	-	3	8	-	-	-	-
Computer-numerical-control, set up and operate .....	18	12.99	-	-	-	-	-	-	-	-	-	17	6	11	-	-	6	-	22	11	-	-	-	-	-	-	-	-	-
Boring-machine operators .....	57	12.07	-	-	-	4	-	-	-	-	12	2	4	-	2	-	9	2	11	53	2	-	2	-	-	-	-	-	-
Class A .....	21	11.42	-	-	-	-	-	-	-	14	5	10	-	5	-	24	5	29	-	5	-	-	5	-	-	-	-	-	-
Drill-press operators, radial .....	38	11.24	-	-	-	-	-	-	5	8	5	3	5	-	34	-	24	11	-	-	5	-	-	-	-	-	-	-	-
Class A .....	21	11.07	-	-	-	-	-	-	10	14	-	5	10	-	19	-	33	-	-	-	10	-	-	-	-	-	-	-	-
Drill-press operators, spindle .....	38	9.11	-	-	-	-	-	-	24	24	-	24	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Engine-lathe operators .....	60	10.35	-	-	-	-	-	30	7	-	7	-	8	-	3	10	-	13	2	17	3	-	-	-	-	-	-	-	-
Class A .....	19	12.65	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	42	5	32	-	-	-	-	-	-	-	-	-
Class B .....	17	9.63	-	-	-	-	-	-	24	-	24	-	29	-	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-
Grinding-machine operators .....	115	10.60	3	-	3	2	-	3	6	12	6	13	10	3	3	4	11	5	-	-	11	-	2	2	-	2	-	-	-
Class A .....	48	12.24	-	-	-	-	-	2	6	6	6	2	4	-	-	6	15	13	-	-	27	-	4	4	-	4	-	-	-
Class B .....	31	9.58	-	-	-	-	-	-	10	-	13	39	32	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Milling-machine operators .....	169	11.07	-	-	-	2	-	5	2	5	7	15	14	7	-	13	5	2	1	4	4	1	12	-	1	-	-	-	-
Class C .....	44	9.22	-	-	-	9	-	20	-	20	-	-	41	5	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	51	12.97	-	-	-	-	-	-	6	-	4	8	10	-	-	-	6	6	4	8	14	-	31	-	4	-	-	-	-
Miscellaneous machine-tool operators .....	133	10.89	-	-	-	2	2	-	2	7	20	7	29	8	2	3	2	2	-	-	-	-	6	-	-	-	8	1	2
Class A .....	30	14.56	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	27	-	-	-	33	3	7
Class C .....	83	9.53	-	-	-	2	2	-	2	11	33	11	30	2	1	2	-	2	-	-	-	-	-	-	-	-	-	-	-
Machinists, production .....	39	12.35	-	-	-	-	-	-	-	-	-	-	5	23	28	5	21	-	3	-	5	5	5	5	5	5	5	5	5
Polishers and buffers, metal .....	18	12.16	-	-	-	-	-	-	-	-	-	-	17	-	-	-	11	-	17	-	11	11	-	-	-	-	-	-	-
Tool and die makers .....	270	14.70	-	-	-	-	-	-	-	-	2	-	1	1	1	3	5	5	9	5	12	2	12	9	12	5	5	6	4
Jobbing .....	238	14.60	-	-	-	-	-	-	-	-	2	-	2	1	2	4	5	5	9	5	12	3	10	11	12	5	3	6	3
Other than jobbing .....	32	15.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	3	3	13	-	-	28	-	13	-	6	6	6

See footnotes at end of table.



**Table 17. Occupational earnings distribution: Northern New Jersey<sup>1</sup>— special dies and tools manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			Under 7.00	7.00 and under 7.25	7.25 - 7.50	7.50 - 7.75	7.75 - 8.00	8.00 - 8.25	8.25 - 8.50	8.50 - 9.00	9.00 - 9.50	9.50 - 10.00	10.00 - 10.50	10.50 - 11.00	11.00 - 11.50	11.50 - 12.00	12.00 - 12.50	12.50 - 13.00	13.00 - 13.50	13.50 - 14.00	14.00 - 14.50	14.50 - 15.00	15.00 - 15.50	15.50 - 16.00	16.00 - 16.50	16.50 - 17.00	17.00 - 17.50	17.50 - 18.00	18.00 and over
<b>Production and toolroom occupations</b>																													
<b>Machine-tool operators,</b>																													
production .....	384	\$11.65	2	3	1	1	( <sup>4</sup> )	4	1	4	10	5	9	4	3	6	9	7	9	4	4	1	8	1	2	1	3	( <sup>4</sup> )	1
Class A .....	140	12.62	-	-	-	-	1	1	2	6	3	3	1	4	11	14	14	1	5	6	1	11	1	-	1	3	( <sup>4</sup> )	1	
Class B .....	51	9.63	-	-	-	-	-	12	2	8	16	14	33	6	6	4	-	-	-	-	-	-	-	-	-	-	-	-	
Class C .....	70	9.12	9	14	3	3	-	4	-	1	37	-	9	3	3	6	-	6	-	-	-	-	3	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	113	13.01	-	-	-	-	-	3	-	-	2	6	5	2	-	-	13	4	30	9	6	-	14	-	6	-	-	-	
<b>Automatic-lathe operators</b>																													
Computer-numerical-control, set up and operate .....	18	12.99	-	-	-	-	-	-	-	-	-	17	6	11	-	-	6	-	22	11	-	-	-	-	28	-	-	-	-
<b>Boring-machine operators</b>																													
Class A .....	57	12.07	-	4	-	-	-	-	-	12	2	4	-	2	-	9	2	11	53	2	-	-	2	-	-	-	-	-	-
Class A .....	21	11.42	-	-	-	-	-	-	-	14	5	10	-	5	-	24	5	29	-	5	-	5	-	-	-	-	-	-	
<b>Drill-press operators, radial</b>																													
Class A .....	23	11.19	-	-	-	-	-	-	9	13	-	4	9	-	17	-	39	-	-	-	9	-	-	-	-	-	-	-	-
Class A .....	21	11.07	-	-	-	-	-	-	10	14	-	5	10	-	19	-	33	-	-	-	10	-	-	-	-	-	-	-	
<b>Engine-lathe operators</b>																													
Class A .....	42	11.57	-	-	-	-	-	10	-	-	10	-	12	-	5	14	-	19	2	24	5	-	-	-	-	-	-	-	-
Class A .....	19	12.65	-	-	-	-	-	-	-	-	-	-	-	-	21	-	42	5	32	-	-	-	-	-	-	-	-	-	
Class B .....	17	9.63	-	-	-	-	24	-	-	24	-	29	-	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Grinding-machine operators</b>																													
Class A .....	77	10.55	8	3	-	3	1	6	3	5	9	5	13	1	1	4	17	8	-	-	5	-	3	3	-	3	-	-	-
Class A .....	39	11.84	-	-	-	-	3	5	3	8	8	3	5	-	8	18	15	-	-	10	-	5	5	-	5	-	-	-	
<b>Milling-machine operators</b>																													
Class A .....	69	12.41	-	6	-	-	4	-	-	3	12	7	-	-	6	10	4	-	6	7	3	29	-	3	29	-	3	-	-
Class A .....	14	13.13	-	-	-	-	-	-	-	-	-	-	-	-	29	29	-	-	-	-	14	29	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	47	12.89	-	-	-	-	6	-	-	4	9	11	-	-	-	6	6	-	9	11	-	34	-	4	-	-	-	-	
<b>Miscellaneous machine-tool operators</b>																													
Class A .....	85	11.47	-	2	2	-	2	-	-	31	-	12	12	2	5	4	4	-	-	-	-	9	-	-	-	-	12	1	2
Class A .....	21	16.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-	-	-	-	48	5	10
Class C .....	44	9.30	-	5	5	-	5	-	-	59	-	14	5	-	5	-	5	-	-	-	-	-	-	-	-	-	-	-	-
<b>Polishers and buffers, metal</b>																													
Tool and die makers .....	18	12.16	-	-	-	-	-	-	-	17	-	-	-	33	-	-	11	-	17	-	11	11	-	-	-	-	-	-	-
Jobbing .....	206	14.66	-	-	-	-	-	-	-	-	2	1	2	4	4	7	11	3	13	2	9	10	13	1	7	6	5	5	
Other than jobbing .....	179	14.52	-	-	-	-	-	-	-	-	2	2	2	5	4	6	12	3	13	2	8	11	13	2	4	6	4	4	
Other than jobbing .....	27	15.55	-	-	-	-	-	-	-	-	-	-	-	-	-	11	4	4	15	-	15	-	15	-	22	7	7	7	
<b>Assembling and inspecting occupations</b>																													
Assemblers .....	24	9.58	8	-	-	-	17	4	8	17	4	13	4	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-
Inspectors .....	8	11.85	-	-	-	-	13	-	-	-	-	13	-	-	-	-	-	50	25	-	-	-	-	-	-	-	-	-	
<b>Material movement and custodial occupations</b>																													
Janitors .....	11	8.48	-	18	-	9	9	18	-	-	9	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Material handling laborers .....	9	9.10	-	-	-	-	-	-	-	33	56	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tool clerks .....	10	11.03	-	-	-	-	-	10	-	-	10	20	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	

<sup>1</sup> The Northern New Jersey area consists of Bergen, Essex, Hudson, Morris, Passaic, Sussex, and Union Counties.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> All or virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 18. Occupational earnings distribution: Philadelphia, PA-NJ<sup>1</sup>—metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>2</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			5.00 and under 5.50	5.50-6.00	6.00-6.50	6.50-7.00	7.00-7.50	7.50-8.00	8.00-8.50	8.50-9.00	9.00-9.50	9.50-10.00	10.00-10.50	10.50-11.00	11.00-11.50	11.50-12.00	12.00-12.50	12.50-13.00	13.00-13.50	13.50-14.00	14.00-14.50	14.50-15.00	15.00-15.50	15.50-16.00	16.00-16.50	16.50-17.00	17.00-18.00	18.00-19.00	19.00-20.00
<b>Production and toolroom occupations</b>																													
<b>Machine-tool operators,</b>																													
production .....	581	\$10.92	2	2	6	3	6	4	5	4	5	7	2	3	5	4	6	3	6	3	8	2	2	2	3	1	6	1	(4)
Time .....	506	11.33	3	1	1	3	7	5	5	5	3	7	2	3	5	4	7	3	6	3	10	3	2	2	3	2	6	1	(4)
Class A .....	189	14.23	-	-	-	-	-	-	-	-	1	-	-	-	7	5	11	6	6	3	19	5	5	4	8	4	13	2	1
Class B .....	73	9.36	-	-	-	-	29	10	-	18	5	-	1	7	8	3	3	-	14	3	-	-	-	-	-	-	-	-	-
Class C .....	177	7.99	8	7	18	11	1	5	3	6	10	16	3	7	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Time .....	102	7.88	14	7	7	14	1	8	-	11	3	24	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	90	12.14	-	-	-	-	-	2	16	-	-	11	2	-	4	1	16	2	9	7	14	4	2	1	-	-	8	-	-
Computer-numerical-control, operate only .....	52	8.95	-	-	-	-	27	17	19	4	8	-	-	4	-	10	-	4	4	4	-	-	-	-	-	-	-	-	-
Automatic-lathe operators .....	40	9.74	-	-	-	-	18	-	40	5	-	-	-	-	5	5	10	5	5	8	-	-	-	-	-	-	-	-	-
Engine-lathe operators .....	70	13.57	-	-	-	-	-	-	-	-	3	-	3	-	3	14	11	1	20	3	10	9	3	4	1	1	11	-	1
Class A .....	38	14.15	-	-	-	-	-	-	-	-	-	-	-	5	21	11	3	11	-	8	5	-	8	3	3	21	-	3	
Grinding-machine operators .....	157	11.04	-	3	16	3	-	1	3	3	11	3	-	4	10	3	3	4	2	3	9	1	3	1	4	8	1	-	
Time .....	82	13.70	-	-	-	-	-	2	-	5	2	-	-	2	12	-	5	7	4	5	17	2	6	2	9	-	16	2	
Class A .....	68	14.40	-	-	-	-	-	-	-	-	-	-	-	-	15	-	6	9	4	3	18	3	7	3	10	-	19	3	
Milling-machine operators .....	114	11.11	-	-	-	12	6	-	-	-	-	30	2	-	4	2	12	-	9	4	11	2	-	2	-	6	-	-	
Class A .....	30	12.93	-	-	-	-	-	-	-	-	-	-	-	7	7	40	-	7	-	27	7	-	7	-	-	-	-	-	
Class B .....	13	9.60	-	-	-	-	54	-	-	-	-	-	-	-	15	-	-	-	31	-	-	-	-	-	-	-	-	-	
Class C .....	40	8.64	-	-	-	35	-	-	-	-	-	60	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	29	13.15	-	-	-	-	-	-	-	-	-	34	-	-	-	-	7	-	7	14	14	-	-	-	-	-	24	-	
<b>Miscellaneous machine-tool operators</b>																													
Class A .....	43	15.33	-	4	4	-	13	14	5	11	3	-	3	7	5	2	5	1	2	2	6	2	2	1	4	4	2	1	-
Class B .....	48	8.50	-	-	-	-	29	15	-	27	8	-	2	6	8	4	-	-	-	-	-	-	-	-	-	-	-	-	
Class C .....	34	7.83	-	21	21	-	3	18	-	12	-	-	6	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	18	11.34	-	-	-	-	11	-	-	-	-	11	-	22	-	44	-	-	-	11	-	-	-	-	-	-	-	-	
Computer-numerical-control, operate only .....	33	8.53	-	-	-	-	21	27	24	6	6	-	6	-	3	-	6	-	-	-	-	-	-	-	-	-	-	-	
<b>Machine-tool operators, toolroom</b>																													
Operates one type of machine tool .....	51	13.02	-	-	-	-	-	-	-	-	10	4	2	10	14	2	4	4	-	-	12	12	12	4	2	4	4	2	-
Boring-machine operators .....	7	15.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	29	-	-	14	-	-	
Grinding-machine operators .....	9	14.56	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	22	22	-	-	-	11	11	11	-	
Operates multiple machine tools .....	32	12.07	-	-	-	-	6	9	-	-	6	-	6	6	6	-	6	6	-	9	13	16	-	9	-	-	-	-	

See footnotes at end of table.

**Table 18. Occupational earnings distribution: Philadelphia, PA-NJ<sup>1</sup>—metalworking machinery manufacturing—Continued**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																									
			5.00 and under 5.50	5.50 6.00	6.00 6.50	6.50 7.00	7.00 7.50	7.50 8.00	8.00 8.50	8.50 9.00	9.00 9.50	9.50 10.00	10.00 10.50	10.50 11.00	11.00 11.50	11.50 12.00	12.00 12.50	12.50 13.00	13.00 13.50	13.50 14.00	14.00 14.50	14.50 15.00	15.00 15.50	15.50 16.00	16.00 16.50	16.50 17.00	17.00 18.00	18.00 19.00
Machinists, production .....	116	\$13.78	-	-	-	-	-	-	-	-	-	6	3	4	5	6	2	10	6	21	17	4	5	-	7	-	3	-
Punch-press operators .....	89	7.64	3	9	13	15	18	7	10	8	3	3	3	-	2	2	-	-	-	-	-	-	-	-	2	-	-	-
Class A .....	10	11.15	-	-	-	-	-	20	-	-	-	-	-	20	20	-	-	-	-	-	-	-	-	-	20	-	-	-
Class B .....	79	7.19	4	10	15	16	18	8	11	9	4	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tool and die makers .....	407	15.82	-	-	-	-	-	-	-	-	-	-	2	-	1	( <sup>4</sup> )	3	1	4	2	9	2	5	20	11	8	16	16
Jobbing .....	405	15.82	-	-	-	-	-	-	-	-	-	-	2	-	1	( <sup>4</sup> )	3	1	4	2	9	2	5	20	11	8	16	16
Welders, hand:																												
Time .....	11	12.45	-	-	-	-	-	-	-	9	-	-	-	18	9	-	-	27	-	-	27	-	-	9	-	-	-	-
Class A:																												
Time .....	8	12.84	-	-	-	-	-	-	-	-	-	-	-	25	13	-	-	13	-	-	38	-	-	13	-	-	-	-
<b>Assembling and inspecting occupations</b>																												
Assemblers .....	71	10.82	-	-	-	-	-	-	-	-	54	6	-	-	-	-	8	25	-	-	1	-	-	1	1	1	1	-
Inspectors .....	35	12.29	-	-	-	-	-	3	3	-	-	11	11	-	6	3	31	3	3	3	-	6	-	9	-	-	9	-
Class A .....	26	13.14	-	-	-	-	-	-	-	-	-	-	15	-	-	-	42	4	4	4	-	8	-	12	-	-	12	-
<b>Material movement and custodial occupations</b>																												
Janitors .....	10	8.62	-	-	-	10	10	-	40	-	20	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Shippers and receivers .....	16	10.79	-	-	-	-	-	-	-	13	13	13	-	19	19	6	-	6	13	-	-	-	-	-	-	-	-	-
Truckdrivers .....	24	8.01	-	-	-	29	4	17	21	8	8	8	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Light truck .....	14	7.65	-	-	-	50	-	21	-	14	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medium truck .....	8	8.73	-	-	-	-	-	-	63	-	25	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> The Philadelphia, PA-NJ Primary Metropolitan Statistical Area consists of Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties, PA; and Burlington, Camden, and Gloucester Counties, NJ.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> Unless otherwise indicated, virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 19. Occupational earnings distribution: Philadelphia, PA-NJ<sup>1</sup>— special dies and tools manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			5.00 and under 5.50	5.50 - 6.00	6.00 - 6.50	6.50 - 7.00	7.00 - 7.50	7.50 - 8.00	8.00 - 8.50	8.50 - 9.00	9.00 - 9.50	9.50 - 10.00	10.00 - 10.50	10.50 - 11.00	11.00 - 11.50	11.50 - 12.00	12.00 - 12.50	12.50 - 13.00	13.00 - 13.50	13.50 - 14.00	14.00 - 14.50	14.50 - 15.00	15.00 - 15.50	15.50 - 16.00	16.00 - 16.50	16.50 - 17.00	17.00 - 18.00	18.00 - 19.00	19.00 - 20.00
<b>Production and toolroom occupations</b>																													
<b>Machine-tool operators,</b>																													
production .....	257	\$13.31	-	-	-	-	( <sup>4</sup> )	2	2	1	3	4	4	4	6	6	8	5	11	4	9	5	3	4	6	3	12	1	( <sup>4</sup> )
Class A .....	150	14.29	-	-	-	-	-	-	-	-	1	-	-	-	9	7	11	6	7	1	10	6	3	5	10	5	15	2	1
Class C .....	20	9.78	-	-	-	-	5	10	-	10	10	-	30	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer-numerical-control, set up and operate .....	49	13.05	-	-	-	-	-	4	-	-	-	20	4	-	-	4	4	12	8	14	8	4	2	-	-	14	-	-	
Computer-numerical-control, operate only .....	21	10.87	-	-	-	-	-	-	19	-	19	-	-	10	-	24	-	10	10	10	-	-	-	-	-	-	-	-	
Engine-lathe operators .....	67	13.55	-	-	-	-	-	-	-	-	3	-	3	-	3	15	12	1	21	3	6	9	3	4	1	1	12	-	1
Class A .....	36	14.16	-	-	-	-	-	-	-	-	-	-	-	6	22	11	3	11	-	3	6	-	8	3	3	22	-	3	
Grinding-machine operators .....	57	14.45	-	-	-	-	-	-	-	-	4	-	-	-	18	-	-	7	5	7	5	4	9	4	12	-	23	4	-
Class A .....	53	14.69	-	-	-	-	-	-	-	-	-	-	-	19	-	-	8	6	4	6	4	9	4	13	-	25	4	-	
Milling-machine operators .....	61	12.80	-	-	-	-	-	-	-	-	-	16	3	-	7	3	20	-	16	7	10	3	-	3	-	11	-	-	
Class A .....	26	12.76	-	-	-	-	-	-	-	-	-	-	-	8	8	46	-	8	-	15	8	-	8	-	-	-	-	-	
Computer-numerical-control, set up and operate .....	25	13.15	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-	8	16	8	-	-	-	-	28	-	-	
Miscellaneous machine-tool operators .....	57	13.01	-	-	-	-	2	7	4	-	4	-	9	16	-	2	-	4	2	-	16	5	-	2	12	12	4	2	-
Class C .....	12	10.01	-	-	-	-	8	17	-	-	-	-	17	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Machine-tool operators, toolroom</b>																													
Operates one type of machine tool .....	49	12.98	-	-	-	-	-	-	-	-	10	4	2	10	14	2	4	4	-	8	12	4	2	4	4	2	4	2	-
Boring-machine operators .....	7	15.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	29	-	-	14	-	-	
Operates multiple machine tools .....	32	12.07	-	-	-	-	6	9	-	-	6	-	6	6	6	-	6	6	-	9	13	16	-	9	-	-	-	-	
<b>Machinists, production</b>																													
Punch-press operators .....	89	7.64	3	9	13	15	18	7	10	8	3	3	3	2	2	-	-	-	-	-	-	-	-	2	-	-	-	-	
Class A .....	10	11.15	-	-	-	-	20	-	-	-	-	-	20	20	-	-	-	-	-	-	-	-	-	20	-	-	-	-	
Class B .....	79	7.19	4	10	15	16	18	8	11	9	4	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tool and die makers .....	381	15.73	-	-	-	-	-	-	-	-	-	-	2	2	( <sup>4</sup> )	3	1	4	2	10	3	5	21	12	8	10	17	( <sup>4</sup> )	
Jobbing .....	380	15.72	-	-	-	-	-	-	-	-	-	2	2	( <sup>4</sup> )	3	1	4	2	10	3	5	21	12	8	10	17	( <sup>4</sup> )		
Welders, hand .....	11	12.45	-	-	-	-	-	-	-	9	-	-	-	18	9	-	27	-	-	27	-	-	9	-	-	-	-	-	
Class A .....	8	12.84	-	-	-	-	-	-	-	-	-	-	25	13	-	-	13	-	-	38	-	-	13	-	-	-	-	-	
<b>Assembling and inspecting occupations</b>																													
Inspectors .....	21	\$11.60	-	-	-	-	-	-	5	-	-	19	19	-	10	5	14	5	5	5	-	5	-	5	-	5	-	-	
Class A .....	13	12.55	-	-	-	-	-	-	-	-	-	-	31	-	-	-	23	8	8	8	-	8	-	8	-	8	-	-	
<b>Material movement and custodial occupations</b>																													
Janitors .....	6	8.65	-	-	-	17	17	-	33	-	-	-	-	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Shippers and receivers .....	7	11.51	-	-	-	-	-	-	-	-	14	-	-	-	43	14	-	-	29	-	-	-	-	-	-	-	-	-	
Truckdrivers .....	24	8.01	-	-	-	29	4	17	21	8	8	8	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	
Light truck .....	14	7.65	-	-	-	50	-	21	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Medium truck .....	8	8.73	-	-	-	-	-	-	63	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

<sup>1</sup> The Philadelphia, PA-NJ Primary Metropolitan Statistical Area consists of Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties, PA; and Burlington, Camden, and Gloucester Counties, NJ.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> All or virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 20. Occupational earnings distribution: Pittsburgh, PA<sup>1</sup>— metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			Under 7.00	7.00 and under 7.25	7.25 - 7.50	7.50 - 7.75	7.75 - 8.00	8.00 - 8.25	8.25 - 8.50	8.50 - 8.75	8.75 - 9.00	9.00 - 9.25	9.25 - 9.50	9.50 - 9.75	9.75 - 10.00	10.00 - 10.25	10.25 - 10.50	10.50 - 10.75	10.75 - 11.00	11.00 - 11.25	11.25 - 11.50	11.50 - 11.75	11.75 - 12.00	12.00 - 12.50	12.50 - 13.00	13.00 - 13.50	13.50 - 14.00	14.00 - 14.50	14.50 and over
<b>Production and toolroom occupations</b>																													
Machine-tool operators, production .....	400	\$11.25	2	6	5	1	4	4	3	( <sup>4</sup> )	( <sup>4</sup> )	6	1	2	-	1	-	-	( <sup>4</sup> )	-	1	3	-	35	3	22	-	1	4
Class A .....	125	10.96	-	3	-	-	8	13	6	-	-	10	3	-	-	-	-	-	-	-	8	-	19	7	10	-	2	5 10	
Class B .....	231	11.39	3	6	8	1	1	-	-	( <sup>4</sup> )	-	3	-	3	-	1	-	-	-	-	1	-	42	1	28	-	-	-	
Computer-numerical-control, set up and operate .....	35	12.29	-	-	-	-	-	-	-	3	-	9	-	-	-	-	-	3	-	-	-	-	51	3	29	-	-	3	
Grinding-machine operators .....	91	13.01	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	11	-	33	-	38	-	2	6 14	
Miscellaneous machine-tool operators .....	141	11.09	4	9	4	2	2	4	4	1	-	-	-	2	-	2	-	1	-	2	-	-	17	7	38	-	-	1	
Class B .....	88	11.04	7	10	7	3	3	-	-	-	-	-	3	-	3	-	-	-	-	3	-	-	-	-	59	-	-	-	
Machine-tool operators, toolroom .....	345	12.21	-	-	-	1	-	1	-	1	1	-	2	-	6	3	10	7	3	3	5	1	3	4	3	1	44	2	-
Operates one type of machine tool .....	196	11.87	-	-	-	2	-	2	-	2	-	4	-	2	6	9	13	6	1	-	2	5	7	5	3	30	4	-	
Automatic-lathe operators .....	50	13.37	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	2	6	-	-	80	-	-	
Operates multiple machine tools .....	149	12.66	-	-	-	-	-	-	-	-	-	-	-	11	-	11	-	-	5	11	-	-	-	-	-	62	-	-	
Tool and die makers .....	46	12.14	-	-	-	-	-	-	-	-	-	2	20	-	20	-	-	-	-	2	-	-	-	2	-	20	35	-	
Other than jobbing .....	28	13.67	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	4	-	-	-	4	-	32	57	-	
Welders, hand .....	30	10.59	-	-	7	-	10	-	-	27	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	20	3	-	
Class B .....	19	10.18	-	-	-	11	-	16	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	-	-	
<b>Assembling and inspecting occupations</b>																													
Assemblers .....	158	9.03	3	-	-	34	-	-	2	-	25	2	-	9	2	6	2	2	-	-	-	6	2	2	-	2	2	2	-
Inspectors .....	38	12.55	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	3	-	47	13	-	3	13	5	
Class A .....	27	13.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	67	4	-	4	15	7	
Class B .....	11	11.15	-	-	-	-	-	-	-	-	-	-	-	55	-	-	-	-	-	-	-	-	-	36	-	-	9	-	
<b>Maintenance occupations</b>																													
Electricians .....	13	12.18	-	-	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-	-	-	23	-	-	-	-	46	-	
Machinists .....	9	9.76	-	-	-	-	22	-	-	-	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	
<b>Material movement and custodial occupations</b>																													
Janitors .....	21	6.91	<sup>7</sup> 52	-	-	-	10	-	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shippers and receivers .....	21	10.64	-	-	-	10	-	29	-	-	-	-	5	-	-	-	-	-	-	-	-	-	43	-	14	-	-	-	

<sup>1</sup> The Pittsburgh, PA Primary Metropolitan Statistical Area consists of Allegheny, Fayette, Washington, and Westmoreland Counties.

<sup>2</sup> Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>3</sup> All or virtually all workers were time-rated workers.

<sup>4</sup> Less than 0.5 percent.

<sup>5</sup> Workers were distributed as follows: 9 percent were at \$15 and under \$15.50; and 1 percent were at \$15.50 and under \$16.

<sup>6</sup> Workers were distributed as follows: 13 percent were at \$15 and under \$15.50; and 1 percent were at \$15.50 and under \$16.

<sup>7</sup> Workers were distributed as follows: 38 percent were at \$4.50 and under \$4.75; and 14 percent were at \$5.25 and under \$5.50.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 21. Occupational earnings distribution: St. Louis, MO-IL<sup>1</sup>—metalworking machinery manufacturing**

(Percent distribution of workers in selected occupations by straight-time hourly earnings,<sup>2</sup> February 1990)

Occupation, class, and method of wage payment <sup>3</sup>	Number of workers	Average (mean) hourly earnings	Percent of workers receiving straight-time hourly earnings (in dollars) of—																										
			Under 6.00	6.00 and under 6.50	6.50 - 7.00	7.00 - 7.50	7.50 - 8.00	8.00 - 8.50	8.50 - 9.00	9.00 - 9.50	9.50 - 10.00	10.00 - 10.50	10.50 - 11.00	11.00 - 11.50	11.50 - 12.00	12.00 - 12.50	12.50 - 13.00	13.00 - 13.50	13.50 - 14.00	14.00 - 14.50	14.50 - 15.00	15.00 - 15.50	15.50 - 16.00	16.00 - 16.50	16.50 - 17.00	17.00 - 18.00	18.00 - 19.00	19.00 - 20.00	20.00 and over
<b>Production and toolroom occupations</b>																													
<b>Machine-tool operators, production</b>																													
.....	511	\$12.39	-	-	8	-	6	3	9	5	4	3	4	2	4	3	5	4	1	1	1	-	-	33	-	1	3	-	-
Time .....	342	10.44	-	-	13	-	9	5	13	8	6	5	6	4	6	5	7	6	2	1	1	-	-	-	-	1	5	-	-
Class A .....	135	15.07	-	-	-	-	-	-	-	-	-	-	10	3	1	5	5	7	1	1	3	-	-	50	-	3	10	-	-
Time .....	68	13.83	-	-	-	-	-	-	-	-	-	-	21	6	3	10	10	15	1	1	6	-	-	-	-	6	21	-	-
Class C .....	107	8.08	-	-	40	-	19	-	-	17	14	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Computer-numerical-control, set up and operate:</b>																													
Time .....	49	12.23	-	-	-	-	-	8	-	8	8	-	6	10	-	27	16	8	4	-	-	-	-	-	-	-	4	-	-
<b>Computer-numerical-control, operate only</b>																													
.....	21	11.15	-	-	-	-	-	-	38	-	-	-	-	24	24	14	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Automatic-lathe operators:</b>																													
Time .....	19	12.69	-	-	-	-	-	-	-	-	-	-	16	5	-	53	16	-	11	-	-	-	-	-	-	-	-	-	-
<b>Computer-numerical-control, set up and operate:</b>																													
Time .....	16	12.66	-	-	-	-	-	-	-	-	-	-	19	6	-	44	19	-	13	-	-	-	-	-	-	-	-	-	-
Engine-lathe operators .....	19	12.49	-	-	-	-	-	-	-	-	21	-	21	-	16	-	21	-	-	-	-	-	-	-	-	-	16	5	-
<b>Grinding-machine operators</b>																													
.....	50	12.08	-	-	-	-	-	-	-	12	10	4	26	8	-	6	2	10	-	-	-	-	-	-	-	20	-	2	-
Class A .....	33	13.18	-	-	-	-	-	-	-	-	-	-	30	12	-	6	3	15	-	-	-	-	-	-	-	30	-	3	-
<b>Milling-machine operators</b>																													
.....	111	14.14	-	-	-	-	-	4	10	2	5	-	1	8	4	4	4	4	4	-	-	-	-	-	53	-	4	-	-
Time .....	52	11.64	-	-	-	-	-	8	21	4	10	-	2	17	8	8	8	8	8	-	-	-	-	-	-	-	8	-	-
Class A:																													
Time .....	14	14.00	-	-	-	-	-	-	-	-	-	-	-	-	21	29	29	-	-	-	-	-	-	-	-	-	21	-	-
<b>Miscellaneous machine-tool operators</b>																													
.....	102	10.19	-	-	34	-	-	-	8	6	8	4	2	7	8	4	5	1	2	4	-	-	8	-	-	-	-	-	-
Time .....	94	9.66	-	-	37	-	-	-	9	6	9	4	2	7	9	4	5	1	2	4	-	-	-	-	-	-	-	-	-
Class A .....	17	14.68	-	-	-	-	-	-	-	-	-	-	-	12	6	12	-	-	-	24	-	-	47	-	-	-	-	-	-
Class B .....	11	12.01	-	-	-	-	-	-	-	-	-	36	18	-	18	-	-	9	18	-	-	-	-	-	-	-	-	-	-
Class C .....	57	7.80	-	-	61	-	-	-	14	11	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Machine-tool operators, toolroom</b>																													
.....	85	15.94	-	-	-	-	-	-	-	1	2	1	-	1	11	1	4	1	6	8	9	5	5	-	19	12	9	5	
Time .....	61	14.79	-	-	-	-	-	-	-	2	3	2	-	2	15	2	5	2	8	11	13	7	-	-	26	3	-	-	
<b>Operates one type of machine tool</b>																													
.....	49	15.75	-	-	-	-	-	-	-	2	2	2	-	2	16	2	6	2	10	4	2	-	8	-	-	16	16	8	
Time .....	25	12.78	-	-	-	-	-	-	-	4	4	4	-	4	32	4	12	4	20	8	4	-	-	-	-	-	-	-	
<b>Grinding-machine operators</b>																													
.....	8	13.93	-	-	-	-	-	-	-	13	-	-	-	13	13	13	-	-	-	-	-	-	50	-	-	-	-	-	
<b>Other toolroom machine</b>																													
.....	16	14.42	-	-	-	-	-	-	-	-	-	-	-	-	44	-	6	-	25	-	-	-	-	-	-	-	25	-	
Time .....	12	12.78	-	-	-	-	-	-	-	-	-	-	-	-	58	-	8	-	33	-	-	-	-	-	-	-	-	-	
<b>Operates multiple machine tools</b>																													
.....	36	16.20	-	-	-	-	-	-	-	-	3	-	-	-	3	-	-	-	-	14	19	11	-	-	44	6	-	-	

See footnotes at end of table.



**Table 22. Method of wage payment**

(Percent of production workers in metalworking machinery manufacturing establishments by method of wage payment,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Method	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100
Time-rated workers .....	97	100	100	100	94	100	100	99	100
Formal plans .....	21	40	84	83	43	43	79	37	18
Single rate .....	10	-	8	14	5	5	48	4	4
Range of rates .....	11	40	76	69	38	39	30	33	14
Length of service .....	-	4	25	31	14	14	-	15	3
Merit review .....	5	36	13	6	3	2	4	1	2
Combination .....	6	-	38	32	21	22	26	17	8
Individual rate .....	77	60	16	17	51	57	21	62	82
Incentive workers .....	3	-	-	-	6	-	-	1	-
Individual piecework .....	-	-	-	-	-	-	-	-	-
Individual bonus .....	3	-	-	-	-	-	-	1	-
Group bonus .....	-	-	-	-	6	-	-	( <sup>3</sup> )	-

See footnotes at end of table.

**Table 22. Method of wage payment—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments by method of wage payment,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Method	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100	100
Time-rated workers .....	78	100	100	99	100	100	100	78	99	98
Formal plans .....	50	27	13	30	13	65	52	61	15	6
Single rate .....	21	-	-	17	-	33	20	13	-	-
Range of rates .....	28	27	13	12	13	31	31	49	15	6
Length of service .....	11	11	-	-	-	2	2	2	-	-
Merit review .....	10	10	8	-	-	22	27	7	5	-
Combination .....	8	5	4	12	13	8	2	40	10	6
Individual rate .....	28	73	87	69	87	35	48	17	84	92
Incentive workers .....	22	-	-	1	-	-	-	22	1	2
Individual piecework .....	22	-	-	1	-	-	-	-	-	-
Individual bonus .....	-	-	-	-	-	-	-	19	-	-
Group bonus .....	-	-	-	-	-	-	-	3	1	2

<sup>1</sup> For definition of method of wage payment, see appendix A.

<sup>2</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

<sup>3</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal totals. Dashes indicate that no data were reported.

**Table 23. Scheduled weekly hours**

(Percent of production workers in metalworking machinery manufacturing establishments by scheduled weekly hours,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Weekly hours	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100
Under 37.5 hours .....	3	-	-	-	-	-	-	-	-
37.5 hours .....	-	-	-	-	-	-	-	4	-
Over 37.5 and under 40 hours .....	-	-	5	-	-	-	-	-	-
40 hours .....	43	60	74	80	58	45	80	52	46
Over 40 and under 44 hours .....	2	-	10	-	-	-	5	-	-
44 hours .....	17	4	-	-	-	-	-	-	-
45 hours .....	21	23	2	3	15	22	-	9	7
Over 45 and under 48 hours .....	-	-	2	4	-	-	-	1	-
48 hours .....	-	-	-	-	3	3	-	-	-
49 hours .....	-	-	-	-	-	-	-	-	-
50 hours .....	14	9	3	5	9	8	-	28	36
Over 50 and under 55 hours .....	-	-	-	-	6	8	-	-	-
55 or 55.5 hours .....	-	4	5	8	9	13	6	4	8
56 hours .....	-	-	-	-	-	-	9	-	-
57 hours .....	-	-	-	-	-	-	-	2	3
58 hours .....	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 23. Scheduled weekly hours—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments by scheduled weekly hours,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Weekly hours	Middle West							West		
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100	100
Under 37.5 hours .....	-	-	-	-	-	-	-	-	-	-
37.5 hours .....	-	-	-	-	-	-	-	-	-	-
Over 37.5 and under 40 hours .....	-	-	-	-	-	-	-	-	-	-
40 hours .....	62	21	8	54	36	76	70	100	69	56
Over 40 and under 44 hours .....	-	-	-	-	-	-	-	-	-	-
44 hours .....	2	-	-	1	3	1	1	-	-	-
45 hours .....	11	10	10	19	22	10	11	-	5	10
Over 45 and under 48 hours .....	-	-	-	2	5	5	7	-	4	-
48 hours .....	-	10	4	-	-	-	-	-	-	-
49 hours .....	-	2	2	-	-	-	-	-	9	4
50 hours .....	10	14	15	23	35	8	11	-	11	24
Over 50 and under 55 hours .....	2	6	3	-	-	-	-	-	-	-
55 or 55.5 hours .....	12	16	21	-	-	-	-	-	3	6
56 hours .....	-	11	21	-	-	-	-	-	-	-
57 hours .....	-	-	-	-	-	-	-	-	-	-
58 hours .....	-	10	15	-	-	-	-	-	-	-

<sup>1</sup> Data relate to the predominant schedule for full-time, day-shift workers in each establishment.

<sup>2</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

NOTE: Because of rounding, sums of individual items may not equal 100. Dashes indicate that no data were reported.

**Table 24. Shift differential provisions**

(Percent of production workers in metalworking machinery manufacturing establishments by shift differential provisions,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Shift differential	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100
<b>Second shift</b>									
Workers in establishments with second-shift provisions .....	60.6	52.5	40.5	47.9	59.0	62.2	74.5	56.8	56.1
With shift differential .....	56.5	52.5	38.4	44.4	55.1	56.6	70.3	52.5	47.5
Uniform cents per hour .....	22.1	29.2	25.7	32.6	9.3	-	64.8	11.9	11.5
10 cents .....	-	4.0	2.7	-	-	-	-	2.5	4.9
12 cents .....	-	-	-	-	-	-	3.9	-	-
15 cents .....	-	-	1.1	1.9	-	-	-	-	-
20 cents .....	-	-	-	-	-	-	14.1	-	-
21 cents .....	-	-	-	-	-	-	-	-	-
22 cents .....	-	-	-	-	-	-	-	-	-
23 cents .....	-	-	-	-	-	-	7.0	-	-
25 cents .....	5.7	-	-	-	5.0	-	-	-	-
26 cents .....	-	-	-	-	-	-	14.3	-	-
30 cents .....	-	-	4.4	7.8	4.2	-	22.0	-	-
35 cents .....	-	-	-	-	-	-	3.4	6.1	-
40 cents .....	-	5.4	-	-	-	-	-	-	-
45 cents .....	-	-	-	-	-	-	-	-	-
50 cents .....	-	3.9	13.0	22.9	-	-	-	1.6	3.2
55 cents .....	7.0	-	-	-	-	-	-	-	-
58 cents .....	-	-	-	-	-	-	-	-	-
60 cents .....	9.4	-	-	-	-	-	-	-	-
63 cents .....	-	9.2	-	-	-	-	-	-	-
70 cents .....	-	-	-	-	-	-	-	-	-
75 cents .....	-	-	-	-	-	-	-	1.7	3.4
85 cents .....	-	-	4.5	-	-	-	-	-	-
87 cents .....	-	6.6	-	-	-	-	-	-	-
\$1 .....	-	-	-	-	-	-	-	-	-
\$1.10 .....	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 24. Shift differential provisions—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments by shift differential provisions,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Shift differential	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
Uniform percentage .....	34.3	23.3	12.7	11.8	45.9	56.6	5.5	40.7	36.0
5 percent .....	5.9	-	6.0	-	-	-	-	-	-
6 percent .....	-	-	-	-	-	-	-	-	-
7 percent .....	-	-	4.6	8.0	-	-	-	-	-
7.5 percent .....	-	-	-	-	-	-	-	-	-
8 percent .....	-	-	-	-	-	-	-	-	-
10 percent .....	21.3	15.3	2.2	3.8	41.5	56.6	-	28.4	11.7
15 percent .....	7.2	4.6	-	-	-	-	5.5	8.0	15.9
20 percent .....	-	3.4	-	-	-	-	-	4.2	8.4
30 percent .....	-	-	-	-	4.3	-	-	-	-
Other formal paid differential	-	-	-	-	-	-	-	-	-
<b>Third shift</b>									
Workers in establishments with third-shift provisions .....	32.9	3.9	17.5	22.9	25.6	31.3	68.9	12.8	-
With shift differential .....	28.8	3.9	17.5	22.9	24.1	29.1	64.7	12.8	-
Uniform cents per hour .....	12.7	3.9	17.5	22.9	-	-	55.6	6.1	-
15 cents .....	-	-	-	-	-	-	3.9	-	-
25 cents .....	5.7	-	-	-	-	-	-	-	-
26 cents .....	-	-	-	-	-	-	14.3	-	-
30 cents .....	-	-	-	-	-	-	15.3	-	-
31 cents .....	-	-	-	-	-	-	-	-	-
32 cents .....	-	-	-	-	-	-	-	-	-
33 cents .....	-	-	-	-	-	-	7.0	-	-
35 cents .....	-	-	-	-	-	-	-	6.1	-
40 cents .....	-	-	-	-	-	-	11.7	-	-
50 cents .....	-	3.9	-	-	-	-	3.4	-	-
55 cents .....	-	-	-	-	-	-	-	-	-
60 cents .....	7.0	-	-	-	-	-	-	-	-
65 cents .....	-	-	-	-	-	-	-	-	-
75 cents .....	-	-	-	-	-	-	-	-	-
80 cents .....	-	-	-	-	-	-	-	-	-
85 cents .....	-	-	4.5	-	-	-	-	-	-
99 cents .....	-	-	13.0	22.9	-	-	-	-	-
\$1 .....	-	-	-	-	-	-	-	-	-
Uniform percentage .....	16.1	-	-	-	24.1	29.1	9.1	6.8	-
5 percent .....	-	-	-	-	-	-	-	-	-
7 percent .....	-	-	-	-	-	-	-	-	-
8 percent .....	-	-	-	-	-	-	-	-	-
10 percent .....	16.1	-	-	-	19.8	29.1	9.1	2.7	-
15 percent .....	-	-	-	-	-	-	-	4.0	-
30 percent .....	-	-	-	-	4.3	-	-	-	-
Other formal paid differential	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 24. Shift differential provisions—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments by shift differential provisions,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Shift differential	Middle West								West	
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100	100
<b>Second shift</b>										
Workers in establishments with second-shift provisions .....	83.2	58.7	63.0	67.8	47.9	63.7	53.3	85.5	67.4	58.6
With shift differential .....	57.1	58.7	63.0	65.2	42.4	59.1	47.1	83.4	54.9	36.8
Uniform cents per hour .....	42.1	31.4	24.4	46.7	24.1	45.1	42.8	43.3	20.5	20.3
10 cents .....	.8	-	-	-	-	-	-	-	-	-
12 cents .....	-	-	-	-	-	-	-	-	-	-
15 cents .....	-	-	-	3.5	7.2	-	-	-	-	-
20 cents .....	6.8	-	-	1.6	3.4	6.2	-	-	-	-
21 cents .....	-	-	-	1.3	-	-	-	-	-	-
22 cents .....	-	-	-	11.5	-	-	-	-	-	-
23 cents .....	-	-	-	-	-	-	-	-	-	-
25 cents .....	-	1.7	.7	1.3	2.6	7.5	2.8	-	9.4	9.3
26 cents .....	-	-	-	-	-	-	-	18.9	-	-
30 cents .....	4.0	2.5	4.8	-	-	-	-	-	-	-
35 cents .....	10.3	-	-	1.0	-	2.0	-	-	6.1	2.7
40 cents .....	-	-	-	-	-	9.8	13.2	-	1.3	-
45 cents .....	8.0	-	-	10.6	-	-	-	-	-	-
50 cents .....	3.6	10.8	7.8	4.9	-	6.7	9.1	-	-	-
55 cents .....	2.2	5.8	-	-	-	-	-	-	-	-
58 cents .....	3.5	-	-	-	-	-	-	-	-	-
60 cents .....	-	2.6	5.1	3.2	6.6	-	-	-	-	-
63 cents .....	-	-	-	-	-	-	-	-	-	-
70 cents .....	-	2.8	1.6	5.8	-	-	-	-	-	-
75 cents .....	-	4.2	2.4	-	-	12.9	17.6	22.1	1.2	2.7
85 cents .....	-	-	-	-	-	-	-	-	-	-
87 cents .....	-	-	-	-	-	-	-	-	-	-
\$1 .....	2.9	1.0	1.9	-	-	-	-	2.3	2.6	5.6
\$1.10 .....	-	-	-	2.1	4.3	-	-	-	-	-

See footnotes at end of table.

**Table 24. Shift differential provisions—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments by shift differential provisions,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Shift differential	Middle West								West	
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
Uniform percentage .....	15.0	27.4	38.6	18.5	18.3	14.0	4.3	25.9	23.0	16.4
5 percent .....	4.2	17.5	22.9	-	-	10.8	-	2.1	4.0	-
6 percent .....	-	-	-	1.5	3.0	-	-	-	-	-
7 percent .....	-	.9	1.7	-	-	-	-	3.3	-	-
7.5 percent .....	3.4	-	-	-	-	-	-	-	-	-
8 percent .....	-	-	-	-	-	1.0	1.4	-	1.7	-
10 percent .....	7.4	6.2	8.7	15.0	11.3	2.2	2.9	20.5	17.4	16.4
15 percent .....	-	-	-	2.0	4.0	-	-	-	-	-
20 percent .....	-	2.7	5.2	-	-	-	-	-	-	-
30 percent .....	-	-	-	-	-	-	-	-	-	-
Other formal paid differential	-	-	-	-	-	-	-	<sup>3</sup> 14.3	11.4	-
<b>Third shift</b>										
Workers in establishments with third-shift provisions .....	51.6	14.4	2.4	35.6	7.2	21.8	22.3	80.1	24.9	6.1
With shift differential .....	51.6	14.4	2.4	35.6	7.2	19.4	19.0	80.1	24.9	6.1
Uniform cents per hour .....	22.0	8.7	-	32.7	7.2	18.4	17.6	21.2	10.5	6.1
15 cents .....	-	-	-	-	-	-	-	-	-	-
25 cents .....	-	-	-	3.5	7.2	-	-	-	2.8	6.1
26 cents .....	-	-	-	-	-	-	-	18.9	-	-
30 cents .....	-	-	-	-	-	5.4	-	-	1.6	-
31 cents .....	-	-	-	1.3	-	-	-	-	-	-
32 cents .....	-	-	-	4.7	-	-	-	-	-	-
33 cents .....	-	-	-	6.8	-	-	-	-	-	-
35 cents .....	6.4	-	-	-	-	-	-	-	-	-
40 cents .....	1.4	-	-	-	-	-	-	-	-	-
50 cents .....	7.9	-	-	1.0	-	-	-	-	4.8	-
55 cents .....	4.1	5.8	-	10.6	-	-	-	-	1.3	-
60 cents .....	-	-	-	-	-	-	-	-	-	-
65 cents .....	-	-	-	-	-	12.9	17.6	-	-	-
75 cents .....	-	2.9	-	4.9	-	-	-	-	-	-
80 cents .....	2.2	-	-	-	-	-	-	-	-	-
85 cents .....	-	-	-	-	-	-	-	-	-	-
99 cents .....	-	-	-	-	-	-	-	-	-	-
\$1 .....	-	-	-	-	-	-	-	2.3	-	-

See footnotes at end of table.

**Table 24. Shift differential provisions—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments by shift differential provisions,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Shift differential	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
Uniform percentage .....	26.1	5.7	2.4	2.8	-	1.0	1.4	22.6	9.9	-
5 percent .....	26.1	4.0	2.4	-	-	-	-	-	-	-
7 percent .....	-	-	-	-	-	-	-	2.1	-	-
8 percent .....	-	-	-	-	-	1.0	1.4	-	-	-
10 percent .....	-	1.7	-	-	-	-	-	20.5	-	-
15 percent .....	-	-	-	2.8	-	-	-	-	9.9	-
30 percent .....	-	-	-	-	-	-	-	-	-	-
Other formal paid differential	3.5	-	-	-	-	-	-	<sup>3</sup> 36.3	4.5	-

<sup>1</sup> Refers to policies of establishments currently operating late shifts or having provisions covering late shifts.

<sup>2</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

<sup>3</sup> Premium-pay provisions were 10 percent of base pay per hour up to a maxi-

imum of \$1 per hour.

NOTE: Because of rounding, sums of individual items may not equal totals. Dashes indicate that no data were reported.

**Table 25. Shift differential practices**

(Percent of production workers in metalworking machinery manufacturing establishments employed on late shifts by amount of pay differential, 12 selected areas,<sup>1</sup> February 1990)

Shift differential	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Second shift</b>									
Workers employed on second shift ..	9.5	5.4	5.0	7.2	8.0	9.9	14.7	9.5	7.1
Receiving differential .....	8.9	5.4	4.6	6.6	7.2	8.7	14.7	8.6	5.3
Uniform cents per hour .....	2.9	3.0	3.7	5.0	.7	-	14.2	2.1	1.4
10 cents .....	-	.4	-	-	-	-	-	-	-
12 cents .....	-	-	-	-	-	-	.3	-	-
15 cents .....	-	-	-	-	-	-	-	-	-
20 cents .....	-	-	-	-	-	-	2.6	-	-
22 cents .....	-	-	-	-	-	-	-	-	-
23 cents .....	-	-	-	-	-	-	1.3	-	-
25 cents .....	.4	-	-	-	.2	-	-	-	-
26 cents .....	-	-	-	-	-	-	5.0	-	-
30 cents .....	-	-	1.5	2.7	.5	-	3.9	-	-
35 cents .....	-	-	-	-	-	-	1.1	1.4	-
40 cents .....	-	.7	-	-	-	-	-	-	-
45 cents .....	-	-	-	-	-	-	-	-	-
50 cents .....	-	-	1.3	2.3	-	-	-	.1	.2
55 cents .....	1.4	-	-	-	-	-	-	-	-
58 cents .....	-	-	-	-	-	-	-	-	-
60 cents .....	1.0	-	-	-	-	-	-	-	-
63 cents .....	-	.2	-	-	-	-	-	-	-
70 cents .....	-	-	-	-	-	-	-	-	-
75 cents .....	-	-	-	-	-	-	-	.6	1.2
85 cents .....	-	-	.9	-	-	-	-	-	-
87 cents .....	-	1.7	-	-	-	-	-	-	-
\$1 .....	-	-	-	-	-	-	-	-	-
\$1.10 .....	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 25. Shift differential practices—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments employed on late shifts by amount of pay differential, 12 selected areas,<sup>1</sup> February 1990)

Shift differential	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
Uniform percentage .....	6.0	2.4	0.9	1.6	6.5	8.7	0.5	6.5	3.9
5 percent .....	1.1	-	-	-	-	-	-	-	-
6 percent .....	-	-	-	-	-	-	-	-	-
7 percent .....	-	-	.4	.7	-	-	-	-	-
7.5 percent .....	-	-	-	-	-	-	-	-	-
8 percent .....	-	-	-	-	-	-	-	-	-
10 percent .....	3.6	1.0	.5	.9	5.9	8.7	-	5.2	1.3
15 percent .....	1.3	.8	-	-	-	-	.5	.8	1.6
20 percent .....	-	.6	-	-	-	-	-	.5	1.1
30 percent .....	-	-	-	-	.6	-	-	-	-
Other formal paid differential	-	-	-	-	-	-	-	-	-
<b>Third shift</b>									
Workers employed on third shift .....	3.1	-	1.5	2.2	1.0	1.4	7.1	2.1	-
Receiving differential .....	2.7	-	1.5	2.2	.7	1.0	6.4	2.1	-
Uniform cents per hour .....	2.0	-	1.5	2.2	-	-	5.0	1.4	-
25 cents .....	.6	-	-	-	-	-	-	-	-
26 cents .....	-	-	-	-	-	-	2.1	-	-
30 cents .....	-	-	-	-	-	-	1.0	-	-
32 cents .....	-	-	-	-	-	-	-	-	-
33 cents .....	-	-	-	-	-	-	.4	-	-
35 cents .....	-	-	-	-	-	-	-	1.4	-
40 cents .....	-	-	-	-	-	-	1.3	-	-
50 cents .....	-	-	-	-	-	-	.2	-	-
55 cents .....	-	-	-	-	-	-	-	-	-
60 cents .....	1.4	-	-	-	-	-	-	-	-
65 cents .....	-	-	-	-	-	-	-	-	-
75 cents .....	-	-	-	-	-	-	-	-	-
85 cents .....	-	-	.2	-	-	-	-	-	-
99 cents .....	-	-	1.3	2.2	-	-	-	-	-
Uniform percentage .....	0.7	-	-	-	0.7	1.0	1.4	0.7	-
5 percent .....	-	-	-	-	-	-	-	-	-
10 percent .....	.7	-	-	-	.7	1.0	1.4	.2	-
15 percent .....	-	-	-	-	-	-	-	.5	-
Other formal paid differential	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 25. Shift differential practices—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments employed on late shifts by amount of pay differential, 12 selected areas,<sup>1</sup> February 1990)

Shift differential	Middle West							West		
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Second shift</b>										
Workers employed on second shift ..	20.0	10.2	10.9	11.2	9.4	13.1	11.8	15.5	12.6	11.3
Receiving differential .....	10.9	10.2	10.9	11.1	9.2	11.7	9.9	15.1	10.4	7.2
Uniform cents per hour .....	7.6	5.7	4.6	7.4	5.0	9.0	7.8	10.9	2.9	3.0
10 cents .....	-	-	-	-	-	-	-	-	-	-
12 cents .....	-	-	-	-	-	-	-	-	-	-
15 cents .....	-	-	-	1.1	2.3	-	-	-	-	-
20 cents .....	.4	-	-	-	-	1.1	-	-	-	-
22 cents .....	-	-	-	3.0	-	-	-	-	-	-
23 cents .....	-	-	-	-	-	-	-	-	-	-
25 cents .....	-	.1	-	.2	.5	1.6	-	-	1.5	.7
26 cents .....	-	-	-	-	-	-	-	6.1	-	-
30 cents .....	.6	.6	1.2	-	-	-	-	-	-	-
35 cents .....	2.6	-	-	.3	-	.6	-	-	.2	.5
40 cents .....	-	-	-	-	-	1.6	2.2	-	.3	-
45 cents .....	1.9	-	-	.6	-	-	-	-	-	-
50 cents .....	-	1.5	1.1	.2	-	1.4	1.9	-	-	-
55 cents .....	.5	.9	-	-	-	-	-	-	-	-
58 cents .....	.6	-	-	-	-	-	-	-	-	-
60 cents .....	-	.6	1.2	.5	1.1	-	-	-	-	-
63 cents .....	-	-	-	-	-	-	-	-	-	-
70 cents .....	-	.7	.5	1.0	-	-	-	-	-	-
75 cents .....	-	1.1	.4	-	-	2.7	3.7	4.5	-	-
85 cents .....	-	-	-	-	-	-	-	-	-	-
87 cents .....	-	-	-	-	-	-	-	-	-	-
\$1 .....	1.0	.1	.3	-	-	-	-	.3	.8	1.8
\$1.10 .....	-	-	-	.5	1.1	-	-	-	-	-

See footnotes at end of table.

**Table 25. Shift differential practices—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments employed on late shifts by amount of pay differential, 12 selected areas,<sup>1</sup> February 1990)

Shift differential	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
Uniform percentage .....	3.3	4.5	6.2	3.7	4.2	2.7	2.1	1.7	4.2	4.2
5 percent .....	.9	2.6	3.7	-	-	1.1	-	-	.6	-
6 percent .....	-	-	-	.5	1.0	-	-	-	-	-
7 percent .....	-	-	-	-	-	-	-	.6	-	-
7.5 percent .....	1.2	-	-	-	-	-	-	-	-	-
8 percent .....	-	-	-	-	-	.5	.7	-	.1	-
10 percent .....	1.1	1.4	1.7	2.8	2.3	1.1	1.5	1.1	3.5	4.2
15 percent .....	-	-	-	.4	.9	-	-	-	-	-
20 percent .....	-	.4	.8	-	-	-	-	-	-	-
30 percent .....	-	-	-	-	-	-	-	-	-	-
Other formal paid differential	-	-	-	-	-	-	-	2.6	3.3	-
<b>Third shift</b>										
Workers employed on third shift .....	4.5	.5	-	5.0	.9	3.5	4.0	3.0	1.0	-
Receiving differential .....	4.5	.5	-	5.0	.9	3.3	3.7	3.0	1.0	-
Uniform cents per hour .....	1.8	.4	-	5.0	.9	3.3	3.7	1.5	.4	-
25 cents .....	-	-	-	.4	.9	-	-	-	-	-
26 cents .....	-	-	-	-	-	-	-	1.5	-	-
30 cents .....	-	-	-	-	-	.5	-	-	.2	-
32 cents .....	-	-	-	.4	-	-	-	-	-	-
33 cents .....	-	-	-	2.0	-	-	-	-	-	-
35 cents .....	1.0	-	-	-	-	-	-	-	-	-
40 cents .....	-	-	-	-	-	-	-	-	-	-
50 cents .....	.8	-	-	.1	-	-	-	-	-	-
55 cents .....	.1	-	-	1.9	-	-	-	-	-	-
60 cents .....	-	-	-	-	-	-	-	-	.2	-
65 cents .....	-	-	-	-	-	2.7	3.7	-	-	-
75 cents .....	-	.4	-	.2	-	-	-	-	-	-
85 cents .....	-	-	-	-	-	-	-	-	-	-
99 cents .....	-	-	-	-	-	-	-	-	-	-
Uniform percentage .....	2.6	0.2	-	( <sup>2</sup> )	-	-	-	-	0.7	-
5 percent .....	2.6	.2	-	-	-	-	-	-	-	-
10 percent .....	-	-	-	-	-	-	-	-	-	-
15 percent .....	-	-	-	( <sup>2</sup> )	-	-	-	-	.7	-
Other formal paid differential	.1	-	-	-	-	-	-	1.5	-	-

<sup>1</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

<sup>2</sup> Less than 0.05 percent.

NOTE: Because of rounding, sums of individual items may not equal totals. Dashes indicate that no data were reported.

**Table 26. Paid holidays**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid holidays, 12 selected areas,<sup>1</sup> February 1990)

Number of paid holidays	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100
Workers in establishments providing paid holidays .....	100	100	100	100	100	100	100	100	100
5 days .....	-	-	-	-	-	-	-	-	-
6 days .....	-	-	-	-	7	-	4	5	11
6 days plus 1 or 2 half days .....	-	-	19	-	3	5	-	6	12
7 days .....	-	21	1	2	9	2	5	7	8
7 days plus 1 or 2 half days .....	-	-	2	4	4	-	2	13	23
8 days .....	1	13	5	9	14	18	23	10	17
8 days plus 1 or 2 half days .....	4	4	-	-	2	4	-	4	2
9 days .....	28	12	-	-	23	34	21	18	13
9 days plus 1 or 2 half days .....	5	-	-	-	-	-	-	1	3
10 days .....	-	9	9	16	25	30	-	16	9
10 days plus 1 or 2 half days .....	19	-	-	-	2	-	3	-	-
11 days .....	19	25	40	55	2	3	23	11	2
11 days plus 1 or 2 half days .....	8	-	6	-	-	-	-	-	-
12 days .....	6	6	6	11	4	-	20	4	-
12 days plus 1 or 2 half days .....	3	-	-	-	-	-	-	-	-
13 days .....	7	9	6	3	5	4	-	5	-
14 days .....	-	-	-	-	-	-	-	-	-
15 days .....	-	-	-	-	-	-	-	-	-
16 days .....	-	-	4	-	-	-	-	-	-

See footnotes at end of table.

**Table 26. Paid holidays—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid holidays, 12 selected areas,<sup>1</sup> February 1990)

Number of paid holidays	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100	100
Workers in establishments providing paid holidays .....	74	99	99	100	100	98	100	100	100	100
5 days .....	-	-	-	-	-	-	-	-	2	3
6 days .....	-	21	17	1	3	5	6	4	15	9
6 days plus 1 or 2 half days .....	-	3	6	-	-	-	-	-	4	7
7 days .....	10	2	5	5	4	16	22	4	14	18
7 days plus 1 or 2 half days .....	-	1	3	1	2	11	15	-	5	10
8 days .....	15	3	5	15	18	17	23	7	10	8
8 days plus 1 or 2 half days .....	-	-	-	-	-	-	-	-	8	10
9 days .....	3	8	14	22	40	36	27	11	12	16
9 days plus 1 or 2 half days .....	-	1	2	1	3	-	-	-	-	-
10 days .....	14	15	5	18	14	10	4	18	19	19
10 days plus 1 or 2 half days .....	1	-	-	-	-	1	2	-	-	-
11 days .....	3	7	6	24	7	2	-	15	7	-
11 days plus 1 or 2 half days .....	-	-	-	-	-	-	-	-	-	-
12 days .....	17	8	10	3	6	-	-	41	-	-
12 days plus 1 or 2 half days .....	-	3	-	-	-	-	-	-	-	-
13 days .....	11	19	13	9	4	-	-	-	5	-
14 days .....	-	5	9	-	-	-	-	-	-	-
15 days .....	-	3	5	-	-	-	-	-	-	-
16 days .....	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

NOTE: Because of rounding, sums of individual items may not equal totals. Dashes indicate that no data were reported.

**Table 27. Paid vacations**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100
<b>Method of payment</b>									
Workers in establishments providing paid vacations .....	100	100	100	100	100	100	100	100	100
Length-of-time payment .....	97	92	100	100	98	100	100	95	100
Percentage payment .....	3	4	-	-	2	-	-	5	-
Flat sum .....	-	-	-	-	-	-	-	-	-
Other .....	-	4	-	-	-	-	-	-	-
<b>Amount of vacation pay<sup>2</sup></b>									
After 6 months of service:									
Under 1 week .....	17	24	35	45	39	51	21	12	5
1 week .....	30	44	3	6	8	-	-	11	8
Over 1 and under 2 weeks .....	3	-	2	4	-	-	-	-	-
2 weeks .....	2	2	2	3	-	-	7	-	-
Over 2 and under 3 weeks .....	-	-	-	-	-	-	-	-	-
3 weeks .....	-	-	-	-	-	-	-	-	-
After 1 year of service:									
Under 1 week .....	-	-	-	-	-	-	-	2	4
1 week .....	55	50	81	82	80	90	70	78	83
Over 1 and under 2 weeks .....	4	18	-	-	9	8	18	-	-
2 weeks .....	40	32	19	18	10	-	12	21	13
Over 2 and under 3 weeks .....	-	-	-	-	-	-	-	-	-
3 weeks .....	-	-	-	-	-	-	-	-	-
4 weeks .....	-	-	-	-	-	-	-	-	-
Over 4 and under 5 weeks .....	-	-	-	-	-	-	-	-	-
After 2 years of service:									
Under 1 week .....	-	-	-	-	-	-	-	-	-
1 week .....	7	4	50	53	21	20	32	23	27
Over 1 and under 2 weeks .....	3	31	7	4	41	54	3	1	1
2 weeks .....	85	64	43	43	38	26	50	75	68
Over 2 and under 3 weeks .....	4	2	-	-	-	-	14	2	3
3 weeks .....	-	-	-	-	-	-	-	-	-
4 weeks .....	-	-	-	-	-	-	-	-	-
Over 4 and under 5 weeks .....	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>									
After 3 years of service:									
Under 1 week .....	-	-	-	-	-	-	-	-	-
1 week .....	-	-	7	13	13	8	12	5	6
Over 1 and under 2 weeks .....	3	27	4	8	41	54	-	1	1
2 weeks .....	87	67	71	49	47	39	66	81	81
Over 2 and under 3 weeks .....	11	2	18	31	-	-	23	8	7
3 weeks .....	-	5	-	-	-	-	-	6	3
4 weeks .....	-	-	-	-	-	-	-	-	-
Over 4 and under 5 weeks .....	-	-	-	-	-	-	-	-	-
After 4 years of service:									
Under 1 week .....	-	-	-	-	-	-	-	-	-
1 week .....	-	-	7	13	11	5	12	5	6
Over 1 and under 2 weeks .....	3	19	4	8	41	54	-	1	1
2 weeks .....	87	71	63	44	49	41	60	79	78
Over 2 and under 3 weeks .....	11	5	25	36	-	-	23	10	11
3 weeks .....	-	5	-	-	-	-	6	6	3
4 weeks .....	-	-	-	-	-	-	-	-	-
Over 4 and under 5 weeks .....	-	-	-	-	-	-	-	-	-
After 5 years of service:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	11	9	16	17	25	-	-	-
2 weeks .....	41	58	28	34	55	55	65	56	48
Over 2 and under 3 weeks .....	24	18	24	41	12	8	23	13	11
3 weeks .....	35	13	39	9	13	12	13	29	38
Over 3 and under 4 weeks .....	-	-	-	-	-	-	-	-	-
4 weeks .....	-	-	-	-	-	-	-	2	3
Over 4 and under 5 weeks .....	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>									
After 8 years of service:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	-	4	8	-	-	-	-	-
2 weeks .....	15	29	11	19	32	31	56	25	35
Over 2 and under 3 weeks .....	22	42	25	44	42	46	9	7	7
3 weeks .....	58	28	59	29	20	19	32	63	55
Over 3 and under 4 weeks .....	4	-	-	-	2	3	3	4	-
4 weeks .....	-	-	-	-	-	-	-	2	3
Over 4 and under 5 weeks .....	-	-	-	-	-	-	-	-	-
After 10 years of service:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	-	-	-	-	-	-	-	-
2 weeks .....	2	14	7	12	13	5	23	8	13
Over 2 and under 3 weeks .....	-	2	2	4	15	21	-	-	-
3 weeks .....	81	78	64	48	54	62	61	79	81
Over 3 and under 4 weeks .....	11	-	21	36	8	8	3	4	-
4 weeks .....	5	6	6	-	7	3	12	9	5
Over 4 and under 5 weeks .....	-	-	-	-	-	-	-	-	-
5 weeks .....	-	-	-	-	-	-	-	-	-
After 12 years of service:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	-	-	-	-	-	-	-	-
2 weeks .....	2	10	7	12	13	5	13	8	13
Over 2 and under 3 weeks .....	-	-	-	-	-	-	-	-	-
3 weeks .....	74	80	61	48	45	60	67	68	75
Over 3 and under 4 weeks .....	14	4	26	40	25	22	7	12	4
4 weeks .....	9	6	6	-	13	12	12	12	8
Over 4 and under 5 weeks .....	-	-	-	-	-	-	-	-	-
5 weeks .....	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>									
After 15 years of service:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	-	-	-	-	-	-	-	-
2 weeks .....	2	10	4	7	13	5	13	7	11
Over 2 and under 3 weeks .....	-	-	-	-	-	-	-	-	-
3 weeks .....	58	38	45	38	39	53	45	48	63
Over 3 and under 4 weeks .....	21	29	4	8	16	19	-	6	4
4 weeks .....	18	22	42	40	29	22	26	40	22
Over 4 and under 5 weeks .....	-	2	4	8	-	-	3	-	-
5 weeks .....	-	-	-	-	-	-	12	-	-
6 weeks .....	-	-	-	-	-	-	-	-	-
Over 6 and under 7 weeks .....	-	-	-	-	-	-	-	-	-
After 20 years of service:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	-	-	-	-	-	-	-	-
2 weeks .....	2	10	4	7	13	5	13	7	11
Over 2 and under 3 weeks .....	-	-	-	-	-	-	-	-	-
3 weeks .....	49	32	45	38	31	44	22	36	50
Over 3 and under 4 weeks .....	-	-	-	-	-	-	-	-	-
4 weeks .....	38	30	30	18	32	35	26	56	36
Over 4 and under 5 weeks .....	7	18	15	27	18	16	7	-	-
5 weeks .....	4	10	2	3	3	-	23	1	3
Over 5 and under 6 weeks .....	-	-	4	8	-	-	3	-	-
6 weeks .....	-	-	-	-	-	-	5	-	-
7 weeks .....	-	-	-	-	-	-	-	-	-
Over 7 and under 8 weeks .....	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>									
After 25 years of service:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	-	-	-	-	-	-	-	-
2 weeks .....	2	10	4	7	13	5	13	7	11
Over 2 and under 3 weeks .....	-	-	-	-	-	-	-	-	-
3 weeks .....	49	24	45	38	28	40	22	36	50
Over 3 and under 4 weeks .....	-	-	-	-	-	-	-	-	-
4 weeks .....	38	32	30	18	32	39	26	48	36
Over 4 and under 5 weeks .....	7	12	13	23	5	8	-	-	-
5 weeks .....	4	22	4	7	9	-	8	9	3
Over 5 and under 6 weeks .....	-	-	4	8	5	8	18	-	-
6 weeks .....	-	-	-	-	3	-	12	-	-
7 weeks .....	-	-	-	-	-	-	-	-	-
Over 7 and under 8 weeks .....	-	-	-	-	-	-	-	-	-
After 30 years of service:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	-	-	-	-	-	-	-	-
2 weeks .....	2	10	4	7	13	5	13	7	11
Over 2 and under 3 weeks .....	-	-	-	-	-	-	-	-	-
3 weeks .....	49	24	45	38	28	40	22	36	50
Over 3 and under 4 weeks .....	-	-	-	-	-	-	-	-	-
4 weeks .....	35	32	30	18	32	39	26	48	36
Over 4 and under 5 weeks .....	7	12	13	23	5	8	-	-	-
5 weeks .....	7	22	2	3	9	-	8	9	3
Over 5 and under 6 weeks .....	-	-	4	8	-	-	3	-	-
6 weeks .....	-	-	2	4	-	-	12	-	-
Over 6 and under 7 weeks .....	-	-	-	-	5	8	14	-	-
7 weeks .....	-	-	-	-	3	-	-	-	-
Over 7 and under 8 weeks .....	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>									
Maximum vacation:									
1 week .....	-	-	-	-	3	-	-	-	-
Over 1 and under 2 weeks .....	-	-	-	-	-	-	-	-	-
2 weeks .....	2	10	4	7	13	5	13	7	11
Over 2 and under 3 weeks .....	-	-	-	-	-	-	-	-	-
3 weeks .....	46	24	45	38	28	40	22	36	50
Over 3 and under 4 weeks .....	-	-	-	-	-	-	-	-	-
4 weeks .....	38	32	30	18	32	39	26	48	36
Over 4 and under 5 weeks .....	7	12	13	23	5	8	-	-	-
5 weeks .....	7	22	2	3	9	-	8	9	3
Over 5 and under 6 weeks .....	-	-	4	8	-	-	3	-	-
6 weeks .....	-	-	2	4	-	-	12	-	-
Over 6 and under 7 weeks .....	-	-	-	-	-	-	14	-	-
7 weeks .....	-	-	-	-	3	-	-	-	-
Over 7 and under 8 weeks .....	-	-	-	-	-	-	-	-	-
Over 8 weeks .....	-	-	-	-	5	8	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Middle West							West		
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100	100
<b>Method of payment</b>										
Workers in establishments providing paid vacations .....	100	98	100	100	100	98	100	100	98	96
Length-of-time payment .....	68	67	57	96	92	96	100	100	98	96
Percentage payment .....	29	30	42	4	8	2	-	-	-	-
Flat sum .....	-	1	2	-	-	-	-	-	-	-
Other .....	3	-	-	-	-	-	-	-	-	-
<b>Amount of vacation pay<sup>2</sup></b>										
After 6 months of service:										
Under 1 week .....	8	27	24	2	-	21	22	7	10	13
1 week .....	13	1	-	6	7	9	12	-	6	-
Over 1 and under 2 weeks .....	-	7	2	-	-	-	-	-	-	-
2 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 2 and under 3 weeks .....	-	-	-	-	-	2	-	-	-	-
3 weeks .....	-	1	2	-	-	-	-	-	-	-
After 1 year of service:										
Under 1 week .....	-	27	42	1	2	-	-	-	-	-
1 week .....	49	42	35	85	94	66	74	59	76	96
Over 1 and under 2 weeks .....	5	11	9	4	4	9	12	19	-	-
2 weeks .....	11	8	5	11	-	21	14	22	22	-
Over 2 and under 3 weeks .....	30	3	6	-	-	-	-	-	-	-
3 weeks .....	3	4	2	-	-	-	-	-	-	-
4 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 4 and under 5 weeks .....	-	-	-	-	-	2	-	-	-	-
After 2 years of service:										
Under 1 week .....	-	13	15	-	-	-	-	-	-	-
1 week .....	11	5	10	41	45	27	37	34	8	12
Over 1 and under 2 weeks .....	13	21	32	8	17	4	6	-	13	11
2 weeks .....	37	48	35	51	38	59	50	47	76	73
Over 2 and under 3 weeks .....	33	7	6	-	-	5	7	19	-	-
3 weeks .....	3	4	2	-	-	-	-	-	1	-
4 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 4 and under 5 weeks .....	-	-	-	-	-	2	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>										
After 3 years of service:										
Under 1 week .....	-	2	-	-	-	-	-	-	-	-
1 week .....	1	1	2	8	16	-	-	-	3	6
Over 1 and under 2 weeks .....	6	25	39	6	12	-	-	-	8	-
2 weeks .....	54	49	41	75	56	80	78	81	87	91
Over 2 and under 3 weeks .....	33	9	14	9	10	16	22	19	-	-
3 weeks .....	3	11	4	3	6	-	-	-	1	-
4 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 4 and under 5 weeks .....	-	-	-	-	-	2	-	-	-	-
After 4 years of service:										
Under 1 week .....	-	2	-	-	-	-	-	-	-	-
1 week .....	1	1	2	8	16	-	-	-	3	6
Over 1 and under 2 weeks .....	6	25	39	6	12	-	-	-	8	-
2 weeks .....	49	47	36	75	56	60	78	81	87	91
Over 2 and under 3 weeks .....	35	12	19	7	8	16	22	19	-	-
3 weeks .....	6	11	4	4	8	-	-	-	1	-
4 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 4 and under 5 weeks .....	-	-	-	-	-	2	-	-	-	-
After 5 years of service:										
1 week .....	1	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	2	11	11	5	9	-	-	-	4	-
2 weeks .....	39	13	26	67	62	65	58	77	60	57
Over 2 and under 3 weeks .....	33	40	42	14	8	10	14	19	9	17
3 weeks .....	16	30	19	14	21	21	28	4	24	23
Over 3 and under 4 weeks .....	3	3	2	-	-	-	-	-	-	-
4 weeks .....	6	-	-	-	-	-	-	-	1	-
Over 4 and under 5 weeks .....	-	-	-	-	-	2	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>										
After 8 years of service:										
1 week .....	-	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	-	10	9	-	-	-	-	-	-	-
2 weeks .....	15	8	16	33	34	38	45	44	53	57
Over 2 and under 3 weeks .....	46	38	43	21	24	18	10	-	12	5
3 weeks .....	30	39	30	40	31	36	40	56	32	34
Over 3 and under 4 weeks .....	3	3	2	4	8	4	6	-	-	-
4 weeks .....	6	-	-	2	4	-	-	-	1	-
Over 4 and under 5 weeks .....	-	-	-	-	-	2	-	-	-	-
After 10 years of service:										
1 week .....	-	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	-	7	9	-	-	-	-	-	-	-
2 weeks .....	5	3	5	5	7	10	14	19	20	22
Over 2 and under 3 weeks .....	36	27	40	7	7	-	-	-	5	3
3 weeks .....	39	31	22	70	69	80	78	72	68	72
Over 3 and under 4 weeks .....	1	15	8	11	9	4	6	-	-	-
4 weeks .....	12	15	16	8	8	2	3	9	4	-
Over 4 and under 5 weeks .....	-	-	-	-	-	2	-	-	-	-
5 weeks .....	6	-	-	-	-	-	-	-	-	-
After 12 years of service:										
1 week .....	-	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	-	7	9	-	-	-	-	-	-	-
2 weeks .....	2	3	5	4	7	7	10	8	14	22
Over 2 and under 3 weeks .....	10	27	40	1	2	-	-	-	-	-
3 weeks .....	43	31	22	67	66	68	76	83	75	63
Over 3 and under 4 weeks .....	27	15	8	17	9	19	12	-	-	-
4 weeks .....	12	15	16	12	16	2	3	9	9	11
Over 4 and under 5 weeks .....	-	-	-	-	-	2	-	-	-	-
5 weeks .....	6	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Middle West							West		
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI	St. Louis, MO-IL	Los Angeles-Long Beach, CA		
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>										
After 15 years of service:										
1 week .....	-	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	-	7	9	-	-	-	-	-	-	-
2 weeks .....	-	3	5	2	4	7	10	8	14	22
Over 2 and under 3 weeks .....	-	23	33	1	2	-	-	-	-	-
3 weeks .....	32	18	16	48	51	58	72	39	53	58
Over 3 and under 4 weeks .....	34	20	15	14	8	15	5	19	-	-
4 weeks .....	24	23	17	33	31	15	12	34	30	17
Over 4 and under 5 weeks .....	3	5	5	-	-	3	1	-	-	-
5 weeks .....	-	-	-	2	4	-	-	-	1	-
6 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 6 and under 7 weeks .....	3	-	-	-	-	-	-	-	-	-
After 20 years of service:										
1 week .....	-	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	-	7	9	-	-	-	-	-	-	-
2 weeks .....	-	3	5	2	4	7	10	8	14	22
Over 2 and under 3 weeks .....	-	21	28	-	-	-	-	-	-	-
3 weeks .....	10	15	21	24	36	30	41	27	38	34
Over 3 and under 4 weeks .....	2	11	13	5	3	4	5	-	1	3
4 weeks .....	46	28	14	50	45	53	42	46	38	26
Over 4 and under 5 weeks .....	35	7	5	9	5	3	1	-	-	-
5 weeks .....	-	6	5	8	2	1	2	19	1	-
Over 5 and under 6 weeks .....	-	-	-	2	4	-	-	-	-	-
6 weeks .....	-	-	-	-	-	-	-	-	5	11
7 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 7 and under 8 weeks .....	3	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Middle West							West		
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>										
After 25 years of service:										
1 week .....	-	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	-	7	9	-	-	-	-	-	-	-
2 weeks .....	-	3	5	2	4	7	10	8	14	22
Over 2 and under 3 weeks .....	-	21	28	-	-	-	-	-	-	-
3 weeks .....	10	15	21	24	36	28	37	20	31	32
Over 3 and under 4 weeks .....	-	11	13	2	3	4	5	-	-	-
4 weeks .....	35	21	14	33	39	40	45	28	42	31
Over 4 and under 5 weeks .....	5	11	2	2	5	3	1	-	-	-
5 weeks .....	13	10	8	35	8	18	2	25	6	-
Over 5 and under 6 weeks .....	26	-	-	-	-	-	-	19	-	-
6 weeks .....	3	-	-	2	4	-	-	-	5	11
7 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 7 and under 8 weeks .....	3	-	-	-	-	-	-	-	-	-
After 30 years of service:										
1 week .....	-	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	-	7	9	-	-	-	-	-	-	-
2 weeks .....	-	3	5	2	4	7	10	8	14	22
Over 2 and under 3 weeks .....	-	21	28	-	-	-	-	-	-	-
3 weeks .....	10	15	21	24	36	28	37	20	31	32
Over 3 and under 4 weeks .....	-	11	13	2	3	4	5	-	-	-
4 weeks .....	33	21	14	33	39	40	45	28	42	31
Over 4 and under 5 weeks .....	1	9	2	2	5	3	1	-	-	-
5 weeks .....	19	12	8	28	8	7	2	25	6	-
Over 5 and under 6 weeks .....	26	-	-	-	-	-	-	-	-	-
6 weeks .....	3	-	-	9	4	11	-	-	5	11
Over 6 and under 7 weeks .....	-	-	-	-	-	-	-	19	-	-
7 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 7 and under 8 weeks .....	3	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

**Table 27. Paid vacations—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for paid vacations after selected periods of service, 12 selected areas,<sup>1</sup> February 1990)

Vacation policy	Middle West								West	
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
<b>Amount of vacation pay<sup>2</sup>—Continued</b>										
Maximum vacation:										
1 week .....	-	-	-	-	-	-	-	-	-	-
Over 1 and under 2 weeks .....	-	7	9	-	-	-	-	-	-	-
2 weeks .....	-	3	5	2	4	7	10	8	14	22
Over 2 and under 3 weeks .....	-	21	28	-	-	-	-	-	-	-
3 weeks .....	10	15	21	24	36	28	37	20	31	32
Over 3 and under 4 weeks .....	-	11	13	2	3	4	5	-	-	-
4 weeks .....	33	21	14	33	39	40	45	28	42	31
Over 4 and under 5 weeks .....	1	9	2	2	5	3	1	-	-	-
5 weeks .....	15	12	8	28	8	7	2	25	6	-
Over 5 and under 6 weeks .....	26	-	-	-	-	-	-	-	-	-
6 weeks .....	7	-	-	9	4	11	-	-	5	11
Over 6 and under 7 weeks .....	-	-	-	-	-	-	-	19	-	-
7 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 7 and under 8 weeks .....	3	-	-	-	-	-	-	-	-	-
Over 8 weeks .....	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

20 years.

<sup>2</sup> Vacation payments, such as percent of annual earnings, were converted to an equivalent time basis. Periods of service were chosen arbitrarily and do not necessarily reflect individual establishment provisions for progression. For example, changes indicated at 20 years may include changes that occurred between 15 and

NOTE: Because of rounding, sums of individual items may not equal totals. Dashes indicate that no data were reported.

**Table 28. Health, insurance, and retirement plans**

(Percent of production workers in metalworking machinery manufacturing establishments with specified health, insurance, and retirement plans,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Type of plan	Northeast						Middle West		
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100
Workers in establishments providing:									
Life insurance .....	97	100	90	94	76	76	89	98	97
Noncontributory plans .....	87	94	88	90	71	70	75	89	87
Accidental death and dismemberment insurance .....	84	90	74	70	60	57	79	84	81
Noncontributory plans .....	78	84	74	70	58	53	65	76	72
Sickness and accident insurance or sick leave or both <sup>3</sup> .....	98	87	100	100	84	88	96	71	71
Sickness and accident insurance .....	82	87	100	100	76	76	89	68	69
Noncontributory plans .....	76	82	69	57	64	65	75	55	52
Sick leave (full pay, no waiting period) .....	61	11	61	50	25	31	28	9	2
Sick leave (partial pay or waiting period) .....	-	5	-	-	6	9	4	4	-
Long-term disability insurance .....	32	25	12	3	12	15	17	12	13
Noncontributory plans .....	32	23	12	3	12	15	17	7	8
Hospitalization, surgical, and medical insurance .....	98	80	100	100	83	88	93	95	100
Noncontributory plans .....	49	37	79	73	65	74	59	71	86
Health maintenance organization Noncontributory plans .....	37	36	-	-	43	42	16	13	9
Noncontributory plans .....	9	18	-	-	36	42	16	7	5
Dental care .....	39	74	49	44	44	43	52	48	43
Noncontributory plans .....	30	33	46	39	38	43	38	31	37
Vision care .....	27	66	9	8	20	21	22	17	5
Noncontributory plans .....	22	31	9	8	18	21	15	12	4
Alcohol and drug abuse treatment .....	100	36	78	73	73	65	88	74	61
Noncontributory plans .....	54	19	59	51	59	58	54	49	51
Hearing care .....	9	28	5	8	11	14	8	-	-
Noncontributory plans .....	7	23	5	8	10	14	-	-	-
Retirement plans <sup>4</sup> .....	59	53	59	56	65	75	78	84	79
Pensions .....	46	44	38	53	65	75	78	70	59
Noncontributory plans .....	35	26	35	49	48	49	78	39	24
Lump sum .....	13	9	2	3	-	-	-	22	23
Noncontributory plans .....	9	5	2	3	-	-	-	10	19

See footnotes at end of table.

**Table 28. Health, insurance, and retirement plans—Continued**

(Percent of production workers in metalworking machinery manufacturing establishments with specified health, insurance, and retirement plans,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Type of plan	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100	100
Workers in establishments providing:										
Life insurance .....	93	91	86	93	96	95	93	96	88	75
Noncontributory plans .....	93	91	85	83	85	88	84	70	75	71
Accidental death and dismemberment insurance .....	50	89	85	90	96	58	60	94	82	69
Noncontributory plans .....	50	87	82	80	85	58	60	68	68	65
Sickness and accident insurance or sick leave or both <sup>3</sup> .....	59	86	84	86	70	64	53	78	51	36
Sickness and accident insurance .....	59	84	82	81	70	57	45	56	7	6
Noncontributory plans .....	58	80	74	75	61	56	43	56	7	6
Sick leave (full pay, no waiting period) .....	7	10	10	14	10	6	9	39	48	30
Sick leave (partial pay or waiting period) .....	-	1	2	6	-	-	-	-	-	-
Long-term disability insurance .....	9	12	8	9	3	11	15	26	13	11
Noncontributory plans .....	9	11	6	6	3	10	13	4	5	6
Hospitalization, surgical, and medical insurance .....	88	97	95	92	97	73	73	100	73	58
Noncontributory plans .....	65	83	75	58	80	46	60	96	26	43
Health maintenance organization .....	73	31	20	48	14	45	31	26	83	70
Noncontributory plans .....	51	23	9	20	2	15	13	4	45	56
Dental care .....	59	86	79	59	48	67	58	68	48	48
Noncontributory plans .....	45	74	57	34	40	40	52	23	19	38
Vision care .....	14	36	30	7	-	27	26	32	62	58
Noncontributory plans .....	9	30	17	7	-	15	10	13	24	38
Alcohol and drug abuse treatment .....	98	73	72	95	100	87	85	76	96	92
Noncontributory plans .....	76	60	49	60	82	55	65	71	53	74
Hearing care .....	-	15	11	-	-	14	11	25	60	53
Noncontributory plans .....	-	14	9	-	-	8	3	6	24	38
Retirement plans <sup>4</sup> .....	88	70	71	77	73	82	78	90	51	58
Pensions .....	78	60	56	69	56	39	43	71	32	16
Noncontributory plans .....	78	46	45	54	30	30	29	67	31	13
Lump sum .....	26	28	23	9	17	23	10	29	24	42
Noncontributory plans .....	6	18	20	6	13	-	-	17	15	34

<sup>1</sup> For definitions of plans, see appendix A. Includes those plans for which the employer pays at least part of the cost and excludes Social Security. "Noncontributory plans" include only those plans financed entirely by the employer.

<sup>2</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

<sup>3</sup> Unduplicated total of workers receiving sickness and accident insurance and

sick leave shown separately.

<sup>4</sup> Unduplicated total of workers covered by pension plans and lump-sum pay plans shown separately.

NOTE: Dashes indicate that no data were reported.

**Table 29. Health plan participation**

(Percent of production workers in metalworking machinery manufacturing establishments participating in specified health plans,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Type of plan	Northeast						Middle West			
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL		
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	
Hospitalization, surgical, and medical insurance .....	71	67	99	99	70	76	87	89	95	
Noncontributory plans .....	48	36	78	72	59	68	54	67	83	
Health maintenance organization .....	22	23	-	-	23	21	4	8	4	
Noncontributory plans .....	6	12	-	-	18	21	4	4	3	
Dental care .....	37	65	49	43	41	41	52	46	43	
Noncontributory plans .....	30	33	46	39	36	41	38	31	37	
Vision care .....	26	58	9	8	12	13	22	17	5	
Noncontributory plans .....	22	31	9	8	11	13	15	12	4	
Alcohol and drug abuse treatment ..	93	33	77	71	69	61	87	72	60	
Noncontributory plans .....	54	19	58	49	56	54	54	48	51	
Hearing care .....	8	26	5	8	11	13	8	-	-	
Noncontributory plans .....	7	23	5	8	9	13	-	-	-	
	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
Hospitalization, surgical, and medical insurance .....	70	86	90	71	86	59	69	91	24	34
Noncontributory plans .....	57	74	73	43	73	46	60	86	12	26
Health maintenance organization .....	28	11	9	22	11	34	27	9	70	57
Noncontributory plans .....	20	9	5	12	1	15	13	1	40	46
Dental care .....	57	85	78	54	48	63	57	68	48	48
Noncontributory plans .....	46	72	57	34	39	40	52	23	19	38
Vision care .....	9	29	25	3	-	25	24	32	54	51
Noncontributory plans .....	7	24	15	3	-	14	9	13	23	35
Alcohol and drug abuse treatment ..	96	68	63	93	97	83	82	76	93	90
Noncontributory plans .....	77	56	43	60	81	54	64	71	53	72
Hearing care .....	-	11	9	-	-	13	10	25	52	46
Noncontributory plans .....	-	11	9	-	-	8	3	6	23	35

<sup>1</sup> For definitions of plans, see appendix A. Includes those plans for which the employer pays at least part of the cost. "Noncontributory plans" include only those plans financed entirely by the employer. Data in this table include all participants in a health plan, including those from establishments providing coverage to a *minority*

of workers. Data in the previous table relate to employees in establishments where a *majority* of workers are covered by a particular health plan.

<sup>2</sup> For definitions of areas, see individual area tables 3-21, footnote 1. NOTE: Dashes indicate that no data were reported.

**Table 30. Other selected benefits**

(Percent of production workers in metalworking machinery manufacturing establishments with formal provisions for selected benefits,<sup>1</sup> 12 selected areas,<sup>2</sup> February 1990)

Benefit	Northeast						Middle West			
	Boston-Lawrence-Salem, MA-NH	Hartford-New Britain-Middletown, CT	Northern New Jersey		Philadelphia, PA-NJ		Pittsburgh, PA	Chicago, IL		
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	
All workers .....	100	100	100	100	100	100	100	100	100	
Workers in establishments with provisions for:										
Funeral leave .....	86	92	74	73	86	90	93	73	59	
Jury-duty leave .....	87	64	47	60	40	39	73	60	35	
Paid military leave .....	47	12	34	42	20	18	52	18	7	
Technological severance pay .....	14	-	25	36	8	4	15	6	-	
Cost-of-living adjustments .....	-	-	-	-	3	-	12	4	2	
Based on BLS Consumer Price Index .....	-	-	-	-	3	-	12	3	-	
Based on other measure .....	-	-	-	-	-	-	-	1	2	
	Middle West						West			
	Cleveland, OH	Detroit, MI		Milwaukee, WI		Minneapolis-St. Paul, MN-WI		St. Louis, MO-IL	Los Angeles-Long Beach, CA	
	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing	Metalworking machinery manufacturing	Metalworking machinery manufacturing	Special dies and tools manufacturing
All workers .....	100	100	100	100	100	100	100	100	100	100
Workers in establishments with provisions for:										
Funeral leave .....	60	60	45	71	52	61	53	91	38	29
Jury-duty leave .....	88	44	35	53	27	57	48	88	20	7
Paid military leave .....	33	9	9	27	-	24	26	48	9	-
Technological severance pay .....	7	8	2	9	3	10	13	-	7	5
Cost-of-living adjustments .....	32	23	15	7	4	-	-	-	-	-
Based on BLS Consumer Price Index .....	32	23	15	7	4	-	-	-	-	-
Based on other measure .....	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> For definitions of items, see appendix A.

<sup>2</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

NOTE: Dashes indicate that no data were reported.

# Appendix A. Scope and Method of Survey

## Scope of survey

The survey included establishments primarily engaged in manufacturing metalworking machinery and equipment (industry group 354 as defined in the 1987 edition of the *Standard Industrial Classification Manual*, prepared by the U.S. Office of Management and Budget). This industry group includes establishments engaged in manufacturing metal cutting machine tools; metal forming machine tools; industrial patterns; special dies and tools, die sets, jigs and fixtures, and industrial molds; cutting tools, machine tool accessories, and machinists' precision measuring devices; power-driven handtools; rolling mill machinery and equipment; electric and gas welding and soldering equipment; and metalworking machinery, not elsewhere classified. In 7 of the 12 manufacturing centers included in the survey, data were studied separately for manufacturers of special dies and tools, die sets, jigs and fixtures, and industrial molds (industry 3544). Separate auxiliary units, such as central offices, were excluded.

Establishments studied were selected from those employing 10 workers or more at the time of reference of the data used in compiling the universe lists. Table A-1 shows the number of establishments and workers estimated to be within the scope of the survey, as well as the number actually studied by the Bureau.

## Method of study

Data were obtained by personal visits of the Bureau's field representatives to a probability-based sample of establishments within the scope of the survey. To obtain appropriate accuracy at minimum cost, a greater proportion of large than of small establishments was studied. In combining the data, each establishment was given an appropriate weight. All estimates are presented, therefore, as relating to all establishments in the industry, excluding only those below the minimum size at the time of reference of the universe data.

## Establishment definition

An establishment, for purposes of this study, is defined as a single physical location where manufacturing operations are performed. An establishment is not necessarily identical with a company, which may consist of one estab-

lishment or more. In this bulletin, the terms "plant" and "establishment" have been used interchangeably.

## Employment

Estimates of the number of workers within the scope of the study are intended as a general guide to the size and composition of the industry's labor force, rather than as precise measures of employment.

## Production workers

The term "production workers" includes working supervisors and all nonsupervisory workers engaged in non-office activities. Administrative, executive, office, professional, and technical personnel, and force-account construction employees, who are used as a separate work force on the firm's own properties, are excluded.

## Occupational classification

Occupational classification was based on a uniform set of job descriptions designed to take account of interestablishment and interarea variations in duties within the same job. (See appendix B for these descriptions.) The criteria for selection of the occupations were: The number of workers in the occupation; the usefulness of the data in wage and salary administration and in collective bargaining; and appropriate representation of the entire wage structure in the industries. Supervisors, apprentices, learners, beginners, trainees, and part-time, handicapped, temporary, and probationary workers were not reported in the data for selected occupations.

## Wage data

Information on wages relates to straight-time hourly earnings, excluding premium pay for overtime and for work on weekends, holidays, and late shifts. Incentive payments, such as those resulting from piecework or production bonus systems, and cost-of-living pay increases (but not bonuses) are included as part of the workers' regular pay. Also excluded are performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries, as well as profit-sharing payments, attendance bonuses, Christmas or yearend bonuses, and other nonproduction bonuses.

*Average (mean) hourly rates or earnings* for each occupation were calculated by weighting each rate (or hourly earnings) by the number of workers receiving the rate, totaling, and dividing by the number of individuals. The hourly earnings of salaried workers, if any, were obtained by dividing straight-time salary by the normal (or standard) hours to which the salary corresponds.

### **Method of wage payment**

Tabulations by method of wage payment relate to the number of workers paid under the various time and incentive wage systems. Formal rate structures for time-rated workers provide single rates or a range of rates for individual job categories. In the absence of a formal rate structure, pay rates are determined primarily by the qualifications of the individual worker. A single-rate structure is one in which the same rate is paid to all experienced workers in the same job classification. Learners, apprentices, or probationary workers may be paid according to rate schedules which start below the single rate and permit the workers to achieve the full job rate over a period of time. An experienced worker occasionally may be paid above or below the single rate for special reasons, but such payments are exceptions. Range-of-rate plans are those in which the minimum, maximum, or both of these rates, paid experienced workers for the same job are specified. Specific rates of individual workers within the range may be determined by merit, length of service, or a combination of these. Incentive workers are classified under piecework or bonus plans. Piecework is work for which a predetermined rate is paid for each unit of output. Production bonuses are for production in excess of a quota or for completion of a task in less than standard time.

### **Scheduled weekly hours**

Data on weekly hours refer to the predominant work schedule for full-time production workers employed on the day shift.

### **Shift provisions and practices**

Shift provisions relate to the policies of establishments either currently operating late shifts or having formal provisions covering late-shift work. Practices relate to workers employed on late shifts at the time of the survey.

### **Employee benefits**

Employee benefits in an establishment were considered applicable to production workers if they applied to half or more of such workers in the establishment. Similarly, if fewer than half of the workers were covered, the benefit was considered nonexistent in the establishment. Because of length-of-service and other eligibility requirements, the proportion of workers receiving the benefits may be smaller than estimated.

*Paid holidays.* Paid-holiday provisions relate to full-day and half-day holidays provided annually.

*Paid vacations.* The summaries of vacation plans are limited to formal arrangements and exclude informal plans whereby time off with pay is granted at the discretion of the employer or supervisor. Payments not on a time basis were converted; for example, a payment of 2 percent of annual earnings was considered the equivalent of 1 week's pay. The periods of service for which data are presented represent the most common practices, but they do not necessarily reflect individual establishment provisions for progression. For example, changes in proportions indicated at 20 years of service may include changes which occurred between 15 and 20 years.

*Health-care, insurance, and retirement plans.* Data are presented for health-care, insurance, and retirement plans for which the employer pays all or a part of the cost, excluding programs required by law such as workers' compensation and Social Security.<sup>1</sup> Among plans included are those underwritten by a commercial insurance company and those paid directly by the employer from current operating funds or from a fund set aside for this purpose.

Death benefits are included as a form of life insurance. Sickness and accident insurance is limited to that type of insurance under which predetermined cash payments are made directly to the insured on a weekly or monthly basis during illness or accident disability.

Tabulations of paid sick leave plans are limited to formal plans<sup>2</sup> which provide full pay or a portion of the worker's pay during absence from work because of illness; informal arrangements have been omitted. Separate tabulations are provided for (1) plans which provide full pay and no waiting period, and (2) plans providing either partial pay or a waiting period.

Long-term disability insurance plans provide payments to totally disabled employees upon the expiration of sick leave, sickness and accident insurance, or both, or after a specified period of disability (typically 6 months). Payments are made until the end of disability, a maximum age,

<sup>1</sup> Temporary disability insurance, which provides benefits to covered workers disabled by injury or illness which is not work-connected, is mandatory under State laws in California and New Jersey. In both States, benefits are paid either from a State fund or through a private plan.

*State fund financing:* In California, only employees contribute to the State fund; in New Jersey, employees and employers contribute.

*Private plan financing:* In California and New Jersey, employees cannot be required to contribute more than they would if they were covered by the State fund.

<sup>2</sup> An establishment is considered as having a formal plan if it specifies at least the minimum amount of sick leave available to each employee. Such a plan need not be written, but informal sick leave allowances determined on an individual basis are excluded.

or eligibility for retirement benefits. Payments may be at full or partial pay, but are almost always reduced by Social Security, workers' compensation, and private pension benefits payable to the disabled employee.

Hospitalization, surgical, and medical insurance refers to plans providing for complete or partial payment for hospital room charges, inpatient surgery, and doctors' fees. These plans typically cover other expenses, such as outpatient surgery and prescription drugs, and may be underwritten by a commercial insurance company or a nonprofit organization, or they may be a form of self-insurance.

A health maintenance organization (HMO) provides comprehensive health care services to its members for fixed periodic payments rather than indemnification or reimbursement for medical, surgical, and hospital expenses.

Dental insurance covers routine dental work, such as fillings, extractions, and X-rays. Excluded are plans which cover only oral surgery or accidental injury.

Vision care plans cover routine eye examinations and eyeglasses. Excluded are plans which cover only certain kinds of surgery or care required as a result of an accident.

Hearing care plans provide at least partial payment for hearing examinations, hearing aids, or both.

Alcohol and drug abuse treatment plans provide at least partial payment for institutional treatment (in a hospital or specialized facility) for addiction to alcohol or drugs.

Tabulations of retirement pensions are limited to plans which provide regular payments for the remainder of the retiree's life. Data also are presented separately for lump-sum retirement pay (one payment or several over a specified period of time) made to employees upon retirement. Establishments providing both lump-sum retirement payments and retirement pensions to employees were considered as having both retirement pensions and lump-sum re-

tirement pay plans; however, establishments having optional plans providing employees a choice of either retirement pensions or lump-sum payments were considered as having only retirement pension benefits.

*Health plan participation.* Data relate to the proportion of production workers participating in selected health care plans. A plan is included even though it is offered only to a minority of workers, or a majority of the workers in an establishment do not choose to participate in it.

*Paid funeral and jury-duty leave.*<sup>3</sup> Data relate to formal plans that provide at least partial payment for time lost as a result of attending funerals of specified family members or serving as a juror.

*Paid military leave.* Data relate to formal plans which provide excused absence from work with full or partial pay while on annual training duty. Plans that provide paid leave only for temporary emergency duty are excluded.

*Cost-of-living adjustments.* Data relate to formal plans that adjust wages in keeping with changes in the BLS Consumer Price Index or some other measure.

*Technological severance pay.* Data relate to formal plans that provide payments to employees permanently separated from the company because of a technological change or facility closing.

<sup>3</sup> Paid jury-leave is required by law in parts of Massachusetts that are within the Boston—Lawrence—Salem, MA-NH, Consolidated Metropolitan Statistical Area.

**Table A-1. Estimated number of establishments and employees within scope of study and number studied, metalworking machinery manufacturing, February 1990**

Area <sup>1</sup>	Number of establishments <sup>2</sup>		Workers in establishments		Actually studied <sup>3</sup>
	Within scope of study	Actually studied	Within scope of study		
			Total <sup>4</sup>	Production workers	
12 metalworking machinery manufacturing areas .....	1,926	388	78,192	53,380	35,480
7 special dies and tools manufacturing areas .....	928	197	26,842	20,328	9,253
<b>Northeast</b>					
Boston-Lawrence-Salem, MA-NH .....	69	25	2,136	1,433	1,164
Hartford-New Britain-Middletown, CT .....	74	22	3,045	1,780	1,927
Northern New Jersey .....	76	24	2,427	1,574	1,138
Special dies and tools manufacturing ..	48	18	1,272	897	709
Philadelphia, PA-NJ .....	93	32	2,826	2,032	1,518
Special dies and tools manufacturing ..	54	21	1,805	1,380	1,056
Pittsburgh, PA .....	62	17	3,936	2,290	2,421
<b>Middle West</b>					
Chicago, IL .....	358	50	12,936	9,062	4,105
Special dies and tools manufacturing ..	260	34	6,305	4,566	1,407
Cleveland, OH .....	148	29	10,140	7,242	6,407
Detroit, MI .....	662	57	23,725	16,228	6,382
Special dies and tools manufacturing ..	324	38	10,832	8,402	2,583
Milwaukee, WI .....	137	44	6,202	4,258	3,620
Special dies and tools manufacturing ..	98	32	2,503	2,076	1,099
Minneapolis-St. Paul, MN-WI .....	67	35	2,766	1,846	2,033
Special dies and tools manufacturing ..	59	30	1,877	1,359	1,180
St. Louis, MO-IL .....	46	15	2,739	1,999	1,931
<b>West</b>					
Los Angeles-Long Beach, CA .....	134	38	5,314	3,636	2,834
Special dies and tools manufacturing ..	85	24	2,248	1,648	1,219

<sup>1</sup> For definitions of areas, see individual area tables 3-21, footnote 1.

<sup>2</sup> Includes only those establishments with 10 workers or more at the time of reference of the universe data.

<sup>3</sup> Data relate to total employment in the establish-

ments actually visited.

<sup>4</sup> Includes executive, professional, office, and other workers in addition to the production worker category shown separately.

# Appendix B. Occupational Descriptions

The primary purpose of preparing job descriptions for the Bureau's wage surveys is to assist its field representatives in classifying into appropriate occupations workers who are employed under a variety of payroll titles and different work arrangements from establishment to establishment and from area to area. This permits the grouping of occupational wage rates representing comparable job content. Because of this emphasis on interestablishment and interarea comparability of occupational content, the Bureau's job descriptions may differ significantly from those used in individual establishments or those prepared for other purposes. In applying these job descriptions, the Bureau's field representatives are instructed to exclude supervisors, apprentices, learners, beginners, trainees, and handicapped, part-time, temporary, and probationary workers.

The titles and codes below the job titles in this appendix are taken from the 1980 edition of the *Standard Occupational Classification Manual (SOC)*, issued by the U.S. Department of Commerce, Office of Federal Statistical Policy and Standards.

In general, the Bureau of Labor Statistics' occupational descriptions are much more specific than those found in the SOC manual. For example, four of the nine production machine-tool operator occupations studied fell into one pair of SOC classifications (7312—lathe and turning machine setup operators, and 7512—lathe and turning machine operators and tenders). Therefore, in comparing the results of this survey with other sources, differences in occupational definitions should be taken into consideration.

## Production and Toolroom Occupations

### Machine-tool operator, production

Operates or tends one or more nonportable, power-driven machine tools (including computer-numerical-control and numerical-control) that shape metal by progressively removing portions of the stock in the form of chips or shavings, or by abrasion. Workers should be classified according to the type of machine tool operated, as well as the skill level required to perform the work.

*Class A* – Sets up machines to perform machining operations by interpreting drawings, blueprints, or layouts to determine the proper feeds, speeds, tooling and operation se-

quence; makes frequent adjustments to machines during operation to obtain the requisite, dimensions of very close tolerances.

*Class B* – Sets up machines to perform machining operations where the proper feeds, speeds, tooling and operation sequence are prescribed or are maintained from a previous operation set up; may make adjustments to machines during operation to obtain the requisite dimensions of close tolerances.

*Class C* – Operates machines on routine and repetitive operations; may make minor adjustments to machines during operation to obtain ordinary tolerances; requests assistance from a working supervisor or leadworker when trouble occurs.

*Computer-numerical-control, set up and operate* – Sets up and operates computer-numerical-control (CNC) machine tools (including numerical control) by installing the proper tools in the appropriate sequence; positions the workpiece to be machined; loads the programmed instructions into a controller or computer; monitors the operation of one or more machines to ensure that the work is properly done; uses micrometers, gauges, or other precision-inspection equipment to ensure the requisite dimensions of tolerance; may correct the program, if necessary, or refer the problem to a numerical-control machine-tool programmer.

*Computer-numerical-control, operate only* – Operates computer-numerical-control (CNC) machine tools (including numerical control) by loading the programmed instructions into a controller or computer; monitors the operation of the machine to ensure that the work is properly done; may use micrometers, gauges, or other precision-inspection equipment to ensure the requisite dimensions of tolerance; refers program or machining problems to a numerical-control setup worker or a numerical-control machine-tool programmer.

### Automatic-lathe operator

(SOC 7312: Lathe and turning machine setup operators)  
(SOC 7512: Lathe and turning machine operators and tenders)

(Automatic-chucking-machine operator; automatic-turret-lathe operator)

Operates one or more lathes, equipped with an automat-

ic feed mechanism, that actuate the cutting tools over the complete work cycle. Automatic lathes may differ as to the type of construction (horizontal or vertical); the number of spindles (single or multiple); the method of feed (hand, automatic-chucking, or hopper); the method of holding the work (in chucks or between centers); and the method of presenting the tools to the stock in sequence (turrets, slides, or revolving work stations).

#### **Boring-machine operator**

(SOC 7318: Drilling and boring machine setup operators)

(SOC 7518: Drilling and boring machine operators and tenders)

(Boring-mill operator; jig-boring machine operator)

Operates one or more boring machines that drill, mill, or bore castings, forgings, or other type of machined part. Boring machines may differ as to the type of construction (horizontal or vertical); the type of alignment or blocking required; and the type of machine tools needed.

#### **Drill-press operator, radial**

(SOC 7318: Drilling and boring machine setup operators)

(SOC 7518: Drilling and boring machine operators and tenders)

Operates one or more type of radial-drilling machines that drill, ream, countersink, counterbore, spot-face, or tap holes into large heavy metal parts. Radial drills commonly have a movable tool head and saddle attached to an arm projecting from a vertical column. To maximize the number of positions which can be drilled, the tool head and saddle can slide along the arm, and the arm can be adjusted along the vertical shaft.

#### **Drill-press operator, spindle**

(SOC 7318: Drilling and boring machine setup operators)

(SOC 7518: Drilling and boring machine operators and tenders)

Operates one or more types of spindle drill press that drill, ream, countersink, counterbore, spot-face, or tap holes into metal parts. Spindle drills may differ as to the number of spindles (single or multiple), but typically are mounted permanently on a table which is raised or lowered in order to machine the workpiece positioned overhead.

#### **Engine-lathe operator**

(SOC 7312: Lathe and turning machine setup operators)

(SOC 7512: Lathe and turning machine operators and tenders)

Operates an engine lathe that shapes the external and internal cylindrical surfaces of metal objects. The stock to be machined may be held in place by various types of chucks and fixtures, or by lathe centers. Engine lathes typically have a headstock, tailstock, and power-feed carriage which allow engine-lathe operators to turn, bore, or thread castings, forgings, or other machined parts.

#### **Grinding-machine operator**

(SOC 7322: Grinding, abrading, buffing, and polishing machine setup operators)

(SOC 7522: Grinding, abrading, buffing, and polishing machine operators and tenders)

(Cylindrical-grinder operator; surface-grinder operator; Universal-grinder operator)

Operates one or more of several types of precision-grinding machine that grind internal and external surfaces of metal parts to a smooth and even finish. Precision grinding consists of applying abrasive wheels, which rotate at high speed, to the surface of the piece to be finished (typically, previously machined parts) to obtain the required dimensions and finish. Also included in this classification are other single-purpose grinding-machine operators, such as those who work on drill grinders and thread grinders.

#### **Milling-machine operator**

(SOC 7313: Milling and planing machine setup operators)

(SOC 7513: Milling and planing machine operators and tenders)

Operates a milling machine (automatic or hand) that grooves, planes, or shapes metal objects by removing material from surfaces using multi-toothed rotating cutters. Milling machines vary from manual (hand) control to conveyor-fed (automatic) machines. For wage survey purposes, operators of single-purpose milling machines, such as thread milling, duplicating, diesinking, pantograph milling, and engraving, are excluded.

#### **Screw-machine operator, automatic**

(SOC 7312: Lathe and turning machine setup operators)

(SOC 7512: Lathe and turning machine operators and tenders)

Operates one or more screw machines (single- or multi-spindle) that automatically repeat a cycle of turning operations on each piece of bar or tube stock that is automatically fed into the machine.

#### **Shaper operator**

(SOC 7312: Lathe and turning machine setup operators)

(SOC 7512: Lathe and turning machine operators and tenders)

Operates one or more machines that shape, slot, or contour castings or other metal parts.

### **Miscellaneous machine-tool operator**

(SOC 7329: Miscellaneous metalworking and plastic working machine setup operators)

(SOC 7529: Miscellaneous metalworking and plastic working machine operators and tenders)

Operates one or more nonportable, power-driven machine tools not specifically listed, but meeting the general definition of a production machine-tool operator. For wage survey purposes, workers who specialize in one type of machine tool, such as gear-cutting, gear-finishing, planing, or other type of metal-cutting machine are included in this classification, as are workers who alternately work on more than one of the individual machine tools listed. Workers who operate bench lathes or single-purpose milling machines are excluded.

### **Machine-tool operator, toolroom**

(SOC 7329: Miscellaneous metalworking and plastic working machine setup operators)

(SOC 7529: Miscellaneous metalworking and plastic working machine operators and tenders)

Specializes in operating one or more types of machine tools (e.g., jig-boring machine, grinding machine, engine lathe, or other machine tool, including computer-numerical-control and numerical-control) that machine metal for use in making or maintaining jigs, fixtures, cutting tools, gauges, or metal dies or molds used to shape or form metal or other material (e.g., plastic, plaster, rubber, or glass). Toolroom operators typically plan and perform a wide variety of difficult machining operations which require complicated setups and a high degree of accuracy. They install cutting tools; adjust guides, stops, work tables, and other controls to handle the size of stock to be machined; determine the proper feeds, speeds, tooling, and operation sequence, or use those prescribed in drawings, blueprints, or layouts; use a variety of precision-measuring instruments; and make necessary adjustments during machining operation to obtain the requisite dimensions of very close tolerances. Workers also may select the proper coolants and lubricating oils to be used. In general, the work of a machine-tool operator, toolroom, at the skill level required for this classification entails extensive knowledge of machine shop and toolroom practice usually acquired through considerable on-the-job training and experience.

This occupation includes operators who construct machine-shop tools, dies, gauges, jigs, or fixtures for sale as the end product of the establishment, as well as operators engaged in producing or maintaining these items for use within the establishment. In general, most machine-tool operators in establishments classified in SIC 3544 will be classified as machine-tool operators, toolroom.

Machine-tool operators, toolroom, working on flexible manufacturing systems (FMS) or in CNC and NC machining centers, should be considered as working on multiple machine tools.

For wage survey purposes, workers are classified as follows:

#### *Operates one type of machine tool:*

- Automatic-lathe operator
- Boring-machine operator
- Drill-press operator, radial
- Drill-press operator, spindle
- Engine-lathe operator
- Grinding-machine operator
- Milling-machine operator
- Other toolroom machine

#### *Operates multiple machine tools*

### **Machinist, production**

(SOC 6813: Machinists)

(All-round machinist; custom machinist)

Fabricates complete metal parts, mechanisms, or machines by progressively machining, fitting, and assembling parts and equipment as the end product of the establishment. Work involves interpreting written instructions and specifications; planning and laying out work; using a variety of machinist's handtools and precision-measuring instruments; setting up and operating standard machine tools; shaping metal parts to very close tolerances; making standard shop computations relating to dimensions of work, tooling, feeds and speeds of machines; knowledge of the working properties of the common metals; selecting standard materials, parts and equipment needed for work; fitting and assembling parts. In general, the machinist's work normally requires rounded training in machine-shop practice usually acquired through a formal apprenticeship or equivalent training and experience.

### **Polisher and buffer, metal**

(SOC 7522: Grinding, abrading, buffing, and polishing machine operators and tenders)

Polishes or buffs various metal objects using any of a variety of portable polishers or buffers, or by holding workpiece against the wheels or straps of stationary polishing or buffing machines to produce a smooth surface or a high luster. Work involves attaining a smooth finish; removing flaws and machine marks; maintaining the proper contour, radius, and shape, while obtaining the requisite dimensions of close tolerances; selecting the proper wheels, belts, abrasives, and polishing compounds; and setting up and maintaining the equipment. In general, metal polishers and buffers in this classification normally require rounded training and knowledge of the trade, usually ac-

quired through a formal apprenticeship or equivalent training and experience.

### **Polishing- and buffing-machine operator**

(SOC 7522: Grinding, abrading, buffing, and polishing machine operators and tenders)

Polishes or buffs various metal objects on a repetitive basis by holding workpiece against the wheels or straps of stationary polishing or buffing machines to produce a smooth surface or a high luster. Work involves polishing or buffing machined parts to maintain the proper contour, radius, and shape, while maintaining the requisite dimensions of tolerance. Workers in this classification may select the polishing compounds and abrasives to be used, but generally perform only routine and repetitive work on machines set up by others, or may set up and operate machines where wheels, abrasive, and polishing compounds are prescribed.

### **Punch-press operator**

(SOC 7314: Punching and shearing machine setup operators)

(SOC 7514: Punching and shearing machine operators and tenders)

Feeds and operates a power press equipped with special production dies that perform one or more cutting or shaping operation. Stock may be fed into the press individually by the operator, or repeatedly by using an automatic-feed attachment. Work is commonly designated by the functional name of the operation performed, such as blanking or forming; by the descriptive name of the frame, such as arch; or by the mode of transmitting power, such as crank or toggle.

*Class A* - Positions work units in presses which require a high degree of care and accuracy, because the size, shape, or operation of the piece to be machined is difficult; processes unusually large work that is positioned in the press with the aid of others; processes work that must be steadied while other machining operations are performed; performs short-run work which requires the ability to work on a variety of punch-press operations, or to operate several types of punch presses; examines output and makes adjustments, as necessary, to maintain production standards; and sets, aligns, and adjusts dies and fixtures in the press.

*Class B* - Feeds stock and controls and examines punch-press operations, calling a supervisor, leadworker, or die maker to correct problems that arise. Work involves performing single operations, such as punching, blanking or piercing small- or medium-sized stock that is easily positioned by hand; feeding small work units into the press using a feed chute; loading and tending a punch press equipped with a feeding device for handling strip or sheet stock, or equipped with a dial drum, magazine, or hopper feed for handling individual stock blanks.

### **Tool and die maker**

(SOC 6811: Tool and die makers)

(Die maker; mold maker; jig maker; tool maker; fixture maker; gauge maker)

Constructs and repairs jigs, fixtures, cutting tools, gauges, or metal dies or molds used to shape or form metal or non-metallic material (e.g., plastic, plaster, rubber, or glass). Work involves planning and laying out work according to models, blueprints, drawings, or other written or oral specifications; selecting appropriate materials, tools, and processes; making necessary shop computations; setting up and operating various machine tools and related equipment; using various handtools and precision-measuring instruments; working to very close tolerances; heat-treating metal parts, finished tools and dies to achieve required qualities; fitting and assembling parts to prescribed tolerances and allowances. In general, workers in this classification possess an understanding of the working properties of common metals and alloys, and require rounded training in machine-shop and toolroom practice, usually acquired through a formal apprenticeship or equivalent training and experience. Die sinkers are excluded from this classification.

For wage survey purposes, tool and die makers are classified as follows:

*Jobbing* - Makes dies and tools, die sets, jigs, and fixtures as the end product of the establishment (contract tool and die shops).

*Other than jobbing* - Makes or maintains dies and tools, die sets, jigs, and fixtures for use within the establishment.

### **Welders, hand**

(SOC 7714: Welders and cutters)

Welds or fuses machined parts using a variety of processes, such as arc, oxyacetylene, heli-arc, or gas, that fabricates metal parts and repairs broken or cracked objects. Welders also may cut metal with a cutting torch.

*Class A* - Plans and lays out work from drawings, blueprints, or other written specifications; sets up work and determines operation sequence; welds high-pressure vessels or other objects involving critical safety and load requirements; possesses a knowledge of the welding properties of various metals and alloys; and works from a variety of positions.

*Class B* - Performs routine or repetitive welding operations with no critical safety or load requirements; planning and layout of work is prescribed; and works primarily from one position.

## **Welder, machine**

(SOC 7714: Welders and cutters)

(Butt welder; flash welder; seam welder; spot welder)

Operates one or more type of resistance-welding apparatus that welds or bonds metal objects such as bars, pipes, and plates by passing an electric current through the parts to be welded at the point of contact. Applies mechanical pressure, forcing the contact surfaces together at the points to be joined. The type of weld performed may differ according to the apparatus used: spot welding for overlapping units in the form of one or more spot; seam welding for lineal bonding using a rolling electrode; and butt welding for sealing edges without overlapping.

*Class A* – Working from plans, layouts, or other specifications, selects and sets up fixtures and electrodes; determines proper pressures, temperatures, timing, and flow of current; determines the number and spacing of welds; and positions and welds units, using such handtools as hammers, pliers, files, and wrenches.

*Class B* – Working from prescribed current settings and electrodes, performs routine or repetitive welding operations on standard units; and uses fixtures to position work, or positions small parts requiring simple welds by hand.

## **Assembling and Inspecting Occupations**

### **Assembler**

(SOC 772: Assemblers)

(Bench assembler; floor assembler; jig assembler; line assembler; subassembler)

Assembles or fits machined parts to form complete units or subassemblies at a bench, conveyor line, or on the floor. Work depends on the size of the units and the production process, and may require the use of handtools to scrape, chip, or file parts to obtain the desired fit, as well as power tools and special equipment to punch, rivet, solder, or weld parts. Workers who exclusively perform any of these processing operations as part of specialized assembly operations are excluded.

*Class A* – Assembles parts into complete units or subassemblies that require fitting the parts and making decisions regarding the proper performance of each component or the assembled unit. Work involves assembling units according to drawings, blueprints, or other written specifications; assembling units composed of a variety of parts or subassemblies; assembling large units which require careful fitting and adjusting of parts to obtain the specified clearances; and using a variety of hand or powered tools and precision-measuring instruments.

*Class B* – Assembles parts into complete units or subassem-

blies according to prescribed procedures. Work involves assembling a limited range of standard or familiar products composed of small- or medium-sized parts that require some fitting or adjusting; assembling large units that require little or no fitting of component parts; and using a limited variety of hand or powered tools.

*Class C* – Assembles parts for short-cycle or repetitive operations. Work does not involve fitting or making decisions regarding the proper performance of component parts or assembly procedures.

### **Inspector**

(SOC 782: Production inspectors, checkers, and examiners)

Inspects parts, products, or processes of the establishment. Work involves examining parts and products for flaws or defects; and checking dimensions and appearances to ensure that required standards and specifications are met. Inspectors in toolrooms and those who inspect purchased parts are excluded.

*Class A* – Work involves interpreting drawings and specifications for inspecting units composed of a large number of components examining a variety of products or processing operations; determining the cause of flaws in products or processes; devising inspection standards for new products; and making decisions about the quality of the product or operation. Workers in this classification are required to have a thorough knowledge of the processing operations in the branch of work assigned, which includes using a variety of precision-measuring instruments.

*Class B* – Work involves inspecting products or processes in the branch of work assigned, limiting responsibility to familiar products or processes having rigid specifications; making decisions regarding the proper fit or performance of some parts, drawing on the knowledge of the processing operations acquired through past experience; and using precision-measuring instruments.

*Class C* – Work involves using standardized, special-purpose measuring instruments for short-cycle or repetitive inspection operations; and examining parts of products, visually, rejecting units with obvious flaws or defects.

## **Maintenance Occupations**

### **Electrician**

(SOC 6432: Electricians)

Performs a variety of electrical trade functions such as the installation, maintenance, or repair of equipment for the generation, distribution, or utilization of electric energy. Work involves most of the following: Installing or repairing any of a variety of electrical equipment such as generators, transformers, switchboards, controllers, circuit breakers, motors, heating units, conduit systems, or other transmission equipment; working from blueprints,

drawings, layouts, or other specifications; locating and diagnosing trouble in the electrical system or equipment; working standard computations relating to load requirements of wiring or electrical equipment; and using a variety of electrician's handtools and measuring and testing instruments. In general, the work of the maintenance electrician requires rounded training and experience usually acquired through a formal apprenticeship or equivalent training and experience.

### **Machinist**

(SOC 6813: Machinists)

Produces replacement parts and new parts in making repairs of metal parts of mechanical equipment. Work involves most of the following: Interpreting written instructions and specifications; planning and laying out of work; using a variety of machinist's handtools and precision-measuring instruments; setting up and operating standard machine tools; shaping of metal parts to close tolerances; making standard shop computations relating to dimensions of work, tooling, feeds, and speeds of machining; knowledge of the working properties of the common metals; selecting standard materials, parts, and equipment required for this work; and fitting and assembling parts into mechanical equipment. In general, the machinist's work normally requires a rounded training in machine-shop practice usually acquired through a formal apprenticeship or equivalent training and experience.

### **Mechanic**

(SOC 6178: Millwrights)

Repairs machinery or mechanical equipment. Work involves most of the following: Examining machines and mechanical equipment to diagnose source of trouble; dismantling or partly dismantling machines and performing repairs that mainly involve the use of handtools in scraping and fitting parts; replacing broken or defective parts with items obtained from stock; ordering the production of a replacement part by a machine shop or sending the machine to a machine shop for major repairs; preparing written specifications for major repairs or for the production of parts ordered from machine shops; reassembling machines; and making all necessary adjustments for operation. In general, the work of a machinery maintenance mechanic requires rounded training and experience usually acquired through a formal apprenticeship or equivalent training and experience. Excluded from this classification are workers whose primary duties involve setting up or adjusting machines.

## **Material Movement and Custodial Occupations**

### **Janitor**

(SOC 5244: Janitors and cleaners)

Cleans and keeps in an orderly condition factory working areas and washrooms, or premises of an office, apartment house, or commercial or other establishment. Duties involve a combination of the following: Sweeping, mopping or scrubbing, and polishing floors; removing chips, trash, and other refuse; dusting equipment, furniture, or fixtures; polishing metal fixtures or trimmings; providing supplies and minor maintenance services; cleaning lavatories, showers, and restrooms. Workers who specialize in washing windows are excluded.

### **Material handling laborer**

(SOC 8726: Freight, stock, and material movers, not elsewhere classified)

Performs physical tasks to transport or store materials or merchandise. Duties involve one or more of the following: Manually loading or unloading freight cars, trucks, or other transporting devices; unpacking, shelving, or placing items in proper storage locations; or transporting goods by handtruck, cart, or wheelbarrow.

Excluded from this definition are workers whose primary function involves:

- a. Participating directly in the production of goods (e.g., moving items from one production station to another or placing them on or removing from the production process);
- b. Stocking merchandise for sale;
- c. Counting or routing merchandise;
- d. Operating a crane or heavy-duty motorized vehicle such as a forklift or truck;
- e. Loading and unloading ships (longshore workers); or
- f. Traveling on trucks beyond the establishment's physical location to load or unload merchandise.

### **Power-truck operator**

(SOC 8318: Industrial truck and tractor equipment operator)

Operates a manually controlled gasoline- or electrically-powered truck or tractor to transport goods and materials of all kinds about a warehouse, manufacturing plant, or other establishment.

For wage survey purposes, workers are classified by type of power truck, as follows:

*Forklift*  
*Other than forklift*

### **Shipper and receiver**

(SOC 4753: Traffic, shipping and receiving clerk)

Performs clerical and physical tasks in connection with shipping goods of the establishment in which employed and receiving incoming shipments. In performing day-to-day, routine tasks, follows established guidelines. In handling unusual, nonroutine problems, receives specific guidance from supervisor or other officials. May direct and coordinate the activities of other workers engaged in handling goods to be shipped or being received.

Shippers typically are responsible for most of the following: Verifying that orders are accurately filled by comparing items and quantities of goods gathered for shipment against documents; insuring that shipments are properly packaged, identified with shipping information, and loaded into transporting vehicles; preparing and keeping records of goods shipped, *e.g.*, manifests or bills of lading.

Receivers typically are responsible for most of the following: Verifying the correctness of incoming shipments by comparing items and quantities unloaded against bills of lading, invoices, manifests, storage receipts, or other records; checking for damaged goods; insuring that goods are appropriately identified for routing to departments within the establishment; preparing and keeping records of goods received.

For wage survey purposes, workers are classified as follows:

*Shipper*

*Receiver*

*Shipper and receiver*

#### **Tool clerk**

(SOC 4754: Stock and inventory clerks)

(Store clerk; tool checker; tool-crib attendant; tool handler; tool keeper)

Receives, stores, and issues handtools, machine tools, dies, and equipment, such as measuring devices and materials, in industrial establishments. Work consists of most of the following: Keeps records of loaned tools; searches for lost or misplaced tools; prepares periodic inventory and requisitions stock as needed; unpacks and stores new equipment; and reports damaged and worn out equipment to superiors. May carry tools or move them on trucks to workers, and may make minor tool repairs.

#### **Truckdriver**

(SOC 821: Motor vehicle operator)

Drives a truck within a city or industrial area to transport materials, merchandise, or workers between various types of establishments, such as manufacturing plants, freight depots, warehouses, wholesale and retail establishments, or between retail establishments and customers' houses or places of business. May also load or unload truck with or without helpers, make minor mechanical repairs, and keep truck in good working order. Salesroute and over-the-road drivers are excluded.

For wage survey purposes, truckdrivers are classified by type and rated capacity of truck, as follows:

*Truckdriver, light truck*

(straight truck, under 1 1/2 tons, usually 4 wheels)

*Truckdriver, medium truck*

(straight truck, 1 1/2 to 4 tons, usually 6 wheels)

*Truckdriver, heavy truck*

(straight truck, over 4 tons, usually 10 wheels)

*Truckdriver, tractor-trailer*



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