

National Compensation Survey Pilot Test Dayton-Springfield, OH April 1997

U.S. Department of Labor
Alexis M. Herman, Secretary

Bureau of Labor Statistics
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**Dayton-Springfield, OH
Metropolitan Statistical Area**

Preface

This bulletin provides results of an April 1997 survey of occupational pay in the Dayton-Springfield, OH Metropolitan Statistical Area (MSA). The MSA includes Clark, Greene, Miami and Montgomery Counties.

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). (COMP2000 was the survey's working title.) The new program, now in its first stage of implementation, will eventually replace three separate BLS compensation series -- Occupational Compensation Survey, Employment Cost Index, and Employee Benefits Survey. This first phase, which includes only the wage and salary portion of compensation, was designed to produce data similar to those released under the Occupational Compensation Survey, which has been discontinued. See page one of this bulletin for further information on NCS.

First surveys are pilot tests

The first surveys in the new program are referred to as pilot tests, because they include major changes in survey concepts, definitions, and collection procedures from the predecessor Occupational Compensation Survey Program. The Bureau is reviewing the pilot test results to improve its data collection procedures and techniques. The survey results should therefore be interpreted with caution.

Additionally, many of the long-time participants in the Occupational Compensation Survey were asked to provide data for a much broader selection of occupations than in the past and to apply a new classification system and leveling factors to those occupations. For many other companies, this was the first time they participated in a Bureau compensation study.

Due to the limited amount of time available to initiate the first phase of this new program, a number of companies were unable to provide complete data before the publication deadline. As a result, some surveys have a high nonresponse rate for the all industries or the private industry iterations. Such instances are noted in the bulletin table footnotes.

The 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 new program, a technical note describing survey procedures, and several appendixes with detailed information on occupational classifications and the generic leveling methodology.

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 Ronald Pritzlaff, 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 was responsible for the survey design and data processing and analysis.

Where to find more information

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, Washington, DC 20212-0001, or call (202) 606-6220.

The data contained in this bulletin are also available on the Internet's World Wide Web through the BLS site: <http://stats.bls.gov/comhome.htm> Data are in three formats: an ASCII file containing the exact published table formats; an ASCII file containing positional columns of data for easy manipulation as a data base or spreadsheet; and a Portable Document Format containing the entire bulletin. The ASCII files may include tables not appearing in this bulletin.

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A New Compensation Survey

This survey represents the first phase of a new Bureau of Labor Statistics program called the National Compensation Survey (NCS). NCS integrates three existing programs: the Occupational Compensation Survey (OCS), the Employment Cost Index (ECI), and the Employee Benefits Survey (EBS), into one comprehensive compensation program. Data from the new survey will be jointly collected from one common sample of establishments. The survey has several major goals: To make the most efficient use of available resources—dollars, people, and technology; to minimize the burden of collection on respondents; and to provide a wide range of statistical outputs reflecting up-to-date economic and statistical concepts.

The streamlining of programs and the addition of data will be phased in over time. Beginning in the spring of 1996, pilot studies (under the name COMP2000) in six metropolitan areas were conducted to test various procedures of the new program. Wage data were collected based on a new method of classifying occupations and levels of work within those occupations.

Following the tests, a new area-based sample covering the Nation as a whole was put into place in Fall 1996. Initially, collection will be limited to the wage and salary portion of compensation. The larger metropolitan area collections will yield bulletins, similar to this one, which will replace the current Occupational Compensation Survey bulletins. Statistics for smaller areas may be released in summary form, if the data support publication. NCS will also yield national statistics, plus data for the nine geographic regions used in the Census of Population, once collection for all areas is completed.

Testing of the collection of benefit data, wage trend data, and other compensation characteristics is planned. Based on test results, new collection procedures for these types of statistics will be developed. Eventually, wage data and benefit information collected from the sample will be used to produce compensation indexes and statistics on

benefit provisions and incidence. These new series will supplant the current ECI and EBS programs.

National Compensation Survey versus OCS

The wage data in this bulletin differ from those in previous Occupational Compensation Survey bulletins by providing broader coverage of occupations and establishments within the survey area. The same holds for all future NCS products.

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.

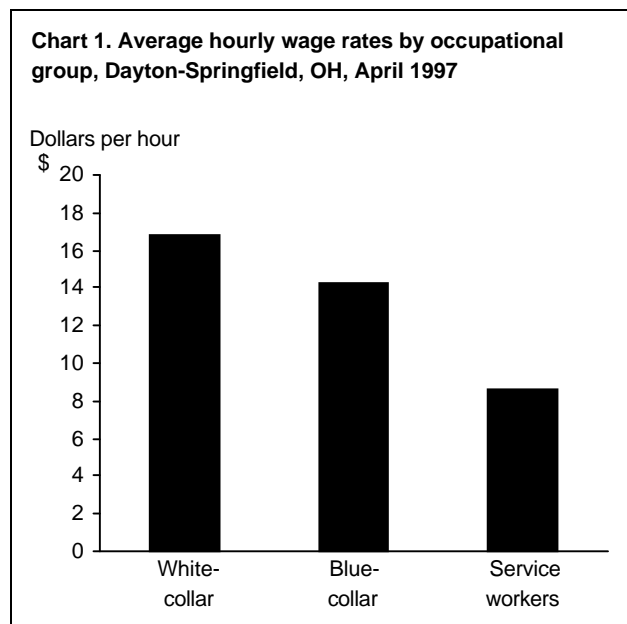
In tables containing job levels within occupational series, the levels are derived from generic standards that *apply to all* occupational groups. The job levels in the OCS bulletins were based on narrowly-defined descriptions that were not comparable across specific occupations.

Occupational data in this bulletin are also tabulated for other classifications such as industry group, full-time versus part-time status, union versus nonunion 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 private household and farm workers and employees of the Federal Government.

Wages in the Dayton-Springfield, OH Metropolitan Statistical Area

Straight-time wages in the Dayton-Springfield, OH Metropolitan Statistical Area averaged \$14.68 per hour during April 1997. White-collar workers had the highest average wage level, \$16.81 per hour. Blue-collar workers averaged \$14.30 per hour, while service workers had average earnings of \$8.62 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 \$17.76 per hour, computer systems analysts and scientists at \$24.72 per hour and secretaries at \$12.12 per hour. Among occupations in the blue-collar category, industrial machinery repairers averaged \$17.49 per hour while truck drivers averaged \$14.75. Finally, service workers included kitchen workers, food preparation, at \$8.11 per hour. Table A-1 presents earnings data for 22 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.

Private industry workers in Dayton-Springfield, OH earned \$14.11 per hour, while State and local government workers averaged \$17.66. Table A-2 reports that the average hourly rate for white-collar occupations was \$15.99 in private industry and \$19.87 in State and local government. Blue-collar occupations showed an average hourly rate of \$14.33 in private industry and \$13.86 in State and local government. Service occupations within private industry averaged \$6.97 per hour while those found in State and local government averaged \$13.79.

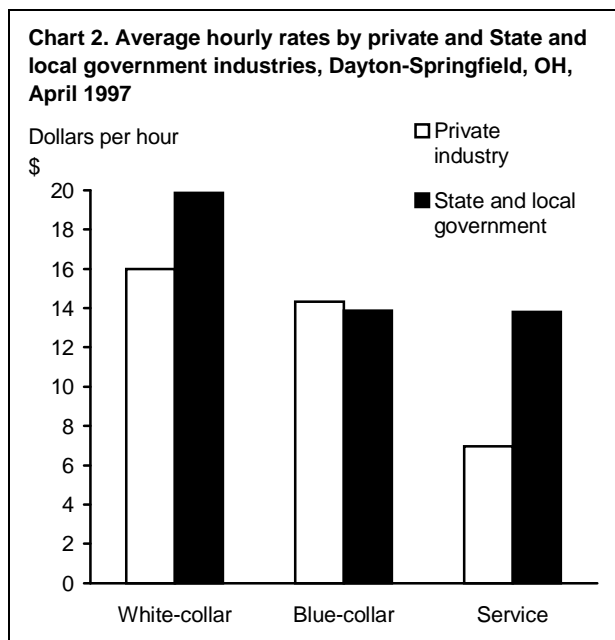
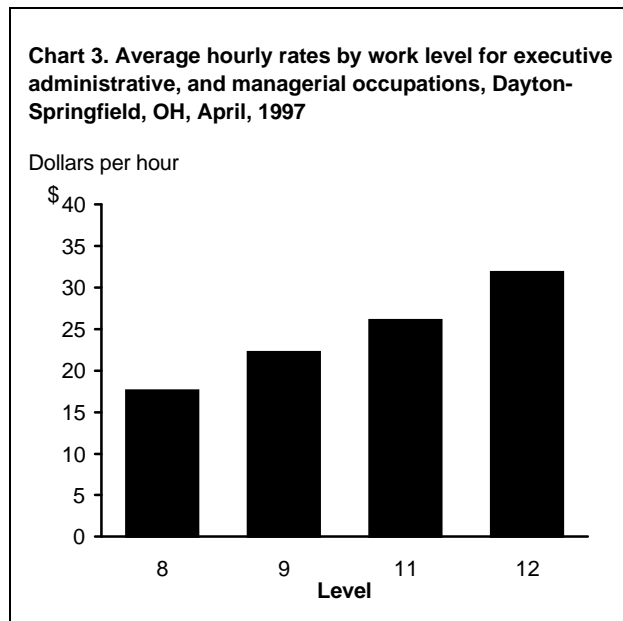


Table A-3 presents data for workers considered by the survey respondents to be either full-time or part-time. Average wages for full-time workers, all occupations, were \$15.52 per hour; data for part-time workers, all occupations, averaged \$8.42 per hour.

Data for specific work levels within major occupational groups are reported in table B-1. Wages for the higher levels of work within major occupational groups usually were greater than for the lower levels of work. This general pattern can vary somewhat depending on the mix of specific occupations (and industries) represented by the broad group. 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.

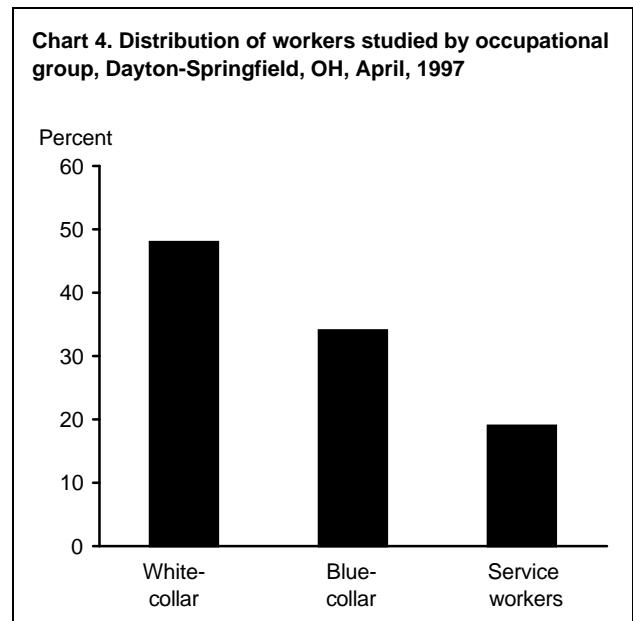
Work levels for all major groups span several levels, with professional specialty occupations and executive, administrative, and managerial occupations typically starting and ending at higher work levels than the other groups. Published data for executive, administrative, and managerial occupations ranged from level 8 to level 12. Level 10 was not published. The average hourly rate was \$17.58 for level 8, \$22.23 for level 9, \$26.04 for level 11, and \$31.86 for level 12.



Surveyed union workers had an average hourly rate of \$16.98, as reported in table C-1. Wages for nonunion workers averaged \$13.81. Time workers, whose wages were based solely on an hourly rate or a salary, averaged \$14.57 per hour. (Data for incentive workers did not meet publications criteria.)

Table C-2 shows wage data for specific industry divisions within private industry. In the private sector, hourly wages averaged \$17.30 in construction industries, \$16.47 in manufacturing firms, \$15.88 in transportation and public utilities, and \$11.55 in finance, insurance, and real estate establishments.

In Dayton-Springfield, OH, a total of 270,557 workers were studied, and 129,557 were classified in white-collar occupations, or 48 percent. Table C-4 reports that blue-collar occupations included 92,129 workers, or 34 percent, and service occupations covered 48,871 workers, or 19 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.

Table A-1. Hourly earnings¹ for selected occupations, all workers², all industries, Dayton-Springfield, OH, April, 1997

Occupation ³	All industries					
	Mean	Percentiles				
		10	25	Median 50	75	90
All occupations	\$14.68	\$6.50	\$8.83	\$13.29	\$19.26	\$23.73
All occupations excluding sales	14.78	6.63	8.99	13.45	19.28	23.66
White-collar occupations	16.81	7.50	10.00	14.86	21.50	29.29
White-collar occupations excluding sales	17.23	8.00	10.55	15.04	21.63	29.68
Professional specialty and technical occupations	19.44	11.23	14.47	18.28	24.06	30.31
Professional specialty occupations	20.56	11.70	15.01	19.91	25.42	31.09
Engineers, architects, and surveyors	26.41	19.62	21.80	25.43	30.35	35.03
Mathematical and computer scientists	24.06	-	-	-	-	-
Computer systems analysts and scientists	24.72	-	-	-	-	-
Natural scientists	-	-	-	-	-	-
Health related occupations	17.65	13.69	14.80	16.89	19.71	23.48
Registered nurses	17.76	14.15	15.04	17.15	19.57	22.24
Teachers, college and university	23.58	-	-	-	-	-
Teachers, except college and university	24.17	11.72	18.71	25.32	30.70	33.87
Elementary school teachers	26.55	17.87	21.51	27.64	31.36	33.99
Secondary school teachers	26.11	-	-	-	-	-
Librarians, archivists, and curators	-	-	-	-	-	-
Social scientists and urban planners	-	-	-	-	-	-
Social, recreation, and religious workers	-	-	-	-	-	-
Social workers	13.47	-	-	-	-	-
Lawyers and judges	-	-	-	-	-	-
Writers, authors, entertainers, athletes, and professionals, N.E.C.	17.20	-	-	-	-	-
Technical occupations	15.15	9.50	12.40	15.00	17.27	20.48
Technical and related occupations, N.E.C.	15.59	-	-	-	-	-
Executive, administrative, and managerial occupations ...	25.16	14.48	17.80	23.08	30.91	39.53
Executives, administrators, and managers	28.12	15.87	21.45	26.69	34.79	41.65
Managers and administrators, N.E.C.	29.53	16.50	21.58	30.02	37.21	41.78
Management related occupations	19.58	13.08	15.25	18.15	22.50	25.24
Sales occupations	-	-	-	-	-	-
Sales workers, other commodities	7.69	-	-	-	-	-
Cashiers	7.20	5.00	5.40	6.55	8.20	11.13
Administrative support occupations, including clerical	10.69	7.00	8.08	10.00	12.50	14.91
Secretaries	12.12	8.00	9.62	11.66	14.43	16.85
Receptionists	7.27	-	-	-	-	-
Bookkeepers, accounting and auditing clerks	11.34	8.25	8.93	11.54	13.66	14.71
General office clerks	9.63	6.81	7.95	9.10	11.44	12.50
Bank tellers	8.30	-	-	-	-	-
Administrative support occupations, N.E.C.	10.89	8.50	9.56	11.25	12.50	13.33
Blue-collar occupations	14.30	7.57	10.00	13.90	19.21	20.01
Precision production, craft, and repair occupations	17.03	10.28	13.50	16.56	21.52	22.39
Industrial machinery repairers	17.49	-	-	-	-	-
Supervisors, production occupations	20.19	-	-	-	-	-
Machine operators, assemblers, and inspectors	14.29	8.39	10.18	13.33	19.33	19.72
Assemblers	14.65	8.53	10.89	13.55	19.28	19.36
Transportation and material moving occupations	13.26	5.50	10.00	13.48	17.19	18.56
Truck drivers	14.75	-	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers	10.04	5.30	6.70	9.40	12.54	16.50

See footnotes at end of table.

Table A-1. Hourly earnings¹ for selected occupations, all workers², all industries, Dayton-Springfield, OH, April, 1997 — Continued

Occupation ³	All industries					
	Mean	Percentiles				
		10	25	Median 50	75	90
Service occupations	\$8.62	\$5.00	\$5.65	\$7.25	\$10.23	\$14.76
Protective service occupations	15.38	8.69	12.40	15.60	19.21	21.00
Food service occupations	6.27	4.04	5.00	6.00	7.10	9.48
Kitchen workers, food preparation	8.11	—	—	—	—	—
Food preparation occupations, N.E.C.	6.11	4.75	5.00	5.70	6.50	7.99
Health service occupations	8.17	6.42	7.00	7.70	9.13	10.35
Nursing aides, orderlies and attendants	7.63	6.25	6.85	7.40	8.20	9.15
Cleaning and building service occupations	—	—	—	—	—	—
Personal service occupations	8.73	5.62	6.75	8.23	10.24	12.12

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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 earnings¹ for selected occupations, all workers², private and government industries, Dayton-Springfield, OH, April, 1997

Occupation ³	Private industry						State and local government					
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
All occupations	\$14.11	\$6.25	\$8.42	\$12.50	\$19.13	\$22.32	\$17.66	\$9.63	\$12.21	\$15.59	\$21.87	\$29.45
All occupations excluding sales	14.19	6.35	8.50	12.61	19.21	22.31	17.67	9.63	12.22	15.59	21.89	29.45
White-collar occupations	15.99	7.25	9.30	14.05	20.20	27.65	19.87	10.14	13.69	18.55	26.08	31.36
White-collar occupations excluding sales	16.42	7.75	9.75	14.57	20.56	27.80	19.88	10.14	13.69	18.55	26.08	31.36
Professional specialty and technical occupations	18.08	10.13	13.89	17.07	21.63	26.62	22.97	13.81	16.95	22.52	28.84	32.47
Professional specialty occupations	19.15	10.52	14.36	18.29	23.50	28.56	23.28	14.21	17.86	23.24	29.21	32.47
Engineers, architects, and surveyors	26.41	19.62	21.80	25.43	30.35	35.03	-	-	-	-	-	-
Mathematical and computer scientists	-	-	-	-	-	-	-	-	-	-	-	-
Natural scientists	-	-	-	-	-	-	-	-	-	-	-	-
Health related occupations	17.57	13.69	14.76	16.84	19.68	23.39	-	-	-	-	-	-
Registered nurses	17.66	14.15	15.00	17.10	19.53	21.94	-	-	-	-	-	-
Teachers, college and university	-	-	-	-	-	-	-	-	-	-	-	-
Teachers, except college and university	16.12	-	-	-	-	-	25.79	16.75	20.96	26.97	30.72	33.46
Elementary school teachers	-	-	-	-	-	-	27.05	-	-	-	-	-
Secondary school teachers	-	-	-	-	-	-	26.46	-	-	-	-	-
Librarians, archivists, and curators	-	-	-	-	-	-	-	-	-	-	-	-
Social scientists and urban planners	-	-	-	-	-	-	-	-	-	-	-	-
Social, recreation, and religious workers	11.83	-	-	-	-	-	-	-	-	-	-	-
Lawyers and judges	-	-	-	-	-	-	-	-	-	-	-	-
Writers, authors, entertainers, athletes, and professionals, N.E.C.	17.18	-	-	-	-	-	-	-	-	-	-	-
Technical occupations	15.20	9.50	12.36	15.01	17.31	20.48	-	-	-	-	-	-
Technical and related occupations, N.E.C.	15.72	-	-	-	-	-	-	-	-	-	-	-
Executive, administrative, and managerial occupations	25.59	14.52	17.72	23.41	31.28	40.88	23.63	14.17	17.80	22.59	28.47	33.40
Executives, administrators, and managers	28.64	16.50	20.97	27.65	35.58	42.35	-	-	-	-	-	-
Managers and administrators, N.E.C.	30.32	17.83	22.44	30.24	37.23	42.35	-	-	-	-	-	-
Management related occupations	20.01	13.08	15.25	18.38	22.87	27.28	-	-	-	-	-	-
Sales occupations	-	-	-	-	-	-	-	-	-	-	-	-
Sales workers, other commodities	7.69	-	-	-	-	-	-	-	-	-	-	-
Cashiers	7.21	5.00	5.40	6.55	8.37	11.13	-	-	-	-	-	-
Administrative support occupations, including clerical	10.37	6.95	8.00	9.60	12.00	14.73	12.12	7.87	9.90	12.24	14.23	15.35
Secretaries	11.84	7.75	9.30	11.07	13.70	17.63	-	-	-	-	-	-
Receptionists	7.27	-	-	-	-	-	-	-	-	-	-	-
Bookkeepers, accounting and auditing clerks	10.78	-	-	-	-	-	-	-	-	-	-	-
General office clerks	9.46	6.59	7.93	9.00	10.98	12.50	10.25	-	-	-	-	-
Bank tellers	8.30	-	-	-	-	-	-	-	-	-	-	-
Administrative support occupations, N.E.C.	10.37	-	-	-	-	-	-	-	-	-	-	-
Blue-collar occupations	14.33	7.50	9.76	13.91	19.26	20.27	13.86	10.48	12.11	13.74	16.39	17.23
Precision production, craft, and repair occupations	17.18	10.00	13.56	16.83	21.54	22.39	15.08	-	-	-	-	-
Industrial machinery repairers	17.49	-	-	-	-	-	-	-	-	-	-	-
Supervisors, production occupations	20.19	-	-	-	-	-	-	-	-	-	-	-
Machine operators, assemblers, and inspectors	14.29	8.39	10.18	13.33	19.33	19.72	-	-	-	-	-	-
Assemblers	14.65	8.53	10.89	13.55	19.28	19.36	-	-	-	-	-	-
Transportation and material moving occupations	-	-	-	-	-	-	14.10	-	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers	9.83	5.25	6.50	8.90	11.97	16.71	12.01	-	-	-	-	-
Service occupations	6.97	4.85	5.40	6.39	8.18	9.93	13.79	8.14	10.84	13.25	17.51	20.19
Protective service occupations	-	-	-	-	-	-	16.62	11.82	13.55	16.87	19.21	21.63
Food service occupations	6.08	2.50	5.00	5.87	7.00	9.38	9.25	-	-	-	-	-
Cooks	6.53	-	-	-	-	-	-	-	-	-	-	-
Kitchen workers, food preparation	8.02	-	-	-	-	-	-	-	-	-	-	-
Food preparation occupations, N.E.C.	5.88	-	-	-	-	-	-	-	-	-	-	-
Health service occupations	7.90	6.25	7.00	7.52	8.76	9.90	-	-	-	-	-	-
Nursing aides, orderlies and attendants	7.53	6.25	6.84	7.35	8.10	9.00	-	-	-	-	-	-
Cleaning and building service occupations	-	-	-	-	-	-	12.21	-	-	-	-	-

See footnotes at end of table.

Table A-2. Hourly earnings¹ for selected occupations, all workers ², private and government industries, Dayton-Springfield, OH, April, 1997 — Continued

Occupation ³	Private industry						State and local government					
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
Service occupations (-Continued)												
Cleaning and building service occupations (-Continued)												
Janitors and cleaners	—	—	—	—	—	—	\$11.61	—	—	—	—	—
Personal service occupations	—	—	—	—	—	—	9.60	—	—	—	—	—

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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 earnings¹ for selected occupations, full-time and part-time workers², Dayton-Springfield, OH, April, 1997

Occupation ³	All industries											
	Full-time						Part-time					
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
All occupations	\$15.52	\$7.49	\$9.75	\$14.29	\$19.49	\$24.88	\$8.42	\$4.95	\$5.35	\$6.90	\$9.81	\$14.80
All occupations excluding sales	15.60	7.55	9.96	14.42	19.51	24.80	8.56	4.95	5.40	7.00	10.00	14.94
White-collar occupations	17.66	8.11	11.00	15.43	22.50	30.43	10.54	5.70	6.75	8.53	13.00	18.24
White-collar occupations excluding sales	18.01	8.50	11.51	15.92	22.86	30.48	11.15	6.25	7.50	9.25	14.56	19.13
Professional specialty and technical occupations	19.80	11.53	14.58	18.79	24.65	30.67	15.66	8.11	12.00	15.32	19.22	22.24
Professional specialty occupations	21.00	11.93	15.26	20.49	25.85	31.36	16.26	8.00	13.69	16.04	19.34	22.24
Engineers, architects, and surveyors	26.12	19.62	21.75	25.17	30.00	34.13	-	-	-	-	-	-
Mathematical and computer scientists	24.53	-	-	-	-	-	-	-	-	-	-	-
Natural scientists	-	-	-	-	-	-	-	-	-	-	-	-
Health related occupations	17.59	13.58	14.57	16.83	19.83	24.27	17.85	14.41	15.07	17.37	19.57	22.24
Registered nurses	17.72	14.07	15.10	17.08	19.57	22.25	17.90	-	-	-	-	-
Teachers, college and university	23.85	-	-	-	-	-	-	-	-	-	-	-
Teachers, except college and university	24.62	11.78	19.52	25.83	30.70	34.08	11.81	-	-	-	-	-
Elementary school teachers	26.56	17.87	21.51	27.64	31.36	33.99	-	-	-	-	-	-
Secondary school teachers	26.21	-	-	-	-	-	-	-	-	-	-	-
Librarians, archivists, and curators	-	-	-	-	-	-	-	-	-	-	-	-
Social scientists and urban planners	-	-	-	-	-	-	-	-	-	-	-	-
Social, recreation, and religious workers	-	-	-	-	-	-	-	-	-	-	-	-
Social workers	13.64	-	-	-	-	-	-	-	-	-	-	-
Lawyers and judges	-	-	-	-	-	-	-	-	-	-	-	-
Writers, authors, entertainers, athletes, and professionals, N.E.C.	18.39	-	-	-	-	-	-	-	-	-	-	-
Technical occupations	15.35	9.57	12.80	15.08	17.31	20.48	11.97	-	-	-	-	-
Technical and related occupations, N.E.C.	15.72	-	-	-	-	-	-	-	-	-	-	-
Executive, administrative, and managerial occupations	25.42	14.65	18.15	23.46	31.00	39.81	-	-	-	-	-	-
Executives, administrators, and managers	28.15	15.87	21.47	26.69	34.79	41.65	-	-	-	-	-	-
Managers and administrators, N.E.C.	29.53	16.50	21.58	30.02	37.21	41.78	-	-	-	-	-	-
Management related occupations	19.85	13.40	15.25	18.15	22.53	25.55	-	-	-	-	-	-
Sales occupations	-	-	-	-	-	-	6.12	5.00	5.10	5.70	6.35	8.50
Cashiers	8.11	-	-	-	-	-	5.85	-	-	-	-	-
Administrative support occupations, including clerical	11.25	7.42	8.63	10.75	13.22	15.39	8.28	6.00	6.75	8.00	9.50	11.33
Secretaries	13.41	9.83	11.29	12.64	14.86	17.86	-	-	-	-	-	-
Bookkeepers, accounting and auditing clerks	11.37	8.25	8.93	11.54	13.66	14.71	-	-	-	-	-	-
General office clerks	9.82	7.05	8.14	9.18	11.45	12.50	-	-	-	-	-	-
Administrative support occupations, N.E.C.	11.01	8.50	9.60	11.37	12.50	13.44	-	-	-	-	-	-
Blue-collar occupations	14.68	8.15	10.60	14.50	19.26	20.19	7.82	5.00	5.30	6.50	9.54	13.28
Precision production, craft, and repair occupations	17.05	10.28	13.60	16.56	21.52	22.39	-	-	-	-	-	-
Industrial machinery repairers	17.49	-	-	-	-	-	-	-	-	-	-	-
Supervisors, production occupations	20.19	-	-	-	-	-	-	-	-	-	-	-
Machine operators, assemblers, and inspectors	14.29	8.39	10.20	13.35	19.33	19.72	-	-	-	-	-	-
Assemblers	14.65	8.53	10.89	13.55	19.28	19.36	-	-	-	-	-	-
Transportation and material moving occupations	14.46	8.53	11.63	14.58	17.46	19.21	-	-	-	-	-	-
Truck drivers	14.75	-	-	-	-	-	-	-	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers	10.85	6.00	7.61	10.19	13.60	17.75	7.27	4.90	5.25	6.50	8.00	10.74
Service occupations	9.73	5.60	6.50	8.59	11.98	17.81	5.73	4.75	5.00	5.50	6.25	7.77
Protective service occupations	16.25	11.19	12.97	16.05	19.21	21.32	-	-	-	-	-	-
Food service occupations	7.19	2.50	5.77	6.75	9.05	10.40	5.35	4.25	4.85	5.25	6.00	6.79
Cooks	8.11	-	-	-	-	-	-	-	-	-	-	-
Food preparation occupations, N.E.C.	-	-	-	-	-	-	5.68	-	-	-	-	-
Health service occupations	8.20	6.50	7.00	7.75	9.13	10.35	7.99	-	-	-	-	-
Nursing aides, orderlies and attendants	7.65	-	-	-	-	-	-	-	-	-	-	-
Cleaning and building service occupations	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table A-3. Hourly earnings¹ for selected occupations, full-time and part-time workers², Dayton-Springfield, OH, April, 1997 — Continued

Occupation ³	All industries											
	Full-time					Part-time						
	Mean	Percentiles					Mean	Percentiles				
		10	25	Median 50	75	90		10	25	Median 50	75	90
Service occupations (-Continued)												
Personal service occupations	\$9.26	-	-	-	-	-	-	-	-	-	-	-

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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 earnings¹ and hours for selected white-collar occupations, full-time workers only², Dayton-Springfield, OH, April, 1997

Occupation ³	All industries					
	Mean weekly hours ⁴	Weekly earnings		Mean annual hours	Annual earnings	
		Mean	Median		Mean	Median
White-collar occupations	39.7	\$701	\$615	1,972	\$34,835	\$31,054
White-collar occupations excluding sales	39.6	712	635	1,959	35,271	31,366
Professional specialty and technical occupations	39.1	775	726	1,856	36,748	35,318
Professional specialty occupations	39.0	818	790	1,806	37,934	36,450
Engineers, architects, and surveyors	40.5	1,058	1,010	2,106	55,000	52,541
Mathematical and computer scientists	40.0	981	-	2,080	51,018	-
Natural scientists	-	-	-	-	-	-
Health related occupations	38.7	680	660	2,011	35,372	34,299
Registered nurses	38.7	685	672	2,010	35,618	34,944
Teachers, college and university	38.4	915	-	1,496	35,679	-
Teachers, except college and university	37.5	924	964	1,431	35,222	35,717
Elementary school teachers	37.1	986	1,002	1,359	36,084	36,449
Secondary school teachers	37.1	972	-	1,363	35,725	-
Librarians, archivists, and curators	-	-	-	-	-	-
Social scientists and urban planners	-	-	-	-	-	-
Social, recreation, and religious workers	-	-	-	-	-	-
Social workers	40.0	546	-	2,080	28,368	-
Lawyers and judges	-	-	-	-	-	-
Writers, authors, entertainers, athletes, and professionals, N.E.C.	40.1	737	-	2,085	38,349	-
Technical occupations	39.8	611	600	2,067	31,714	31,221
Technical and related occupations, N.E.C.	-	629	-	-	32,690	-
Executive, administrative, and managerial occupations ...	40.4	1,028	936	2,095	53,256	48,693
Executives, administrators, and managers	40.6	1,143	1,064	2,099	59,087	54,720
Managers and administrators, N.E.C.	40.6	1,200	1,201	2,109	62,255	62,442
Management related occupations	40.1	796	735	2,087	41,415	38,230
Sales occupations	-	-	-	-	-	-
Cashiers	38.4	312	-	1,999	16,204	-
Administrative support occupations, including clerical	39.6	446	426	2,033	22,876	21,840
Secretaries	39.4	528	502	2,011	26,962	25,792
Bookkeepers, accounting and auditing clerks	39.6	450	462	2,055	23,376	24,003
General office clerks	39.5	388	367	2,049	20,123	19,094
Administrative support occupations, N.E.C.	40.0	440	455	2,066	22,748	23,504

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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.

⁴ 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 earnings¹ by occupational group and level², Dayton-Springfield, OH, April, 1997

Occupational group ³ and level	All workers ⁴			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
All occupations	\$14.68	\$14.11	\$17.66	\$15.52	\$8.42
All occupations excluding sales	14.78	14.19	17.67	15.60	8.56
White-collar occupations	16.81	15.99	19.87	17.66	10.54
Level 1	6.12	6.14	—	—	6.44
Level 2	7.07	7.06	—	7.77	5.85
Level 3	8.26	8.16	9.06	8.36	7.99
Level 4	10.42	10.25	11.78	10.43	10.36
Level 5	11.91	11.79	12.35	12.05	10.05
Level 6	13.32	13.10	14.17	13.30	—
Level 7	17.93	15.30	23.99	18.75	—
Level 8	17.03	17.28	15.85	17.17	—
Level 9	21.86	19.87	25.11	22.06	18.91
Level 10	24.88	—	—	24.92	—
Level 11	25.98	26.89	—	26.07	—
Level 12	31.04	30.96	—	30.90	—
White-collar occupations excluding sales	17.23	16.42	19.88	18.01	11.15
Level 1	6.63	—	—	—	—
Level 2	7.05	7.00	—	—	—
Level 3	8.39	8.28	9.14	8.46	8.18
Level 4	10.66	10.51	11.78	10.65	10.70
Level 5	12.05	11.95	12.35	12.19	10.17
Level 6	13.41	13.20	14.17	13.39	—
Level 7	17.81	14.71	23.99	18.71	—
Level 8	16.84	17.06	15.85	16.97	—
Level 9	21.98	19.93	25.11	22.19	18.91
Level 10	23.32	22.71	—	23.36	—
Level 11	25.55	26.39	—	25.64	—
Level 12	31.04	30.96	—	30.90	—
Professional specialty and technical occupations	19.44	18.08	22.97	19.80	15.66
Professional specialty occupations	20.56	19.15	23.28	21.00	16.26
Level 5	10.45	—	—	—	—
Level 7	—	—	26.77	—	—
Level 8	16.62	16.97	—	16.78	—
Level 9	21.97	19.79	24.91	22.26	18.91
Level 11	25.14	26.13	—	25.30	—
Level 12	29.11	—	—	28.40	—
Engineers, architects, and surveyors	26.41	26.41	—	26.12	—
Level 11	29.22	29.22	—	29.22	—
Mathematical and computer scientists	24.06	—	—	24.53	—
Natural scientists	—	—	—	—	—
Health related occupations	17.65	17.57	—	17.59	17.85
Level 8	16.52	—	—	—	—
Level 9	18.73	18.57	—	18.62	—
Teachers, college and university	23.58	—	—	23.85	—
Teachers, except college and university	24.17	16.12	25.79	24.62	11.81
Level 7	27.96	—	28.60	28.40	—
Level 9	25.08	—	25.57	25.14	—
Librarians, archivists, and curators	—	—	—	—	—
Social scientists and urban planners	—	—	—	—	—
Social, religious, and recreation workers	—	11.83	—	—	—
Lawyers and judges	—	—	—	—	—
Writers, authors, entertainers, athletes, and professionals, N.E.C.	17.20	17.18	—	18.39	—
Technical occupations	15.15	15.20	—	15.35	11.97
Level 6	13.75	13.65	—	13.86	—
Level 7	15.30	15.43	—	15.29	—
Level 8	17.00	17.14	—	17.01	—
Executive, administrative, and managerial occupations ...	25.16	25.59	23.63	25.42	—
Level 8	17.58	17.38	—	17.96	—
Level 9	22.23	19.97	—	22.23	—
Level 11	26.04	26.66	—	26.04	—
Level 12	31.86	31.55	—	31.86	—
Executives, administrators, and managers	28.12	28.64	—	28.15	—
Level 9	23.19	20.36	—	23.19	—

See footnotes at end of table.

Table B-1. Mean hourly earnings¹ by occupational group and level², Dayton-Springfield, OH, April, 1997 — Continued

Occupational group ³ and level	All workers ⁴			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
White-collar occupations (-Continued)					
Executives, administrators, and managers (-Continued)					
Level 11	\$27.05	\$27.90	—	\$27.05	—
Level 12	32.12	31.58	—	32.12	—
Management related occupations	19.58	20.01	—	19.85	—
Sales occupations	—	—	—	—	\$6.12
Level 3	7.38	7.42	—	—	—
Administrative support occupations, including clerical	10.69	10.37	\$12.12	11.25	8.28
Level 1	6.63	—	—	—	—
Level 2	7.05	7.00	—	—	—
Level 3	8.39	8.28	9.14	8.46	8.18
Level 4	10.25	9.98	11.78	10.46	9.10
Level 5	12.60	12.54	12.79	12.67	—
Level 6	13.60	13.45	—	13.60	—
Level 7	14.15	—	—	16.01	—
Blue-collar occupations	14.30	14.33	13.86	14.68	7.82
Level 1	6.63	6.66	—	—	5.90
Level 2	9.54	9.49	—	9.53	—
Level 3	13.63	13.66	—	13.71	—
Level 4	15.12	15.20	—	15.37	—
Level 5	13.29	13.32	13.04	13.30	—
Level 6	14.55	14.59	—	14.55	—
Level 7	18.44	18.61	—	18.44	—
Level 8	19.25	19.22	—	19.25	—
Precision production, craft, and repair occupations	17.03	17.18	15.08	17.05	—
Level 5	13.55	13.62	—	13.55	—
Level 6	14.28	14.45	—	14.28	—
Level 7	18.82	19.01	—	18.82	—
Level 8	19.52	19.50	—	19.52	—
Machine operators, assemblers, and inspectors	14.29	14.29	—	14.29	—
Level 2	9.00	9.00	—	9.00	—
Level 4	16.66	16.66	—	16.66	—
Level 5	12.64	12.64	—	12.64	—
Level 6	14.74	14.74	—	14.74	—
Level 7	16.16	16.16	—	16.16	—
Transportation and material moving occupations	13.26	—	14.10	14.46	—
Level 3	12.48	—	—	—	—
Handlers, equipment cleaners, helpers, and laborers	10.04	9.83	12.01	10.85	7.27
Level 1	6.53	6.56	—	—	6.05
Level 4	11.52	—	—	11.87	—
Level 5	12.66	—	—	12.66	—

See footnotes at end of table.

Table B-1. Mean hourly earnings¹ by occupational group and level², Dayton-Springfield, OH, April, 1997 — Continued

Occupational group ³ and level	All workers ⁴			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
Service occupations	\$8.62	\$6.97	\$13.79	\$9.73	\$5.73
Level 1	6.08	5.98	—	6.77	5.29
Level 2	—	—	—	—	5.99
Level 3	6.88	6.36	—	7.44	—
Level 4	10.14	9.21	—	10.31	—
Level 5	10.49	—	—	10.53	—
Level 7	17.10	—	17.26	17.13	—
Protective service occupations	15.38	—	16.62	16.25	—
Food service occupations	6.27	6.08	9.25	7.19	5.35
Level 1	5.67	5.64	—	—	5.24
Level 2	5.94	5.80	—	—	—
Level 3	—	—	—	—	4.79
Health service occupations	8.17	7.90	—	8.20	7.99
Level 3	7.81	7.78	—	—	—
Cleaning and building service occupations	—	—	12.21	—	—
Level 1	6.45	6.20	—	6.66	—
Personal service occupations	8.73	—	9.60	9.26	—

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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.

⁴ 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 earnings¹ for selected occupations and levels², Dayton-Springfield, OH, April, 1997

Occupation ³ and level	All workers ⁴			All industries	
	All industries	Private industry	State and local government	Full-time workers	Part-time workers
White-collar occupations:					
Professional specialty and technical occupations:					
Professional specialty occupations:					
Computer systems analysts and scientists	\$24.72	—	—	—	—
Registered nurses	17.76	\$17.66	—	\$17.72	\$17.90
Level 9	18.80	18.55	—	18.75	—
Elementary school teachers	26.55	—	\$27.05	26.56	—
Level 9	25.09	—	—	25.09	—
Secondary school teachers	26.11	—	26.46	26.21	—
Social workers	13.47	—	—	13.64	—
Technical occupations:					
Technical and related occupations, N.E.C.	15.59	15.72	—	15.72	—
Executive, administrative, and managerial occupations:					
Managers and administrators, N.E.C.	29.53	30.32	—	29.53	—
Sales occupations:					
Sales workers, other commodities	7.69	7.69	—	—	—
Cashiers	7.20	7.21	—	8.11	5.85
Administrative support occupations, including clerical:					
Secretaries	12.12	11.84	—	13.41	—
Receptionists	7.27	7.27	—	—	—
Bookkeepers, accounting and auditing clerks	11.34	10.78	—	11.37	—
General office clerks	9.63	9.46	10.25	9.82	—
Level 3	8.24	—	—	—	—
Level 4	10.01	9.73	—	10.21	—
Bank tellers	8.30	8.30	—	—	—
Administrative support occupations, N.E.C.	10.89	10.37	—	11.01	—
Blue-collar occupations:					
Precision production, craft, and repair occupations:					
Industrial machinery repairers	17.49	17.49	—	17.49	—
Supervisors, production occupations	20.19	20.19	—	20.19	—
Machine operators, assemblers, and inspectors:					
Assemblers	14.65	14.65	—	14.65	—
Transportation and material moving occupations:					
Truck drivers	14.75	—	—	14.75	—
Service occupations:					
Food service occupations:					
Cooks	—	6.53	—	8.11	—
Kitchen workers, food preparation	8.11	8.02	—	—	—
Food preparation occupations, N.E.C.	6.11	5.88	—	—	5.68
Health service occupations:					
Nursing aides, orderlies and attendants	7.63	7.53	—	7.65	—
Level 3	7.69	7.69	—	—	—
Cleaning and building service occupations:					
Janitors and cleaners	—	—	11.61	—	—
Level 1	—	6.16	—	—	—

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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.

⁴ 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 earnings¹ by occupational group and selected characteristic, all industries, Dayton-Springfield, OH, April, 1997

Occupational group ²	Full-time workers ³	Part-time workers ³	Union ⁴	Nonunion ⁴	Time ⁵	Incentive ⁵
All occupations	\$15.52	\$8.42	\$16.98	\$13.81	\$14.57	—
All occupations excluding sales	15.60	8.56	17.30	13.81	14.75	\$16.57
White-collar occupations	17.66	10.54	19.40	16.40	16.69	22.53
White-collar excluding sales	18.01	11.15	21.21	16.62	17.23	—
Professional specialty and technical occupations	19.80	15.66	24.54	18.21	19.44	—
Professional specialty occupations	21.00	16.26	25.34	19.17	20.56	—
Technical occupations	15.35	11.97	—	15.11	15.15	—
Executive, administrative, and managerial occupations ...	25.42	—	—	25.32	25.19	—
Sales occupations	—	6.12	—	—	9.34	23.17
Administrative support including clerical occupations	11.25	8.28	13.86	10.32	10.69	—
Blue-collar occupations	14.68	7.82	16.36	12.34	14.18	17.25
Precision production, craft, and repair occupations	17.05	—	18.71	15.88	16.88	—
Machine operators, assemblers, and inspectors	14.29	—	—	11.31	14.30	—
Transportation and material moving occupations	14.46	—	16.22	—	13.26	—
Handlers, equipment cleaners, helpers, and laborers	10.85	7.27	11.86	9.05	10.04	—
Service occupations	9.73	5.73	15.18	7.21	8.60	—

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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.

⁴ Union workers are those whose wages are determined through collective bargaining.

⁵ 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 earnings¹ by occupational group, private industry, all workers², Dayton-Springfield, OH, April, 1997

Occupational group ³	All private industries	Goods-producing industries ⁴				Service-producing industries ⁵				
		Total	Mining	Construction	Manufacturing	Total	Transportation and public utilities	Wholesale and retail trade	Finance, insurance, and real estate	Services
All occupations	\$14.11	\$16.51	–	\$17.30	\$16.47	–	\$15.88	–	\$11.55	–
All occupations excluding sales	14.19	16.37	–	17.30	16.33	–	15.82	–	11.50	–
White-collar occupations	15.99	20.17	–	–	20.28	–	17.24	–	11.71	–
White-collar excluding sales	16.42	19.81	–	–	19.92	–	17.24	–	11.68	–
Professional specialty and technical occupations	18.08	21.51	–	–	21.74	–	16.61	–	–	–
Professional specialty occupations	19.15	24.74	–	–	24.81	–	–	–	–	–
Technical occupations	15.20	16.07	–	–	16.38	–	–	–	–	–
Executive, administrative, and managerial occupations	25.59	28.59	–	–	28.91	–	–	–	–	–
Sales occupations	–	–	–	–	–	–	–	–	–	–
Administrative support, including clerical occupations	10.37	12.99	–	–	12.99	–	–	–	8.95	–
Blue-collar occupations	14.33	15.23	–	17.71	15.11	–	14.47	–	–	–
Precision production, craft, and repair occupations	17.18	17.69	–	19.46	17.51	–	–	–	–	–
Machine operators, assemblers, and inspectors	14.29	14.65	–	–	14.67	–	–	–	–	–
Transportation and material moving occupations	–	14.28	–	–	–	–	–	–	–	–
Handlers, equipment cleaners, helpers, and laborers	9.83	–	–	–	–	–	–	–	–	–
Service occupations	6.97	–	–	–	–	–	–	–	–	–

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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.

⁴ Goods-producing industries include mining, construction, and manufacturing.

⁵ 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 earnings¹ by occupational group, private industry, by establishment employment size, all workers², Dayton-Springfield, OH, April, 1997

Occupational group ³	All workers	50 - 99 workers	100 workers or more		
			Total	100 - 499 workers	500 workers or more
All occupations	\$14.11	—	\$14.68	\$13.71	\$15.56
All occupations excluding sales	14.19	—	14.81	13.77	15.71
White-collar occupations	15.99	\$16.52	15.89	16.02	15.74
White-collar excluding sales	16.42	—	16.30	16.51	16.09
Professional specialty and technical occupations	18.08	18.67	17.97	—	18.64
Professional specialty occupations	19.15	—	19.02	—	20.12
Technical occupations	15.20	—	15.00	15.49	14.46
Executive, administrative, and managerial occupations ...	25.59	—	26.04	25.02	27.53
Sales occupations	—	—	—	—	10.04
Administrative support, including clerical occupations	10.37	10.29	10.38	10.31	10.42
Blue-collar occupations	14.33	11.04	15.26	13.67	16.21
Precision production, craft, and repair occupations	17.18	14.97	18.03	16.24	20.14
Machine operators, assemblers, and inspectors	14.29	9.31	15.27	12.96	16.14
Transportation and material moving occupations	—	—	14.57	—	—
Handlers, equipment cleaners, helpers, and laborers	9.83	—	10.46	9.47	11.10
Service occupations	6.97	6.22	7.34	6.45	9.40

¹ Earnings are the straight-time hourly wages or salaries paid to employees. They include incentive pay, cost-of-living adjustments, hazard pay, and on-call 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.

² 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.

³ 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 workers¹ studied by occupational group, Dayton-Springfield, OH, April, 1997

Occupational group ²	All workers	
	All industries	Private industry
All occupations	270,557	221,874
All occupations excluding sales	259,112	210,490
White-collar occupations	129,557	97,703
White-collar excluding sales	118,112	86,320
Professional specialty and technical occupations	56,925	38,190
Professional specialty occupations	46,540	28,347
Technical occupations	10,385	9,843
Executive, administrative, and managerial occupations ...	18,782	14,665
Sales occupations	—	—
Administrative support including clerical occupations	42,405	33,465
Blue-collar occupations	92,129	85,348
Precision production, craft, and repair occupations	25,515	23,784
Machine operators, assemblers, and inspectors	40,741	40,741
Transportation and material moving occupations	8,937	—
Handlers, equipment cleaners, helpers, and laborers	16,936	15,418
Service occupations	48,871	38,823

¹ 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.

² 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 was based on the type of data to be produced, had to be developed before data collection could begin.

Survey scope

This survey of the Dayton-Springfield, OH 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 are 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 Dayton-Springfield, OH Metropolitan Statistical Area includes Clark, Greene, Miami and Montgomery Counties.

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 Dayton-Springfield, OH 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 March 1995. 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. Collection was the responsibility of the field economists, working out of the Regional Office, who visited each establishment surveyed.

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

(Early in survey collection, a different schedule may have been used for some establishments.)

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, first 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 workers, 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, is an attempt to account for the effect of supervisory duties. It is considered experimental. The 10 factors were:

- Knowledge
- Supervisions 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. 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. The results of this research will be published by BLS in the future.

Collection period

The survey was collected from February 1997 through June 1997. The average payroll reference month was April 1997. 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, and
- On-call pay.

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, and

- Payments made by third parties (e.g., tips, bonuses given by manufacturers to department store salespeople, referral incentives in real estate).

In order to calculate earnings for various time periods (hourly, daily, 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, 23.0 percent 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 (2.6 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.

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.

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 95-percent level, the confidence interval for this estimate is \$13.71 to \$11.87 (\$12.79 plus and minus 2 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 95 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 group and employment size, and number represented by industry group, Dayton-Springfield, OH, April, 1997

Industry	Within scope of survey	Number of establishments studied				
		Total studied	50 - 99 workers	100 workers or more		
				Total	100 - 499 workers	500 workers or more
All industries	1,413	218	62	156	95	61
Private industry	1,320	182	60	122	80	42
Goods-producing industries	401	79	22	57	36	21
Construction	38	8	3	5	5	-
Manufacturing	363	71	19	52	31	21
Service-producing industries	919	103	38	65	44	21
Transportation and public utilities	40	8	1	7	3	4
Wholesale and retail trade	404	32	18	14	11	3
Finance, insurance and real estate	39	7	1	6	3	3
Services	435	56	18	38	27	11
State and local government	93	36	2	34	15	19

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 earnings¹ for selected occupations, all workers², Dayton-Springfield, OH, April, 1997

(in percent)

Occupation ³	All industries	Private industry	State and local government
All occupations	1.7	2.1	2.0
All occupations excluding sales	1.8	2.1	2.0
White-collar occupations	2.4	3.0	2.5
White-collar occupations excluding sales	2.5	3.2	2.5
Professional specialty and technical occupations	2.5	3.4	2.6
Professional specialty occupations	3.1	4.5	2.6
Engineers, architects, and surveyors	3.0	3.0	—
Mathematical and computer scientists	—	—	—
Natural scientists	—	—	—
Health related occupations	2.5	2.7	—
Registered nurses	1.8	1.8	—
Teachers, college and university	—	—	—
Teachers, except college and university	3.7	—	2.5
Elementary school teachers	2.2	—	2.2
Secondary school teachers	2.4	—	2.6
Librarians, archivists, and curators	—	—	—
Social scientists and urban planners	—	—	—
Social, recreation, and religious workers	—	—	—
Lawyers and judges	—	—	—
Writers, authors, entertainers, athletes, and professionals, N.E.C.	—	—	—
Technical occupations	3.0	3.1	—
Technical and related occupations, N.E.C.	4.9	5.0	—
Executive, administrative, and managerial occupations ...	3.1	3.5	5.7
Executives, administrators, and managers	3.4	3.9	—
Managers and administrators, N.E.C.	5.0	5.1	—
Management related occupations	4.1	4.7	—
Sales occupations	—	—	—
Cashiers	4.3	4.3	—
Administrative support occupations, including clerical	2.4	2.7	3.5
Secretaries	4.9	5.7	—
Receptionists	4.2	4.2	—
Bookkeepers, accounting and auditing clerks	4.3	4.8	—
General office clerks	3.0	3.4	—
Administrative support occupations, N.E.C.	3.6	3.8	—
Blue-collar occupations	2.2	2.4	2.9
Precision production, craft, and repair occupations	2.7	2.9	—
Supervisors, production occupations	5.4	5.4	—
Machine operators, assemblers, and inspectors	2.9	2.9	—
Assemblers	3.6	3.6	—
Transportation and material moving occupations	6.5	—	—
Handlers, equipment cleaners, helpers, and laborers	4.6	5.0	—
Service occupations	3.4	3.1	3.4
Protective service occupations	5.9	—	—
Food service occupations	3.0	2.8	—
Cooks	—	6.0	—
Kitchen workers, food preparation	6.9	7.5	—
Food preparation occupations, N.E.C.	5.7	5.9	—
Health service occupations	2.8	2.6	—
Nursing aides, orderlies and attendants	2.3	2.1	—
Cleaning and building service occupations	—	—	—
Personal service occupations	6.0	—	—

¹ 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.

² 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.

³ 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 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.¹
- 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

¹ 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 Admini-
stration
- 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 Estab-
lishments
- 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 Occu-
pations
- C256 Advertising and Related Sales Occupations
- C257 Sales Occupations, Other Business Services

SALES REPRESENTATIVES, COMMODITIES EXCEPT RETAIL

- C258 Sales Engineers
- C259 Sales Representatives; Mining, Manufactur-
ing, 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 Furnish-
ings
- C267 Sales Workers, Radio, TV, Hi-Fi, and Appli-
ances
- C268 Sales Workers, Hardware and Building Sup-
plies
- 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
Operators

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

- D354 Postal Clerks, Except Mail Carriers
- D355 Mail Carriers, Postal Service
- 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 knowl-

edge 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 transactions 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 Contact 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 involv-

ing 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, li

braries, 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
Total	5	1020

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.