

# **Detroit-Ann Arbor-Flint, MI National Compensation Survey March 1998**

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# Preface

This bulletin provides results of a March 1998 survey of occupational pay in the Detroit-Ann Arbor-Flint, MI, Consolidated Metropolitan Statistical Area (CMSA). Data shown in this bulletin were collected as part of the Bureau of Labor Statistics' (BLS) new program known as the National Compensation Survey (NCS).

The survey could not have been conducted without the cooperation of the many private firms and government jurisdictions that provided pay data included in this bulletin. The Bureau thanks these respondents for their cooperation.

Survey data were collected and reviewed by Bureau of Labor Statistics field economists under the direction of Greg Philipaitis, Assistant Regional Commissioner for Operations of the Chicago Regional Office. The Office of Compensation and Working Conditions, in cooperation with the Office of Field Operations and the Office of Technology and Survey Processing in the BLS National Office, designed the survey, processed the data, and analyzed the survey results.

For additional information regarding this survey, please contact the BLS Chicago Regional Office at (312) 353-1880. You may also write to the Bureau of Labor Statistics at: Division of Compensation Data Analysis and Planning, 2 Massachusetts Avenue, NE, Room 4175, Washington, DC 20212-0001, or call (202) 606-6220, or send e-mail to [ocltinfo@bls.gov](mailto:ocltinfo@bls.gov).

The data contained in this bulletin are also available at the BLS Internet site (<http://stats.bls.gov/comhome.htm>). Data are in three formats: an ASCII file containing the published table formats; an ASCII file containing positional columns of data for manipulation as a data base or spreadsheet; and a Portable Document Format (PDF) file containing the entire bulletin.

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# Introduction

This survey of occupational pay was conducted in the Detroit-Ann Arbor-Flint, MI, Consolidated Metropolitan Statistical Area (CMSA). The CMSA includes Genesee, Lapeer, Lenawee, Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne Counties, MI.

This area was last surveyed in January 1997. Data from the 1997 sample units were updated to reflect March 1998 wage data. Please see Appendix A: Technical Note for details on updating estimates. This bulletin consists primarily of tables whose data are analyzed in the initial textual section. Tabulations provide information on earnings of workers in a variety of occupations and at a wide range of work levels. Also contained in this bulletin is information on the program, a technical note describing survey procedures, and several appendixes with detailed information on occupational classifications and the generic leveling methodology.

## **NCS design and products**

The Bureau of Labor Statistic's (BLS) new National Compensation Survey (NCS) is designed to provide data on the levels and rates of change of occupational wages and employee benefits for localities, broad geographic regions, and the nation as a whole. One output of the NCS will be the Employment Cost Index, a quarterly measure of the change in employer costs for wages and benefits. This bulletin is limited to data on wages and salaries. These data are similar to those released under the Occupational Compensation Survey (OCS), which has been discontinued.

## **NCS more extensive than OCS**

The wage data in this bulletin differ from those in previous Occupational Compensation Surveys by providing broader coverage of occupations and establishments within the survey area.

Occupations surveyed for this bulletin were selected using probability techniques from a list of all those present in each establishment. Previous OCS bulletins were limited to a preselected list of occupations, which represented a small subset of all occupations in the economy. Information in the new bulletin is published for a variety of occupation-based data. This new approach includes data on broad occupational classifications such as white-collar workers, major occupational groups such as sales workers, and individual occupations such as cashiers.

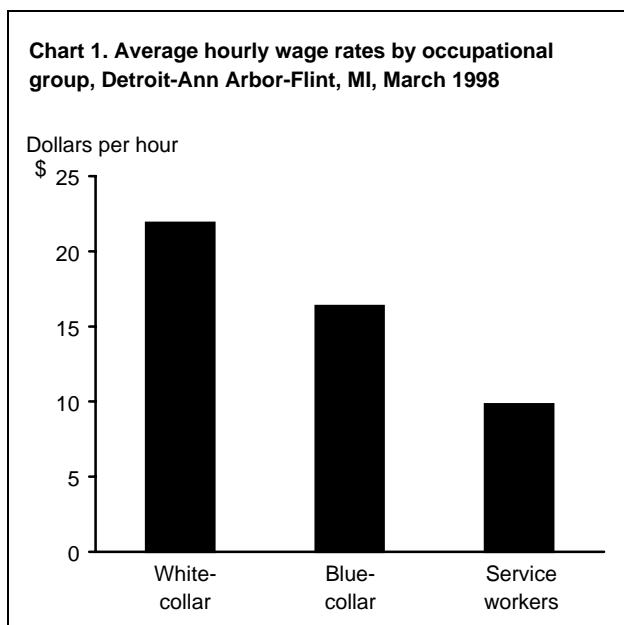
In tables containing work levels within occupational series, the work levels are derived from generic standards that *apply to all* occupational groups. The job levels in the OCS bulletins were based on narrowly-defined descriptions that were not comparable across specific occupations.

Occupational data in this bulletin are also tabulated for other classifications such as industry group, full-time versus part-time workers, union versus nonunion status, time versus incentive status, and establishment employment size. Not all of these series were generated by the OCS program.

The establishments surveyed for this bulletin were limited to those with 50 or more employees. Eventually, NCS will be expanded to cover those now-excluded establishments. Then, virtually all workers in the civilian economy will be surveyed, excluding only agriculture, private households, and employees of the Federal Government.

# Wages in the Detroit-Ann Arbor-Flint, MI Consolidated Metropolitan Statistical Area

Straight-time wages in the Detroit-Ann Arbor-Flint, MI, Consolidated Metropolitan Statistical Area averaged \$18.55 per hour during March 1998. White-collar workers had an average wage of \$21.89 per hour. Blue-collar workers averaged \$16.35 per hour, while service workers had average earnings of \$9.81 per hour. (All comparisons in this analysis cover hourly rates for both full- and part-time workers, unless otherwise noted.)



Within each of these occupational groups, average hourly wages for individual occupations varied. For example, white-collar occupations included registered nurses at \$21.84 per hour, secretaries at \$14.43, and general office clerks at \$11.98. Among occupations in the blue-collar category, truck drivers averaged \$14.44 per hour while stock handlers and baggers averaged \$9.32. Finally, service occupations included janitors and cleaners at \$11.82 per hour and nursing aides, orderlies and attendants at \$8.28 per hour. Table A-1 presents earnings data for 145 detailed occupations; data for other detailed occupations surveyed could not be reported separately due to concerns about the confidentiality of survey respondents and the reliability of the data.

Survey results show that private industry workers in Detroit-Ann Arbor-Flint, MI, earned \$18.10 per hour,

while surveyed State and local government workers averaged \$21.05. Table A-2 reports the average hourly rate for white-collar occupations as \$21.33 in private industry and \$24.38 in State and local government. Blue-collar occupations showed an average hourly rate of \$16.40 in private industry and \$15.38 in State and local government. Service occupations within private industry averaged \$8.18 per hour while those found in State and local government averaged \$14.15.

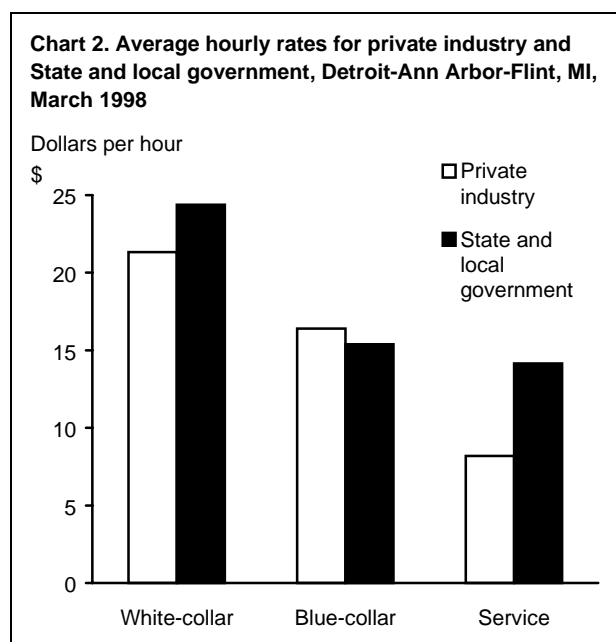
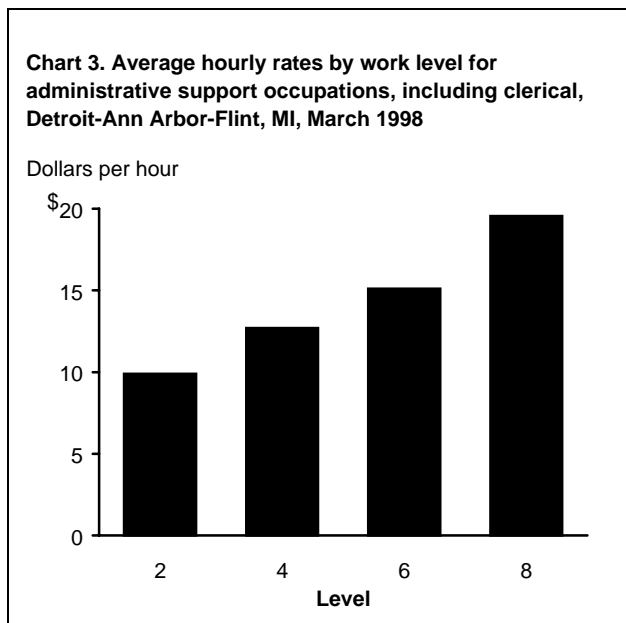


Table A-3 presents data for workers considered by the survey respondents to be either full-time or part-time. Average wages for full-time workers, all occupations, were \$19.40 per hour, compared with an average of \$9.96 per hour for part-time workers.

Data for specific work levels within major occupational groups are reported in table B-1. Occasionally, wage estimates for lower levels of work within major occupational groups are greater than estimates for higher levels. This can occur due to the mix of specific occupations (and industries) represented by the broad group as well as by the variability of the estimate. Some levels within a group may not be published because no workers were identified at that

level or because there were not enough data to guarantee confidentiality and reliability.

Work levels for all major groups span several levels, with professional specialty occupations and executive, administrative, and managerial occupations typically starting and ending at higher work levels than the other groups. Published data for administrative support occupations, including clerical, ranged from level 1 to level 8. As illustrated in Chart 3, the average hourly rate was \$9.89 for level 2, \$12.70 for level 4, \$15.10 for level 6, and \$19.54 for level 8.

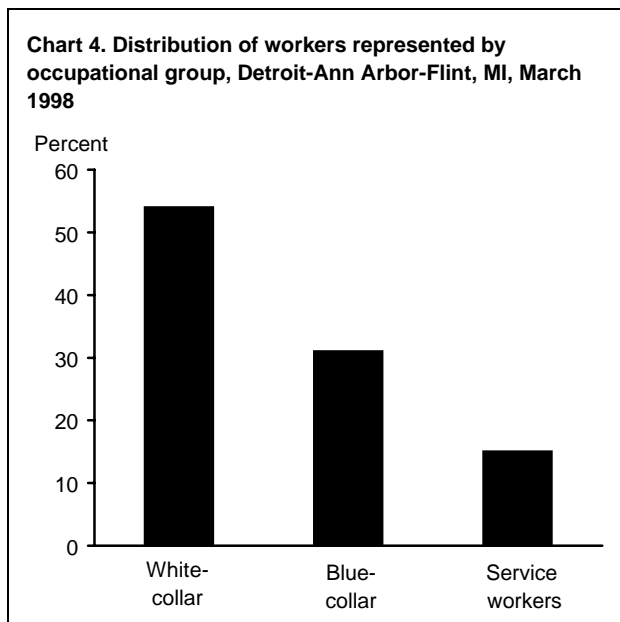


Surveyed union workers had an average hourly rate of \$18.90, as reported in table C-1. Wages for nonunion workers averaged \$18.36. Time workers, whose wages were based solely on an hourly rate or a salary, averaged \$18.58 per hour. Incentive workers, whose wages were at least partially based on productivity payments, averaged \$17.75 per hour.

Table C-2 shows wage data for specific industry divisions within private industry. In the private sector,

hourly wages averaged \$21.40 in all goods-producing industries, and \$21.36 in manufacturing. Hourly wages averaged \$15.62 in all service-producing industries, \$17.71 in finance, insurance and real estate, and \$16.29 in services. Data for other industry divisions did not meet publication criteria.

Table C-4 reports that a total of 1,478,245 workers were represented by the Detroit-Ann Arbor-Flint, MI survey. White-collar occupations included 800,719 workers, or 54 percent, blue-collar occupations included 456,784 workers, or 31 percent; and service occupations included 220,742 workers, or 15 percent.



Data are also presented in appendix table 1 on the number of establishments studied by industry group and employment size. The relative standard errors of published mean hourly earnings for all industries, private industry, and State and local government are available in appendix table 2. The average work levels for published occupational groups and selected occupations are presented in appendix table 3.

**Table A-1. Hourly earnings<sup>1</sup> for selected occupations, all workers<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupation <sup>3</sup>	All industries					
	Mean	Percentiles				
		10	25	Median 50	75	90
<b>All occupations</b> .....	\$18.55	\$7.56	\$10.73	\$17.22	\$23.08	\$31.25
All occupations excluding sales .....	18.69	7.83	10.96	17.45	23.17	31.25
<b>White-collar occupations</b> .....	21.89	9.47	13.00	19.23	27.81	37.40
White-collar occupations excluding sales .....	22.58	10.26	13.78	19.95	28.49	38.17
Professional specialty and technical occupations .....	26.02	14.52	18.66	23.87	31.25	39.98
Professional specialty occupations .....	28.23	16.32	20.38	26.21	33.52	43.16
Engineers, architects, and surveyors .....	29.10	22.10	24.60	28.57	32.62	36.70
Industrial engineers .....	27.69	23.39	25.59	27.49	30.00	31.90
Mechanical engineers .....	27.48	20.19	23.08	26.25	31.33	35.28
Engineers, N.E.C. ....	30.39	22.94	25.00	29.51	34.76	39.88
Mathematical and computer scientists .....	26.00	16.83	20.19	25.48	31.15	35.63
Computer systems analysts and scientists .....	25.63	16.78	19.54	25.20	30.55	35.07
Operations and systems researchers and analysts .....	26.86	18.39	21.17	25.96	31.90	36.06
Natural scientists .....	20.15	9.13	10.85	16.41	28.06	33.12
Health related occupations .....	22.92	16.68	18.16	20.95	23.28	28.23
Physicians .....	29.08	16.36	16.68	18.01	20.24	61.88
Registered nurses .....	21.84	17.37	18.97	21.32	23.16	25.93
Pharmacists .....	27.74	23.69	26.00	26.00	31.06	32.92
Dietitians .....	15.73	11.38	12.82	15.96	17.89	20.09
Physical therapists .....	26.84	19.66	19.82	23.14	28.60	43.40
Teachers, college and university .....	37.84	22.43	28.37	33.06	42.91	62.74
Engineering teachers .....	63.03	36.26	56.69	64.38	71.59	82.84
Health specialties teachers .....	32.82	24.52	28.37	32.68	34.06	42.91
Teachers, post secondary, subject not specified ..	46.76	32.12	32.31	37.15	57.17	81.93
Teachers, post secondary N.E.C. ....	28.07	17.40	19.83	23.08	32.51	52.59
Teachers, except college and university .....	34.20	15.59	25.19	36.43	44.57	49.89
Prekindergarten and kindergarten .....	33.93	18.29	24.90	32.40	44.87	50.24
Elementary school teachers .....	35.18	19.74	27.28	36.65	44.57	47.75
Secondary school teachers .....	36.90	20.83	29.42	38.02	44.87	52.25
Teachers, special education .....	38.78	25.46	33.52	39.85	44.69	45.24
Teachers, N.E.C. ....	33.36	10.93	18.27	38.79	45.37	52.62
Substitute teachers .....	10.92	10.46	10.46	10.83	11.67	12.20
Vocational and educational counselors .....	21.52	11.30	12.74	15.00	22.17	44.67
Librarians, archivists, and curators .....	23.93	15.20	16.10	18.32	39.96	39.96
Librarians .....	23.93	15.20	16.10	18.32	39.96	39.96
Social scientists and urban planners .....	17.94	9.41	10.58	14.39	20.19	30.77
Social, recreation, and religious workers .....	22.04	12.50	15.00	18.77	21.32	45.24
Social workers .....	22.23	13.00	15.43	18.77	21.70	45.24
Lawyers and judges .....	45.80	25.94	31.73	40.25	62.50	74.52
Lawyers .....	45.64	23.08	31.68	38.94	66.83	74.52
Writers, authors, entertainers, athletes, and professionals, N.E.C. ....	30.97	15.87	23.15	29.31	34.86	45.53
Technical occupations .....	19.19	11.18	15.14	18.99	22.50	27.22
Clinical laboratory technologists and technicians .....	15.50	8.19	10.10	16.60	20.71	21.33
Health record technologists and technicians .....	14.04	10.00	10.23	11.12	19.20	20.67
Radiological technicians .....	17.30	13.07	14.63	16.94	19.03	23.08
Licensed practical nurses .....	14.63	13.15	13.91	14.52	15.45	16.18
Health technologists and technicians, N.E.C. ....	12.97	10.10	10.75	12.44	15.08	17.28
Electrical and electronic technicians .....	20.21	16.25	18.08	19.24	22.31	25.00
Mechanical engineering technicians .....	22.19	15.14	20.09	23.70	24.64	26.17
Drafters .....	21.28	7.00	15.38	21.92	27.14	34.07
Chemical technicians .....	18.68	16.16	17.19	17.60	21.00	22.13
Computer programmers .....	28.21	19.28	23.55	28.39	31.66	40.63
Technical and related occupations, N.E.C. ....	19.28	12.21	16.63	18.63	22.50	27.30
Executive, administrative, and managerial occupations ...	28.75	14.46	19.02	25.36	34.76	45.18
Executives, administrators, and managers .....	34.14	15.50	23.08	31.57	41.15	48.76
Administrators and officials, public administration .....	29.84	21.97	28.27	28.92	29.33	35.63
Financial managers .....	37.95	17.00	24.05	31.54	48.13	68.75
Managers., marketing, advertising and public relations .....	40.38	27.34	37.53	40.87	45.18	48.38
Administrators, education and related fields .....	36.90	15.63	31.35	37.21	43.93	49.87
Managers, medicine and health .....	28.20	21.62	23.30	25.77	28.29	34.20
Managers and administrators, N.E.C. ....	36.43	18.00	26.00	33.70	41.54	49.22

See footnotes at end of table.

**Table A-1. Hourly earnings<sup>1</sup> for selected occupations, all workers<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	All industries					
	Mean	Percentiles				
		10	25	Median 50	75	90
<b>White-collar occupations</b> (-Continued)						
Executive, administrative, and managerial occupations (-Continued)						
Management related occupations .....	\$23.26	\$14.46	\$17.69	\$21.84	\$26.89	\$33.98
Accountants and auditors .....	21.37	15.87	18.03	21.61	23.86	25.59
Other financial officers .....	31.03	17.07	19.38	29.48	46.61	46.61
Personnel, training, and labor relations specialists .....	24.07	14.46	17.94	22.64	27.40	30.79
Purchasing agents and buyers, N.E.C. ....	26.76	16.42	22.49	26.59	31.70	36.38
Construction inspectors .....	21.35	20.41	20.41	21.38	22.25	22.25
Management related occupations, N.E.C. ....	24.08	14.48	19.38	23.46	28.85	33.46
Sales occupations .....	16.28	6.26	8.25	13.13	21.16	31.35
Supervisors, sales occupations .....	18.56	10.10	12.19	17.88	21.84	31.21
Advertising and related sales occupations .....	21.17	12.98	15.10	16.83	22.98	28.03
Sales occupations, other business services .....	21.23	11.17	13.13	20.75	27.19	33.00
Sales representatives, mining, manufacturing, and wholesale .....	23.84	13.91	16.00	19.91	33.72	37.39
Sales workers, motor vehicles and boats .....	25.76	10.38	14.53	22.98	32.41	42.41
Sales workers, furniture & home furnishings .....	13.23	6.97	8.15	10.00	17.29	21.57
Sales workers, other commodities .....	10.98	6.00	6.90	9.62	12.61	18.57
Sales counter clerks .....	8.51	7.50	7.50	8.75	8.85	10.40
Cashiers .....	8.06	5.75	6.25	7.40	8.87	11.64
Administrative support occupations, including clerical .....	13.07	8.17	10.00	12.24	15.35	18.32
Supervisors, general office .....	18.08	12.15	13.85	17.73	19.11	29.63
Supervisors, financial records processing .....	18.34	13.92	14.18	15.85	23.56	24.88
Computer operators .....	15.95	9.61	12.26	14.49	20.55	25.37
Secretaries .....	14.43	10.08	11.40	13.86	16.47	20.69
Stenographers .....	13.16	10.00	10.75	12.45	15.24	18.32
Typists .....	9.71	7.50	7.78	9.29	10.63	13.02
Interviewers .....	10.21	8.00	8.71	10.35	10.97	12.47
Receptionists .....	9.19	7.04	7.04	8.83	11.00	12.04
Order clerks .....	12.16	8.10	10.00	10.90	13.50	17.91
Personnel clerks except payroll & timekeeping .....	14.01	10.09	13.34	14.10	14.75	16.37
Library clerks .....	10.99	5.32	6.20	12.08	14.39	17.97
Records clerks, N.E.C. ....	10.82	7.25	7.25	9.84	13.50	15.81
Bookkeepers, accounting and auditing clerks .....	11.47	8.00	8.82	10.76	13.25	15.72
Payroll and timekeeping clerks .....	12.43	7.75	11.22	12.50	15.00	16.06
Billing clerks .....	10.92	8.60	9.13	10.50	12.09	14.13
Telephone operators .....	11.28	6.25	7.90	10.10	15.79	15.79
Production coordinators .....	19.28	12.25	15.63	16.71	24.05	26.22
Traffic, shipping and receiving clerks .....	11.99	8.05	8.50	9.80	13.64	19.91
Stock and inventory clerks .....	10.64	7.95	8.13	9.50	11.82	15.41
Material recording, scheduling, and distribution clerks, N.E.C. ....	14.25	6.20	10.00	15.40	20.07	20.07
Insurance adjusters, examiners, & investigators ..	13.63	10.44	11.32	13.01	15.65	17.47
Investigators and adjusters except insurance .....	13.88	8.00	11.00	14.54	18.75	19.22
Bill and account collectors .....	12.14	9.07	9.63	11.92	12.62	15.91
General office clerks .....	11.98	8.33	10.08	11.80	12.96	14.86
Bank tellers .....	9.81	8.00	8.33	9.39	11.11	12.89
Data entry keyers .....	8.59	6.79	7.16	8.00	9.46	12.23
Teachers' aides .....	10.80	7.99	9.30	10.94	11.86	14.07
Administrative support occupations, N.E.C. ....	13.88	8.65	9.89	13.88	16.38	17.72
<b>Blue-collar occupations</b> .....						
Precision production, craft, and repair occupations .....	20.41	13.38	16.56	21.75	23.55	25.01
Supervisors, mechanics and repairers .....	22.22	14.02	19.80	19.80	28.32	30.18
Automobile mechanics .....	18.54	13.52	16.00	17.50	20.62	24.93
Bus, truck, and stationary engine mechanics .....	15.65	13.00	13.00	16.70	17.77	18.23
Heavy equipment mechanics .....	20.32	17.60	18.26	19.16	23.27	23.27
Industrial machinery repairers .....	20.28	12.69	16.04	23.51	23.62	23.62
Millwrights .....	22.77	21.82	23.17	23.17	23.27	23.40
Mechanics and repairers, N.E.C. ....	19.86	15.34	17.72	19.17	23.62	24.46
Supervisors, construction trades, N.E.C. ....	24.95	18.27	21.00	24.02	29.22	33.40
Carpenters .....	21.65	17.73	18.04	23.27	23.27	23.27
Electricians .....	23.14	20.39	23.53	23.53	23.62	24.14

See footnotes at end of table.



**Table A-1. Hourly earnings<sup>1</sup> for selected occupations, all workers<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	All industries					
	Mean	Percentiles				
		10	25	Median 50	75	90
<b>Blue-collar occupations</b> (-Continued)						
Precision production, craft, and repair occupations (-Continued)						
Plumbers, pipefitters and steamfitters .....	\$23.65	\$22.94	\$23.27	\$23.31	\$24.95	\$27.72
Construction trades, N.E.C. ....	15.69	12.98	12.98	13.39	18.00	21.61
Supervisors, production occupations .....	20.06	12.23	14.50	20.77	24.63	28.51
Tool and die makers .....	22.57	19.23	21.61	23.62	24.31	24.31
Tool and die maker apprentices .....	15.85	9.95	11.25	16.14	20.35	22.94
Machinists .....	20.38	15.50	18.00	20.87	23.40	23.40
Precision grinders, filers, and tool sharpeners .....	21.75	15.50	23.40	23.40	23.55	23.83
Patternmakers, layout workers, and cutters .....	24.30	18.60	21.88	25.01	25.49	31.36
Butchers and meat cutters .....	14.66	10.45	13.00	15.60	15.95	19.00
Inspectors, testers, and graders .....	19.88	11.91	20.25	20.47	22.62	22.62
Stationary engineers .....	19.36	18.51	18.89	18.89	19.40	20.88
Machine operators, assemblers, and inspectors .....	15.33	7.93	10.25	16.48	20.25	20.57
Lathe and turning machine operators .....	14.72	9.10	13.98	15.57	16.48	18.00
Punching and stamping press operators .....	16.04	7.00	9.40	20.05	20.46	20.52
Grinding, abrading, buffing, and polishing machine operators .....	11.90	7.75	8.50	10.00	15.75	17.75
Fabricating machine operators, N.E.C. ....	20.27	20.17	20.25	20.61	20.61	20.71
Textile sewing machine operators .....	11.86	5.93	7.45	8.70	20.07	20.07
Laundrying and dry cleaning machine operators .....	7.63	6.25	6.50	7.25	8.79	10.00
Packaging and filling machine operators .....	10.62	8.50	8.50	10.25	10.25	12.50
Miscellaneous machine operators, N.E.C. ....	12.35	7.50	8.50	10.96	15.78	20.32
Welders and cutters .....	16.13	8.71	12.05	19.16	20.32	20.47
Assemblers .....	16.48	7.45	11.86	20.04	20.27	20.57
Production inspectors, checkers and examiners ..	15.18	9.86	10.02	17.30	20.10	20.36
Transportation and material moving occupations .....	15.36	8.07	10.35	15.13	20.05	20.57
Truck drivers .....	14.44	8.00	11.59	13.99	18.11	20.17
Bus drivers .....	12.17	7.00	8.20	11.33	14.08	20.98
Crane and tower operators .....	15.28	10.00	10.30	16.26	20.36	20.36
Industrial truck and tractor equipment operators ..	15.56	8.50	9.67	19.71	20.05	20.12
Handlers, equipment cleaners, helpers, and laborers .....	10.57	5.95	7.50	9.13	12.80	17.46
Groundskeepers and gardeners except farm .....	12.90	9.95	10.05	11.60	15.43	17.06
Stock handlers and baggers .....	9.32	5.61	6.00	7.50	11.83	14.02
Freight, stock, and material handlers, N.E.C. ....	11.19	8.00	9.13	11.00	12.58	15.38
Vehicle washers and equipment cleaners .....	10.30	5.15	7.00	8.30	12.05	19.94
Hand packers and packagers .....	9.70	8.00	8.00	8.65	9.61	14.31
Laborers except construction, N.E.C. ....	12.68	8.15	8.65	11.69	16.66	17.46
<b>Service occupations</b> .....	9.81	5.50	6.50	8.25	11.74	17.52
Protective service occupations .....	13.27	5.70	6.50	14.36	18.62	21.44
Firefighting occupations .....	15.96	12.28	14.65	16.21	16.95	17.66
Police and detectives, public service .....	19.01	15.01	18.35	19.38	20.96	21.58
Correctional institution officers .....	15.65	11.30	14.36	16.05	17.52	18.58
Crossing guards .....	6.85	6.00	6.25	6.50	7.00	9.25
Guards and police except public service .....	7.28	5.50	5.70	6.40	8.00	11.75
Protective service occupations, N.E.C. ....	14.87	6.68	11.88	14.27	15.68	23.76
Food service occupations .....	6.84	4.15	5.33	6.46	8.26	10.01
Bartenders .....	7.57	6.00	6.25	7.50	8.42	9.22
Waiters and waitresses .....	4.00	2.65	2.65	3.02	4.45	7.51
Cooks .....	9.00	6.50	7.50	8.50	10.45	12.25
Food counter, fountain, and related occupations ..	5.72	4.18	4.18	5.50	7.00	8.66
Food preparation occupations, N.E.C. ....	6.36	4.76	5.33	5.90	7.00	8.77

See footnotes at end of table.

**Table A-1. Hourly earnings<sup>1</sup> for selected occupations, all workers<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	All industries					
	Mean	Percentiles				
		10	25	Median 50	75	90
<b>Service occupations (-Continued)</b>						
Health service occupations .....	\$8.71	\$6.91	\$7.26	\$8.20	\$9.96	\$11.07
Health aides, except nursing .....	10.48	8.14	9.66	10.47	11.39	12.81
Nursing aides, orderlies and attendants .....	8.28	6.80	7.15	7.84	9.19	10.61
Cleaning and building service occupations .....	11.27	6.50	7.92	10.36	14.28	19.51
Supervisors, cleaning & building service workers	11.81	9.50	10.34	10.34	13.93	14.79
Maids and housemen .....	6.91	6.00	6.25	6.54	7.92	7.92
Janitors and cleaners .....	11.82	7.00	8.62	10.68	14.61	19.51
Personal service occupations .....	8.20	5.50	6.25	7.25	9.38	10.90
Early childhood teachers' assistants .....	7.47	5.72	6.00	6.00	8.76	10.68
Child care workers, N.E.C. ....	9.34	5.43	7.07	8.96	9.74	15.57
Service occupations, N.E.C. ....	8.51	6.20	6.50	9.02	9.38	10.90

<sup>1</sup> Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours. The 10th, 25th, 50th, 75th and 90th percentiles designate position in the earnings distribution. At the 50th percentile, the median, half of the workers receive the same as or more than the rate shown, and half receive the same as or less than the rate shown. At the 25th percentile, one-fourth of the workers earn the same as or less than the rate shown. At the 75th percentile, one-fourth earn the same as or more than the rate shown. The 10th and 90th percentiles follow the same logic.

<sup>2</sup> All workers include full-time and part-time workers.

Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm, where a 40-hour week is the minimum full-time schedule.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Table A-2. Hourly earnings<sup>1</sup> for selected occupations, all workers<sup>2</sup>, private industry and State and local government, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupation <sup>3</sup>	Private industry						State and local government					
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
<b>All occupations</b> .....	\$18.10	\$7.32	\$10.34	\$17.28	\$22.86	\$29.82	\$21.05	\$9.74	\$12.23	\$16.92	\$25.87	\$41.44
All occupations excluding sales .....	18.23	7.50	10.50	17.54	23.01	29.72	21.05	9.74	12.23	16.92	25.87	41.44
<b>White-collar occupations</b> .....	21.33	9.13	12.98	19.20	26.60	35.07	24.38	10.59	13.32	19.80	33.97	44.59
White-collar occupations excluding sales .....	22.10	10.12	13.92	19.96	27.29	35.35	24.39	10.59	13.33	19.80	34.00	44.59
Professional specialty and technical occupations .....	24.79	15.43	18.99	23.28	29.27	34.80	29.44	11.67	17.76	29.24	40.25	46.71
Professional specialty occupations .....	26.89	17.31	20.77	25.28	31.08	36.52	31.19	13.02	19.42	31.23	42.21	48.66
Engineers, architects, and surveyors .....	29.09	22.10	24.58	28.56	32.62	36.72	-	-	-	-	-	-
Industrial engineers .....	27.69	23.39	25.59	27.49	30.00	31.90	-	-	-	-	-	-
Mechanical engineers .....	27.48	20.19	23.08	26.25	31.33	35.28	-	-	-	-	-	-
Engineers, N.E.C. ....	30.39	22.94	25.00	29.51	34.76	39.88	-	-	-	-	-	-
Mathematical and computer scientists .....	25.90	16.83	20.19	25.34	30.99	35.37	-	-	-	-	-	-
Computer systems analysts and scientists .....	25.63	16.78	19.42	25.14	30.56	35.07	-	-	-	-	-	-
Operations and systems researchers and analysts .....	26.59	18.17	21.15	25.96	31.73	35.71	-	-	-	-	-	-
Natural scientists .....	30.37	21.31	25.62	29.11	33.12	38.64	-	-	-	-	-	-
Health related occupations .....	22.78	16.68	18.01	20.97	23.31	28.07	24.12	16.92	19.36	20.81	22.81	43.40
Physicians .....	28.93	16.36	16.68	18.01	19.30	69.58	-	-	-	-	-	-
Registered nurses .....	21.85	17.36	18.87	21.40	23.28	25.99	21.73	17.78	20.32	21.09	22.01	24.54
Pharmacists .....	27.74	23.69	26.00	26.00	31.06	32.92	-	-	-	-	-	-
Physical therapists .....	23.85	18.78	19.66	20.75	24.93	38.90	-	-	-	-	-	-
Teachers, college and university .....	37.27	20.79	29.32	35.69	40.87	54.70	37.90	22.45	28.37	33.06	42.91	63.68
Teachers, post secondary, subject not specified .....	46.76	32.12	32.31	37.15	57.17	81.93	-	-	-	-	-	-
Teachers, post secondary N.E.C. ....	-	-	-	-	-	-	27.56	17.40	19.83	22.43	27.76	52.59
Teachers, except college and university .....	18.67	10.05	12.31	17.81	23.24	27.50	34.71	16.31	26.60	36.96	44.59	50.24
Prekindergarten and kindergarten .....	-	-	-	-	-	-	34.41	19.14	25.97	33.08	44.87	50.24
Elementary school teachers .....	20.01	11.27	14.19	18.56	24.03	32.26	35.49	20.20	27.92	37.31	44.57	48.04
Secondary school teachers .....	20.79	12.50	14.81	20.49	25.19	28.13	38.15	23.85	30.23	38.92	44.87	52.61
Teachers, special education .....	-	-	-	-	-	-	38.78	25.46	33.52	39.85	44.69	45.24
Teachers, N.E.C. ....	-	-	-	-	-	-	33.65	11.27	18.27	39.00	45.37	52.62
Vocational and educational counselors .....	14.68	8.57	10.05	11.66	22.17	22.17	22.05	11.91	12.94	15.01	38.66	44.67
Librarians, archivists, and curators .....	-	-	-	-	-	-	24.42	13.26	15.52	19.51	39.96	39.96
Librarians .....	-	-	-	-	-	-	24.42	13.26	15.52	19.51	39.96	39.96
Social scientists and urban planners .....	-	-	-	-	-	-	-	-	-	-	-	-
Social, recreation, and religious workers .....	14.60	11.00	12.00	13.50	18.29	21.32	23.83	13.72	16.57	18.90	24.68	45.24
Social workers .....	14.60	11.00	12.00	13.50	18.29	21.32	24.08	14.04	16.93	18.90	29.77	45.24
Lawyers and judges .....	-	-	-	-	-	-	-	-	-	-	-	-
Writers, authors, entertainers, athletes, and professionals, N.E.C. ....	30.54	15.87	22.22	27.45	34.86	46.15	-	-	-	-	-	-
Technical occupations .....	19.77	12.80	15.70	19.23	23.21	28.29	14.75	8.24	10.21	14.44	18.63	21.50
Clinical laboratory technologists and technicians .....	19.34	14.85	17.53	20.36	20.97	23.12	-	-	-	-	-	-
Radiological technicians .....	17.25	13.00	14.63	16.54	18.89	23.08	-	-	-	-	-	-
Licensed practical nurses .....	14.62	13.15	13.91	14.51	15.39	16.18	14.69	11.85	13.88	15.07	16.03	16.03
Health technologists and technicians, N.E.C. ....	12.76	10.52	10.75	12.03	14.36	16.38	14.08	9.00	9.78	13.06	19.34	19.34
Electrical and electronic technicians .....	20.21	16.25	18.08	19.24	22.31	25.00	-	-	-	-	-	-
Mechanical engineering technicians .....	22.19	15.14	20.09	23.70	24.64	26.17	-	-	-	-	-	-
Drafters .....	21.28	7.00	15.38	21.92	27.14	34.07	-	-	-	-	-	-
Chemical technicians .....	18.68	16.16	17.19	17.60	21.00	22.13	-	-	-	-	-	-
Computer programmers .....	28.19	19.28	24.12	28.39	30.26	40.63	-	-	-	-	-	-
Technical and related occupations, N.E.C. ....	21.81	15.29	17.65	22.50	24.04	28.67	16.75	12.21	12.21	17.37	18.63	21.50
Executive, administrative, and managerial occupations .....	29.01	14.42	18.46	25.77	35.45	45.23	26.48	18.70	20.93	22.86	29.33	43.93
Executives, administrators, and managers .....	34.35	14.28	22.60	31.80	41.19	49.22	32.15	21.96	26.13	29.33	37.21	45.95
Administrators and officials, public administration .....	-	-	-	-	-	-	29.84	21.97	28.27	28.92	29.33	35.63
Financial managers .....	38.48	17.00	24.05	31.54	48.13	68.75	-	-	-	-	-	-

See footnotes at end of table.

**Table A-2. Hourly earnings<sup>1</sup> for selected occupations, all workers<sup>2</sup>, private industry and State and local government, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	Private industry						State and local government						
	Mean	Percentiles					Mean	Percentiles					
		10	25	Median 50	75	90		10	25	Median 50	75	90	
<b>White-collar occupations</b> (-Continued)													
Executive, administrative, and managerial occupations (-Continued)													
Executives, administrators, and managers (-Continued)													
Managers., marketing, advertising and public relations .....	\$40.38	\$27.34	\$37.53	\$40.87	\$45.18	\$48.38	-	-	-	-	-	-	-
Administrators, education and related fields .....	19.28	13.24	13.24	16.57	22.33	32.69	\$43.79	\$36.46	\$37.21	\$43.93	\$49.87	\$49.87	\$49.87
Managers, medicine and health .....	28.42	21.62	23.30	25.77	28.29	34.20	-	-	-	-	-	-	-
Managers and administrators, N.E.C. ....	36.50	18.00	26.25	33.85	41.22	49.33	-	-	-	-	-	-	-
Management related occupations .....	23.47	14.45	17.31	21.95	27.40	34.04	21.63	17.64	19.77	21.38	22.64	25.19	25.19
Accountants and auditors .....	21.36	15.87	18.03	21.52	23.86	25.59	-	-	-	-	-	-	-
Other financial officers .....	33.28	16.51	21.64	31.99	46.61	50.00	-	-	-	-	-	-	-
Personnel, training, and labor relations specialists .....	24.32	14.46	17.31	24.62	27.59	39.18	-	-	-	-	-	-	-
Purchasing agents and buyers, N.E.C. ....	26.86	16.42	22.93	26.89	31.70	36.52	-	-	-	-	-	-	-
Construction inspectors .....	-	-	-	-	-	-	21.35	20.41	20.41	21.38	22.25	22.25	22.25
Management related occupations, N.E.C. ....	24.44	14.66	19.40	23.70	29.42	34.01	-	-	-	-	-	-	-
Sales occupations .....	16.29	6.26	8.25	13.13	21.16	31.35	-	-	-	-	-	-	-
Supervisors, sales occupations .....	18.56	10.10	12.19	17.88	21.84	31.21	-	-	-	-	-	-	-
Advertising and related sales occupations .....	21.17	12.98	15.10	16.83	22.98	28.03	-	-	-	-	-	-	-
Sales occupations, other business services .....	21.23	11.17	13.13	20.75	27.19	33.00	-	-	-	-	-	-	-
Sales representatives, mining, manufacturing, and wholesale .....	23.84	13.91	16.00	19.91	33.72	37.39	-	-	-	-	-	-	-
Sales workers, motor vehicles and boats .....	25.76	10.38	14.53	22.98	32.41	42.41	-	-	-	-	-	-	-
Sales workers, furniture & home furnishings .....	13.23	6.97	8.15	10.00	17.29	21.57	-	-	-	-	-	-	-
Sales workers, other commodities .....	10.98	6.00	6.90	9.62	12.61	18.57	-	-	-	-	-	-	-
Sales counter clerks .....	8.51	7.50	7.50	8.75	8.85	10.40	-	-	-	-	-	-	-
Cashiers .....	8.07	5.75	6.25	7.40	8.87	11.64	-	-	-	-	-	-	-
Administrative support occupations, including clerical .....	13.11	8.13	9.82	12.15	15.54	19.22	12.93	9.30	11.06	12.60	14.86	16.48	16.48
Supervisors, general office .....	18.30	12.15	12.15	16.25	22.36	29.63	-	-	-	-	-	-	-
Supervisors, financial records processing .....	18.34	13.92	14.18	15.85	23.56	24.88	-	-	-	-	-	-	-
Secretaries .....	15.03	9.74	11.29	14.22	18.26	21.42	13.37	10.52	11.43	12.99	14.31	16.19	16.19
Typists .....	10.67	7.85	8.50	10.00	11.84	15.02	-	-	-	-	-	-	-
Interviewers .....	10.18	8.00	8.54	10.35	10.98	12.59	-	-	-	-	-	-	-
Receptionists .....	9.19	7.04	7.04	8.83	11.00	12.04	-	-	-	-	-	-	-
Order clerks .....	12.16	8.10	10.00	10.90	13.50	17.91	-	-	-	-	-	-	-
Library clerks .....	-	-	-	-	-	-	9.82	5.32	5.85	12.08	13.81	14.39	14.39
Records clerks, N.E.C. ....	9.48	7.25	7.25	8.41	11.99	11.99	-	-	-	-	-	-	-
Bookkeepers, accounting and auditing clerks .....	10.98	8.00	8.50	10.13	11.71	15.35	15.15	12.38	13.49	14.86	17.32	17.95	17.95
Payroll and timekeeping clerks .....	12.43	7.75	11.22	12.50	15.00	16.06	-	-	-	-	-	-	-
Billing clerks .....	10.52	8.60	9.04	10.50	11.60	13.28	-	-	-	-	-	-	-
Telephone operators .....	11.28	6.25	7.90	10.10	15.79	15.79	-	-	-	-	-	-	-
Production coordinators .....	19.28	12.25	15.63	16.71	24.05	26.22	-	-	-	-	-	-	-
Traffic, shipping and receiving clerks .....	11.99	8.05	8.50	9.80	13.64	19.91	-	-	-	-	-	-	-
Stock and inventory clerks .....	10.64	7.95	8.13	9.50	11.82	15.41	-	-	-	-	-	-	-
Material recording, scheduling, and distribution clerks, N.E.C. ....	14.25	6.20	10.00	15.40	20.07	20.07	-	-	-	-	-	-	-
Insurance adjusters, examiners, & investigators .....	13.63	10.44	11.32	13.01	15.65	17.47	-	-	-	-	-	-	-
Investigators and adjusters except insurance .....	13.88	8.00	11.00	14.54	18.75	19.22	-	-	-	-	-	-	-
Bill and account collectors .....	12.14	9.07	9.63	11.92	12.62	15.91	-	-	-	-	-	-	-
General office clerks .....	12.04	7.59	9.48	11.66	12.82	19.67	11.92	9.41	11.06	11.80	12.98	14.70	14.70
Bank tellers .....	9.81	8.00	8.33	9.39	11.11	12.89	-	-	-	-	-	-	-

See footnotes at end of table.

**Table A-2. Hourly earnings<sup>1</sup> for selected occupations, all workers<sup>2</sup>, private industry and State and local government, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	Private industry						State and local government					
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
<b>White-collar occupations (-Continued)</b>												
Administrative support occupations, including clerical (-Continued)												
Data entry keyers .....	\$8.09	\$6.79	\$7.16	\$7.65	\$8.69	\$10.23	-	-	-	-	-	-
Teachers' aides .....	-	-	-	-	-	-	\$10.82	\$7.99	\$9.30	\$10.94	\$11.86	\$14.07
Administrative support occupations, N.E.C. ....	13.80	8.61	9.42	11.65	16.38	17.99	14.11	9.93	13.85	15.18	15.59	16.48
<b>Blue-collar occupations</b>												
Precision production, craft, and repair occupations .....	16.40	8.00	10.65	18.00	20.57	23.53	15.38	10.74	11.61	15.02	18.51	20.23
Supervisors, mechanics and repairers .....	20.55	13.38	16.50	22.30	23.55	25.01	18.61	13.18	16.56	18.89	20.23	23.14
Heavy equipment mechanics .....	22.40	14.02	19.80	20.75	29.13	30.22	-	-	-	-	-	-
Industrial machinery repairers .....	21.14	18.26	18.84	23.27	23.27	23.27	-	-	-	-	-	-
Millwrights .....	20.28	12.69	16.04	23.51	23.62	23.62	-	-	-	-	-	-
Mechanics and repairers, N.E.C. ....	22.77	21.82	23.17	23.17	23.27	23.40	-	-	-	-	-	-
Supervisors, construction trades, N.E.C. ....	19.95	15.34	18.07	19.17	23.62	24.46	-	-	-	-	-	-
Electricians .....	26.57	18.27	21.63	27.13	31.27	34.02	-	-	-	-	-	-
Plumbers, pipefitters and steamfitters .....	22.96	20.57	23.53	23.53	23.62	23.62	-	-	-	-	-	-
Supervisors, production occupations ..	23.65	22.94	23.27	23.31	24.95	27.72	-	-	-	-	-	-
Tool and die makers .....	20.06	12.23	14.50	20.77	24.63	28.51	-	-	-	-	-	-
Tool and die maker apprentices .....	22.57	19.23	21.61	23.62	24.31	24.31	-	-	-	-	-	-
Machinists .....	15.85	9.95	11.25	16.14	20.35	22.94	-	-	-	-	-	-
Precision grinders, filers, and tool sharpeners .....	20.38	15.50	18.00	20.87	23.40	23.40	-	-	-	-	-	-
Patternmakers, layout workers, and cutters .....	21.75	15.50	23.40	23.40	23.55	23.83	-	-	-	-	-	-
Butchers and meat cutters .....	24.30	18.60	21.88	25.01	25.49	31.36	-	-	-	-	-	-
Inspectors, testers, and graders .....	14.66	10.45	13.00	15.60	15.95	19.00	-	-	-	-	-	-
Machine operators, assemblers, and inspectors .....	19.88	11.91	20.25	20.47	22.62	22.62	-	-	-	-	-	-
Lathe and turning machine operators .....	15.33	7.93	10.25	16.48	20.25	20.57	-	-	-	-	-	-
Punching and stamping press operators .....	14.72	9.10	13.98	15.57	16.48	18.00	-	-	-	-	-	-
Grinding, abrading, buffing, and polishing machine operators .....	16.04	7.00	9.40	20.05	20.46	20.52	-	-	-	-	-	-
Fabricating machine operators, N.E.C. ....	11.90	7.75	8.50	10.00	15.75	17.75	-	-	-	-	-	-
Textile sewing machine operators .....	20.27	20.17	20.25	20.61	20.61	20.71	-	-	-	-	-	-
Laundering and dry cleaning machine operators .....	11.86	5.93	7.45	8.70	20.07	20.07	-	-	-	-	-	-
Packaging and filling machine operators .....	7.22	6.25	6.49	6.90	7.74	8.79	-	-	-	-	-	-
Miscellaneous machine operators, N.E.C. ....	10.62	8.50	8.50	10.25	10.25	12.50	-	-	-	-	-	-
Welders and cutters .....	12.35	7.50	8.50	10.96	15.78	20.32	-	-	-	-	-	-
Assemblers .....	16.13	8.71	12.05	19.16	20.32	20.47	-	-	-	-	-	-
Production inspectors, checkers and examiners .....	16.48	7.45	11.86	20.04	20.27	20.57	-	-	-	-	-	-
Transportation and material moving occupations .....	15.18	9.86	10.02	17.30	20.10	20.36	-	-	-	-	-	-
Truck drivers .....	15.86	8.00	9.67	18.11	20.12	20.57	12.94	10.44	11.33	13.43	14.52	15.22
Bus drivers .....	14.77	8.25	12.32	15.25	18.11	20.17	-	-	-	-	-	-
Crane and tower operators .....	-	-	-	-	-	-	12.69	10.35	11.33	13.12	14.08	15.15
Industrial truck and tractor equipment operators .....	15.28	10.00	10.30	16.26	20.36	20.36	-	-	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers .....	15.56	8.50	9.67	19.71	20.05	20.12	-	-	-	-	-	-
Groundskeepers and gardeners except farm .....	10.41	5.92	7.50	8.75	12.64	17.46	12.76	8.51	10.05	11.60	15.43	16.49
Stock handlers and baggers .....	-	-	-	-	-	-	12.90	9.95	10.05	11.60	15.43	17.06
Freight, stock, and material handlers, N.E.C. ....	9.32	5.61	6.00	7.50	11.83	14.02	-	-	-	-	-	-
	11.19	8.00	9.13	11.00	12.58	15.38	-	-	-	-	-	-

See footnotes at end of table.

**Table A-2. Hourly earnings<sup>1</sup> for selected occupations, all workers<sup>2</sup>, private industry and State and local government, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	Private industry						State and local government					
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
<b>Blue-collar occupations (-Continued)</b>												
Handlers, equipment cleaners, helpers, and laborers (-Continued)												
Vehicle washers and equipment cleaners .....	\$10.30	\$5.15	\$7.00	\$8.30	\$12.05	\$19.94	-	-	-	-	-	-
Hand packers and packagers .....	9.70	8.00	8.00	8.65	9.61	14.31	-	-	-	-	-	-
Laborers except construction, N.E.C.	12.53	8.15	8.65	10.05	17.24	17.88	-	-	-	-	-	-
<b>Service occupations</b>												
Protective service occupations .....	8.18	5.33	6.18	7.38	9.44	11.82	\$14.15	\$7.68	\$10.21	\$14.46	\$17.66	\$20.87
Firefighting occupations .....	7.48	5.50	5.70	6.40	8.00	11.75	17.47	11.81	15.38	17.54	20.06	21.89
Police and detectives, public service ..	-	-	-	-	-	-	15.96	12.28	14.65	16.21	16.95	17.66
Correctional institution officers .....	-	-	-	-	-	-	19.01	15.01	18.35	19.38	20.96	21.58
Crossing guards .....	-	-	-	-	-	-	15.65	11.30	14.36	16.05	17.52	18.58
Guards and police except public service .....	-	-	-	-	-	-	6.85	6.00	6.25	6.50	7.00	9.25
Protective service occupations, N.E.C. ....	7.26	5.50	5.70	6.40	7.75	11.75	-	-	-	-	-	-
Food service occupations .....	-	-	-	-	-	-	12.51	6.68	9.74	14.15	15.68	15.68
Bartenders .....	6.72	4.00	5.33	6.25	8.00	9.82	8.88	5.69	7.16	9.50	10.76	12.32
Waiters and waitresses .....	7.57	6.00	6.25	7.50	8.42	9.22	-	-	-	-	-	-
Cooks .....	4.00	2.65	2.65	3.02	4.45	7.51	-	-	-	-	-	-
Food counter, fountain, and related occupations .....	8.83	6.50	7.25	8.48	10.00	12.25	-	-	-	-	-	-
Food preparation occupations, N.E.C. ....	5.72	4.18	4.18	5.50	7.00	8.66	-	-	-	-	-	-
Health service occupations .....	6.20	4.76	5.33	5.83	6.80	8.57	8.07	5.69	5.69	7.45	9.50	10.14
Health aides, except nursing .....	8.60	6.91	7.21	8.15	9.86	11.00	11.53	10.21	10.21	11.07	12.92	14.68
Nursing aides, orderlies and attendants .....	10.38	8.04	9.52	10.34	11.29	12.45	-	-	-	-	-	-
Cleaning and building service occupations .....	8.21	6.79	7.10	7.84	9.10	10.44	11.86	8.96	10.21	11.17	14.68	14.68
Supervisors, cleaning & building service workers .....	10.78	6.25	7.41	9.53	13.19	19.51	12.68	10.37	10.68	12.86	14.74	15.57
Maids and housemen .....	11.81	9.50	10.34	10.34	13.93	14.79	-	-	-	-	-	-
Janitors and cleaners .....	6.83	6.00	6.25	6.54	7.92	7.92	-	-	-	-	-	-
Personal service occupations .....	11.43	6.75	8.00	9.78	14.50	19.60	12.71	10.37	10.68	12.86	14.74	15.57
Early childhood teachers' assistants ..	7.09	5.75	6.00	7.00	7.50	8.05	9.37	5.43	6.86	9.02	9.94	15.57
Child care workers, N.E.C. ....	-	-	-	-	-	-	7.85	5.15	5.98	7.00	10.68	10.68
Service occupations, N.E.C. ....	-	-	-	-	-	-	9.55	5.43	7.77	9.67	9.94	15.57
Service occupations, N.E.C. ....	7.92	6.00	6.20	7.21	10.90	10.90	-	-	-	-	-	-

<sup>1</sup> Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours. The 10th, 25th, 50th, 75th and 90th percentiles designate position in the earnings distribution. At the 50th percentile, the median, half of the workers receive the same as or more than the rate shown, and half receive the same as or less than the rate shown. At the 25th percentile, one-fourth of the workers earn the same as or less than the rate shown. At the 75th percentile, one-fourth earn the same as or more than the rate shown. The 10th and 90th percentiles follow the same logic.

<sup>2</sup> All workers include full-time and part-time workers. Employees are classified as

working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm, where a 40-hour week is the minimum full-time schedule.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Table A-3. Hourly earnings<sup>1</sup> for selected occupations, full-time and part-time workers<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupation <sup>3</sup>	All industries											
	Full-time						Part-time					
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
<b>All occupations</b> .....	\$19.40	\$8.50	\$11.82	\$18.13	\$23.40	\$31.90	\$9.96	\$5.34	\$6.00	\$7.40	\$11.50	\$19.16
All occupations excluding sales .....	19.45	8.50	11.89	18.27	23.40	31.74	10.33	5.34	6.00	7.51	12.22	20.30
<b>White-collar occupations</b> .....	22.54	10.10	13.64	19.90	28.69	38.17	13.53	6.00	7.30	11.50	17.64	23.28
White-collar occupations excluding sales .....	22.97	10.52	14.10	20.30	28.95	38.41	16.10	7.50	10.46	14.51	20.34	24.81
Professional specialty and technical occupations .....	26.49	14.90	19.04	24.46	31.65	40.54	19.90	10.83	15.03	18.90	23.19	26.00
Professional specialty occupations .....	28.75	16.69	20.86	26.88	34.06	43.50	21.73	12.50	16.92	20.58	23.70	26.56
Engineers, architects, and surveyors .....	29.10	22.10	24.60	28.57	32.62	36.70	-	-	-	-	-	-
Industrial engineers .....	27.69	23.39	25.59	27.49	30.00	31.90	-	-	-	-	-	-
Mechanical engineers .....	27.48	20.19	23.08	26.25	31.33	35.28	-	-	-	-	-	-
Engineers, N.E.C. ....	30.39	22.94	25.00	29.51	34.76	39.88	-	-	-	-	-	-
Mathematical and computer scientists .....	26.02	16.83	20.24	25.50	31.16	35.68	-	-	-	-	-	-
Computer systems analysts and scientists .....	25.63	16.78	19.54	25.20	30.55	35.07	-	-	-	-	-	-
Operations and systems researchers and analysts .....	26.93	18.49	21.35	25.96	32.08	36.37	-	-	-	-	-	-
Natural scientists .....	20.25	9.13	10.97	16.63	28.06	33.12	-	-	-	-	-	-
Health related occupations .....	22.75	16.49	18.01	20.80	23.25	29.45	23.51	17.30	19.07	21.46	24.00	26.00
Physicians .....	26.67	16.36	16.68	18.01	19.42	59.58	-	-	-	-	-	-
Registered nurses .....	21.94	17.37	18.95	21.43	22.92	25.49	21.59	17.23	19.04	21.05	23.63	25.99
Teachers, college and university .....	40.76	24.86	30.17	33.61	45.83	65.70	22.75	15.87	18.75	21.63	25.16	27.76
Engineering teachers .....	63.13	36.26	56.73	64.38	71.59	82.84	-	-	-	-	-	-
Teachers, post secondary N.E.C. ....	47.26	32.87	35.73	51.05	53.18	62.24	21.64	15.87	18.75	21.33	24.74	27.40
Teachers, except college and university .....	35.65	18.53	27.90	38.02	44.59	50.24	16.78	10.59	11.61	14.89	17.48	23.70
Prekindergarten and kindergarten .....	34.60	19.14	24.90	33.08	44.87	50.24	-	-	-	-	-	-
Elementary school teachers .....	36.39	23.15	29.31	37.91	44.59	48.95	18.87	12.50	14.89	15.59	16.31	37.75
Secondary school teachers .....	36.91	20.83	29.42	38.02	44.87	52.25	-	-	-	-	-	-
Teachers, special education .....	38.78	25.46	33.52	39.85	44.69	45.24	-	-	-	-	-	-
Teachers, N.E.C. ....	-	-	-	-	-	-	16.02	10.59	10.59	16.00	19.75	23.70
Substitute teachers .....	-	-	-	-	-	-	10.92	10.46	10.46	10.83	11.67	12.20
Vocational and educational counselors .....	21.79	11.31	12.74	15.01	31.40	44.67	-	-	-	-	-	-
Librarians, archivists, and curators .....	27.20	16.43	17.68	19.74	39.96	39.96	-	-	-	-	-	-
Librarians .....	27.20	16.43	17.68	19.74	39.96	39.96	-	-	-	-	-	-
Social scientists and urban planners .....	17.94	9.41	10.58	14.39	20.19	30.77	-	-	-	-	-	-
Social, recreation, and religious workers .....	22.84	13.42	15.60	18.77	22.52	45.24	13.35	7.50	8.75	12.00	20.13	20.13
Social workers .....	22.84	13.42	15.60	18.77	22.52	45.24	14.36	8.75	11.00	14.09	20.13	20.13
Lawyers and judges .....	45.80	25.94	31.73	40.25	62.50	74.52	-	-	-	-	-	-
Lawyers .....	45.64	23.08	31.68	38.94	66.83	74.52	-	-	-	-	-	-
Writers, authors, entertainers, athletes, and professionals, N.E.C. ....	31.24	17.00	23.35	29.49	34.86	46.15	25.44	5.15	15.38	26.41	36.89	36.89
Technical occupations .....	19.59	12.15	15.70	19.23	22.96	27.78	13.30	6.50	10.80	14.43	15.60	17.37
Clinical laboratory technologists and technicians .....	15.36	8.19	9.95	16.29	20.59	22.87	-	-	-	-	-	-
Radiological technicians .....	17.63	13.57	14.63	16.94	19.60	23.08	-	-	-	-	-	-
Licensed practical nurses .....	14.50	13.15	13.78	14.31	15.27	16.03	14.91	13.39	14.16	15.18	15.75	16.47
Health technologists and technicians, N.E.C. ....	12.86	10.18	10.75	11.82	14.36	17.28	13.58	9.99	12.46	14.00	15.35	15.60
Electrical and electronic technicians .....	20.21	16.25	18.08	19.24	22.31	25.00	-	-	-	-	-	-
Mechanical engineering technicians .....	22.19	15.14	20.09	23.70	24.64	26.17	-	-	-	-	-	-
Drafters .....	24.55	17.79	19.23	22.50	28.85	35.42	-	-	-	-	-	-
Chemical technicians .....	18.68	16.16	17.19	17.60	21.00	22.13	-	-	-	-	-	-
Computer programmers .....	28.21	19.28	23.55	28.39	31.66	40.63	-	-	-	-	-	-
Technical and related occupations, N.E.C. ....	19.48	12.21	16.63	18.63	22.61	27.30	-	-	-	-	-	-
Executive, administrative, and managerial occupations .....	28.77	14.48	19.04	25.38	34.73	45.18	21.46	12.00	12.00	22.90	36.82	36.82
Executives, administrators, and managers .....	34.21	15.50	23.08	31.59	41.19	48.76	-	-	-	-	-	-
Administrators and officials, public administration .....	29.84	21.97	28.27	28.92	29.33	35.63	-	-	-	-	-	-
Financial managers .....	37.95	17.00	24.05	31.54	48.13	68.75	-	-	-	-	-	-

See footnotes at end of table.

**Table A-3. Hourly earnings<sup>1</sup> for selected occupations, full-time and part-time workers<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	All industries											
	Full-time						Part-time					
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
<b>White-collar occupations (-Continued)</b>												
Executive, administrative, and managerial occupations (-Continued)												
Executives, administrators, and managers (-Continued)												
Managers., marketing, advertising and public relations .....	\$40.38	\$27.34	\$37.53	\$40.87	\$45.18	\$48.38	-	-	-	-	-	-
Administrators, education and related fields .....	36.90	15.63	31.35	37.21	43.93	49.87	-	-	-	-	-	-
Managers, medicine and health .....	28.20	21.62	23.30	25.77	28.29	34.20	-	-	-	-	-	-
Managers and administrators, N.E.C. ....	36.43	18.00	26.00	33.70	41.54	49.22	-	-	-	-	-	-
Management related occupations .....	23.24	14.46	17.69	21.83	26.83	33.78	-	-	-	-	-	-
Accountants and auditors .....	21.35	15.87	18.03	21.52	23.86	25.59	-	-	-	-	-	-
Other financial officers .....	31.03	17.07	19.38	29.48	46.61	46.61	-	-	-	-	-	-
Personnel, training, and labor relations specialists .....	24.07	14.46	17.94	22.64	27.40	30.79	-	-	-	-	-	-
Purchasing agents and buyers, N.E.C. ....	26.76	16.42	22.49	26.59	31.70	36.38	-	-	-	-	-	-
Construction inspectors .....	21.35	20.41	20.41	21.38	22.25	22.25	-	-	-	-	-	-
Management related occupations, N.E.C. ....	24.08	14.48	19.40	23.46	28.85	33.46	-	-	-	-	-	-
Sales occupations .....	18.46	7.71	10.41	16.07	22.46	34.17	\$7.48	\$5.40	\$6.00	\$6.82	\$8.75	\$10.52
Supervisors, sales occupations .....	18.97	10.00	13.00	18.54	22.12	31.21	-	-	-	-	-	-
Advertising and related sales occupations .....	21.24	12.98	15.10	16.83	23.08	28.03	-	-	-	-	-	-
Sales occupations, other business services .....	21.23	11.17	13.13	20.75	27.19	33.00	-	-	-	-	-	-
Sales representatives, mining, manufacturing, and wholesale .....	23.84	13.91	16.00	19.91	33.72	37.39	-	-	-	-	-	-
Sales workers, motor vehicles and boats .....	25.76	10.38	14.53	22.98	32.41	42.41	-	-	-	-	-	-
Sales workers, other commodities .....	12.80	6.90	8.71	10.95	15.32	20.03	7.53	5.15	5.88	6.50	8.24	11.24
Sales counter clerks .....	8.51	7.50	7.50	8.75	8.85	10.40	-	-	-	-	-	-
Cashiers .....	9.20	6.95	7.40	8.00	10.85	13.15	6.95	5.50	5.85	6.50	7.30	9.02
Administrative support occupations, including clerical .....	13.29	8.45	10.13	12.40	15.59	18.61	10.28	6.84	7.92	10.20	12.22	14.00
Supervisors, general office .....	18.08	12.15	13.85	17.73	19.11	29.63	-	-	-	-	-	-
Supervisors, financial records processing .....	18.34	13.92	14.18	15.85	23.56	24.88	-	-	-	-	-	-
Computer operators .....	15.95	9.61	12.26	14.49	20.55	25.37	-	-	-	-	-	-
Secretaries .....	14.48	10.18	11.45	13.86	16.61	20.69	9.67	8.08	8.46	9.66	10.83	11.00
Typists .....	9.65	7.50	7.78	9.10	10.62	13.62	-	-	-	-	-	-
Interviewers .....	10.63	8.57	9.60	10.40	11.35	12.59	-	-	-	-	-	-
Receptionists .....	9.19	7.04	7.04	8.83	11.01	12.04	-	-	-	-	-	-
Order clerks .....	12.37	8.10	10.00	10.90	14.17	17.91	-	-	-	-	-	-
Personnel clerks except payroll & timekeeping .....	14.01	10.09	13.34	14.10	14.75	16.37	-	-	-	-	-	-
Library clerks .....	-	-	-	-	-	-	7.70	5.15	5.32	6.17	12.22	12.22
Records clerks, N.E.C. ....	10.85	7.25	7.25	9.84	13.50	15.81	-	-	-	-	-	-
Bookkeepers, accounting and auditing clerks .....	11.82	8.30	9.00	11.00	13.46	17.32	8.25	6.28	6.84	8.00	10.00	10.00
Payroll and timekeeping clerks .....	13.65	11.69	12.50	12.70	15.00	16.06	-	-	-	-	-	-
Billing clerks .....	10.95	8.60	9.13	10.50	12.09	14.13	-	-	-	-	-	-
Telephone operators .....	11.44	6.25	7.90	10.10	15.79	15.79	-	-	-	-	-	-
Production coordinators .....	19.28	12.25	15.63	16.71	24.05	26.22	-	-	-	-	-	-
Traffic, shipping and receiving clerks .....	11.98	8.00	8.50	9.66	13.64	19.91	-	-	-	-	-	-
Stock and inventory clerks .....	10.64	7.95	8.13	9.50	11.82	15.41	-	-	-	-	-	-
Material recording, scheduling, and distribution clerks, N.E.C. ....	14.55	6.28	10.00	15.40	20.07	20.07	-	-	-	-	-	-
Insurance adjusters, examiners, & investigators .....	13.63	10.44	11.32	13.01	15.65	17.47	-	-	-	-	-	-
Investigators and adjusters except insurance .....	13.88	8.00	11.00	14.54	18.75	19.22	-	-	-	-	-	-

See footnotes at end of table.



**Table A-3. Hourly earnings<sup>1</sup> for selected occupations, full-time and part-time workers<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	All industries											
	Full-time					Part-time						
	Mean	Percentiles					Mean	Percentiles				
10		25	Median 50	75	90	10		25	Median 50	75	90	
<b>White-collar occupations (-Continued)</b>												
Administrative support occupations, including clerical (-Continued)												
Bill and account collectors .....	\$12.14	\$9.07	\$9.63	\$11.92	\$12.62	\$15.91	-	-	-	-	-	-
General office clerks .....	12.20	8.80	10.50	11.85	13.20	15.16	\$8.19	\$6.50	\$7.00	\$8.00	\$9.52	\$10.55
Bank tellers .....	10.31	8.07	9.21	9.90	11.79	12.95	-	-	-	-	-	-
Teachers' aides .....	10.75	7.99	9.30	10.94	11.88	14.25	-	-	-	-	-	-
Administrative support occupations, N.E.C. ....	14.18	8.75	9.99	14.76	16.38	17.85	8.66	6.00	6.80	7.90	10.45	13.88
<b>Blue-collar occupations</b>												
Precision production, craft, and repair occupations .....	16.80	8.51	11.50	18.25	20.57	23.53	8.22	5.50	5.85	6.50	8.07	14.07
Supervisors, mechanics and repairers	20.43	13.38	16.56	21.80	23.55	25.01	-	-	-	-	-	-
Automobile mechanics .....	22.22	14.02	19.80	19.80	28.32	30.18	-	-	-	-	-	-
Bus, truck, and stationary engine mechanics .....	18.54	13.52	16.00	17.50	20.62	24.93	-	-	-	-	-	-
Heavy equipment mechanics .....	15.65	13.00	13.00	16.70	17.77	18.23	-	-	-	-	-	-
Industrial machinery repairers .....	20.32	17.60	18.26	19.16	23.27	23.27	-	-	-	-	-	-
Millwrights .....	20.28	12.69	16.04	23.51	23.62	23.62	-	-	-	-	-	-
Mechanics and repairers, N.E.C. ....	22.77	21.82	23.17	23.17	23.27	23.40	-	-	-	-	-	-
Supervisors, construction trades, N.E.C. ....	19.86	15.34	17.72	19.17	23.62	24.46	-	-	-	-	-	-
Carpenters .....	24.95	18.27	21.00	24.02	29.22	33.40	-	-	-	-	-	-
Electricians .....	21.64	17.73	18.04	23.27	23.27	23.27	-	-	-	-	-	-
Plumbers, pipefitters and steamfitters	23.14	20.39	23.53	23.53	23.62	24.14	-	-	-	-	-	-
Construction trades, N.E.C. ....	23.65	22.94	23.27	23.31	24.95	27.72	-	-	-	-	-	-
Supervisors, production occupations ..	15.69	12.98	12.98	13.39	18.00	21.61	-	-	-	-	-	-
Tool and die makers .....	20.06	12.23	14.50	20.77	24.63	28.51	-	-	-	-	-	-
Tool and die maker apprentices .....	22.57	19.23	21.61	23.62	24.31	24.31	-	-	-	-	-	-
Machinists .....	15.85	9.95	11.25	16.14	20.35	22.94	-	-	-	-	-	-
Precision grinders, filers, and tool sharpeners .....	20.38	15.50	18.00	20.87	23.40	23.40	-	-	-	-	-	-
Patternmakers, layout workers, and cutters .....	21.75	15.50	23.40	23.40	23.55	23.83	-	-	-	-	-	-
Butchers and meat cutters .....	24.30	18.60	21.88	25.01	25.49	31.36	-	-	-	-	-	-
Inspectors, testers, and graders .....	14.66	10.45	13.00	15.60	15.95	19.00	-	-	-	-	-	-
Machine operators, assemblers, and inspectors .....	19.88	11.91	20.25	20.47	22.62	22.62	-	-	-	-	-	-
Lathe and turning machine operators	15.52	8.30	10.38	17.14	20.25	20.57	-	-	-	-	-	-
Punching and stamping press operators .....	14.72	9.10	13.98	15.57	16.48	18.00	-	-	-	-	-	-
Grinding, abrading, buffing, and polishing machine operators .....	16.04	7.00	9.40	20.05	20.46	20.52	-	-	-	-	-	-
Fabricating machine operators, N.E.C. ....	11.90	7.75	8.50	10.00	15.75	17.75	-	-	-	-	-	-
Textile sewing machine operators .....	20.27	20.17	20.25	20.61	20.61	20.71	-	-	-	-	-	-
Laundry and dry cleaning machine operators .....	11.86	5.93	7.45	8.70	20.07	20.07	-	-	-	-	-	-
Packaging and filling machine operators .....	7.69	6.25	6.50	7.25	8.79	10.00	-	-	-	-	-	-
Miscellaneous machine operators, N.E.C. ....	10.62	8.50	8.50	10.25	10.25	12.50	-	-	-	-	-	-
Welders and cutters .....	12.35	7.50	8.50	10.96	15.78	20.32	-	-	-	-	-	-
Assemblers .....	16.13	8.71	12.05	19.16	20.32	20.47	-	-	-	-	-	-
Production inspectors, checkers and examiners .....	17.01	8.52	14.08	20.05	20.36	20.57	-	-	-	-	-	-
Transportation and material moving occupations .....	15.18	9.86	10.02	17.30	20.10	20.36	-	-	-	-	-	-
Truck drivers .....	16.20	8.50	11.60	16.49	20.05	20.57	10.99	6.00	6.75	8.28	13.67	21.00
Bus drivers .....	14.58	8.40	11.59	14.52	18.11	20.17	-	-	-	-	-	-
Crane and tower operators .....	12.21	9.41	11.33	13.12	13.94	14.92	12.13	6.50	8.07	8.66	14.85	22.70
	15.28	10.00	10.30	16.26	20.36	20.36	-	-	-	-	-	-

See footnotes at end of table.

**Table A-3. Hourly earnings<sup>1</sup> for selected occupations, full-time and part-time workers<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	All industries											
	Full-time						Part-time					
	Mean	Percentiles					Mean	Percentiles				
10		25	Median 50	75	90	10		25	Median 50	75	90	
<b>Blue-collar occupations</b> (-Continued)												
Transportation and material moving occupations (-Continued)												
Industrial truck and tractor equipment operators .....	\$15.56	\$8.50	\$9.67	\$19.71	\$20.05	\$20.12	-	-	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers .....	11.38	7.10	8.25	10.05	13.60	18.54	\$6.86	\$5.30	\$5.75	\$6.00	\$6.90	\$9.25
Groundskeepers and gardeners except farm .....	13.35	10.05	11.60	11.60	15.43	17.06	-	-	-	-	-	-
Stock handlers and baggers .....	12.10	6.90	9.16	11.83	14.02	20.05	6.35	5.34	5.75	6.00	6.55	7.50
Freight, stock, and material handlers, N.E.C. ....	11.12	8.00	9.13	11.54	12.58	15.38	-	-	-	-	-	-
Vehicle washers and equipment cleaners .....	10.42	5.15	7.00	8.30	12.05	19.94	-	-	-	-	-	-
Hand packers and packagers .....	9.79	8.00	8.25	8.65	9.61	14.31	-	-	-	-	-	-
Laborers except construction, N.E.C. ....	12.76	8.15	8.65	11.86	16.66	17.46	-	-	-	-	-	-
<b>Service occupations</b> .....	10.96	6.25	7.20	9.63	14.14	18.71	6.60	5.15	5.50	6.25	7.51	9.11
Protective service occupations .....	13.85	5.72	6.60	15.01	18.71	21.53	7.56	5.50	6.00	6.68	8.32	10.92
Firefighting occupations .....	15.96	12.28	14.65	16.21	16.95	17.66	-	-	-	-	-	-
Police and detectives, public service ..	19.14	15.07	18.54	19.38	21.02	21.58	-	-	-	-	-	-
Correctional institution officers .....	15.65	11.30	14.36	16.05	17.52	18.58	-	-	-	-	-	-
Crossing guards .....	-	-	-	-	-	-	6.85	6.00	6.25	6.50	7.00	9.25
Guards and police except public service .....	7.22	5.50	5.70	6.40	7.00	11.75	7.55	5.50	6.00	7.00	8.32	10.22
Food service occupations .....	8.12	4.18	6.50	8.26	9.82	12.28	5.93	3.53	5.33	5.73	6.68	7.72
Waiters and waitresses .....	-	-	-	-	-	-	4.18	2.65	2.65	2.94	6.00	7.51
Cooks .....	9.46	7.00	7.95	9.00	10.50	12.38	6.98	5.16	5.43	6.51	8.00	10.30
Food preparation occupations, N.E.C. ....	7.28	4.15	4.76	7.30	9.05	10.05	6.03	5.17	5.33	5.72	6.50	7.45
Health service occupations .....	8.74	6.85	7.16	8.19	10.08	11.28	8.54	7.24	7.56	8.24	9.46	10.34
Health aides, except nursing .....	10.50	8.43	9.71	10.46	11.42	12.81	-	-	-	-	-	-
Nursing aides, orderlies and attendants .....	8.23	6.65	7.10	7.75	9.11	10.71	8.50	7.24	7.56	8.20	9.32	10.19
Cleaning and building service occupations .....	11.68	7.00	8.16	10.68	14.50	19.51	7.11	5.50	5.90	6.67	7.65	9.89
Supervisors, cleaning & building service workers .....	11.81	9.50	10.34	10.34	13.93	14.79	-	-	-	-	-	-
Maids and housemen .....	7.03	6.00	6.25	6.63	7.92	7.92	-	-	-	-	-	-
Janitors and cleaners .....	12.20	7.62	9.23	10.93	14.82	19.51	7.34	5.39	5.71	6.95	7.68	10.37
Personal service occupations .....	9.11	6.40	7.00	8.06	9.74	15.01	6.84	5.43	5.75	6.25	7.77	8.88
Early childhood teachers' assistants ..	-	-	-	-	-	-	6.43	6.00	6.00	6.00	6.99	7.29
Child care workers, N.E.C. ....	10.87	8.05	8.88	9.74	12.53	15.57	7.28	5.43	5.43	7.14	8.88	9.68
Service occupations, N.E.C. ....	-	-	-	-	-	-	7.31	6.00	6.28	7.08	8.02	8.39

<sup>1</sup> Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours. The 10th, 25th, 50th, 75th and 90th percentiles designate position in the earnings distribution. At the 50th percentile, the median, half of the workers receive the same as or more than the rate shown, and half receive the same as or less than the rate shown. At the 25th percentile, one-fourth of the workers earn the same as or less than the rate shown. At the 75th percentile, one-fourth earn the same as or more than the rate shown. The 10th and 90th percentiles follow the same logic.

<sup>2</sup> Employees are classified as working either a full-time or a part-time schedule based

on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm, where a 40-hour week is the minimum full-time schedule.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Table A-4. Weekly and annual earnings<sup>1</sup> and hours for selected occupations, full-time workers only<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupation <sup>3</sup>	All industries					
	Mean weekly hours <sup>4</sup>	Weekly earnings		Mean annual hours	Annual earnings	
		Mean	Median		Mean	Median
<b>All occupations</b> .....	39.8	\$772	\$729	2,031	\$39,400	\$37,794
All occupations excluding sales .....	39.7	772	732	2,025	39,380	38,002
<b>White-collar occupations</b> .....	39.6	892	798	1,999	45,070	41,184
White-collar occupations excluding sales .....	39.4	905	809	1,984	45,579	41,746
Professional specialty and technical occupations .....	38.7	1,026	972	1,898	50,282	48,622
Professional specialty occupations .....	38.4	1,105	1,062	1,856	53,354	52,000
Engineers, architects, and surveyors .....	40.2	1,169	1,150	2,090	60,808	59,821
Industrial engineers .....	40.3	1,117	1,116	2,098	58,084	58,032
Mechanical engineers .....	40.4	1,109	1,058	2,099	57,673	54,995
Engineers, N.E.C. ....	40.0	1,217	1,180	2,082	63,262	61,381
Mathematical and computer scientists .....	40.1	1,042	1,020	2,082	54,179	52,998
Computer systems analysts and scientists .....	40.1	1,028	1,008	2,086	53,446	52,416
Operations and systems researchers and analysts .....	40.0	1,077	1,038	2,077	55,933	53,997
Natural scientists .....	39.3	795	615	2,041	41,330	32,000
Health related occupations .....	39.5	900	820	2,048	46,597	42,664
Physicians .....	40.8	1,089	720	2,123	56,622	37,461
Registered nurses .....	39.2	859	842	2,036	44,666	43,784
Teachers, college and university .....	38.4	1,564	1,332	1,658	67,570	62,381
Engineering teachers .....	39.4	2,488	2,562	1,560	98,482	100,438
Teachers, post secondary N.E.C. ....	33.3	1,573	1,665	1,219	57,604	61,178
Teachers, except college and university .....	33.9	1,208	1,263	1,350	48,125	50,479
Prekindergarten and kindergarten .....	34.1	1,181	1,211	1,329	45,978	48,708
Elementary school teachers .....	33.4	1,215	1,252	1,315	47,857	49,255
Secondary school teachers .....	34.3	1,264	1,276	1,337	49,349	50,719
Teachers, special education .....	33.2	1,288	1,381	1,345	52,154	56,052
Vocational and educational counselors .....	38.5	840	603	1,848	40,274	32,469
Librarians, archivists, and curators .....	37.5	1,020	782	1,726	46,956	56,224
Librarians .....	37.5	1,020	782	1,726	46,956	56,224
Social scientists and urban planners .....	39.6	711	576	2,025	36,322	29,931
Social, recreation, and religious workers .....	37.6	859	751	1,801	41,123	39,312
Social workers .....	37.6	859	751	1,801	41,123	39,312
Lawyers and judges .....	39.7	1,816	1,610	2,062	94,431	83,720
Lawyers .....	39.8	1,815	1,558	2,068	94,392	80,995
Writers, authors, entertainers, athletes, and professionals, N.E.C. ....	38.4	1,199	1,196	1,928	60,245	57,974
Technical occupations .....	39.7	778	769	2,041	39,984	39,894
Clinical laboratory technologists and technicians .....	40.0	614	652	2,080	31,940	33,882
Radiological technicians .....	40.0	705	678	2,080	36,671	35,235
Licensed practical nurses .....	40.0	580	572	2,078	30,138	29,718
Health technologists and technicians, N.E.C. ....	40.0	514	473	2,080	26,750	24,580
Electrical and electronic technicians .....	40.0	809	770	2,081	42,054	40,019
Mechanical engineering technicians .....	40.0	887	948	2,080	46,149	49,297
Drafters .....	40.0	982	900	2,080	51,054	46,800
Chemical technicians .....	40.0	747	704	2,080	38,862	36,611
Computer programmers .....	40.0	1,128	1,136	2,080	58,673	59,051
Technical and related occupations, N.E.C. ....	37.1	722	695	1,736	33,821	34,590
Executive, administrative, and managerial occupations ...	40.3	1,160	1,023	2,094	60,257	53,061
Executives, administrators, and managers .....	40.7	1,391	1,284	2,111	72,224	66,726
Administrators and officials, public administration .....	39.6	1,180	1,157	2,057	61,364	60,154
Financial managers .....	40.1	1,521	1,346	2,085	79,108	69,992
Managers., marketing, advertising and public relations .....	41.0	1,655	1,635	2,131	86,066	85,010
Administrators, education and related fields .....	37.3	1,377	1,308	1,816	67,019	65,208
Managers, medicine and health .....	43.5	1,227	1,160	2,263	63,808	60,300
Managers and administrators, N.E.C. ....	40.3	1,469	1,362	2,097	76,396	70,803
Management related occupations .....	40.0	929	873	2,077	48,267	44,990
Accountants and auditors .....	40.3	860	860	2,095	44,740	44,699
Other financial officers .....	40.6	1,259	1,171	2,110	65,486	60,902
Personnel, training, and labor relations specialists .....	40.3	969	906	2,093	50,384	47,091
Purchasing agents and buyers, N.E.C. ....	39.9	1,069	1,064	2,077	55,600	55,307
Construction inspectors .....	38.7	827	832	2,015	43,012	43,261
Management related occupations, N.E.C. ....	39.8	958	926	2,060	49,602	47,736
Sales occupations .....	41.4	765	655	2,154	39,771	34,070

See footnotes at end of table.

**Table A-4. Weekly and annual earnings<sup>1</sup> and hours for selected occupations, full-time workers only<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	All industries					
	Mean weekly hours <sup>4</sup>	Weekly earnings		Mean annual hours	Annual earnings	
		Mean	Median		Mean	Median
<b>White-collar occupations (-Continued)</b>						
Sales occupations (-Continued)						
Supervisors, sales occupations .....	42.5	\$806	\$715	2,209	\$41,917	\$37,190
Advertising and related sales occupations .....	40.0	850	673	2,080	44,187	35,006
Sales occupations, other business services .....	40.0	849	830	2,080	44,156	43,167
Sales representatives, mining, manufacturing, and wholesale .....	42.1	1,003	861	2,187	52,147	44,788
Sales workers, motor vehicles and boats .....	46.5	1,197	1,063	2,417	62,256	55,262
Sales workers, other commodities .....	40.0	512	438	2,080	26,630	22,776
Sales counter clerks .....	41.6	354	360	2,164	18,422	18,720
Cashiers .....	39.9	367	320	2,074	19,069	16,640
Administrative support occupations, including clerical .....	39.7	528	493	2,046	27,204	25,376
Supervisors, general office .....	39.6	717	697	2,062	37,277	36,234
Supervisors, financial records processing .....	39.8	730	634	2,070	37,960	32,968
Computer operators .....	39.5	629	551	2,052	32,714	28,665
Secretaries .....	39.3	568	533	1,990	28,815	26,714
Typists .....	39.2	379	357	2,040	19,687	18,545
Interviewers .....	39.6	420	414	2,057	21,859	21,528
Receptionists .....	39.8	366	341	2,069	19,019	17,722
Order clerks .....	41.3	510	436	2,145	26,532	22,672
Personnel clerks except payroll & timekeeping .....	39.7	556	564	2,063	28,892	29,328
Records clerks, N.E.C. ....	42.4	460	424	2,203	23,909	22,048
Bookkeepers, accounting and auditing clerks .....	39.9	471	435	2,073	24,495	22,635
Payroll and timekeeping clerks .....	39.8	543	508	2,070	28,252	26,416
Billing clerks .....	39.9	437	420	2,074	22,707	21,840
Telephone operators .....	39.3	450	404	2,041	23,360	21,008
Production coordinators .....	40.0	771	668	2,080	40,098	34,757
Traffic, shipping and receiving clerks .....	40.0	479	386	2,080	24,928	20,093
Stock and inventory clerks .....	40.0	426	380	2,080	22,130	19,760
Material recording, scheduling, and distribution clerks, N.E.C. ....	40.0	582	616	2,080	30,261	32,032
Insurance adjusters, examiners, & investigators ..	39.2	534	512	2,036	27,751	26,645
Investigators and adjusters except insurance .....	39.5	548	573	2,053	28,498	29,786
Bill and account collectors .....	40.0	485	477	2,080	25,243	24,799
General office clerks .....	39.7	484	472	2,064	25,169	24,544
Bank tellers .....	40.0	413	396	2,080	21,452	20,584
Teachers' aides .....	33.3	358	328	1,337	14,371	14,434
Administrative support occupations, N.E.C. ....	39.8	564	569	2,053	29,117	29,608
<b>Blue-collar occupations</b> .....						
Precision production, craft, and repair occupations .....	40.1	674	727	2,081	34,947	37,710
Supervisors, mechanics and repairers .....	40.3	823	881	2,096	42,803	45,802
Automobile mechanics .....	46.1	1,025	1,188	2,397	53,276	61,776
Bus, truck, and stationary engine mechanics .....	41.7	772	702	2,166	40,164	36,491
Heavy equipment mechanics .....	39.8	622	670	2,068	32,358	34,840
Industrial machinery repairers .....	40.0	813	766	2,080	42,261	39,853
Millwrights .....	40.0	811	940	2,080	42,184	48,901
Mechanics and repairers, N.E.C. ....	40.0	911	927	2,080	47,354	48,194
Supervisors, construction trades, N.E.C. ....	40.0	794	767	2,080	41,311	39,874
Carpenters .....	40.0	998	961	2,080	51,901	49,967
Electricians .....	39.8	862	931	2,071	44,811	48,402
Electricians .....	39.9	924	941	2,076	48,033	48,942
Plumbers, pipefitters and steamfitters .....	40.0	946	932	2,080	49,197	48,485
Construction trades, N.E.C. ....	39.9	627	536	2,077	32,594	27,851
Supervisors, production occupations .....	40.8	818	865	2,120	42,541	44,990
Tool and die makers .....	40.0	903	945	2,080	46,949	49,130
Tool and die maker apprentices .....	40.0	634	646	2,080	32,971	33,571
Machinists .....	40.0	815	835	2,080	42,386	43,403
Precision grinders, filers, and tool sharpeners .....	40.0	870	936	2,080	45,246	48,672
Patternmakers, layout workers, and cutters .....	40.0	972	1,000	2,080	50,545	52,021
Butchers and meat cutters .....	40.0	587	624	2,080	30,500	32,448
Inspectors, testers, and graders .....	40.0	795	819	2,080	41,343	42,578
Machine operators, assemblers, and inspectors .....	40.0	621	686	2,080	32,274	35,651
Lathe and turning machine operators .....	40.0	589	623	2,080	30,608	32,386
Punching and stamping press operators .....	40.0	642	802	2,080	33,370	41,704
Grinding, abrading, buffing, and polishing machine operators .....	40.0	476	400	2,080	24,744	20,800

See footnotes at end of table.

**Table A-4. Weekly and annual earnings<sup>1</sup> and hours for selected occupations, full-time workers only<sup>2</sup>, all industries, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup>	All industries					
	Mean weekly hours <sup>4</sup>	Weekly earnings		Mean annual hours	Annual earnings	
		Mean	Median		Mean	Median
<b>Blue-collar occupations</b> (-Continued)						
Machine operators, assemblers, and inspectors (-Continued)						
Fabricating machine operators, N.E.C. ....	40.0	\$811	\$824	2,080	\$42,163	\$42,869
Textile sewing machine operators .....	40.0	474	348	2,080	24,664	18,096
Laundering and dry cleaning machine operators	39.6	304	290	2,058	15,828	15,080
Packaging and filling machine operators .....	39.9	423	410	2,073	22,013	21,320
Miscellaneous machine operators, N.E.C. ....	40.0	494	438	2,080	25,698	22,797
Welders and cutters .....	40.0	645	766	2,080	33,557	39,853
Assemblers .....	40.0	680	802	2,080	35,384	41,704
Production inspectors, checkers and examiners ..	40.0	607	692	2,080	31,573	35,984
Transportation and material moving occupations .....	40.0	649	658	2,038	33,021	34,029
Truck drivers .....	41.2	601	559	2,142	31,232	29,078
Bus drivers .....	37.6	459	453	1,674	20,437	17,675
Crane and tower operators .....	40.0	611	650	2,080	31,791	33,817
Industrial truck and tractor equipment operators ..	40.0	622	788	2,080	32,366	40,997
Handlers, equipment cleaners, helpers, and laborers .....	40.0	455	402	2,078	23,652	20,904
Groundskeepers and gardeners except farm .....	39.3	524	464	2,042	27,253	24,128
Stock handlers and baggers .....	40.0	484	473	2,080	25,171	24,606
Freight, stock, and material handlers, N.E.C. ....	40.0	444	455	2,077	23,098	23,680
Vehicle washers and equipment cleaners .....	40.0	417	332	2,080	21,669	17,272
Hand packers and packagers .....	40.0	392	346	2,080	20,359	17,992
Laborers except construction, N.E.C. ....	40.0	510	474	2,080	26,534	24,665
<b>Service occupations</b> .....						
Protective service occupations .....	41.5	574	626	2,150	29,789	32,421
Firefighting occupations .....	51.3	819	846	2,669	42,612	44,013
Police and detectives, public service .....	40.2	769	775	2,090	40,011	40,310
Correctional institution officers .....	40.1	628	642	2,086	32,637	33,384
Guards and police except public service .....	40.0	289	256	2,080	15,024	13,312
Food service occupations .....	38.8	315	318	1,990	16,164	16,307
Cooks .....	39.3	372	351	1,992	18,835	18,200
Food preparation occupations, N.E.C. ....	37.9	276	273	1,944	14,141	14,144
Health service occupations .....	39.7	347	326	2,065	18,044	16,952
Health aides, except nursing .....	39.7	417	411	2,064	21,665	21,382
Nursing aides, orderlies and attendants .....	39.7	327	309	2,065	16,993	16,044
Cleaning and building service occupations .....	39.7	464	427	2,061	24,067	22,214
Supervisors, cleaning & building service workers	40.0	472	414	2,080	24,566	21,507
Maids and housemen .....	40.0	281	265	2,080	14,630	13,784
Janitors and cleaners .....	39.7	484	437	2,057	25,105	22,734
Personal service occupations .....	38.6	352	312	1,803	16,436	14,688
Child care workers, N.E.C. ....	39.5	429	390	1,732	18,833	15,194

<sup>1</sup> Earnings are the straight-time wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours. The median designates position—one-half of the workers receive the same as or more, and one-half receive the same as or less than the rate shown.

<sup>2</sup> Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm, where

a 40-hour week is the minimum full-time schedule.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

<sup>4</sup> Mean weekly hours are the hours an employee is scheduled to work in a week, exclusive of overtime.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Table B-1. Mean hourly earnings<sup>1</sup> by occupational group and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupational group <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>All occupations</b> .....	\$18.55	\$18.10	\$21.05	\$19.40	\$9.96
All occupations excluding sales .....	18.69	18.23	21.05	19.45	10.33
<b>White-collar occupations</b> .....	21.89	21.33	24.38	22.54	13.53
Level 1 .....	7.16	7.12	7.84	7.88	6.56
Level 2 .....	9.42	9.43	9.34	9.70	8.29
Level 3 .....	10.65	10.60	11.27	11.08	8.34
Level 4 .....	12.97	12.96	13.00	13.17	8.81
Level 5 .....	14.13	14.87	11.98	14.26	12.56
Level 6 .....	18.29	16.00	29.27	18.84	14.67
Level 7 .....	19.43	19.75	17.36	19.31	20.94
Level 8 .....	22.95	20.27	33.32	23.10	20.10
Level 9 .....	25.68	23.90	30.51	25.99	18.15
Level 10 .....	26.17	26.72	22.40	26.25	24.16
Level 11 .....	31.04	30.34	34.54	31.03	31.65
Level 12 .....	35.24	35.36	33.46	35.02	-
Level 13 .....	38.79	43.33	25.23	38.79	-
Level 14 .....	45.91	45.76	-	45.74	-
Not able to be leveled .....	32.29	33.65	27.36	33.13	19.54
White-collar occupations excluding sales .....	22.58	22.10	24.39	22.97	16.10
Level 1 .....	7.70	7.69	7.84	8.16	6.98
Level 2 .....	9.88	10.00	9.36	9.98	9.16
Level 3 .....	11.05	11.03	11.27	11.22	9.23
Level 4 .....	12.73	12.62	13.00	12.87	8.96
Level 5 .....	13.66	14.36	11.98	13.64	13.94
Level 6 .....	18.54	16.11	29.27	19.18	14.67
Level 7 .....	19.14	19.45	17.36	18.97	20.94
Level 8 .....	23.27	20.34	33.32	23.45	20.10
Level 9 .....	25.80	23.92	30.51	26.13	18.15
Level 10 .....	26.12	26.68	22.40	26.20	24.16
Level 11 .....	30.98	30.18	34.54	30.97	31.65
Level 12 .....	35.25	35.37	33.46	35.03	-
Level 13 .....	38.79	43.33	25.23	38.79	-
Level 14 .....	45.91	45.76	-	45.74	-
Not able to be leveled .....	32.50	34.06	27.36	33.43	19.54
Professional specialty and technical occupations .....	26.02	24.79	29.44	26.49	19.90
Professional specialty occupations .....	28.23	26.89	31.19	28.75	21.73
Level 5 .....	11.29	13.89	10.95	11.34	10.39
Level 6 .....	28.40	17.46	39.48	28.89	23.80
Level 7 .....	19.88	20.63	17.03	19.26	22.15
Level 8 .....	27.01	21.03	35.27	27.81	20.26
Level 9 .....	27.02	23.79	32.92	27.64	18.13
Level 10 .....	26.58	27.62	21.32	26.88	22.55
Level 11 .....	31.28	30.23	35.51	31.27	31.65
Level 12 .....	34.02	33.89	36.90	33.58	-
Level 13 .....	29.45	46.08	-	29.45	-
Not able to be leveled .....	29.35	30.26	28.05	30.39	-
Engineers, architects, and surveyors .....	29.10	29.09	-	29.10	-
Level 9 .....	24.75	24.75	-	24.75	-
Level 11 .....	29.70	29.67	-	29.70	-
Level 12 .....	31.97	31.97	-	31.97	-
Mathematical and computer scientists .....	26.00	25.90	-	26.02	-
Level 9 .....	23.93	23.93	-	23.98	-
Level 11 .....	29.49	29.49	-	29.49	-
Natural scientists .....	20.15	30.37	-	20.25	-
Health related occupations .....	22.92	22.78	24.12	22.75	23.51
Level 6 .....	17.40	17.39	-	16.95	-
Level 7 .....	20.51	20.55	-	19.47	22.66
Level 8 .....	21.21	21.25	20.80	21.15	21.38
Level 9 .....	21.88	21.36	-	22.35	19.80
Level 10 .....	25.38	27.71	-	24.41	-
Level 11 .....	27.51	28.27	-	27.49	-
Not able to be leveled .....	27.71	29.19	-	27.71	-
Teachers, college and university .....	37.84	37.27	37.90	40.76	22.75

See footnotes at end of table.

**Table B-1. Mean hourly earnings<sup>1</sup> by occupational group and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998**  
**— Continued**

Occupational group <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>White-collar occupations (-Continued)</b>					
Teachers, college and university (-Continued)					
Level 8 .....	\$50.96	—	—	—	—
Level 9 .....	38.41	\$31.73	—	\$40.21	\$25.70
Level 10 .....	35.69	36.91	—	35.59	35.88
Level 11 .....	36.15	38.53	\$35.94	36.13	—
Teachers, except college and university .....	34.20	18.67	34.71	35.65	16.78
Level 5 .....	10.19	—	—	—	10.22
Level 6 .....	39.16	—	40.81	39.63	—
Level 7 .....	13.72	—	—	—	—
Level 8 .....	36.45	23.59	36.90	37.51	12.44
Level 9 .....	34.28	—	34.49	36.30	—
Librarians, archivists, and curators .....	23.93	—	24.42	27.20	—
Social scientists and urban planners .....	17.94	—	—	17.94	—
Social, religious, and recreation workers .....	22.04	14.60	23.83	22.84	13.35
Level 8 .....	20.04	—	—	20.54	—
Level 9 .....	19.47	—	—	—	—
Level 10 .....	16.22	—	—	—	—
Level 11 .....	35.41	—	—	35.45	—
Lawyers and judges .....	45.80	—	—	45.80	—
Writers, authors, entertainers, athletes, and professionals, N.E.C. ....					
Level 9 .....	30.97	30.54	—	31.24	25.44
Level 9 .....	24.70	24.70	—	24.70	—
Not able to be leveled .....	30.73	28.96	—	31.28	—
Technical occupations .....	19.19	19.77	14.75	19.59	13.30
Level 3 .....	9.57	—	—	9.58	—
Level 4 .....	13.19	13.47	—	14.41	—
Level 5 .....	13.19	14.33	—	12.85	14.80
Level 6 .....	17.20	17.25	—	17.45	14.32
Level 7 .....	20.26	20.73	16.43	20.43	15.50
Level 8 .....	21.75	21.76	—	21.81	—
Level 9 .....	23.40	23.58	22.09	23.46	—
Level 10 .....	29.10	29.10	—	29.10	—
Executive, administrative, and managerial occupations ...	28.75	29.01	26.48	28.77	21.46
Level 6 .....	16.98	16.94	—	16.98	—
Level 7 .....	18.37	17.95	—	18.33	—
Level 9 .....	23.95	24.26	22.68	23.95	—
Level 10 .....	24.94	25.02	—	24.81	—
Level 11 .....	30.75	30.72	30.87	30.75	—
Level 12 .....	36.59	37.06	31.56	36.59	—
Level 13 .....	42.90	42.84	—	42.90	—
Level 14 .....	50.23	50.32	—	50.23	—
Not able to be leveled .....	48.30	48.38	—	48.38	—
Executives, administrators, and managers .....					
Level 7 .....	34.14	34.35	32.15	34.21	—
Level 7 .....	15.77	15.77	—	15.77	—
Level 8 .....	19.05	19.05	—	19.05	—
Level 9 .....	25.25	25.14	25.87	25.25	—
Level 10 .....	25.19	25.20	—	25.19	—
Level 11 .....	30.97	30.98	30.93	30.97	—
Level 12 .....	37.19	37.92	31.56	37.19	—
Level 13 .....	42.90	42.84	—	42.90	—
Level 14 .....	55.71	56.59	—	55.71	—
Not able to be leveled .....	68.04	68.34	—	68.34	—
Management related occupations .....					
Level 6 .....	23.26	23.47	21.63	23.24	—
Level 6 .....	16.41	16.19	—	16.41	—
Level 7 .....	20.15	19.76	—	20.11	—
Level 9 .....	22.84	23.41	—	22.84	—
Level 10 .....	24.78	—	—	24.57	—
Level 11 .....	30.03	29.96	—	30.03	—
Level 12 .....	34.78	34.78	—	34.78	—
Sales occupations .....					
Level 1 .....	16.28	16.29	—	18.46	7.48
Level 1 .....	6.72	6.72	—	—	6.36
Level 2 .....	8.17	8.18	—	8.56	7.57
Level 3 .....	9.49	9.49	—	10.48	7.75

See footnotes at end of table.

**Table B-1. Mean hourly earnings<sup>1</sup> by occupational group and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998  
— Continued**

Occupational group <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>White-collar occupations (-Continued)</b>					
Sales occupations (-Continued)					
Level 4 .....	\$14.57	\$14.57	—	\$15.44	\$8.54
Level 5 .....	17.11	17.11	—	18.68	—
Level 7 .....	21.87	21.87	—	21.87	—
Level 8 .....	19.64	19.64	—	19.64	—
Level 9 .....	23.54	23.54	—	23.54	—
Level 11 .....	31.71	31.71	—	31.71	—
Administrative support occupations, including clerical .....	13.07	13.11	\$12.93	13.29	10.28
Level 1 .....	7.70	7.69	7.84	8.16	6.98
Level 2 .....	9.89	10.00	9.42	9.98	9.24
Level 3 .....	11.11	11.08	11.38	11.28	9.23
Level 4 .....	12.70	12.52	13.12	12.76	9.07
Level 5 .....	14.17	14.33	13.56	14.18	—
Level 6 .....	15.10	15.15	14.31	15.73	—
Level 7 .....	17.23	17.40	16.27	17.33	—
Level 8 .....	19.54	20.00	—	19.54	—
Not able to be leveled .....	16.64	16.64	—	—	—
<b>Blue-collar occupations</b>					
Level 1 .....	16.35	16.40	15.38	16.80	8.22
Level 2 .....	8.54	8.54	—	9.44	6.21
Level 3 .....	10.65	10.49	11.95	10.63	10.78
Level 4 .....	16.75	16.94	12.75	16.83	11.07
Level 5 .....	16.30	16.33	—	16.31	—
Level 6 .....	15.40	15.39	15.67	15.40	—
Level 7 .....	18.53	18.89	—	18.53	—
Level 8 .....	21.36	21.50	19.71	21.36	—
Level 9 .....	23.99	24.17	—	23.99	—
Precision production, craft, and repair occupations .....	27.12	27.12	—	27.12	—
Level 3 .....	20.41	20.55	18.61	20.43	—
Level 4 .....	13.64	13.88	—	13.87	—
Level 5 .....	14.53	14.48	—	14.53	—
Level 6 .....	16.03	16.00	—	16.03	—
Level 7 .....	18.81	19.02	—	18.81	—
Level 8 .....	21.44	21.60	19.67	21.44	—
Level 9 .....	23.69	23.87	—	23.69	—
Machine operators, assemblers, and inspectors .....	27.12	27.12	—	27.12	—
Level 1 .....	15.33	15.33	—	15.52	—
Level 2 .....	7.98	7.96	—	8.44	—
Level 3 .....	9.95	9.95	—	9.95	—
Level 4 .....	17.23	17.23	—	17.23	—
Level 5 .....	16.89	16.89	—	16.89	—
Level 7 .....	15.44	15.44	—	15.44	—
Transportation and material moving occupations .....	17.94	17.68	—	17.94	—
Level 1 .....	15.36	15.86	12.94	16.20	10.99
Level 2 .....	9.05	9.05	—	—	—
Level 3 .....	11.70	11.45	12.53	12.65	10.79
Level 4 .....	16.03	17.17	12.18	16.43	11.74
Level 5 .....	16.86	17.01	—	16.95	—
Level 7 .....	15.63	16.02	—	15.63	—
Handlers, equipment cleaners, helpers, and laborers .....	10.57	10.41	12.76	11.38	6.86
Level 1 .....	8.71	8.72	—	10.06	6.24
Level 2 .....	10.63	10.47	11.37	10.63	—
Level 3 .....	13.84	13.74	—	13.96	—
Level 4 .....	12.53	12.53	—	12.39	—
<b>Service occupations</b>					
Level 1 .....	9.81	8.18	14.15	10.96	6.60
Level 2 .....	7.44	7.37	7.87	9.10	6.20
Level 3 .....	8.96	8.30	10.79	9.79	6.00
Level 4 .....	8.10	7.73	11.81	8.33	7.34
Level 5 .....	9.11	8.44	11.35	9.23	8.44
Level 6 .....	12.50	10.86	14.19	12.72	—
Level 7 .....	14.33	—	16.18	14.43	—
Level 7 .....	16.96	—	17.24	16.96	—

See footnotes at end of table.



**Table B-1. Mean hourly earnings<sup>1</sup> by occupational group and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998**  
**— Continued**

Occupational group <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>Service occupations (-Continued)</b>					
Level 8 .....	\$18.35	—	\$18.35	\$18.35	—
Level 9 .....	21.45	—	21.27	21.45	—
Protective service occupations .....	13.27	\$7.48	17.47	13.85	\$7.56
Level 2 .....	9.78	—	—	—	—
Level 3 .....	6.70	6.43	—	—	7.13
Level 5 .....	12.53	10.11	14.30	12.80	—
Level 6 .....	16.33	—	16.33	16.78	—
Level 7 .....	17.60	—	17.60	17.60	—
Level 8 .....	18.34	—	18.34	18.34	—
Level 9 .....	21.45	—	21.27	21.45	—
Food service occupations .....	6.84	6.72	8.88	8.12	5.93
Level 1 .....	6.16	6.08	7.29	7.06	6.01
Level 2 .....	6.12	5.97	—	7.11	5.15
Level 3 .....	7.21	6.93	—	7.38	6.86
Level 4 .....	8.36	8.07	—	8.54	—
Health service occupations .....	8.71	8.60	11.53	8.74	8.54
Level 2 .....	8.38	8.26	—	8.35	8.75
Level 3 .....	8.38	8.38	—	8.40	8.25
Level 4 .....	10.23	10.09	—	10.68	9.15
Cleaning and building service occupations .....	11.27	10.78	12.68	11.68	7.11
Level 1 .....	9.45	9.25	—	10.12	6.52
Level 2 .....	12.14	12.34	11.91	12.22	9.50
Level 3 .....	13.28	12.02	14.93	13.31	—
Level 4 .....	11.38	9.76	13.13	11.46	—
Personal service occupations .....	8.20	7.09	9.37	9.11	6.84
Level 1 .....	6.67	—	6.84	—	6.70
Level 2 .....	7.96	—	8.76	—	6.93
Level 3 .....	7.53	7.18	9.33	—	6.93
Level 4 .....	8.87	—	—	—	—

<sup>1</sup> Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours.

<sup>2</sup> Each occupation for which wage data are collected in an establishment is evaluated based on 10 factors, including knowledge, complexity, work environment, etc. Points are assigned based on the occupation's ranking within each factor. The points are summed to determine the overall level of the occupation. See technical note for more information.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy.

Individual occupations are classified into one of nine major occupational groups.

<sup>4</sup> All workers include full-time and part-time workers. Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm, where a 40-hour week is the minimum full-time schedule.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Table B-2. Mean hourly earnings<sup>1</sup> for selected occupations and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupation <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>White-collar occupations:</b>					
Professional specialty and technical occupations:					
Professional specialty occupations:					
Industrial engineers .....	\$27.69	\$27.69	—	\$27.69	—
Mechanical engineers .....	27.48	27.48	—	27.48	—
Level 9 .....	24.67	24.67	—	24.67	—
Level 11 .....	30.87	30.87	—	30.87	—
Engineers, N.E.C. ....	30.39	30.39	—	30.39	—
Level 9 .....	24.64	24.64	—	24.64	—
Level 11 .....	29.63	29.63	—	29.63	—
Level 12 .....	32.75	32.75	—	32.75	—
Computer systems analysts and scientists .....	25.63	25.63	—	25.63	—
Level 9 .....	24.40	24.40	—	24.40	—
Level 11 .....	30.51	30.51	—	30.51	—
Level 12 .....	33.44	33.44	—	33.44	—
Operations and systems researchers and analysts .....	26.86	26.59	—	26.93	—
Physicians .....	29.08	28.93	—	26.67	—
Not able to be leveled .....	27.71	29.19	—	27.71	—
Registered nurses .....	21.84	21.85	\$21.73	21.94	\$21.59
Level 6 .....	18.24	18.23	—	—	—
Level 7 .....	20.92	20.92	—	19.83	22.79
Level 8 .....	20.90	20.92	20.80	21.04	20.52
Level 9 .....	21.13	21.17	—	21.71	19.46
Level 10 .....	24.01	—	—	—	—
Level 11 .....	29.70	29.70	—	30.40	—
Pharmacists .....	27.74	27.74	—	—	—
Dietitians .....	15.73	—	—	—	—
Physical therapists .....	26.84	23.85	—	—	—
Level 9 .....	27.03	—	—	—	—
Engineering teachers .....	63.03	—	—	63.13	—
Health specialties teachers .....	32.82	—	—	—	—
Teachers, post secondary, subject not specified ..	46.76	46.76	—	—	—
Teachers, post secondary N.E.C. ....	28.07	—	27.56	47.26	21.64
Prekindergarten and kindergarten .....	33.93	—	34.41	34.60	—
Elementary school teachers .....	35.18	20.01	35.49	36.39	18.87
Level 6 .....	38.80	—	—	—	—
Level 8 .....	36.50	23.67	36.81	36.52	—
Level 9 .....	33.81	—	33.86	35.86	—
Secondary school teachers .....	36.90	20.79	38.15	36.91	—
Level 8 .....	36.96	—	37.97	36.96	—
Level 9 .....	34.00	—	—	34.00	—
Teachers, special education .....	38.78	—	38.78	38.78	—
Level 9 .....	40.66	—	40.66	40.66	—
Teachers, N.E.C. ....	33.36	—	33.65	—	16.02
Substitute teachers .....	10.92	—	—	—	10.92
Vocational and educational counselors .....	21.52	14.68	22.05	21.79	—
Librarians .....	23.93	—	24.42	27.20	—
Social workers .....	22.23	14.60	24.08	22.84	14.36
Level 8 .....	20.04	—	—	20.54	—
Level 9 .....	19.47	—	—	—	—
Level 10 .....	16.22	—	—	—	—
Level 11 .....	35.41	—	—	35.45	—
Lawyers .....	45.64	—	—	45.64	—
Technical occupations:					
Clinical laboratory technologists and technicians	15.50	19.34	—	15.36	—
Health record technologists and technicians .....	14.04	—	—	—	—
Radiological technicians .....	17.30	17.25	—	17.63	—
Level 5 .....	14.35	14.35	—	—	—
Level 6 .....	15.87	15.87	—	—	—
Licensed practical nurses .....	14.63	14.62	14.69	14.50	14.91
Level 5 .....	14.41	14.41	—	13.82	—
Level 6 .....	14.24	—	—	—	—
Level 7 .....	14.85	14.51	—	14.96	—
Health technologists and technicians, N.E.C. ....	12.97	12.76	14.08	12.86	13.58

See footnotes at end of table.

**Table B-2. Mean hourly earnings<sup>1</sup> for selected occupations and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>White-collar occupations:</b> (-Continued)					
<b>Technical occupations:</b> (-Continued)					
Health technologists and technicians, N.E.C. (-Continued)					
Level 4 .....	\$11.72	—	—	—	—
Level 5 .....	13.29	\$13.45	—	\$12.79	—
Electrical and electronic technicians .....	20.21	20.21	—	20.21	—
Mechanical engineering technicians .....	22.19	22.19	—	22.19	—
Drafters .....	21.28	21.28	—	24.55	—
Chemical technicians .....	18.68	18.68	—	18.68	—
Computer programmers .....	28.21	28.19	—	28.21	—
Technical and related occupations, N.E.C. ....	19.28	21.81	\$16.75	19.48	—
<b>Executive, administrative, and managerial occupations:</b>					
Administrators and officials, public administration	29.84	—	29.84	29.84	—
Financial managers .....	37.95	38.48	—	37.95	—
Managers, marketing, advertising and public relations .....	40.38	40.38	—	40.38	—
Administrators, education and related fields .....	36.90	19.28	43.79	36.90	—
Managers, medicine and health .....	28.20	28.42	—	28.20	—
Managers and administrators, N.E.C. ....	36.43	36.50	—	36.43	—
Level 9 .....	24.74	24.92	—	24.74	—
Level 10 .....	26.53	26.53	—	26.53	—
Level 11 .....	31.60	31.60	—	31.60	—
Level 12 .....	36.12	36.34	—	36.12	—
Level 14 .....	57.29	57.93	—	57.29	—
Accountants and auditors .....	21.37	21.36	—	21.35	—
Level 8 .....	19.74	19.74	—	19.74	—
Level 9 .....	24.31	24.44	—	24.31	—
Other financial officers .....	31.03	33.28	—	31.03	—
Personnel, training, and labor relations specialists .....	24.07	24.32	—	24.07	—
Purchasing agents and buyers, N.E.C. ....	26.76	26.86	—	26.76	—
Construction inspectors .....	21.35	—	21.35	21.35	—
Management related occupations, N.E.C. ....	24.08	24.44	—	24.08	—
Level 7 .....	19.28	19.10	—	19.31	—
Level 9 .....	23.89	25.61	—	23.89	—
Level 12 .....	32.10	32.10	—	32.10	—
<b>Sales occupations:</b>					
Supervisors, sales occupations .....	18.56	18.56	—	18.97	—
Advertising and related sales occupations .....	21.17	21.17	—	21.24	—
Sales occupations, other business services .....	21.23	21.23	—	21.23	—
Sales representatives, mining, manufacturing, and wholesale .....	23.84	23.84	—	23.84	—
Sales workers, motor vehicles and boats .....	25.76	25.76	—	25.76	—
Sales workers, furniture & home furnishings .....	13.23	13.23	—	—	—
Sales workers, other commodities .....	10.98	10.98	—	12.80	\$7.53
Level 1 .....	6.92	6.92	—	—	6.48
Level 3 .....	10.14	10.14	—	—	8.46
Sales counter clerks .....	8.51	8.51	—	8.51	—
Cashiers .....	8.06	8.07	—	9.20	6.95
Level 1 .....	6.92	6.92	—	—	6.42
Level 2 .....	8.11	8.12	—	8.51	7.53
Level 3 .....	8.74	8.74	—	—	—
<b>Administrative support occupations, including clerical:</b>					
Supervisors, general office .....	18.08	18.30	—	18.08	—
Level 7 .....	17.62	—	—	17.62	—
Supervisors, financial records processing .....	18.34	18.34	—	18.34	—
Computer operators .....	15.95	—	—	15.95	—
Level 4 .....	13.23	13.01	—	13.23	—
Level 5 .....	15.33	—	—	15.33	—
Level 7 .....	21.85	21.85	—	21.85	—
Secretaries .....	14.43	15.03	13.37	14.48	9.67
Level 3 .....	11.08	10.62	—	11.08	—
Level 4 .....	14.22	14.44	13.81	14.24	—
Level 5 .....	15.46	19.23	—	15.46	—

See footnotes at end of table.

**Table B-2. Mean hourly earnings<sup>1</sup> for selected occupations and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>White-collar occupations: (-Continued)</b>					
Administrative support occupations, including clerical: (-Continued)					
Secretaries (-Continued)					
Level 6 .....	\$15.38	\$15.96	—	\$15.38	—
Level 7 .....	18.02	—	—	18.02	—
Stenographers .....	13.16	—	—	—	—
Typists .....	9.71	10.67	—	9.65	—
Level 4 .....	10.82	—	—	—	—
Interviewers .....	10.21	10.18	—	10.63	—
Receptionists .....	9.19	9.19	—	9.19	—
Level 3 .....	10.25	10.25	—	10.24	—
Order clerks .....	12.16	12.16	—	12.37	—
Personnel clerks except payroll & timekeeping ....	14.01	—	—	14.01	—
Library clerks .....	10.99	—	\$9.82	—	\$7.70
Level 1 .....	6.61	—	—	—	—
Records clerks, N.E.C. ....	10.82	9.48	—	10.85	—
Bookkeepers, accounting and auditing clerks .....	11.47	10.98	15.15	11.82	8.25
Level 3 .....	9.92	9.68	—	9.91	—
Level 4 .....	11.93	10.83	—	12.03	—
Level 5 .....	12.19	11.71	—	12.19	—
Payroll and timekeeping clerks .....	12.43	12.43	—	13.65	—
Billing clerks .....	10.92	10.52	—	10.95	—
Level 4 .....	10.24	10.24	—	10.27	—
Telephone operators .....	11.28	11.28	—	11.44	—
Production coordinators .....	19.28	19.28	—	19.28	—
Traffic, shipping and receiving clerks .....	11.99	11.99	—	11.98	—
Level 4 .....	13.23	13.23	—	13.23	—
Stock and inventory clerks .....	10.64	10.64	—	10.64	—
Material recording, scheduling, and distribution clerks, N.E.C. ....	14.25	14.25	—	14.55	—
Insurance adjusters, examiners, & investigators ..	13.63	13.63	—	13.63	—
Investigators and adjusters except insurance .....	13.88	13.88	—	13.88	—
Bill and account collectors .....	12.14	12.14	—	12.14	—
General office clerks .....	11.98	12.04	11.92	12.20	8.19
Level 1 .....	7.77	—	—	—	7.40
Level 2 .....	8.31	8.38	—	—	—
Level 3 .....	10.81	10.93	—	10.83	—
Level 4 .....	12.11	12.26	12.07	12.11	—
Level 5 .....	19.08	20.48	—	19.08	—
Bank tellers .....	9.81	9.81	—	10.31	—
Level 3 .....	9.44	9.44	—	—	—
Data entry keyers .....	8.59	8.09	—	—	—
Teachers' aides .....	10.80	—	10.82	10.75	—
Level 2 .....	10.17	—	10.20	—	—
Administrative support occupations, N.E.C. ....	13.88	13.80	14.11	14.18	8.66
Level 2 .....	8.87	—	—	—	—
Level 3 .....	11.12	11.20	—	11.27	—
Level 4 .....	14.51	14.54	—	14.58	—
Level 6 .....	14.06	—	—	14.06	—
<b>Blue-collar occupations:</b>					
Precision production, craft, and repair occupations:					
Supervisors, mechanics and repairers .....	22.22	22.40	—	22.22	—
Automobile mechanics .....	18.54	—	—	18.54	—
Bus, truck, and stationary engine mechanics .....	15.65	—	—	15.65	—
Heavy equipment mechanics .....	20.32	21.14	—	20.32	—
Level 7 .....	20.52	—	—	20.52	—
Industrial machinery repairers .....	20.28	20.28	—	20.28	—
Level 7 .....	22.26	22.26	—	22.26	—
Millwrights .....	22.77	22.77	—	22.77	—
Level 7 .....	22.77	22.77	—	22.77	—
Mechanics and repairers, N.E.C. ....	19.86	19.95	—	19.86	—
Level 7 .....	22.53	23.02	—	22.53	—
Supervisors, construction trades, N.E.C. ....	24.95	26.57	—	24.95	—

See footnotes at end of table.

**Table B-2. Mean hourly earnings<sup>1</sup> for selected occupations and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>Blue-collar occupations: (-Continued)</b>					
Precision production, craft, and repair occupations: (-Continued)					
Carpenters .....	\$21.65	—	—	\$21.64	—
Level 7 .....	21.64	—	—	21.64	—
Electricians .....	23.14	\$22.96	—	23.14	—
Level 7 .....	23.21	23.05	—	23.21	—
Plumbers, pipefitters and steamfitters .....	23.65	23.65	—	23.65	—
Level 7 .....	24.38	24.41	—	24.38	—
Construction trades, N.E.C. ....	15.69	—	—	15.69	—
Supervisors, production occupations .....	20.06	20.06	—	20.06	—
Level 7 .....	18.91	18.91	—	18.91	—
Level 8 .....	23.75	23.75	—	23.75	—
Tool and die makers .....	22.57	22.57	—	22.57	—
Level 7 .....	22.56	22.56	—	22.56	—
Tool and die maker apprentices .....	15.85	15.85	—	15.85	—
Machinists .....	20.38	20.38	—	20.38	—
Level 7 .....	20.38	20.38	—	20.38	—
Precision grinders, filers, and tool sharpeners .....	21.75	21.75	—	21.75	—
Patternmakers, layout workers, and cutters .....	24.30	24.30	—	24.30	—
Butchers and meat cutters .....	14.66	14.66	—	14.66	—
Inspectors, testers, and graders .....	19.88	19.88	—	19.88	—
Stationary engineers .....	19.36	—	—	—	—
Machine operators, assemblers, and inspectors:					
Lathe and turning machine operators .....	14.72	14.72	—	14.72	—
Punching and stamping press operators .....	16.04	16.04	—	16.04	—
Level 3 .....	17.75	17.75	—	17.75	—
Grinding, abrading, buffing, and polishing machine operators .....	11.90	11.90	—	11.90	—
Fabricating machine operators, N.E.C. ....	20.27	20.27	—	20.27	—
Level 3 .....	20.09	20.09	—	20.09	—
Textile sewing machine operators .....	11.86	11.86	—	11.86	—
Laundering and dry cleaning machine operators	7.63	7.22	—	7.69	—
Level 1 .....	7.63	7.22	—	7.69	—
Packaging and filling machine operators .....	10.62	10.62	—	10.62	—
Miscellaneous machine operators, N.E.C. ....	12.35	12.35	—	12.35	—
Level 3 .....	10.35	10.35	—	10.35	—
Level 4 .....	16.39	16.39	—	16.39	—
Welders and cutters .....	16.13	16.13	—	16.13	—
Assemblers .....	16.48	16.48	—	17.01	—
Level 1 .....	7.32	7.32	—	8.14	—
Level 3 .....	18.60	18.60	—	18.60	—
Level 4 .....	15.62	15.62	—	15.62	—
Production inspectors, checkers and examiners ..	15.18	15.18	—	15.18	—
Transportation and material moving occupations:					
Truck drivers .....	14.44	14.77	—	14.58	—
Level 2 .....	11.09	—	—	—	—
Level 3 .....	16.38	16.38	—	16.38	—
Level 4 .....	—	—	—	17.22	—
Bus drivers .....	12.17	—	\$12.69	12.21	\$12.13
Level 2 .....	12.19	—	—	—	—
Level 3 .....	11.53	—	12.18	11.43	11.74
Crane and tower operators .....	15.28	15.28	—	15.28	—
Industrial truck and tractor equipment operators ..	15.56	15.56	—	15.56	—
Level 3 .....	17.88	17.88	—	17.88	—
Level 4 .....	15.12	15.12	—	15.12	—
Handlers, equipment cleaners, helpers, and laborers:					
Groundskeepers and gardeners except farm .....	12.90	—	12.90	13.35	—
Stock handlers and baggers .....	9.32	9.32	—	12.10	6.35
Level 1 .....	6.92	6.92	—	9.05	6.13
Level 2 .....	—	—	—	11.02	—
Level 4 .....	13.80	13.80	—	13.80	—
Freight, stock, and material handlers, N.E.C. ....	11.19	11.19	—	11.12	—
Level 1 .....	10.12	10.12	—	—	—

See footnotes at end of table.

**Table B-2. Mean hourly earnings<sup>1</sup> for selected occupations and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>Blue-collar occupations:</b> (-Continued)					
Handlers, equipment cleaners, helpers, and laborers:					
(-Continued)					
Freight, stock, and material handlers, N.E.C.					
(-Continued)					
Level 2 .....	\$10.48	\$10.48	—	—	—
Vehicle washers and equipment cleaners .....	10.30	10.30	—	\$10.42	—
Level 1 .....	10.30	10.30	—	10.42	—
Hand packers and packagers .....	9.70	9.70	—	9.79	—
Laborers except construction, N.E.C. ....	12.68	12.53	—	12.76	—
Level 2 .....	12.56	12.34	—	12.56	—
<b>Service occupations:</b>					
Protective service occupations:					
Firefighting occupations .....	15.96	—	\$15.96	15.96	—
Police and detectives, public service .....	19.01	—	19.01	19.14	—
Level 8 .....	18.45	—	18.45	18.45	—
Level 9 .....	21.00	—	21.00	21.00	—
Correctional institution officers .....	15.65	—	15.65	15.65	—
Crossing guards .....	6.85	—	6.85	—	\$6.85
Guards and police except public service .....	7.28	7.26	—	7.22	7.55
Level 3 .....	6.43	6.43	—	—	—
Protective service occupations, N.E.C. ....	14.87	—	12.51	—	—
Food service occupations:					
Bartenders .....	7.57	7.57	—	—	—
Waiters and waitresses .....	4.00	4.00	—	—	4.18
Level 2 .....	3.90	3.90	—	—	—
Cooks .....	9.00	8.83	—	9.46	6.98
Level 3 .....	9.09	8.94	—	9.05	—
Level 4 .....	8.44	8.06	—	—	—
Food counter, fountain, and related occupations	5.72	5.72	—	—	—
Food preparation occupations, N.E.C. ....	6.36	6.20	8.07	7.28	6.03

See footnotes at end of table.

**Table B-2. Mean hourly earnings<sup>1</sup> for selected occupations and levels<sup>2</sup>, all industries, private industry, State and local government, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>3</sup> and level	All workers <sup>4</sup>			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
<b>Service occupations: (-Continued)</b>					
Food service occupations: (-Continued)					
Food preparation occupations, N.E.C. (-Continued)					
Level 1 .....	\$6.18	\$6.08	\$7.29	\$7.66	\$5.94
Level 2 .....	5.74	5.57	—	—	—
Level 3 .....	8.62	—	—	—	—
Health service occupations:					
Health aides, except nursing .....	10.48	10.38	—	10.50	—
Level 2 .....	10.30	—	—	10.37	—
Level 3 .....	10.33	10.33	—	10.33	—
Level 4 .....	10.75	10.56	—	10.75	—
Nursing aides, orderlies and attendants .....	8.28	8.21	11.86	8.23	8.50
Level 2 .....	8.09	8.05	—	8.06	8.43
Level 3 .....	8.12	8.11	—	8.08	8.25
Level 4 .....	9.53	9.53	—	—	9.15
Cleaning and building service occupations:					
Supervisors, cleaning & building service workers	11.81	11.81	—	11.81	—
Maids and housemen .....	6.91	6.83	—	7.03	—
Level 1 .....	7.17	—	—	—	—
Janitors and cleaners .....	11.82	11.43	12.71	12.20	7.34
Level 1 .....	10.05	9.85	—	10.71	6.54
Level 2 .....	12.72	13.50	11.92	12.82	9.50
Level 3 .....	13.40	12.11	14.93	13.44	—
Level 4 .....	11.95	—	13.13	12.13	—
Personal service occupations:					
Early childhood teachers' assistants .....	7.47	—	7.85	—	6.43
Child care workers, N.E.C. ....	9.34	—	9.55	10.87	7.28
Level 1 .....	6.80	—	6.80	—	6.80
Level 2 .....	8.92	—	9.38	—	—
Service occupations, N.E.C. ....	8.51	7.92	—	—	7.31

<sup>1</sup> Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours.

<sup>2</sup> Each occupation for which wage data are collected in an establishment is evaluated based on 10 factors, including knowledge, complexity, work environment, etc. Points are assigned based on the occupation's ranking within each factor. The points are summed to determine the overall level of the occupation. See technical note for more information.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy.

Individual occupations are classified into one of nine major occupational groups.

<sup>4</sup> All workers include full-time and part-time workers. Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm, where a 40-hour week is the minimum full-time schedule.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Table C-1. Mean hourly earnings<sup>1</sup> by occupational group and selected characteristics, all industries, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupational group <sup>2</sup>	Full-time workers <sup>3</sup>	Part-time workers <sup>3</sup>	Union <sup>4</sup>	Nonunion <sup>4</sup>	Time <sup>5</sup>	Incentive <sup>5</sup>
<b>All occupations</b> .....	\$19.40	\$9.96	\$18.90	\$18.36	\$18.58	\$17.75
All occupations excluding sales .....	19.45	10.33	19.00	18.51	18.72	17.64
<b>White-collar occupations</b> .....	22.54	13.53	23.54	21.55	22.06	18.16
White-collar excluding sales .....	22.97	16.10	24.09	22.23	22.61	19.21
Professional specialty and technical occupations .....	26.49	19.90	31.36	24.60	26.02	—
Professional specialty occupations .....	28.75	21.73	33.62	26.58	28.23	—
Technical occupations .....	19.59	13.30	18.79	19.25	19.19	—
Executive, administrative, and managerial occupations ...	28.77	21.46	23.99	29.02	28.93	—
Sales occupations .....	18.46	7.48	8.95	16.73	15.51	17.89
Administrative support including clerical occupations .....	13.29	10.28	14.30	12.69	12.99	17.65
<b>Blue-collar occupations</b> .....	16.80	8.22	18.09	13.45	16.25	18.30
Precision production, craft, and repair occupations .....	20.43	—	21.24	19.06	20.33	21.74
Machine operators, assemblers, and inspectors .....	15.52	—	17.55	10.93	15.32	—
Transportation and material moving occupations .....	16.20	10.99	17.19	12.25	15.11	17.12
Handlers, equipment cleaners, helpers, and laborers .....	11.38	6.86	12.02	9.04	10.51	12.12
<b>Service occupations</b> .....	10.96	6.60	13.26	7.77	9.84	—

<sup>1</sup> Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours.

<sup>2</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

<sup>3</sup> Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm,

where a 40-hour week is the minimum full-time schedule.

<sup>4</sup> Union workers are those whose wages are determined through collective bargaining.

<sup>5</sup> Time workers' wages are based solely on an hourly rate or salary; incentive workers are those whose wages are at least partially based on productivity payments such as piece rates, commissions, and production bonuses.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."



**Table C-2. Mean hourly earnings<sup>1</sup> by occupational group and industry division, private industry, all workers<sup>2</sup>, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupational group <sup>3</sup>	All private industries	Goods-producing industries <sup>4</sup>				Service-producing industries <sup>5</sup>				
		Total	Mining	Construction	Manufacturing	Total	Transportation and public utilities	Wholesale and retail trade	Finance, insurance, and real estate	Services
<b>All occupations</b> .....	\$18.10	\$21.40	—	—	\$21.36	\$15.62	—	—	\$17.71	\$16.29
All occupations excluding sales .....	18.23	21.35	—	—	21.31	15.67	—	—	17.79	16.20
<b>White-collar occupations</b> .....	21.33	28.49	—	—	28.56	18.42	—	—	18.10	19.63
White-collar excluding sales .....	22.10	28.78	—	—	28.84	19.06	—	—	18.22	19.64
Professional specialty and technical occupations .....	24.79	28.46	—	—	28.46	22.74	—	—	25.39	22.44
Professional specialty occupations .....	26.89	29.98	—	—	29.98	24.97	—	—	27.10	24.58
Technical occupations .....	19.77	23.78	—	—	23.79	18.06	—	—	—	17.66
Executive, administrative, and managerial occupations .....	29.01	36.07	—	—	36.41	23.81	—	—	23.79	—
Sales occupations .....	16.29	23.96	—	—	23.96	15.17	—	—	16.61	19.43
Administrative support, including clerical occupations .....	13.11	15.53	—	—	15.58	12.62	—	—	12.44	12.05
<b>Blue-collar occupations</b> .....	16.40	17.56	—	—	17.35	13.10	—	—	—	11.32
Precision production, craft, and repair occupations .....	20.55	21.44	—	—	21.21	18.21	—	—	—	15.69
Machine operators, assemblers, and inspectors .....	15.33	15.72	—	—	15.70	9.44	—	—	—	7.26
Transportation and material moving occupations .....	15.86	19.30	—	—	19.30	13.04	—	—	—	8.13
Handlers, equipment cleaners, helpers, and laborers .....	10.41	12.86	—	—	12.71	9.06	—	—	—	10.37
<b>Service occupations</b> .....	8.18	16.45	—	—	16.45	7.75	—	—	—	7.84

<sup>1</sup> Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours.

<sup>2</sup> All workers include full-time and part-time workers. Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm, where a 40-hour week is the minimum full-time schedule.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

<sup>4</sup> Goods-producing industries include mining, construction, and manufacturing.

<sup>5</sup> Service-producing industries include transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Table C-3. Mean hourly earnings<sup>1</sup> by occupational group and establishment employment size, private industry, all workers<sup>2</sup>, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupational group <sup>3</sup>	All private industry workers	50 - 99 workers	100 workers or more		
			Total	100 - 499 workers	500 workers or more
<b>All occupations</b> .....	\$18.10	\$15.40	\$18.52	\$15.60	\$20.66
All occupations excluding sales .....	18.23	15.30	18.66	15.49	20.81
<b>White-collar occupations</b> .....	21.33	19.08	21.67	19.73	22.87
White-collar excluding sales .....	22.10	20.12	22.36	20.58	23.28
Professional specialty and technical occupations .....	24.79	26.15	24.68	24.07	24.95
Professional specialty occupations .....	26.89	29.93	26.70	26.85	26.64
Technical occupations .....	19.77	21.41	19.56	19.20	19.80
Executive, administrative, and managerial occupations ...	29.01	27.06	29.29	29.65	29.16
Sales occupations .....	16.29	16.09	16.35	16.53	15.95
Administrative support, including clerical occupations .....	13.11	12.11	13.30	12.72	13.77
<b>Blue-collar occupations</b> .....	16.40	14.14	16.71	13.16	19.47
Precision production, craft, and repair occupations .....	20.55	18.61	20.90	18.33	22.54
Machine operators, assemblers, and inspectors .....	15.33	11.42	15.60	11.47	18.80
Transportation and material moving occupations .....	15.86	14.16	16.18	12.43	18.25
Handlers, equipment cleaners, helpers, and laborers .....	10.41	8.43	10.87	9.81	12.56
<b>Service occupations</b> .....	8.18	6.76	8.57	7.89	9.49

<sup>1</sup> Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, and hazard pay. Excluded are premium pay for overtime, vacations, holidays, nonproduction bonuses, and tips. The mean is computed by totaling the pay of all workers and dividing by the number of workers, weighted by hours.

<sup>2</sup> All workers include full-time and part-time workers. Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in

another firm, where a 40-hour week is the minimum full-time schedule.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Table C-4. Number of workers<sup>1</sup> represented by occupational group, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupational group <sup>2</sup>	All workers		
	All industries	Private industry	State and local government
<b>All occupations</b> .....	1,478,245	1,217,511	260,734
All occupations excluding sales .....	1,386,089	1,125,487	260,602
<b>White-collar occupations</b> .....	800,719	627,412	173,307
White-collar excluding sales .....	708,563	535,387	173,176
Professional specialty and technical occupations .....	358,920	243,698	115,221
Professional specialty occupations .....	278,473	173,785	104,688
Technical occupations .....	80,447	69,914	10,533
Executive, administrative, and managerial occupations ...	137,344	122,061	15,283
Sales occupations .....	92,156	92,025	—
Administrative support including clerical occupations .....	212,299	169,627	42,672
<b>Blue-collar occupations</b> .....	456,784	429,747	27,037
Precision production, craft, and repair occupations .....	142,302	132,578	9,724
Machine operators, assemblers, and inspectors .....	183,104	182,404	—
Transportation and material moving occupations .....	59,249	47,227	12,021
Handlers, equipment cleaners, helpers, and laborers .....	72,128	67,537	4,591
<b>Service occupations</b> .....	220,742	160,353	60,389

<sup>1</sup> Both full-time and part-time workers were included in the survey. Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another establishment, where a 40-hour week is the minimum full-time schedule.

<sup>2</sup> A classification system including about 480 individual

occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

# Appendix A. Technical Note

This section provides basic information on the procedures and concepts used to produce the data contained in this bulletin. It is divided into three parts: Planning for the survey; data collection; and processing and analyzing the data. While this section answers some questions commonly asked by data users, it is not a comprehensive description of all the steps required to produce the data.

## Planning for the survey

The overall design of the survey, which is based on the type of data to be produced, had to be developed before data collection could begin. Establishments are selected for the sample and used in subsequent years until the sample is replenished. Panels of units beginning in 2000 will replace the current sample. Establishments provide individual wage data at initiation, and in subsequent years the establishments update these wages. In addition, sampled establishments and quotes that were refusals are re-initiated and useable wage data are included with the updated estimates.

## Survey scope

This survey of the Detroit-Ann Arbor-Flint, MI, Consolidated Metropolitan Statistical Area covered establishments employing 50 workers or more in goods-producing industries (mining, construction and manufacturing); service-producing industries (transportation, communications, electric, gas, and sanitary services; wholesale trade; retail trade; finance, insurance, and real estate; and services industries); and State and local governments. Agriculture, private households, and the Federal Government were excluded from the scope of the survey. For purposes of this survey an establishment was an economic unit which produces goods or services, a central administrative office, or an auxiliary unit providing support services to a company. For private industries in this survey, the establishment was usually at a single physical location. For State and local governments, an establishment was defined as all locations of a government entity.

The Detroit-Ann Arbor-Flint, MI, Consolidated Metropolitan Statistical Area includes Genesee, Lapeer, Lenawee, Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne Counties, MI.

## Sampling frame

The list of establishments from which the survey sample was selected (sampling frame) was developed from the State unemployment insurance reports for the Detroit-Ann Arbor-Flint, MI, Consolidated Metropolitan Statistical Area. The reference month for the public sector is June

1994. Due to the volatility of industries within the private sector, sampling frames were developed using the most recent month of reference available at the time the sample was selected. The reference month for the private sector is December 1994. The sampling frame was reviewed prior to the survey and, when necessary, missing establishments were added, out-of-business and out-of-scope establishments were removed, and addresses, employment levels, industry classification, and other information were updated.

## Sample design

The sample for this survey area was selected using a two stage stratified design with probability proportional to employment sampling at each stage. The first stage of sample selection was a probability sample of establishments. The sample of establishments was drawn by first stratifying the sampling frame by industry and ownership. The number of sample establishments allocated to each stratum is approximately proportional to the stratum employment. Each sampled establishment is selected within a stratum with a probability proportional to its employment. Use of this technique means that the larger an establishment's employment, the greater its chance of selection. Weights were applied to each establishment when the data were tabulated so that it represents similar units (by industry and employment size) in the economy which were not selected for collection. See appendix table 1 for a count of establishments in the survey by employment size. The second stage of sample selection, detailed below, was a probability sample of occupations within a sampled establishment.

## Data collection

The collection of data from survey respondents required detailed procedures. For the initial data collection, field economists, working out of the Regional Office, visited each establishment surveyed. The field economists through mail, phone, or personal visit completed update collection, which involves obtaining current pay data.

The following procedures are used for schedules initiated for the first time or reinitiated during an update.

## Occupational selection and classification

Identification of the occupations for which wage data were to be collected was a multi-step process:

1. Probability-proportional-to-size selection of establishment jobs.
2. Classification of jobs into occupations based on the Census of Population system.

3. Characterization of jobs as full-time v. part-time, union v. nonunion, and time v. incentive.
4. Determination of the level of work of each job.

For each occupation, wage data were collected for those workers who met all the criteria identified in the last three steps. Special procedures were developed for jobs for which a correct classification or level could not be determined.

In step one, the jobs to be sampled were selected at each establishment by the BLS field economist during a personal visit. A complete list of employees was used for sampling, with each selected worker representing a job within the establishment.

As with the selection of establishments, the selection of a job was based on probability proportional to its size in the establishment. The greater the number of people working in a job in the establishment, the greater its chance of selection.

The number of jobs collected in each establishment was based on an establishment's employment size as shown in the following schedule:

<i>Number of employees</i>	<i>Number of selected jobs</i>
50-99	8
100-249	10
250-999	12
1000-2,499	16
2,500+	20

The second step of the process entailed classifying the selected jobs into occupations based on their duties. The National Compensation Survey occupational classification system is based on the 1990 Census of Population. A selected job may fall into any one of about 480 occupational classifications, from accountant to wood lathe operator. In cases where a job's duties overlapped two or more census classification codes, the duties used to set the wage level were used to classify the job. Classification by primary duties was the fallback.

Each occupational classification is an element of a broader classification known as a major occupational group (MOG). Occupations can fall into any of the following MOG's:

- Professional specialty and technical
- Executive, administrative, and managerial
- Sales
- Administrative support including clerical
- Precision production, craft, and repair
- Machine operators, assemblers, and inspectors
- Transportation and material moving
- Handlers, equipment cleaners, helpers, and laborers
- Service occupations

A complete list of all individual occupations, classified by the MOG to which they belong, is contained in appendix B.

In step three, certain other job characteristics of the chosen worker were identified. First, the worker was identified as holding either a full-time or part-time job, based on the establishment's definition of those terms. Then the worker was classified as having a time versus incentive job, depending on whether any part of pay was directly based on the actual production of the worker, rather than solely on hours worked. Finally, the worker was identified as being in a union job or a nonunion job. See the "Definition of Terms" section on the following page for more detail.

### **Generic leveling through point factor analysis**

In the last step before wage data were collected, the work level of each selected job was determined using a "generic leveling" process. Generic leveling ranks and compares all occupations randomly selected in an establishment using the same criteria. This is a major departure from the method used in the past in the Bureau's Occupational Compensation Surveys which studied specifically defined occupations with leveling definitions unique to each occupation.

For this survey, the level of each occupation in an establishment was determined by an analysis of each of 10 leveling factors. Nine of these factors are drawn from the U.S. Government Office of Personnel Management's Factor Evaluation System, which is the underlying structure for evaluation of General Schedule Federal employees. The tenth factor, supervisory duties, attempts to account for the effect of supervisory duties. It is considered experimental. The 10 factors are:

- Knowledge
- Supervision received
- Guidelines
- Complexity
- Scope and effect
- Personal contacts
- Purpose of contacts
- Physical demands
- Work environment
- Supervisory duties

Each factor contains a number of levels and each level has an associated written description and point value. The number and range of points differ among the factors. For each factor, an occupation was assigned a level based on which written description best matched the job. Within each occupation, the points for 9 factors (supervisory duties was excluded) were recorded and totaled. The total determines the overall level of the occupation. Appendix table 3 presents average work levels for published occupational groups and selected occupations. A description of the levels for each factor is shown in appendix C.

Tabulations of levels of work for occupations in the survey follow the Federal Government's white-collar General Schedule. Point ranges for each of the 15 levels are shown in appendix D. It also includes an example of a leveled job and a guide to help data users evaluate jobs in their firm.

Wage data collected in prior surveys using the new generic leveling method were evaluated by BLS researchers using regression techniques. For each of the major occupational groups, wages were compared to the 10 generic level factors (and levels within those factors). The analysis showed that several of the generic level factors, most notably knowledge and supervision received, had strong explanatory power for wages. That is, as the levels within a given factor increased, the wages also increased. Detailed research continues in the area. BLS will publish the results of this research in the future.

### Collection period

Collection of updated wage estimates took place from January 1998 through June 1998. The average payroll reference month was March 1998. For each establishment in the survey, the data reflect the establishment's practices on the day of collection.

### Earnings

Earnings were defined as regular payments from the employer to the employee as compensation for straight-time hourly work, or for any salaried work performed. The following components were included as part of earnings:

- Incentive pay, including commissions, production bonuses, and piece rates
- Cost-of-living allowances
- Hazard pay
- Payments of income deferred due to participation in a salary reduction plan
- Deadhead pay, defined as pay given to transportation workers returning in a vehicle without freight or passengers

The following forms of payments were *not* considered part of straight-time earnings:

- Shift differentials, defined as extra payment for working a schedule that varies from the norm, such as night or weekend work
- Premium pay for overtime, holidays, and weekends
- Bonuses not directly tied to production (e.g., Christmas bonuses, profit-sharing bonuses)
- Uniform and tool allowances
- Free room and board
- Payments made by third parties (e.g., tips, bonuses given by manufacturers to department store salespeople, referral incentives in real estate)
- On-call pay

In order to calculate earnings for various time periods (hourly, weekly, and annual), data on work schedules were also collected. For hourly workers, scheduled hours worked per day and per week, exclusive of overtime, were recorded. Annual weeks worked were determined. Because salaried workers, exempt from overtime provisions, often work beyond the assigned work schedule, their typical number of hours actually worked was collected.

### Definition of terms

*Full-time worker.* Any employee that the employer considers to be full time.

*Incentive worker.* Any employee whose earnings are tied, at least in part, to commissions, piece rates, production bonuses, or other incentives based on production or sales.

*Level.* A ranking of an occupation based on the requirements of the position. (See the description in the technical note and the example for more details on the leveling process.)

*Nonunion worker.* An employee in an occupation not meeting the conditions for union coverage (see below).

*Part-time worker.* Any employee that the employer considers to be part-time.

*Straight-time.* Time worked at the standard rate of pay for the job.

*Time-based worker.* Any employee whose earnings are tied to an hourly rate or salary, and not to a specific level of production.

*Union worker.* Any employee is in a union occupation when all of the following conditions are met:

- A labor organization is recognized as the bargaining agent for all workers in the occupation.
- Wage and salary rates are determined through collective bargaining or negotiations.
- Settlement terms, which must include earnings provisions and may include benefit provisions, are embodied in a signed mutually binding collective bargaining agreement.

### Processing and analyzing the data

Data were processed and analyzed at the Bureau's National Office following collection.

### Weighting and nonresponse

Sample weights were calculated for each establishment/occupation in the survey. These weights reflected the

relative size of the occupation within the establishment and of the establishment within the sample universe. Weights were used to aggregate the individual establishment/occupations into the various data series. Of the establishments surveyed, 23.7 percent (representing 355,306 employees) refused to supply information. If data were not provided by a sample member, the weights of responding sample members in the same or similar “cells” were adjusted to account for the missing data. This technique assumes that the mean value of the nonrespondents equals the mean value of the respondents at some detailed “cell” level. Responding and nonresponding establishments were classified into these cells according to industry and employment size. Responding and nonresponding occupations within responding establishments were classified into cells which were additionally defined by major occupation group and job level.

Establishments which were determined to be out of business or outside the scope of the survey (5.7 percent of the total sample) had their weights changed to zero. If only partial data were given by a sample establishment or occupation, or data were missing, the response was treated as a refusal.

### Estimation

The wage series in the tables are computed by combining the wages for individual establishment/occupations. Before being combined, individual wage rates are weighted by: number of workers; the sample weight adjusted for nonresponding establishments and other factors; and the occupation work schedule, varying depending on whether hourly, weekly, or annual rates are being calculated. The respondent has the option to give mean wages instead of individual wages for sampled quotes in years following the initiation.

In 1998 the publication criteria were changed to allow more estimates to publish. Not all series that were calculated met the criteria for publication. Before any series was published, it was reviewed to make sure that the number of observations underlying it was sufficient. This review prevented publishing a series that could have revealed information about a specific establishment.

The number of workers estimates represent the total in all establishments within the scope of the study and not the number actually surveyed. Because occupational structures among establishments differ, estimates of the number of workers obtained from the sample of establishments serve

only to indicate the relative importance of the occupational groups studied.

### Data reliability

The data in this bulletin are estimates from a scientifically selected probability sample. There are two types of errors possible in an estimate based on a sample survey, sampling and nonsampling.

*Sampling errors* occur because observations come only from a sample and not from an entire population. The sample used for this survey is one of a number of possible samples of the same size that could have been selected using the sample design. Estimates derived from the different samples would differ from each other.

A measure of the variation among these differing estimates is called the standard error or sampling error. It indicates the precision with which an estimate from a particular sample approximates the average result of all possible samples. The relative standard error (RSE) is the standard error divided by the estimate. Appendix table 2 contains RSE data for selected series in this bulletin. RSE data for all series in this bulletin are available on the Internet web site and by request to the BLS National Office.

The standard error can be used to calculate a “confidence interval” around a sample estimate. As an example, suppose table A-1 shows that mean hourly earnings for all workers was \$12.79 per hour, and appendix table 2 shows a relative standard error of 3.6 percent for this estimate. At the 90-percent level, the confidence interval for this estimate is \$13.55 to \$12.03 (\$12.79 plus and minus 1.645 times 3.6 percent times \$12.79). If all possible samples were selected to estimate the population value, the interval from each sample would include the true population value approximately 90 percent of the time.

*Nonsampling errors* also affect survey results. They can stem from many sources, such as inability to obtain information for some establishments, difficulties with survey definitions, inability of the respondents to provide correct information, or mistakes in recording or coding the data obtained. A Technical Reinterview Program done in all survey areas will be used in the development of a formal quality assessment process to help compute nonsampling error. Although they were not specifically measured, the nonsampling errors were expected to be minimal due to the extensive training of the field economists who gathered the survey data by personal visit, computer edits of the data, and detailed data review.

**Appendix table 1. Number of establishments studied by industry division and establishment employment size, and number of establishments represented, Detroit-Ann Arbor-Flint, MI, March 1998**

Industry	Number of establishments represented	Number of establishments studied				
		Total studied	50 - 99 workers	100 workers or more		
				Total	100 - 499 workers	500 workers or more
All industries .....	6,364	393	77	316	138	178
Private industry .....	6,074	337	76	261	120	141
Goods-producing industries .....	1,810	128	19	109	39	70
Mining .....	4	2	2	-	-	-
Construction .....	164	7	3	4	2	2
Manufacturing .....	1,643	119	14	105	37	68
Service-producing industries .....	4,264	209	57	152	81	71
Transportation and public utilities .....	343	15	4	11	8	3
Wholesale and retail trade .....	1,924	56	22	34	18	16
Finance, insurance and real estate .....	353	17	2	15	6	9
Services .....	1,644	121	29	92	49	43
State and local government .....	290	56	1	55	18	37

NOTE: Dashes indicate that no data were reported. Overall industry and industry groups may include data for categories not shown separately.



**Appendix table 2. Relative standard errors of mean hourly earnings<sup>1</sup> for selected occupations, all industries, private industry, and State and local government, all workers<sup>2</sup>, Detroit-Ann Arbor-Flint, MI, March 1998**

(in percent)

Occupation <sup>3</sup>	All industries	Private industry	State and local government
<b>All occupations</b> .....	1.8	2.0	3.5
All occupations excluding sales .....	1.8	2.1	3.5
<b>White-collar occupations</b> .....	2.1	2.4	4.4
White-collar occupations excluding sales .....	2.2	2.4	4.4
Professional specialty and technical occupations .....	2.3	2.3	5.4
Professional specialty occupations .....	2.4	2.2	5.4
Engineers, architects, and surveyors .....	1.8	1.8	—
Industrial engineers .....	1.8	1.8	—
Mechanical engineers .....	4.6	4.6	—
Engineers, N.E.C. ....	2.6	2.6	—
Mathematical and computer scientists .....	5.4	5.4	—
Computer systems analysts and scientists .....	6.7	6.8	—
Operations and systems researchers and analysts .....	6.0	6.2	—
Natural scientists .....	19.5	8.0	—
Health related occupations .....	3.0	3.2	8.6
Physicians .....	16.5	18.4	—
Registered nurses .....	1.9	2.1	4.2
Pharmacists .....	4.2	4.2	—
Dietitians .....	7.2	—	—
Physical therapists .....	12.1	9.7	—
Teachers, college and university .....	14.7	6.9	16.3
Engineering teachers .....	5.6	—	—
Health specialties teachers .....	10.0	—	—
Teachers, post secondary, subject not specified ..	14.6	14.6	—
Teachers, post secondary N.E.C. ....	17.4	—	18.5
Teachers, except college and university .....	5.0	8.1	5.1
Prekindergarten and kindergarten .....	9.8	—	9.9
Elementary school teachers .....	4.5	14.1	4.6
Secondary school teachers .....	5.3	8.5	5.1
Teachers, special education .....	4.1	—	4.1
Teachers, N.E.C. ....	25.5	—	25.3
Substitute teachers .....	1.6	—	—
Vocational and educational counselors .....	26.5	18.2	29.2
Librarians, archivists, and curators .....	21.0	—	21.2
Librarians .....	21.0	—	21.2
Social scientists and urban planners .....	22.4	—	—
Social, recreation, and religious workers .....	13.5	11.7	14.2
Social workers .....	13.5	11.8	14.2
Lawyers and judges .....	14.9	—	—
Lawyers .....	15.8	—	—
Writers, authors, entertainers, athletes, and professionals, N.E.C. ....	6.2	7.1	—
Technical occupations .....	3.2	3.2	10.2
Clinical laboratory technologists and technicians	16.3	3.6	—
Health record technologists and technicians .....	13.0	—	—
Radiological technicians .....	6.5	6.7	—
Licensed practical nurses .....	1.5	1.5	4.9
Health technologists and technicians, N.E.C. ....	5.1	5.0	13.2
Electrical and electronic technicians .....	4.3	4.3	—
Mechanical engineering technicians .....	6.3	6.3	—
Drafters .....	15.7	15.7	—
Chemical technicians .....	5.3	5.3	—
Computer programmers .....	6.8	7.8	—
Technical and related occupations, N.E.C. ....	7.6	7.3	10.5
Executive, administrative, and managerial occupations ...	4.2	4.6	5.2
Executives, administrators, and managers .....	5.2	5.7	5.8
Administrators and officials, public administration	5.6	—	5.6
Financial managers .....	12.9	13.0	—
Managers., marketing, advertising and public relations .....	7.3	7.3	—
Administrators, education and related fields .....	10.0	11.4	7.1
Managers, medicine and health .....	8.7	9.4	—

See footnotes at end of table.

**Appendix table 2. Relative standard errors of mean hourly earnings<sup>1</sup> for selected occupations, all industries, private industry, and State and local government, all workers<sup>2</sup>, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

(in percent)

Occupation <sup>3</sup>	All industries	Private industry	State and local government
<b>White-collar occupations (-Continued)</b>			
Executive, administrative, and managerial occupations (-Continued)			
Executives, administrators, and managers (-Continued)			
Managers and administrators, N.E.C. ....	7.2	7.3	—
Management related occupations .....	3.4	3.8	3.7
Accountants and auditors .....	3.4	3.4	—
Other financial officers .....	13.7	13.3	—
Personnel, training, and labor relations specialists .....			
Purchasing agents and buyers, N.E.C. ....	8.7	9.8	—
Construction inspectors .....	9.5	9.6	—
Management related occupations, N.E.C. ....	2.4	—	2.4
Sales occupations .....	4.7	5.3	—
Supervisors, sales occupations .....	6.7	6.7	—
Advertising and related sales occupations .....	11.2	11.2	—
Sales occupations, other business services .....	17.1	17.1	—
Sales representatives, mining, manufacturing, and wholesale .....	12.6	12.6	—
Sales workers, motor vehicles and boats .....	14.3	14.3	—
Sales workers, furniture & home furnishings .....	12.1	12.1	—
Sales workers, other commodities .....	21.0	21.0	—
Sales counter clerks .....	8.8	8.8	—
Cashiers .....	5.2	5.2	—
Administrative support occupations, including clerical .....	4.3	4.3	—
Supervisors, general office .....	2.1	2.6	2.2
Supervisors, financial records processing .....	7.5	9.3	—
Computer operators .....	8.0	8.0	—
Secretaries .....	8.8	—	—
Stenographers .....	5.0	6.6	4.7
Typists .....	9.6	—	—
Interviewers .....	6.3	8.1	—
Receptionists .....	5.0	5.5	—
Order clerks .....	5.1	5.1	—
Personnel clerks except payroll & timekeeping .....	7.4	7.4	—
Library clerks .....	3.3	—	—
Records clerks, N.E.C. ....	12.0	—	13.0
Bookkeepers, accounting and auditing clerks .....	11.6	12.3	—
Payroll and timekeeping clerks .....	4.7	4.9	5.4
Billing clerks .....	8.6	8.6	—
Telephone operators .....	4.6	4.0	—
Production coordinators .....	11.1	11.1	—
Traffic, shipping and receiving clerks .....	12.0	12.0	—
Stock and inventory clerks .....	9.9	9.9	—
Material recording, scheduling, and distribution clerks, N.E.C. ....	8.5	8.5	—
Insurance adjusters, examiners, & investigators ..	16.4	16.4	—
Investigators and adjusters except insurance .....	3.1	3.1	—
Bill and account collectors .....	10.5	10.5	—
General office clerks .....	6.1	6.1	—
Bank tellers .....	3.7	6.6	2.6
Data entry keyers .....	3.4	3.4	—
Teachers' aides .....	6.4	3.5	—
Administrative support occupations, N.E.C. ....	5.1	—	5.1
	6.7	8.7	5.2
<b>Blue-collar occupations</b>			
Precision production, craft, and repair occupations .....	2.0	2.1	4.4
Supervisors, mechanics and repairers .....	1.7	1.8	4.0
Automobile mechanics .....	8.0	8.4	—
Bus, truck, and stationary engine mechanics .....	8.5	—	—
Heavy equipment mechanics .....	7.2	—	—
Industrial machinery repairers .....	4.9	4.1	—
Millwrights .....	4.6	4.6	—
	1.1	1.1	—

See footnotes at end of table.

**Appendix table 2. Relative standard errors of mean hourly earnings<sup>1</sup> for selected occupations, all industries, private industry, and State and local government, all workers<sup>2</sup>, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

(in percent)

Occupation <sup>3</sup>	All industries	Private industry	State and local government
<b>Blue-collar occupations</b> (-Continued)			
Precision production, craft, and repair occupations (-Continued)			
Mechanics and repairers, N.E.C. ....	3.4	3.6	—
Supervisors, construction trades, N.E.C. ....	6.1	7.7	—
Carpenters .....	4.2	—	—
Electricians .....	1.5	1.5	—
Plumbers, pipefitters and steamfitters .....	3.2	3.2	—
Construction trades, N.E.C. ....	6.2	—	—
Supervisors, production occupations .....	6.7	6.7	—
Tool and die makers .....	2.4	2.4	—
Tool and die maker apprentices .....	10.8	10.8	—
Machinists .....	3.4	3.4	—
Precision grinders, filers, and tool sharpeners .....	7.0	7.0	—
Patternmakers, layout workers, and cutters .....	6.8	6.8	—
Butchers and meat cutters .....	7.5	7.5	—
Inspectors, testers, and graders .....	7.0	7.0	—
Stationary engineers .....	2.4	—	—
Machine operators, assemblers, and inspectors .....	3.1	3.1	—
Lathe and turning machine operators .....	8.1	8.1	—
Punching and stamping press operators .....	11.4	11.4	—
Grinding, abrading, buffing, and polishing machine operators .....	7.0	7.0	—
Fabricating machine operators, N.E.C. ....	0.8	0.8	—
Textile sewing machine operators .....	28.5	28.5	—
Laundry and dry cleaning machine operators .....	4.9	0.6	—
Packaging and filling machine operators .....	9.9	9.9	—
Miscellaneous machine operators, N.E.C. ....	6.4	6.4	—
Welders and cutters .....	8.8	8.8	—
Assemblers .....	4.4	4.4	—
Production inspectors, checkers and examiners ..	11.0	11.0	—
Transportation and material moving occupations .....	4.2	4.8	2.9
Truck drivers .....	6.2	6.7	—
Bus drivers .....	9.1	—	3.1
Crane and tower operators .....	12.0	12.0	—
Industrial truck and tractor equipment operators ..	7.8	7.8	—
Handlers, equipment cleaners, helpers, and laborers .....	3.5	3.7	6.6
Groundskeepers and gardeners except farm .....	8.5	—	8.5
Stock handlers and baggers .....	6.6	6.6	—
Freight, stock, and material handlers, N.E.C. ....	4.2	4.2	—
Vehicle washers and equipment cleaners .....	7.5	7.5	—
Hand packers and packagers .....	7.0	7.0	—
Laborers except construction, N.E.C. ....	9.0	9.8	—
<b>Service occupations</b> .....	3.3	2.7	3.3
Protective service occupations .....	9.1	8.4	1.9
Firefighting occupations .....	2.4	—	2.4
Police and detectives, public service .....	2.3	—	2.3
Correctional institution officers .....	4.7	—	4.7
Crossing guards .....	5.5	—	5.5
Guards and police except public service .....	7.9	7.9	—
Protective service occupations, N.E.C. ....	14.3	—	10.4
Food service occupations .....	3.8	3.9	9.2
Bartenders .....	7.6	7.6	—
Waiters and waitresses .....	13.2	13.2	—
Cooks .....	6.6	7.2	—
Food counter, fountain, and related occupations .....	9.9	9.9	—
Food preparation occupations, N.E.C. ....	4.3	4.2	10.2
Health service occupations .....	3.0	3.0	5.4
Health aides, except nursing .....	2.5	2.7	—
Nursing aides, orderlies and attendants .....	2.9	2.8	10.0
Cleaning and building service occupations .....	4.0	5.0	4.5
Supervisors, cleaning & building service workers .....	6.8	6.8	—
Maids and housemen .....	4.4	4.5	—

See footnotes at end of table.

**Appendix table 2. Relative standard errors of mean hourly earnings<sup>1</sup> for selected occupations, all industries, private industry, and State and local government, all workers<sup>2</sup>, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

(in percent)

Occupation <sup>3</sup>	All industries	Private industry	State and local government
<b>Service occupations</b> (-Continued)			
Cleaning and building service occupations (-Continued)			
Janitors and cleaners .....	3.8	5.0	4.6
Personal service occupations .....	5.5	2.9	7.0
Early childhood teachers' assistants .....	10.9	—	12.2
Child care workers, N.E.C. ....	9.1	—	9.3
Service occupations, N.E.C. ....	6.8	12.1	—

<sup>1</sup> The relative standard error is the standard error expressed as a percent of the estimate. Hourly earnings for these occupations are presented in Tables A-1 and A-2. Reliable relative standard errors could not be determined for all occupations.

<sup>2</sup> All workers include full-time and part-time workers. Employees are classified as working either a full-time or a part-time schedule based on the definition used by each establishment. Therefore, a worker with a 35-hour-per-week schedule might be considered a full-time employee in one establishment, but classified as part-time in another firm, where a 40-hour week is

the minimum full-time schedule.

<sup>3</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

**Appendix table 3. Average work levels for selected occupations, all workers, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998**

Occupation <sup>1</sup>	All workers	Full-time workers	Part-time workers
<b>All occupations</b> .....	6	6	3
All occupations excluding sales .....	6	6	3
<b>White-collar occupations</b> .....	7	8	5
White-collar occupations excluding sales .....	8	8	6
Professional specialty and technical occupations .....	9	9	8
Professional specialty occupations .....	9	10	8
Engineers, architects, and surveyors .....	11	11	—
Industrial engineers .....	11	11	—
Mechanical engineers .....	10	10	—
Engineers, N.E.C. ....	11	11	—
Mathematical and computer scientists .....	10	10	—
Computer systems analysts and scientists .....	10	10	—
Operations and systems researchers and analysts .....	10	10	—
Natural scientists .....	10	10	—
Health related occupations .....	8	9	8
Physicians .....	11	10	—
Registered nurses .....	8	8	8
Pharmacists .....	8	—	—
Dietitians .....	8	—	—
Physical therapists .....	9	—	—
Teachers, college and university .....	11	12	9
Engineering teachers .....	15	15	—
Health specialties teachers .....	11	—	—
Teachers, post secondary, subject not specified .....	10	—	—
Teachers, post secondary N.E.C. ....	9	9	8
Teachers, except college and university .....	8	8	8
Prekindergarten and kindergarten .....	8	8	—
Elementary school teachers .....	8	8	7
Secondary school teachers .....	8	8	—
Teachers, special education .....	9	9	—
Teachers, N.E.C. ....	8	—	8
Substitute teachers .....	7	—	7
Vocational and educational counselors .....	8	8	—
Librarians, archivists, and curators .....	8	8	—
Librarians .....	8	8	—
Social scientists and urban planners .....	7	7	—
Social, recreation, and religious workers .....	9	9	9
Social workers .....	9	9	10
Lawyers and judges .....	12	12	—
Lawyers .....	12	12	—
Writers, authors, entertainers, athletes, and professionals, N.E.C. ....	10	10	9
Technical occupations .....	7	7	5
Clinical laboratory technologists and technicians .....	7	7	—
Health record technologists and technicians .....	6	—	—
Radiological technicians .....	6	6	—
Licensed practical nurses .....	6	6	6
Health technologists and technicians, N.E.C. ....	5	5	5
Electrical and electronic technicians .....	8	8	—
Mechanical engineering technicians .....	8	8	—
Drafters .....	7	9	—
Chemical technicians .....	6	6	—
Computer programmers .....	8	8	—
Technical and related occupations, N.E.C. ....	7	7	—
Executive, administrative, and managerial occupations .....	10	10	7
Executives, administrators, and managers .....	11	11	—
Administrators and officials, public administration .....	11	11	—
Financial managers .....	10	10	—
Managers., marketing, advertising and public relations .....	12	12	—
Administrators, education and related fields .....	11	11	—
Managers, medicine and health .....	11	11	—
Managers and administrators, N.E.C. ....	11	11	—
Management related occupations .....	9	9	—
Accountants and auditors .....	8	8	—
Other financial officers .....	11	11	—
Personnel, training, and labor relations specialists .....	9	9	—
Purchasing agents and buyers, N.E.C. ....	9	9	—

See footnotes at end of table.

**Appendix table 3. Average work levels for selected occupations, all workers, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>1</sup>	All workers	Full-time workers	Part-time workers
<b>White-collar occupations</b> (-Continued)			
Executive, administrative, and managerial occupations (-Continued)			
Management related occupations (-Continued)			
Construction inspectors .....	7	7	—
Management related occupations, N.E.C. ....	9	9	—
Sales occupations .....	5	6	2
Supervisors, sales occupations .....	7	8	—
Advertising and related sales occupations .....	7	8	—
Sales occupations, other business services .....	8	8	—
Sales representatives, mining, manufacturing, and wholesale .....	7	7	—
Sales workers, motor vehicles and boats .....	5	5	—
Sales workers, furniture & home furnishings .....	4	—	—
Sales workers, other commodities .....	3	4	3
Sales counter clerks .....	3	3	—
Cashiers .....	2	2	2
Administrative support occupations, including clerical .....	4	4	3
Supervisors, general office .....	7	7	—
Supervisors, financial records processing .....	8	8	—
Computer operators .....	5	5	—
Secretaries .....	4	4	3
Stenographers .....	4	—	—
Typists .....	3	3	—
Interviewers .....	3	4	—
Receptionists .....	2	3	—
Order clerks .....	3	4	—
Personnel clerks except payroll & timekeeping .....	5	5	—
Library clerks .....	2	—	2
Records clerks, N.E.C. ....	4	4	—
Bookkeepers, accounting and auditing clerks .....	4	4	2
Payroll and timekeeping clerks .....	4	5	—
Billing clerks .....	4	4	—
Telephone operators .....	2	2	—
Production coordinators .....	7	7	—
Traffic, shipping and receiving clerks .....	4	4	—
Stock and inventory clerks .....	4	4	—
Material recording, scheduling, and distribution clerks, N.E.C. ....	4	4	—
Insurance adjusters, examiners, & investigators .....	6	6	—
Investigators and adjusters except insurance .....	5	5	—
Bill and account collectors .....	4	4	—
General office clerks .....	4	4	2
Bank tellers .....	3	3	—
Data entry keyers .....	2	—	—
Teachers' aides .....	3	3	—
Administrative support occupations, N.E.C. ....	4	5	3
<b>Blue-collar occupations</b> .....	4	4	2
Precision production, craft, and repair occupations .....	7	7	—
Supervisors, mechanics and repairers .....	8	8	—
Automobile mechanics .....	5	5	—
Bus, truck, and stationary engine mechanics .....	6	6	—
Heavy equipment mechanics .....	7	7	—
Industrial machinery repairers .....	7	7	—
Millwrights .....	7	7	—
Mechanics and repairers, N.E.C. ....	6	6	—
Supervisors, construction trades, N.E.C. ....	8	8	—
Carpenters .....	7	7	—
Electricians .....	7	7	—
Plumbers, pipefitters and steamfitters .....	7	7	—
Construction trades, N.E.C. ....	5	5	—
Supervisors, production occupations .....	7	7	—
Tool and die makers .....	7	7	—
Tool and die maker apprentices .....	4	4	—
Machinists .....	7	7	—
Precision grinders, filers, and tool sharpeners .....	7	7	—
Patternmakers, layout workers, and cutters .....	8	8	—

See footnotes at end of table.

**Appendix table 3. Average work levels for selected occupations, all workers, full-time and part-time workers, Detroit-Ann Arbor-Flint, MI, March 1998 — Continued**

Occupation <sup>1</sup>	All workers	Full-time workers	Part-time workers
<b>Blue-collar occupations</b> (-Continued)			
Precision production, craft, and repair occupations (-Continued)			
Butchers and meat cutters .....	6	6	—
Inspectors, testers, and graders .....	6	6	—
Stationary engineers .....	7	—	—
Machine operators, assemblers, and inspectors .....	3	3	—
Lathe and turning machine operators .....	4	4	—
Punching and stamping press operators .....	3	3	—
Grinding, abrading, buffing, and polishing machine operators .....	4	4	—
Fabricating machine operators, N.E.C. ....	4	4	—
Textile sewing machine operators .....	2	2	—
Laundering and dry cleaning machine operators .....	1	1	—
Packaging and filling machine operators .....	3	3	—
Miscellaneous machine operators, N.E.C. ....	3	3	—
Welders and cutters .....	4	4	—
Assemblers .....	3	3	—
Production inspectors, checkers and examiners .....	4	4	—
Transportation and material moving occupations .....	3	4	2
Truck drivers .....	3	3	—
Bus drivers .....	3	3	2
Crane and tower operators .....	4	4	—
Industrial truck and tractor equipment operators .....	3	3	—
Handlers, equipment cleaners, helpers, and laborers .....	2	3	1
Groundskeepers and gardeners except farm .....	3	3	—
Stock handlers and baggers .....	2	3	1
Freight, stock, and material handlers, N.E.C. ....	3	3	—
Vehicle washers and equipment cleaners .....	1	1	—
Hand packers and packagers .....	3	3	—
Laborers except construction, N.E.C. ....	2	2	—
<b>Service occupations</b> .....	3	4	2
Protective service occupations .....	5	6	3
Firefighting occupations .....	7	7	—
Police and detectives, public service .....	8	8	—
Correctional institution officers .....	6	6	—
Crossing guards .....	1	—	1
Guards and police except public service .....	3	3	3
Protective service occupations, N.E.C. ....	4	—	—
Food service occupations .....	2	3	2
Bartenders .....	2	—	—
Waiters and waitresses .....	2	—	2
Cooks .....	3	3	2
Food counter, fountain, and related occupations .....	2	—	—
Food preparation occupations, N.E.C. ....	2	2	1
Health service occupations .....	3	3	3
Health aides, except nursing .....	3	3	—
Nursing aides, orderlies and attendants .....	3	3	3
Cleaning and building service occupations .....	2	3	2
Supervisors, cleaning & building service workers .....	5	5	—
Maids and housemen .....	1	1	—
Janitors and cleaners .....	2	3	2
Personal service occupations .....	3	3	2
Early childhood teachers' assistants .....	3	—	2
Child care workers, N.E.C. ....	2	3	2
Service occupations, N.E.C. ....	3	—	2

<sup>1</sup> A classification system including about 480 individual occupations is used to cover all workers in the civilian economy. Individual occupations are classified into one of nine major occupational groups. The occupations titled authors, musicians, actors, painters, photographers, dancers, artists, athletes, and legislators cannot be assigned a work level.

NOTE: Dashes indicate that no data were reported or that data did not meet publication criteria. Overall occupational groups and occupational levels may include data for categories not shown separately. N.E.C. means "not elsewhere classified."

# Appendix B. Occupational Classifications

NOTE: The 4-digit code before each occupation title is used to classify it into one of three major groups. **White-collar** workers include those classified in Major groups A through D. **Blue-collar** workers include those classified in Major groups E through H. **Service** workers are classified in Major group K.

## Major group A:

### PROFESSIONAL SPECIALTY AND TECHNICAL OCCUPATIONS

#### PROFESSIONAL SPECIALTY OCCUPATIONS

##### ENGINEERS, ARCHITECTS, AND SURVEYORS

- A043 Architects
- A044 Aerospace Engineers
- A045 Metallurgical and Materials Engineers
- A046 Mining Engineers
- A047 Petroleum Engineers
- A048 Chemical Engineers
- A049 Nuclear Engineers
- A053 Civil Engineers
- A054 Agricultural Engineers
- A055 Electrical and Electronic Engineers
- A056 Industrial Engineers
- A057 Mechanical Engineers
- A058 Marine Engineers and Naval Architects
- A059 Engineers, n.e.c.<sup>1</sup>
- A063 Surveyors and Mapping Scientists

##### MATHEMATICAL AND COMPUTER SCIENTISTS

- A064 Computer Systems Analysts and Scientists
- A065 Operations and Systems Researchers and Analysts
- A066 Actuaries
- A067 Statisticians
- A068 Mathematical Scientists, n.e.c.

### NATURAL SCIENTISTS

- A069 Physicists and Astronomers
- A073 Chemists, Except Biochemists
- A074 Atmospheric and Space Scientists
- A075 Geologists and Geodesists
- A076 Physical Scientists, n.e.c.
- A077 Agricultural and Food Scientists
- A078 Biological and Life Scientists
- A079 Forestry and Conservation Scientists
- A083 Medical Scientists

### HEALTH RELATED OCCUPATIONS

- A084 Physicians
- A085 Dentists
- A086 Veterinarians
- A087 Optometrists
- A088 Podiatrists
- A089 Health Diagnosing Practitioners, n.e.c.
- A095 Registered Nurses
- A096 Pharmacists
- A097 Dietitians
- A098 Respiratory Therapists
- A099 Occupational Therapists
- A103 Physical Therapists
- A104 Speech Therapists
- A105 Therapists, n.e.c.
- A106 Physicians' Assistants

### TEACHERS, COLLEGE AND UNIVERSITY

- A113 Earth, Environmental and Marine Science Teachers

<sup>1</sup> n.e.c. in an occupation title means not elsewhere classified.



A114 Biological Science Teachers  
 A115 Chemistry Teachers  
 A116 Physics Teachers  
 A117 Natural Science Teachers, n.e.c.  
 A118 Psychology Teachers  
 A119 Economics Teachers  
 A123 History Teachers  
 A124 Political Science Teachers  
 A125 Sociology Teachers  
 A126 Social Science Teachers, n.e.c.  
 A127 Engineering Teachers  
 A128 Mathematical Science Teachers  
 A129 Computer Science Teachers  
 A133 Medical Science Teachers  
 A134 Health Specialties Teachers  
 A135 Business, Commerce and Marketing Teachers  
 A136 Agriculture and Forestry Teachers  
 A137 Art, Drama, and Music Teachers  
 A138 Physical Education Teachers  
 A139 Education Teachers  
 A143 English Teachers  
 A144 Foreign Language Teachers  
 A145 Law Teachers  
 A146 Social Work Teachers  
 A147 Theology Teachers  
 A148 Trade and Industrial Teachers  
 A149 Home Economics Teachers  
 A153 Teachers, Post Secondary, n.e.c.  
 A154 Post Secondary Teachers, Subject not specified

**TEACHERS, EXCEPT COLLEGE AND UNIVERSITY**

A155 Prekindergarten and Kindergarten Teachers  
 A156 Elementary School Teachers  
 A157 Secondary School Teachers  
 A158 Teachers, Special Education  
 A159 Teachers, n.e.c.  
 A160 Substitute Teachers  
 A163 Vocational and Educational Counselors

**LIBRARIANS, ARCHIVISTS AND CURATORS**

A164 Librarians  
 A165 Archivists and Curators

**SOCIAL SCIENTISTS AND URBAN PLANNERS**

A166 Economists  
 A167 Psychologists  
 A168 Sociologists  
 A169 Social Scientists, n.e.c.  
 A173 Urban Planners

**SOCIAL, RECREATION, AND RELIGIOUS WORKERS**

A174 Social Workers  
 A175 Recreation Workers  
 A176 Clergy  
 A177 Religious Workers, n.e.c.

**LAWYERS AND JUDGES**

A178 Lawyers  
 A179 Judges

**WRITERS, AUTHORS, ENTERTAINERS, ATHLETES AND PROFESSIONALS, N.E.C.**

A183 Authors  
 A184 Technical Writers  
 A185 Designers  
 A186 Musicians and Composers  
 A187 Actors and Directors  
 A188 Painters, Sculptors, Craft-Artists, and Artist Print-Makers  
 A189 Photographers  
 A193 Dancers  
 A194 Artists, Performers, and Related Workers, n.e.c.  
 A195 Editors and Reporters  
 A197 Public Relations Specialists  
 A198 Announcers  
 A199 Athletes  
 A999 Professional Occupations, n.e.c.

**TECHNICAL OCCUPATIONS**

**HEALTH TECHNOLOGISTS AND TECHNICIANS**

A203 Clinical Laboratory Technologists and Technicians  
 A204 Dental Hygienists  
 A205 Health Record Technologists and Technicians  
 A206 Radiologic Technicians  
 A207 Licensed Practical Nurses  
 A208 Health Technologists and Technicians, n.e.c.

**ENGINEERING AND RELATED TECHNOLOGISTS AND TECHNICIANS**

A213 Electrical and Electronic Technicians  
 A214 Industrial Engineering Technicians  
 A215 Mechanical Engineering Technicians  
 A216 Engineering Technicians, n.e.c.  
 A217 Drafters  
 A218 Surveying and Mapping Technicians

SCIENCE TECHNICIANS

- A223 Biological Technicians
- A224 Chemical Technicians
- A225 Science Technicians, n.e.c.

MISCELLANEOUS TECHNICIANS

- A226 Airplane Pilots and Navigators
- A227 Air Traffic Controllers
- A228 Broadcast Equipment Operators
- A229 Computer Programmers
- A233 Tool Programmers, Numerical Control
- A234 Legal Assistants
- A235 Technical and Related Occupations, n.e.c.

**Major group B:**

**EXECUTIVE, ADMINISTRATIVE, AND MANAGERIAL OCCUPATIONS**

EXECUTIVES, ADMINISTRATORS, AND MANAGERS

- B003 Legislators
- B004 Chief Executives and General Administrators, Public Administration
- B005 Administrators and Officials, Public Administration
- B007 Financial Managers
- B008 Personnel and Labor Relations Managers
- B009 Purchasing Managers
- B013 Managers; Marketing, Advertising and Public Relations
- B014 Administrators, Education and Related Fields
- B015 Managers, Medicine and Health
- B016 Postmasters and Mail Superintendents
- B017 Managers, Food Serving and Lodging Establishments
- B018 Managers, Properties and Real Estate
- B019 Funeral Directors
- B021 Managers, Service Organizations, n.e.c.
- B022 Managers and Administrators, n.e.c.

MANAGEMENT RELATED OCCUPATIONS

- B023 Accountants and Auditors
- B024 Underwriters
- B025 Other Financial Officers
- B026 Management Analysts
- B027 Personnel, Training, and Labor Relations Specialists

- B028 Purchasing Agents and Buyers, Farm Products
- B029 Buyers, Wholesale and Retail Trade, Except Farm Products
- B033 Purchasing Agents and Buyers, n.e.c.
- B034 Business and Promotion Agents
- B035 Construction Inspectors
- B036 Inspectors and Compliance Officers, Except Construction
- B037 Management Related Occupations, n.e.c.

**Major group C:**

**SALES OCCUPATIONS**

- C243 Supervisors: Sales Occupations

FINANCE AND BUSINESS SERVICES, SALES REPRESENTATIVES

- C253 Insurance Sales Occupations
- C254 Real Estate Sales Occupations
- C255 Securities and Financial Services Sales Occupations
- C256 Advertising and Related Sales Occupations
- C257 Sales Occupations, Other Business Services

SALES REPRESENTATIVES, COMMODITIES EXCEPT RETAIL

- C258 Sales Engineers
- C259 Sales Representatives; Mining, Manufacturing, and Wholesale

RETAIL AND PERSONAL SERVICES SALES WORKERS

- C263 Sales Workers, Motor Vehicles and Boats
- C264 Sales Workers, Apparel
- C265 Sales Workers, Shoes
- C266 Sales Workers, Furniture and Home Furnishings
- C267 Sales Workers, Radio, TV, Hi-Fi, and Appliances
- C268 Sales Workers, Hardware and Building Supplies
- C269 Sales Workers, Parts
- C274 Sales Workers, Other Commodities
- C275 Sales Counter Clerks
- C276 Cashiers
- C277 Street and Door-To-Door Sales Workers
- C278 News Vendors

SALES RELATED OCCUPATIONS

- C283 Demonstrators, Promoters, and Models, Sales
- C284 Auctioneers
- C285 Sales Support Occupations, n.e.c.

**Major group D:**

**ADMINISTRATIVE SUPPORT OCCUPATIONS,  
INCLUDING CLERICAL**

SUPERVISORS, CLERICAL AND ADMINISTRATIVE  
SUPPORT

- D303 Supervisors: General Office
- D304 Supervisors: Computer Equipment Operators
- D305 Supervisors: Financial Records Processing
- D306 Chief Communications Operators
- D307 Supervisors: Distribution, Scheduling, and  
Adjusting Clerks

COMPUTER EQUIPMENT OPERATORS

- D308 Computer Operators
- D309 Peripheral Equipment Operators

SECRETARIES, STENOGRAPHERS, AND TYPISTS

- D313 Secretaries
- D314 Stenographers
- D315 Typists

INFORMATION CLERKS

- D316 Interviewers
- D317 Hotel Clerks
- D318 Transportation Ticket and Reservation Agents
- D319 Receptionists
- D323 Information Clerks, n.e.c.

RECORDS PROCESSING CLERKS, EXCEPT  
FINANCIAL

- D325 Classified-Ad Clerks
- D326 Correspondence Clerks
- D327 Order Clerks
- D328 Personnel Clerks, Except Payroll and Time-  
keeping
- D329 Library Clerks
- D335 File Clerks
- D336 Records Clerks, n.e.c.

FINANCIAL RECORDS PROCESSING CLERKS

- D337 Bookkeepers, Accounting and Auditing Clerks

- D338 Payroll and Timekeeping Clerks

- D339 Billing Clerks

- D343 Cost and Rate Clerks

- D344 Billing, Posting, and Calculating Machine Op-  
erators

DUPLICATING, MAIL, AND OTHER OFFICE  
MACHINE OPERATORS

- D345 Duplicating Machine Operators

- D346 Mail Preparing and Paper Handling Machine  
Operators

- D347 Office Machine Operators, n.e.c.

COMMUNICATIONS EQUIPMENT OPERATORS

- D348 Telephone Operators

- D353 Communications Equipment Operators, n.e.c.

MAIL AND MESSAGE DISTRIBUTING  
OCCUPATIONS

- D356 Mail Clerks, Except Postal Service

- D357 Messengers

MATERIAL RECORDING, SCHEDULING, AND  
DISTRIBUTING CLERKS

- D359 Dispatchers

- D363 Production Coordinators

- D364 Traffic, Shipping, and Receiving Clerks

- D365 Stock and Inventory Clerks

- D366 Meter Readers

- D368 Weighers, Measurers, Checkers, and Samplers

- D373 Expeditors

- D374 Material Recording, Scheduling, and Distrib-  
uting Clerks, n.e.c.

ADJUSTERS AND INVESTIGATORS

- D375 Insurance Adjusters, Examiners, and Investi-  
gators

- D376 Investigators and Adjusters, Except Insurance

- D377 Eligibility Clerks, Social Welfare

- D378 Bill and Account Collectors

MISCELLANEOUS ADMINISTRATIVE SUPPORT  
OCCUPATIONS

- D379 General Office Clerks

- D383 Bank Tellers

- D384 Proofreaders

- D385 Data Entry Keyers

- D386 Statistical Clerks

- D387 Teachers' Aides

- D389 Administrative Support Occupations, n.e.c.

## Major group E:

### PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS

#### MECHANICS AND REPAIRERS

- E503 Supervisors: Mechanics and Repairers
- E505 Automobile Mechanics
- E506 Automobile Mechanic Apprentices
- E507 Bus, Truck, and Stationary Engine Mechanics
- E508 Aircraft Engine Mechanics
- E509 Small Engine Repairers
- E514 Automobile Body and Related Repairers
- E515 Aircraft Mechanics, Except Engine
- E516 Heavy Equipment Mechanic
- E517 Farm Equipment Mechanics
- E518 Industrial Machinery Repairers
- E519 Machinery Maintenance Occupations
- E523 Electronic Repairers, Communications and Industrial Equipment
- E525 Data Processing Equipment Repairers
- E526 Household Appliance and Power Tool Repairers
- E527 Telephone Line Installers and Repairers
- E529 Telephone Installers and Repairers
- E534 Heating, Air Conditioning, and Refrigeration Mechanics
- E535 Camera, Watch, and Musical Instrument Repairers
- E536 Locksmiths and Safe Repairers
- E538 Office Machine Repairers
- E539 Mechanical Controls and Valve Repairers
- E543 Elevator Installers and Repairers
- E544 Millwrights
- E547 Mechanics and Repairers, n.e.c.

#### SUPERVISORS, CONSTRUCTION TRADES

- E553 Supervisors: Brickmasons, Stonemasons, and Tilesetters
- E554 Supervisors: Carpenters and Related Workers
- E555 Supervisors: Electricians and Power Transmission Installers
- E556 Supervisors: Painters, Paperhangers, and Plasterers
- E557 Supervisors: Plumbers, Pipefitters, and Steamfitters
- E558 Supervisors: Construction Trades, n.e.c.

### CONSTRUCTION TRADES OCCUPATIONS

- E563 Brickmasons and Stonemasons
- E564 Brickmason and Stonemason Apprentices
- E565 Tile Setters, Hard and Soft
- E566 Carpet Installers
- E567 Carpenters
- E569 Carpenter Apprentices
- E573 Drywall Installers
- E575 Electricians
- E576 Electrician Apprentices
- E577 Electrical Power Installers and Repairers
- E579 Painters, Construction and Maintenance
- E583 Paperhangers
- E584 Plasterers
- E585 Plumbers, Pipefitters, and Steamfitters
- E587 Plumber, Pipefitter, and Steamfitter Apprentices
- E588 Concrete and Terrazzo Finishers
- E589 Glaziers
- E593 Insulation Workers
- E594 Paving, Surfacing, and Tamping Equipment Operators
- E595 Roofers
- E596 Sheetmetal Duct Installers
- E597 Structural Metal Workers
- E598 Drillers, Earth
- E599 Construction Trades, n.e.c.

#### EXTRACTIVE OCCUPATIONS

- E613 Supervisors: Extractive Occupations
- E614 Drillers, Oil Well
- E615 Explosives Workers
- E616 Mining Machine Operators
- E617 Mining Occupations, n.e.c.

#### PRECISION PRODUCTION OCCUPATIONS

- E628 Supervisors: Production Occupations

#### PRECISION METAL WORKING OCCUPATIONS

- E634 Tool and Die Makers
- E635 Tool and Die Maker Apprentices
- E636 Precision Assemblers, Metal
- E637 Machinists
- E639 Machinist Apprentices
- E643 Boilermakers

- E644 Precision Grinders, Filers, and Tool Sharpeners
- E645 Patternmakers and Modelmakers, Metal
- E646 Layout Workers
- E647 Precious Stones and Metals Workers
- E649 Engravers, Metal
- E653 Sheet Metal Workers
- E654 Sheet Metal Worker Apprentices

#### PRECISION WOODWORKING OCCUPATIONS

- E656 Patternmakers and Modelmakers, Wood
- E657 Cabinet Makers and Bench Carpenters
- E658 Furniture and Wood Finishers

#### PRECISION TEXTILE, APPAREL, AND FURNISHINGS MACHINE WORKERS

- E666 Dressmakers
- E667 Tailors
- E668 Upholsterers
- E669 Shoe Repairers

#### PRECISION WORKERS, ASSORTED MATERIALS

- E675 Hand Molders and Shapers, Except Jewelers
- E676 Patternmakers, Layout Workers, and Cutters
- E677 Optical Goods Workers
- E678 Dental Laboratory and Medical Appliance Technicians
- E679 Bookbinders
- E683 Electrical and Electronic Equipment Assemblers
- E684 Miscellaneous Precision Workers, n.e.c.

#### PRECISION FOOD PRODUCTION OCCUPATIONS

- E685 Precision Food Production Occupations, n.e.c.
- E686 Butchers and Meat Cutters
- E687 Bakers
- E688 Food Batchmakers

#### PRECISION INSPECTORS, TESTERS, AND RELATED WORKERS

- E689 Inspectors, Testers, and Graders
- E690 Precision Inspectors, Testers, and Related Workers, n.e.c.
- E693 Adjusters and Calibrators

#### PLANT AND SYSTEM OPERATORS

- E694 Water and Sewage Treatment Plant Operators
- E695 Power Plant Operators
- E696 Stationary Engineers
- E699 Miscellaneous Plant and System Operators, n.e.c.

#### Major group F:

#### MACHINE OPERATORS, ASSEMBLERS, AND INSPECTORS

##### METALWORKING AND PLASTIC WORKING MACHINE OPERATORS

- F703 Lathe and Turning-Machine Set-Up Operators
- F704 Lathe and Turning-Machine Operators
- F705 Milling and Planing Machine Operators
- F706 Punching and Stamping Press Operators
- F707 Rolling Machine Operators
- F708 Drilling and Boring Machine Operators
- F709 Grinding, Abrading, Buffing, and Polishing Machine Operators
- F713 Forging Machine Operators
- F714 Numerical Control Machine Operators
- F717 Fabricating Machine Operators, n.e.c.
- F719 Molding and Casting Machine Operators
- F723 Metal Plating Machine Operators
- F724 Heat Treating Equipment Operators

##### WOODWORKING MACHINE OPERATORS

- F726 Wood Lathe, Routing, and Planing Machine Operators
- F727 Sawing Machine Operators
- F728 Shaping and Joining Machine Operators
- F729 Nailing and Tacking Machine Operators

##### PRINTING MACHINE OPERATORS

- F734 Printing Press Operators
- F735 Photoengravers and Lithographers
- F736 Typesetters and Compositors

##### TEXTILE, APPAREL, AND FURNISHINGS MACHINE OPERATORS

- F738 Winding and Twisting Machine Operators
- F739 Knitting, Looping, Taping, and Weaving Machine Operators
- F743 Textile Cutting Machine Operators
- F744 Textile Sewing Machine Operators
- F745 Shoe Machine Operators
- F747 Pressing Machine Operators
- F748 Laundering and Dry Cleaning Machine Operators

##### MACHINE OPERATORS, ASSORTED MATERIALS

- F753 Cementing and Gluing Machine Operators
- F754 Packaging and Filling Machine Operators
- F755 Extruding and Forming Machine Operators
- F756 Mixing and Blending Machine Operators

- F757 Separating, Filtering, and Clarifying Machine Operators
- F758 Compressing and Compacting Machine Operators
- F759 Painting and Paint Spraying Machine Operators
- F763 Roasting and Baking Machine Operators, Food
- F764 Washing, Cleaning, and Pickling Machine Operators
- F765 Folding Machine Operators
- F766 Furnace, Kiln, and Oven Operators, Except Food
- F768 Crushing and Grinding Machine Operators
- F769 Slicing and Cutting Machine Operators
- F773 Motion Picture Projectionists
- F774 Photographic Process Machine Operators
- F777 Miscellaneous Machine Operators, n.e.c.

**FABRICATORS, ASSEMBLERS, AND HAND WORKING OCCUPATIONS**

- F783 Welders and Cutters
- F784 Solderers and Braziers
- F785 Assemblers
- F786 Hand Cutting and Trimming Occupations
- F787 Hand Molding, Casting, and Forming Occupations
- F789 Hand Painting, Coating, and Decorating Occupations
- F793 Hand Engraving and Printing Occupations
- F795 Miscellaneous Hand Working Occupations, n.e.c.

**PRODUCTION INSPECTORS, TESTERS, SAMPLERS, AND WEIGHERS**

- F796 Production Inspectors, Checkers, and Examiners
- F797 Production Testers
- F798 Production Samplers and Weighers
- F799 Graders and Sorters, Except Agricultural
- F800 Hand Inspectors, n.e.c.

**Major group G:**

**TRANSPORTATION AND MATERIAL MOVING OCCUPATIONS**

**MOTOR VEHICLE OPERATORS**

- G803 Supervisors: Motor Vehicle Operators
- G804 Truck Drivers
- G806 Driver-Sales Workers
- G808 Bus Drivers
- G809 Taxicab Drivers and Chauffeurs
- G813 Parking Lot Attendants
- G814 Motor Transportation Occupations, n.e.c.

**RAILROAD TRANSPORTATION OCCUPATIONS**

- G823 Railroad Conductors and Yardmasters
- G824 Locomotive Operating Occupations
- G825 Railroad Brake, Signal, and Switch Operators
- G826 Rail Vehicle Operators, n.e.c.

**WATER TRANSPORTATION OCCUPATIONS**

- G828 Ship Captains and Mates, Except Fishing Boats
- G829 Sailors and Deckhands
- G833 Marine Engineers
- G834 Bridge, Lock, and Lighthouse Tenders

**MATERIAL MOVING EQUIPMENT OPERATORS**

- G843 Supervisors: Material Moving Equipment Operators
- G844 Operating Engineers
- G845 Longshore Equipment Operators
- G848 Hoist and Winch Operators
- G849 Crane and Tower Operators
- G853 Excavating and Loading Machine Operators
- G855 Grader, Dozer, and Scraper Operators
- G856 Industrial Truck and Tractor Equipment Operators
- G859 Miscellaneous Material Moving Equipment Operators, n.e.c.

**Major group H:**

**HANDLERS, EQUIPMENT CLEANERS, HELPERS, AND LABORERS**

**FARM, FISHING AND FORESTRY OCCUPATIONS - NONFARM SECTOR**

- H483 Marine Life Cultivation Workers
- H484 Nursery Workers
- H485 Supervisors, Agriculture-Related Workers
- H486 Groundskeepers and Gardeners, Except Farm
- H487 Animal Caretakers, Except Farm
- H489 Inspectors, Agricultural Products
- H494 Supervisors, Forestry and Logging Workers
- H495 Forestry Workers, Except Logging
- H496 Timber Cutting and Logging Occupations
- H497 Captains and Other Officers, Fishing Vessels
- H498 Fishers, Hunters, and Trappers

**HELPERS, HANDLERS, AND LABORERS**

- H864 Supervisors: Handlers, Equipment Cleaners, and Laborers, n.e.c.
- H865 Helpers, Mechanics and Repairers
- H866 Helpers, Construction Trades

H867 Helpers, Surveyor  
 H868 Helpers, Extractive Occupations  
 H869 Construction Laborers  
 H874 Production Helpers  
 H875 Garbage Collectors  
 H876 Stevedores  
 H877 Stock Handlers and Baggers  
 H878 Machine Feeders and Offbearers  
 H883 Freight, Stock, and Material Handlers, n.e.c.  
 H885 Garage and Service Station Related Occupations  
 H887 Vehicle Washers and Equipment Cleaners  
 H888 Hand Packers and Packagers  
 H889 Laborers, Except Construction, n.e.c.

**Major group K:**

**SERVICE OCCUPATIONS, EXCEPT PRIVATE HOUSEHOLD**

PROTECTIVE SERVICE OCCUPATIONS

K413 Supervisors: Firefighting and Fire Prevention Occupations  
 K414 Supervisors: Police and Detectives  
 K415 Supervisors: Guards  
 K416 Fire Inspection and Fire Prevention Occupations  
 K417 Firefighting Occupations  
 K418 Police and Detectives, Public Service  
 K423 Sheriffs, Bailiffs, and Other Law Enforcement Officers  
 K424 Correctional Institution Officers  
 K425 Crossing Guards  
 K426 Guards and Police, Except Public Service  
 K427 Protective Service Occupations, n.e.c.

FOOD SERVICE OCCUPATIONS

K433 Supervisors: Food Preparation and Service Occupations

K434 Bartenders  
 K435 Waiters and Waitresses  
 K436 Cooks  
 K438 Food Counter, Fountain, and Related Occupation  
 K439 Kitchen Workers, Food Preparation  
 K443 Waiters'/Waitresses' Assistants  
 K444 Food Preparation Occupations, n.e.c.

HEALTH SERVICE OCCUPATIONS

K445 Dental Assistants  
 K446 Health Aides, Except Nursing  
 K447 Nursing Aides, Orderlies, and Attendants

CLEANING AND BUILDING SERVICE OCCUPATIONS

K448 Supervisors: Cleaning and Building Service Workers  
 K449 Maids and Housemen  
 K453 Janitors and Cleaners  
 K454 Elevator Operators  
 K455 Pest Control Occupations

PERSONAL SERVICE OCCUPATIONS

K456 Supervisors: Personal Service Occupations  
 K457 Barbers  
 K458 Hairdressers and Cosmetologists  
 K459 Attendants, Amusement and Recreation Facilities  
 K461 Guides  
 K462 Ushers  
 K463 Public Transportation Attendants  
 K464 Baggage Porters and Bellhops  
 K465 Welfare Service Aides  
 K467 Early Childhood Teacher's Assistants  
 K468 Child Care Workers, n.e.c.  
 K469 Service Occupations, n.e.c.

# Appendix C. Generic Leveling Criteria

Below are the 10 criteria for the generic leveling of occupations. The description of each level within a factor is included. An example of using these criteria for leveling a job follows in appendix D.

**KNOWLEDGE** measures the nature and extent of information or facts which the workers must understand to do acceptable work (e.g., steps, procedures, practices, rules, policies, theories, principles, and concepts) and the nature and extent of the skills needed to apply those knowledge's. To be used as a basis for selecting a level under this factor, a knowledge must be required and applied.

1. Knowledge of simple, routine, or repetitive tasks or operations which typically includes following step-by-step instructions and requires little or no previous training or experience;

OR

Skill to operate simple equipment or equipment which operates repetitively, requiring little or no previous training or experience;

OR

Equivalent knowledge and skill.

2. Knowledge of basic or commonly-used rules, procedures, or operations which typically requires some previous training or experience;

OR

Basic skill to operate equipment requiring some previous training or experience, such as keyboard equipment;

OR

Equivalent knowledge and skill.

3. Knowledge of a body of standardized rules, procedures, operations, goods, services, tools, or equipment requiring considerable training and experience to perform the full range of standard clerical assignments and resolve recurring problems;

OR

Skill, acquired through considerable training and experience, to operate and adjust varied equipment for purposes such as performing numerous standardized tests or operations;

OR

Equivalent knowledge and skill.

4. Knowledge of an extensive body of rules, procedures, operations, products or services requiring extended training and experience to perform a wide variety of interrelated or nonstandard procedural assignments and resolve a wide range of problems;

OR

Practical knowledge of standard procedures in a technical field, requiring extended training or experience, to perform such work as: adapting equipment when this requires considering the functioning characteristics of equipment; interpreting results of tests based on previous experience and observations (rather than directly reading instruments or other measures); or extracting information from various sources when this requires considering the applicability of information and the characteristics and quality of the sources;

OR

Comprehensive knowledge of a blue-collar skill, usually acquired through a formal apprenticeship;

OR

Equivalent knowledge and skill;

5. Knowledge (such as would be acquired through a pertinent baccalaureate educational program or its equivalent in experience, training, or independent study) of basic principles, concepts, and methodology of a professional or administrative occupation, and skill in applying this knowledge in carrying out elementary assignments, operations, or procedures;

OR

In addition to the practical knowledge of standard procedures in Level 4, practical knowledge of technical methods to perform assignments such as carrying out limited projects which involve use of specialized, complicated techniques;

OR

Advanced knowledge of a blue-collar skill to solve unusually complex problems;

OR

Equivalent knowledge and skill.

6. Knowledge of the principles, concepts, and methodology of a professional or administrative occupation as described at Level 5 which has been either: (a) supplemented by skill gained through job experience to permit independent performance of recurring assignments, or (b) supplemented by expanded professional or administrative knowledge gained through relevant graduate study or experience, which has



provided skill in carrying out assignments, operations, and procedures in the occupation which are significantly more difficult and complex than those covered by Level 5;

OR

Practical knowledge of a wide range of technical methods, principles, and practices similar to a narrow area of a professional field, and skill in applying this knowledge to such assignments as the design and planning of difficult, but well-precedented projects;

OR

Equivalent knowledge and skill.

7. Knowledge of a wide range of concepts, principles, and practices in a professional or administrative occupation, such as would be gained through extended graduate study or experience, and skill in applying this knowledge to difficult and complex work assignments;

OR

A comprehensive, intensive, practical knowledge of a technical field and skill in applying this knowledge to the development of new methods, approaches, or procedures;

OR

Equivalent knowledge and skill.

8. Mastery of a professional or administrative field to:

Apply experimental theories and new developments to problems not susceptible to treatment by accepted methods

OR

Make decisions or recommendations significantly changing, interpreting, or developing important policies or programs;

OR

Equivalent knowledge and skill

9. Mastery of a professional field to generate and develop new hypotheses and theories;

OR

Equivalent knowledge and skill.

**SUPERVISION RECEIVED** covers the nature and extent of direct or indirect controls exercised by the supervisor, the employee's responsibility and the review of completed work. Controls are exercised by the supervisor in the way assignments are made, instructions are given to the employee, priorities and deadlines are set, and objectives and boundaries are defined. Responsibility of the employee depends upon the extent to which the employee is expected to develop the sequence and timing of various aspects of the work, to modify or recommend modification of instructions, and to participate in establishing priorities and defining objectives. The degree of review of completed work depends upon the nature and extent of the review, e.g., close and detailed review of each phase of the assignment; detailed review of the finished assignment; spot-check of finished work for accuracy; or review only for adherence to policy.

1. For both one-of-a-kind and repetitive tasks the supervisor makes specific assignments that are accompanied by clear, detailed, and specific instructions.

The employee works as instructed and consults with the supervisor as needed on all matters not specifically covered in the original instructions or guidelines.

For all positions the work is closely controlled. For some positions, the control is through the structured nature of the work itself; for others, it may be controlled by the circumstances in which it is performed. In some situations, the supervisor maintains control through review of the work which may include checking progress or reviewing completed work for accuracy, adequacy, and adherence to instructions and established procedures.

2. The supervisor provides continuing or individual assignments by indicating generally what is to be done, limitations, quality and quantity expected, deadlines, and priority of assignments. The supervisor provides additional, specific instructions for new, difficult, or unusual assignments including suggested work methods or advice on source material available.

The employee uses initiative in carrying out recurring assignments independently without specific instruction, but refers deviations, problems, and unfamiliar situations not covered by instructions to the supervisor for decision or help.

The supervisor assures that finished work and methods used are technically accurate and in compliance with instructions or established procedures. Review of the work increases with more difficult assignments if the employee has not previously performed similar assignments.

3. The supervisor makes assignments by defining objectives, priorities, and deadlines; and assists employee with unusual situations which do not have clear precedents.

The employee plans and carries out the successive steps and handles problems and deviations in the work assignment in accordance with instructions, policies, previous training, or accepted practices in the occupation.

Completed work is usually evaluated for technical soundness, appropriateness, and conformity to policy and requirements. The methods used in arriving at the end results are not usually reviewed in detail.

4. The supervisor sets the overall objectives and resources available. The employee and supervisor, in consultation, develop the deadlines, projects, and work to be done. At this level, the employee, having developed expertise in the line of work, is responsible for planning and carrying out the assignment; resolving most of the conflicts which arise; coordinating the work with others as necessary; and interpreting policy on own initiative in terms of established objectives. In some assignments, the employee also determines the approach to be taken and the methodology to be used. The employee keeps the supervisor informed of progress, potentially controversial matters, or far-reaching implications.

Completed work is reviewed only from an overall standpoint in terms of feasibility, compatibility with other work, or effectiveness in meeting requirements or expected results.

5. The supervisor provides administrative direction with assignments in terms of broadly defined missions or functions.

The employee has responsibility for planning, designing, and carrying out programs, projects, studies, or other work independently.

Results of the work are considered as technically authoritative and are normally accepted without significant change. If the work should be reviewed, the review concerns such matters as fulfillment of program objectives, effect of advice and influence of the overall program, or the contribution to the advancement of technology. Recommendations for new projects and alteration of objectives are usually evaluated for such considerations as availability of funds and other resources, broad program goals or priorities.

**GUIDELINES** covers the nature of guidelines and the judgment needed to apply them. Guides used include, for example: desk manuals, established procedures and policies, traditional practices, and reference materials such as dictionaries, style manuals, engineering handbooks, and the pharmacopoeia.

Individual jobs in different occupations vary in the specificity, applicability and availability of the guidelines for performance of assignments. Consequently, the constraints and judgmental demands placed upon employees also vary. For example, the existence of specific instructions, procedures, and policies may limit the opportunity of the employee to make or recommend decisions or actions. However, in the absence of procedures or under broadly stated objectives, employees in some occupations may use considerable judgment in researching literature and developing new methods.

Guidelines should not be confused with the knowledge's described under Factor 1, Knowledge. Guidelines either provide reference data or impose certain constraints on the use of knowledge's. For example, in the field of medical technology, for a particular diagnosis there may be three or four standardized tests set forth in a technical manual. A medical technologist is expected to know these diagnostic tests. However, in a given laboratory the policy may be to use only one of the tests; or the policy may state specifically under what conditions one or the other of these tests may be used.

1. Specific, detailed guidelines covering all important aspects of the assignment are provided to the employee. The employee works in strict adherence to the guidelines; deviations must be authorized by the supervisor.

2. Procedures for doing the work have been established and

a number of specific guidelines are available.

The number and similarity of guidelines and work situations requires the employee to use judgment in locating and selecting the most appropriate guidelines, references, and procedures for application, and in making minor deviations to adapt the guidelines in specific cases. At this level, the employee may also determine which of several established alternatives to use. Situations to which the existing guidelines cannot be applied or significant proposed deviations from the guidelines are referred to the supervisor.

3. Guidelines are available, but are not completely applicable to the work or have gaps in specificity.

The employee uses judgment in interpreting and adapting guidelines such as policies, regulations, precedents, and work directions for application to specific cases or problems. The employee analyzes results and recommends changes.

4. Administrative policies and precedents are applicable but are stated in general terms. Guidelines for performing the work are scarce or of limited use.

The employee uses initiative and resourcefulness in deviating from traditional methods or researching trends and patterns to develop new methods, criteria, or proposed new policies.

5. Guidelines are broadly stated and nonspecific, e.g., broad policy statements and basic legislation which require extensive interpretation.

The employee must use judgment and ingenuity in interpreting the intent of the guides that do exist and in developing applications to specific areas of work. Frequently, the employee is recognized as a technical authority in the development and interpretation of guidelines.

**COMPLEXITY** covers the nature, number, variety, and intricacy of tasks, steps, processes, or methods in the work performed; the difficulty in identifying what needs to be done; and the difficulty and originality involved in performing the work.

1. The work consists of tasks that are clear-cut and directly related. There is little or no choice to be made in deciding what needs to be done. Actions to be taken or responses to be made are readily discernible. The work is quickly mastered.

2. The work consists of duties that involve related steps, processes, or methods.

The decision regarding what needs to be done involves various choices requiring the employee to recognize the existence of and differences among a few easily recognizable situations.

Actions to be taken or responses to be made differ in such things as the source of information, the kind of trans-

actions or entries, or other differences of a factual nature.

**3.** The work includes various duties involving different and unrelated processes and methods.

The decision regarding what needs to be done depends upon the analysis of the subject, phase, or issues involved in each assignment, and the chosen course of action may have to be selected from many alternatives.

The work involves conditions and elements that must be identified and analyzed to discern interrelationships.

**4.** The work typically includes varied duties requiring many different and unrelated processes and methods such as those relating to well-established aspects of an administrative or professional field.

Decisions regarding what needs to be done include the assessment of unusual circumstances, variations in approach, and incomplete or conflicting data.

The work requires making many decisions concerning such things as the interpreting of considerable data, planning of the work, or refining the methods and techniques to be used.

**5.** The work includes varied duties requiring many different and unrelated processes and methods applied to a broad range of activities or substantial depth of analysis, typically for an administrative or professional field.

Decisions regarding what needs to be done include major areas of uncertainty in approach, methodology, or interpretation and evaluation processes resulting from such elements as continuing changes in program, technological developments, unknown phenomena, or conflicting requirements.

The work requires originating new techniques, establishing criteria, or developing new information.

**6.** The work consists of broad functions and processes of an administrative or professional field. Assignments are characterized by breadth and intensity of effort and involve several phases being pursued concurrently or sequentially with the support of others within or outside of the organization.

Decisions regarding what needs to be done include largely undefined issues and elements, requiring extensive probing and analysis to determine the nature and scope of the problems.

The work requires continuing efforts to establish concepts, theories, or programs, or to resolve unyielding problems.

**SCOPE AND EFFECT** covers the relationship between the nature of the work, i.e., the purpose, breadth, and depth of the assignment, and the effect of work products or services both within and outside the organization.

Effect measures such things as whether the work output facilitates the work of others, provides timely services of a personal nature, or impacts on the adequacy of research

conclusions. The concept of effect alone does not provide sufficient information to properly understand and evaluate the impact of the position. The scope of the work completes the picture, allowing consistent evaluations. Only the effect of properly performed work is to be considered.

**1.** The work involves the performance of specific, routine operations that include a few separate tasks or procedures.

The work product or service is required to facilitate the work of others; however, it has little impact beyond the immediate organizational unit or beyond the timely provision of limited services to others.

**2.** The work involves the execution of specific rules, regulations, or procedures and typically comprises a complete segment of an assignment or project of broader scope.

The work product or service affects the accuracy, reliability, or acceptability of further processes or services.

**3.** The work involves treating a variety of conventional problems, questions, or situations in conformance with established criteria.

The work product or service affects the design or operation of systems, programs, or equipment; the adequacy of such activities as field investigations, testing operations, or research conclusions; or the social, physical, and economic well-being of persons.

**4.** The work involves establishing criteria; formulating projects; assessing program effectiveness; or investigating or analyzing variety of unusual conditions, problems, or questions.

The work product or service affects a wide range of establishment activities, major activities of industrial concerns, or the operation of other organizations.

**5.** The work involves isolating and defining unknown conditions, resolving critical problems, or developing new theories.

The work product or service affects the work of other experts, the development of major aspects of administrative or scientific programs or missions, or the well-being of substantial numbers of people.

**6.** The work involves planning, developing, and carrying out vital administrative or scientific programs.

The programs are essential to the missions of the overall organization or affect large numbers of people on a long-term or continuing basis.

**PERSONAL CONTACTS** includes face-to-face contacts and telephone and radio dialogue with persons not in the supervisory chain. (NOTE: Personal contacts with supervisors are covered under Factor 2, Supervision Received.) Levels described under this factor are based on what is required to make the initial contact, the difficulty of communicating with those contacted, and the setting in which the

contact takes place (e.g., the degree to which the employee and those contacted recognize their relative roles and authorities).

Above the lowest level, points should be credited under this factor only for contacts which are essential for successful performance of the work and which have a demonstrable impact on the difficulty and responsibility of the work performed.

The relationship of Factors 6 (Personal Contacts) and 7 (Purpose of Contacts) presumes that the same contacts will be evaluated for both factors. Therefore, use the personal contacts which serve as the basis for the level selected for Factor 7 as the basis for selecting a level for Factor 6.

1. The personal contacts are with employees within the immediate organization, office, project, or work unit, and in related or support units;

AND/OR

The contacts are with members of the general public in very highly structured situations (e.g., the purpose of the contact and the question of with whom to deal are relatively clear). Typical of contacts at this level are purchases of admission tickets at a ticket window.

2. The personal contacts are with employees in the same overall organization, but outside the immediate organization. People contacted generally are engaged in different functions, missions, and kinds of work, e.g., representatives from various levels within the overall organizations such as headquarters, district offices, or local offices, plants, stores, or other operating units in the immediate installation.

AND/OR

The contacts are with members of the general public, as individuals or groups, in a moderately structured setting (e.g., the contacts are generally established on a routine basis, usually at the employee's work place; the exact purpose of the contact may be unclear at first to one or more of the parties; and one or more of the parties may be uninformed concerning the role and authority of other participants).

3. The personal contacts are with individuals or groups from outside the employing establishment in a moderately unstructured setting (e.g., the contacts are not established on a routine basis; the purpose and extent of each contact is different and the role and authority of each party is identified and developed during the course of the contact). Typical of contacts at this level are those with persons in their capacities as attorneys; contractors; or representatives of professional organizations, the news media, or public action groups.

4. The personal contacts are with high-ranking officials from outside the employing establishment at national or international levels in highly unstructured settings (e.g., contacts are characterized by problems such as: the officials may be relatively inaccessible; arrangements may have to be made for accompanying staff members; appointments may have to be made well in advance; each

party may be very unclear as to the role and authority of the other; and each contact may be conducted under different ground rules). Typical of contacts at this level are those with presidents of large national or international firms, nationally recognized representatives of the news media, presidents of national unions, members of Congress, leading representatives of foreign governments, State governors, or mayors of large cities.

**PURPOSE OF CONTACTS** ranges from factual exchanges of information to situations involving significant or controversial issues and differing viewpoints, goals, or objectives. The personal contacts which serve as the basis for the level selected for this factor must be the same as the contacts which are the basis for the level selected for Factor 6.

1. The purpose is to obtain, clarify, or give facts or information regardless of the nature of those facts, i.e., the facts or information may range from easily understood to highly technical.

2. The purpose is to plan, coordinate, or advise on work efforts or to resolve operating problems by influencing or motivating individuals or groups who are working toward mutual goals and who have basically cooperative attitudes.

3. The purpose is to influence, motivate, convince, or question persons or groups. Those contacted may be hesitant or skeptical, so the employee must be skillful in approaching the individual or group in order to obtain the desired response.

OR

The purpose is to interrogate or control persons or groups who may be fearful, uncooperative, or dangerous. Therefore, the employee must be skillful in approaching the individual or group in order to obtain the desired effect, such as, gaining compliance with established policies and regulations by persuasion or negotiation, or gaining information by establishing rapport with a suspicious informant.

4. The purpose is to justify, defend, negotiate, or settle matters involving significant or controversial issues. Work at this level usually involves active participation in conferences, meetings, hearings, or presentations involving problems or issues of considerable consequence or importance. The persons contacted typically have diverse viewpoints, goals, or objectives requiring the employee to achieve a common understanding of the problem and a satisfactory solution by convincing them, arriving at a compromise, or developing suitable alternatives.

**PHYSICAL DEMANDS** covers the requirements and physical demands placed on the employee by the work assignment. This includes physical characteristics and abilities (e.g., specific agility and dexterity requirements) and the physical exertion involved in the work (e.g., climbing, lifting, pushing, balancing, stooping, kneeling, crouching,

crawling, or reaching). To some extent the frequency or intensity of physical exertion must also be considered, e.g., a job requiring prolonged standing involves more physical exertion than a job requiring intermittent standing.

1. The work is sedentary. Typically, the employee may sit comfortably to do the work. However, there may be some walking; standing; bending; carrying of light items such as papers, books, small parts; driving an automobile, etc. No special physical demands are required to perform the work.

2. The work requires some physical exertion such as long periods of standing; walking over rough, uneven, or rocky surfaces; recurring bending, crouching, stooping, stretching, reaching, or similar activities; recurring lifting of moderately heavy items such as personal computers and record boxes. The work may require specific, but common, physical characteristics and abilities such as above-average agility and dexterity.

3. The work requires considerable and strenuous physical exertion such as frequent climbing of tall ladders, lifting heavy objects over 50 pounds, crouching or crawling in restricted areas and defending oneself or others against physical attack.

**WORK ENVIRONMENT** considers the risks and discomforts in the employee's physical surroundings or the nature of the work assignment and the safety regulations required. Although the use of safety precautions can practically eliminate a certain danger or discomfort, such situations typically place additional demands upon the employee in carrying out safety regulations and techniques.

1. The work environment involves everyday risks or discomforts which require normal safety precautions typical of such places as offices, meeting and training rooms, libraries, and residences or commercial vehicles, e.g., use of safe work practices with office equipment, avoidance of trips and falls, observance of fire regulations and traffic signals, etc. The work area is adequately lighted, heated, and ventilated.

2. The work involves moderate risks or discomforts which require special safety precautions, e.g., working

around moving parts, carts, or machines; with contagious diseases or irritant chemicals; etc. Employees may be required to use protective clothing or gear such as masks, gowns, coats, boots, goggles, gloves, or shields.

3. The work environment involves high risks with exposure to potentially dangerous situations or unusual environmental stress which require a range of safety and other precautions, e.g., working at great heights under extreme outdoor weather conditions, subject to possible physical attack or mob conditions, or similar situations where conditions cannot be controlled.

**SUPERVISORY DUTIES** describes the level of supervisory responsibility for a position.

1. No supervisory responsibility.

2. A nonsupervisory position. Incumbent sets the pace of work for the group and shows other workers in the group how to perform assigned tasks. Commonly performs the same work as the group, in addition to lead duties. Can also be called group leader, team leader, or lead worker.

3. Directs staff through face to face meetings. Organizational structure is not complex and internal and administrative procedures are simple. Performing the same work as subordinates is not the principal duty. Typically, this is the first supervisory level.

4. Directs staff through intermediate supervisors. Internal procedures and administrative controls are formal. Organizational structure is complex and is divided into subordinate groups that may differ from each other as to subject matter and function

5. Directs staff through two or more subordinate supervisory levels with several subdivisions at each level. Programs are usually inter-locked on a direct and continuing basis with other organizational segments, requiring constant attention to extensive formal coordination, clearances, and procedural controls.

# Appendix D. Evaluating Your Firm's Jobs

To compare data on their firm's jobs with statistics contained in this bulletin, data users need to be able to determine their jobs' work levels. Using the example of a dental hygienist, this appendix will go through the procedure for determining the work level of a particular job.

To determine the work level of a job, it must be evaluated using the generic leveling factors. With the information available, such as a written position description and other knowledge of the job, each factor must be reviewed. Comparing that information to the descriptions of each level within a factor as shown in Appendix C, the level best matching the job should be chosen and recorded. (Note that the number of levels varies by factor.)

## Generic leveling: an example

### Knowledge

Hygienist must have a dental hygienist license which requires 2 years of schooling and passage of a technical exam. This is a mid-level hygienist job, which means a worker must have at least 3 years of experience. The procedures are essentially the same every day, such as cleaning teeth, checking gums, and taking x-rays.

Level 4.

### Supervision received

Most of the tasks are performed without supervision. For more complicated procedures, such as tooth filling, the dental hygienist assists the dentist.

Level 2.

### Guidelines

A hygienist knows which procedure to use for different dental problems. Unusual situations are handled after checking with the supervisor.

Level 2.

### Complexity

Each procedure performed leads to the next, for example, examining gums, scraping plaque, then cleaning teeth.

Level 2.

### Scope and effect

In terms of process, the dentist's work follows the hygienist's. In terms of effect, the hygienist doing a thorough cleaning in preparation for the dentist's work allows the dentist to do a complete exam and properly treat the patient.

Level 2.

### Personal contacts

Patients come to the clinic or occasionally the hygienist will travel to perform work or give a talk at a school.

Level 2.

### Purpose of contacts

Most of hygienist's interaction is with patients; no planning or coordination work is involved.

Level 1.

### Physical demands

The work is sedentary.

Level 1.

### Work environment

Hygienist must take precautions not to be exposed to x-rays, punctures, etc.

Level 2.

### Supervisory duties

A dental hygienist at this level does not supervise anyone.

Level 1.

## Assigning points

Once the correct level has been identified within each factor, the points associated with each level are recorded. Summing the points for all factors gives the total points for the job. Using the factors above and the table at the end of this section showing the points associated with each level

within a factor, a sample worksheet was filled out for the dental hygienist position.

### Generic leveling worksheet

Company job title: Dental Hygienist

Factor	Level	Points
Knowledge	4	550
Supervision received	2	125
Guidelines	2	125
Complexity	2	75
Scope and effect	2	75
Personal contacts	2	25
Purpose of contacts	2	20
Physical demands	1	5
Work environment	2	20
Supervisory duties	1	0
<b>Total</b>	<b>5</b>	<b>1020</b>

### Determining the work level

The following chart takes the point total determined using the worksheet and converts it to an overall work level for the job. There are 15 work levels, based on those used

to rank Federal civil service white-collar jobs, each identified by a point range. The 1,020 total points for the dental hygienist job puts it in level 5.

### Point ranges by work level

Range of Generic Level Points

Level	Low	High
1	190	254
2	255	454
3	455	654
4	655	854
5	855	1104
6	1105	1354
7	1355	1604
8	1605	1854
9	1855	2104
10	2105	2354
11	2355	2754
12	2755	3154
13	3155	3604
14	3605	4054
15	4055	and up

### Comparing wages

Once the work level has been identified for a job, wages for that job can be compared to wages for similar jobs at the same work level. BLS publishes hourly wage rates by work level within nine major occupational groups, which are combinations of similar individual occupations. The groups and work levels available vary by area. Employers can also use the data on work levels to compare different jobs in their establishment.

### Points associated with each factor level

Factor	1	2	3	4	5	6	7	8	9
Knowledge	50	200	350	550	750	950	1250	1550	1850
Supervision received	25	125	275	450	650	X	X	X	X
Guidelines	25	125	275	450	650	X	X	X	X
Complexity	25	75	150	225	325	450	X	X	X
Scope and effect	25	75	150	225	325	450	X	X	X
Personal contacts	10	25	60	110	X	X	X	X	X
Purpose of contacts	20	50	120	220	X	X	X	X	X
Physical demands	5	20	50	X	X	X	X	X	X
Work environment	5	20	50	X	X	X	X	X	X
Supervisory duties	0	0	0	0	0	X	X	X	X

Note: X indicates that a level is not associated with a given factor. For example, for physical demands, point levels 1, 2, and 3 are the only choices.

# Appendix E. A Guide for Users of Prior BLS Wage Surveys

The wage data produced from the National Compensation Survey (NCS) differ from those of the survey's predecessor, the Occupational Compensation Survey (OCS). The NCS is designed to cover all workers and thus provides information on a broader range of occupations and establishments. Occupations surveyed for NCS were selected using probability techniques from a list of all jobs present in each establishment. Data from OCS were limited to a preselected list of occupations, which represented a small subset of all occupations in the economy.

The chart allows users of prior survey data to develop a link between the data presented for the OCS surveys and the new NCS series. Follow the step-by-step instructions below to make comparisons.

## Step-by-step instructions for comparing NCS and OCS

Step 1: Determine the OCS occupation and level used in the past. Examine job descriptions (noting any exclusions) in the appendix of the OCS bulletin and available on the Internet (<http://stats.bls.gov/ocsjobde.ht>).

Step 2: Using the table, find the NCS occupation closest to the OCS occupation formerly studied. Remember that NCS occupations are typically more general than OCS occupations and may not have the exclusions in the OCS descriptions.

Step 3: Find the desired OCS level, expressed in Roman numerals. Follow that column to the top row of the table to find the NCS work level.

Step 4: Find the wage information corresponding to the selected NCS occupation and level from published bulletins (B-series tables) or on the Internet (<http://stats.bls.gov/compub.htm>).

Step 5: If the particular occupation and level is not published in the NCS bulletin, determine from the chart the occupational group of the occupation:

- Professional specialty occupations
- Technical occupations
- Executives, administrators and managers
- Management related occupations
- Administrative support occupations
- Protective service occupations

Use NCS data for this broad occupational group and appropriate work level as an approximation.

Example: Using the table, determine that an OCS level II secretary is an NCS work level 5. The earnings data for level II secretary in OCS can be linked to the earnings data for level 5 secretaries in the new NCS series. If data for level 5 secretaries are not published, look for data for all administrative support occupations, level 5.

Additional information on the National Compensation Survey is available on the Internet (<http://stats.bls.gov/comhome.htm>). If you have any questions, call (202) 606-6220 or send e-mail to [ocltinfo.bls.gov](mailto:ocltinfo.bls.gov)



Comparing data from the National Compensation Survey with those of the Occupational Compensation Survey

Occupational Compensation Survey	National Compensation Survey	NCS Work Level														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>Professional specialty occupations</b>																
Attorneys	Lawyers									I		II	III	IV	V	VI
Engineers	Engineers					I <sup>1</sup>		II		III		IV	V	VI	VII	VIII
Computer systems analysts	Computer systems analysts and scientists									I		II	III	IV	V	
Scientists	Natural scientists					I		II		III		IV	V	VI	VII	VIII
<b>Technical occupations</b>																
Engineering technicians	Engineering technicians (industrial or mechanical)			I	II	III		IV		V		VI				
Civil engineering Technicians	Engineering technicians, not elsewhere classified			I	II	III		IV		V		VI				
Drafters	Drafters			I	II	III		IV								
Computer programmers	Computer programmers					I		II		III		IV	V			
<b>Executives, administrators and managers</b>																
Personnel supervisors/Managers	Personnel and labor relations managers											I	II	III	IV	V
Computer systems analyst Supervisors/managers	Managers/administrators, not elsewhere classified												I	II	III	IV
<b>Management related occupations</b>																
Accountants	Accountants and auditors					I		II		III		IV	V	VI		
Public accountants	Accountants and auditors							I		II		III	IV			
Budget analysts	Other financial officers					I		II		III		IV				
Buyers/contracting Specialists	Buyers, wholesale/retail trade, except farm products					I		II		III		IV				
Personnel specialists	Personnel, training, and labor relations specialists					I		II		III		IV	V	VI		
Tax collectors	Administrators and officials, public administration					I		II		III						
<b>Administrative support occupations</b>																
Computer operators	Computer operators				I	II	III	IV	V							
Accounting clerks	Bookkeepers, accounting, and auditing clerks		I	II	III	IV										
General clerks	General office clerks	I	II	III	IV											
Key entry operators	Data entry keyers		I	II												
Personnel assistants	Personnel clerks, except payroll and timekeeping			I	II	III	IV									
Secretaries	Secretaries				I	II	III	IV	V							
Word processors	Typists			I	II	III										
<b>Protective service occupations</b>																
Police officers	Police and detectives, public service					I	II									
Guards	Guards and police, except public service				I	II										

<sup>1</sup> The Roman numerals indicate the OCS occupation and level. For example, Engineer I.