

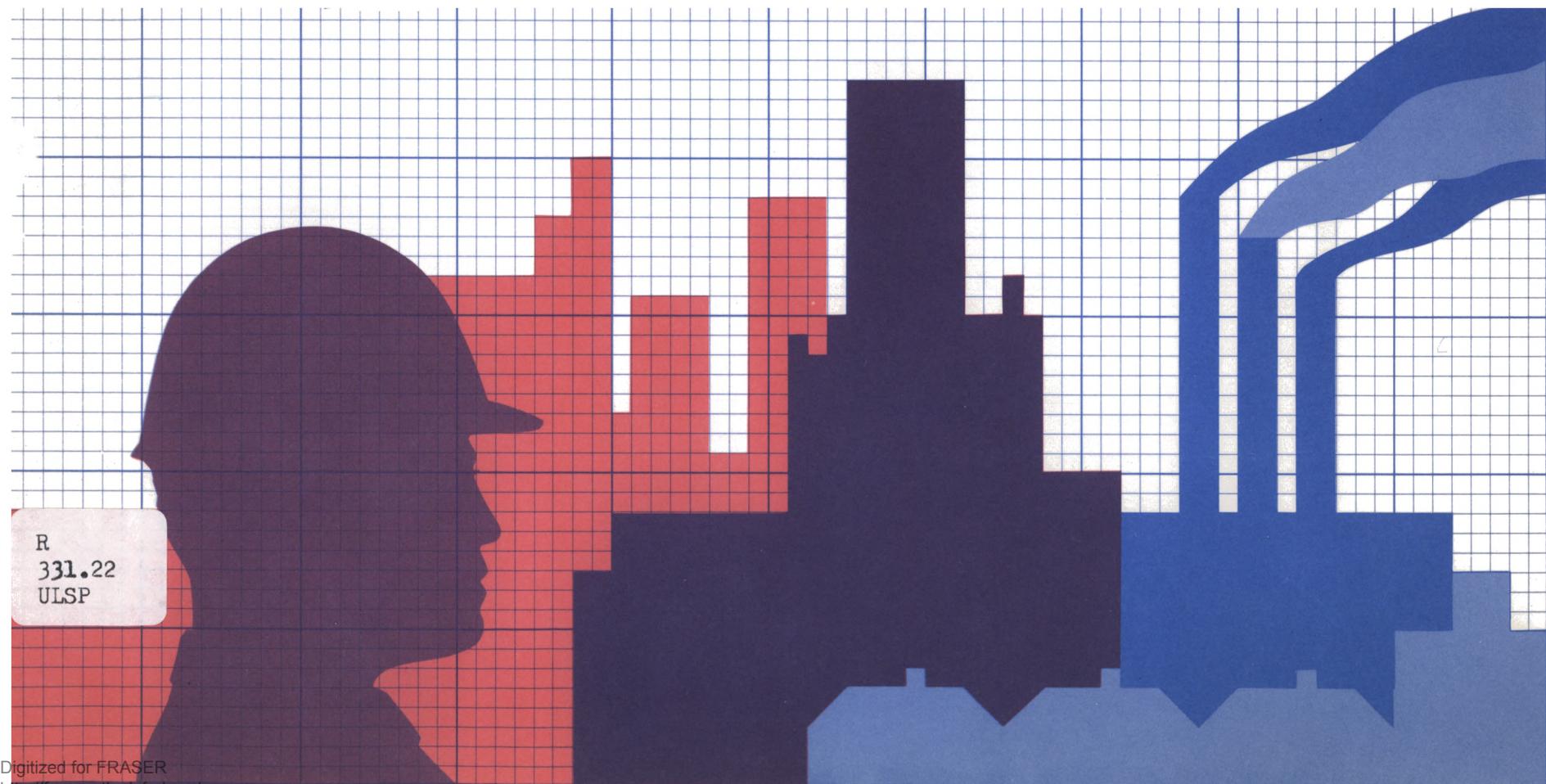
Profiles of Occupational Pay: A Chartbook



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U. S. Department of Labor
Bureau of Labor Statistics
1979

Bulletin 2037



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Profiles of Occupational Pay: A Chartbook



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Bureau of Labor Statistics
Vincent L. Norwood, Commissioner
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Preface

The Bureau of Labor Statistics has systematically collected wage data by occupation since the turn of the century— first by industry, then across industry lines by metropolitan area, and most recently across industry lines on a nationwide basis. As the most comprehensive source of current information on earnings in particular occupations, this body of data has played an important role in clarifying public policy issues concerned with wages and in expediting labor-management negotiations.

This chartbook draws upon the wage survey programs of the Bureau and other data to illuminate some of the factors that affect workers' earnings. Part I looks at pay relationships within major occupational groups. Part II profiles some characteristics of high- and low-paying metropolitan areas covered by the Area Wage Survey program. Part III portrays some characteristics of high- and low-paying manufacturing industries that are part of the Industry Wage Survey program.

This chartbook was developed by Martin E. Personick of the Office of Wages and Industrial Relations, Division of Occupational Wage Structures, under the direction of George L. Stelluto, Assistant Commissioner, and Charles M. O'Connor, Division Chief. John H. Cox and Sandra L. King of the Division provided valuable assistance.

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Part I. An Overview of Occupational Pay

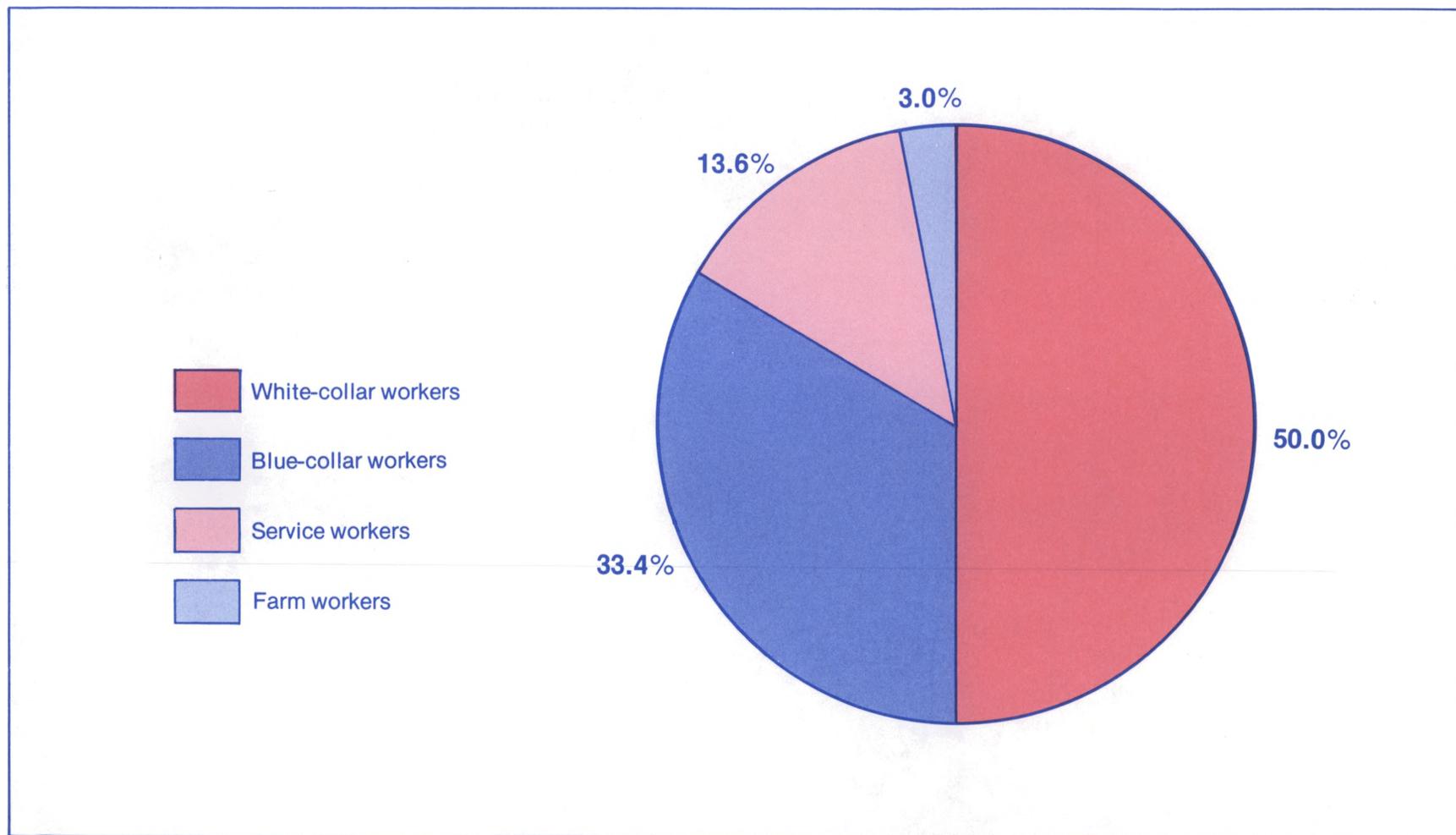
Change is characteristic of American workers, who may change jobs, skills, locations, and even occupations several times over the course of their work lives. Yet some patterns are discernible within this ever-changing labor force that are highlighted in the following charts. Based on data gathered by BLS on the earnings of different groups of workers, the charts provide a panoramic view of the Nation's work force. They illustrate wage variation among and within occupations and suggest some of the factors that directly influence pay levels and pay structure.

Workers are customarily grouped into four broad occupational categories — white-collar, blue-collar, service, and farm

White-collar workers make up half of all employed persons ; blue-collar workers, one-third ; and service workers, most of the remainder. Within these broad categories are workers with a diversity of occupations and skills.

| | <i>Employed persons, 1978 [in thousands]</i> |
|---|--|
| Total | 94,373 |
| White-collar workers | 47,205 |
| Professional and technical workers | 14,245 |
| Managers and administrators | 10,105 |
| Sales workers | 5,951 |
| Clerical workers | 16,904 |
| Blue-collar workers | 31,531 |
| Craft and kindred workers | 12,386 |
| Operatives, except transport | 10,875 |
| Transport equipment operatives | 3,541 |
| Nonfarm laborers | 4,729 |
| Service workers | 12,839 |
| Private household workers | 1,162 |
| Service workers, except private household ... | 11,677 |
| Farm workers | 2,798 |

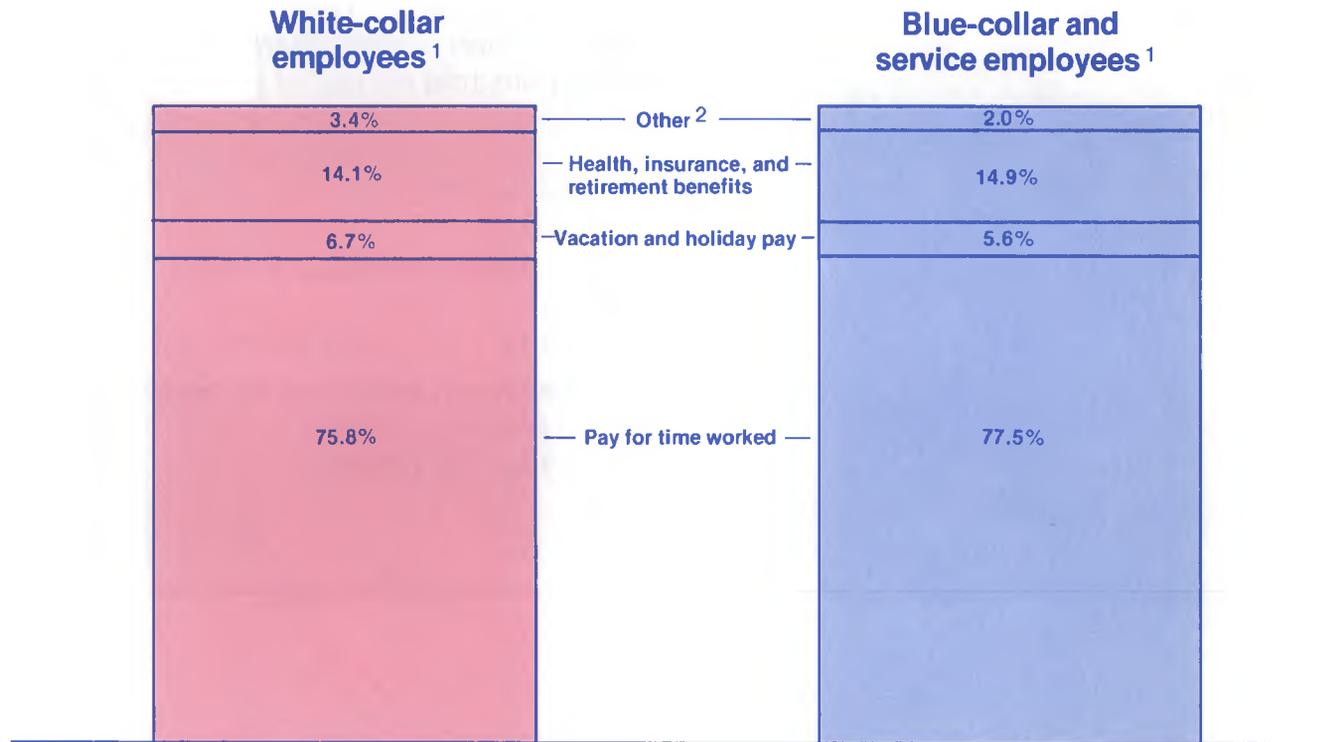
Chart 1. Occupational distribution of employed persons, 1978



Most workers receive a variety of benefits in addition to pay for time worked

Benefits such as paid vacations and holidays, health insurance, and retirement programs have become an important part of workers' compensation. But pay for time worked still accounts for 3 of every 4 payroll dollars employers spend.

Chart 2. Components of compensation of employees in private nonfarm establishments, 1977



¹ Retail sales workers are included with blue-collar and service employees in this chart.

² Includes unemployment benefits, savings and thrift plans, and nonproduction bonuses.

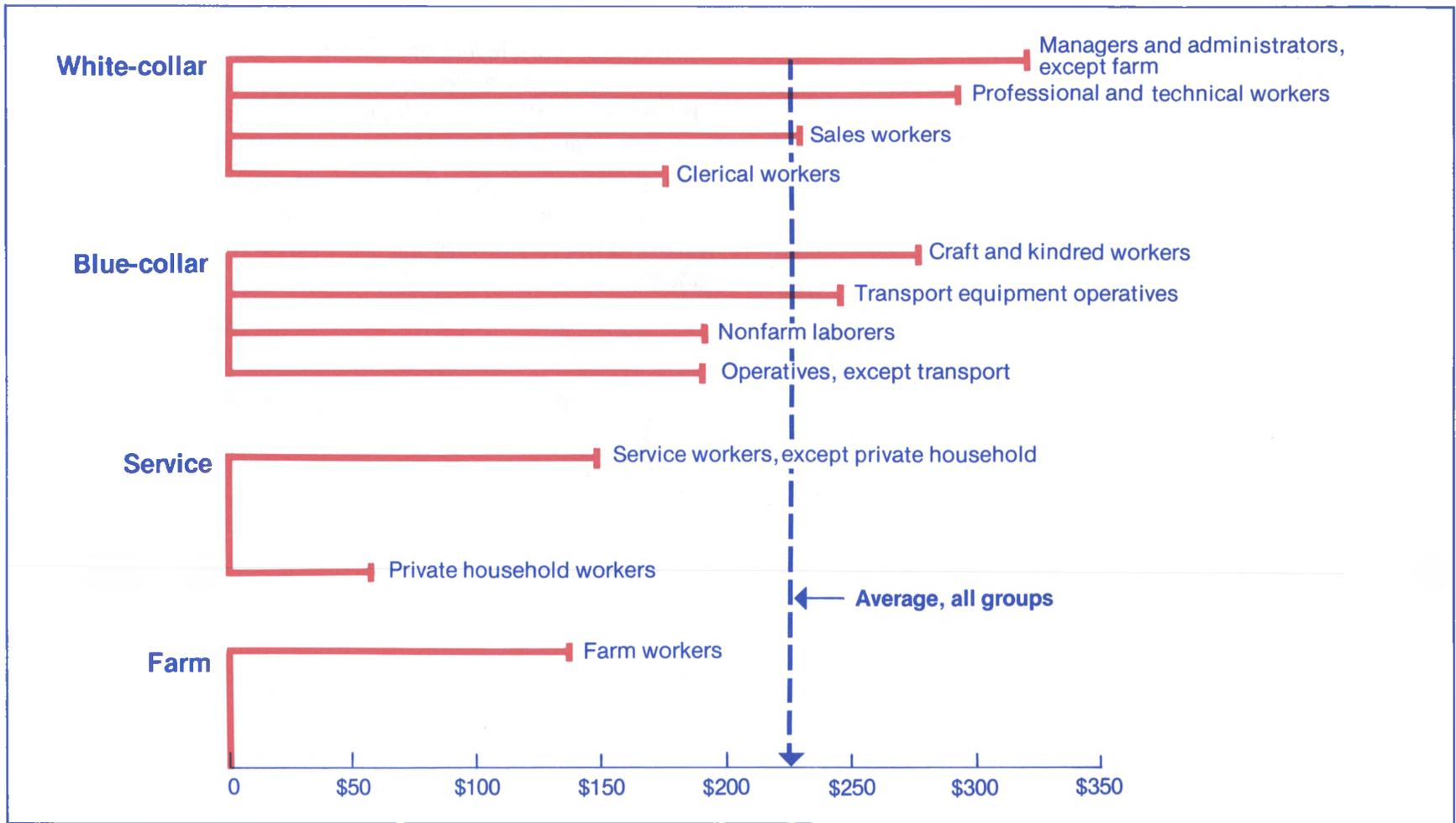
Major occupational groups exhibit wide differences in pay levels

Usual weekly earnings of professional and technical workers were about double those of service workers and two-thirds higher than clerical workers' earnings in May 1978. Moreover, large disparities in pay existed between occupations that are part of the same group :

Median usual weekly earnings, May 1978

| | |
|--|--------------|
| Professional and technical workers | \$294 |
| Engineers | 431 |
| Engineering and science technicians | 271 |
| Service workers, except private household . . | 152 |
| Protective service workers | 254 |
| Cleaning service workers | 156 |

Chart 3. Median usual weekly earnings of full-time wage and salary workers by occupational group, May 1978



Within an occupation are workers whose jobs differ in complexity and responsibility and whose pay varies accordingly

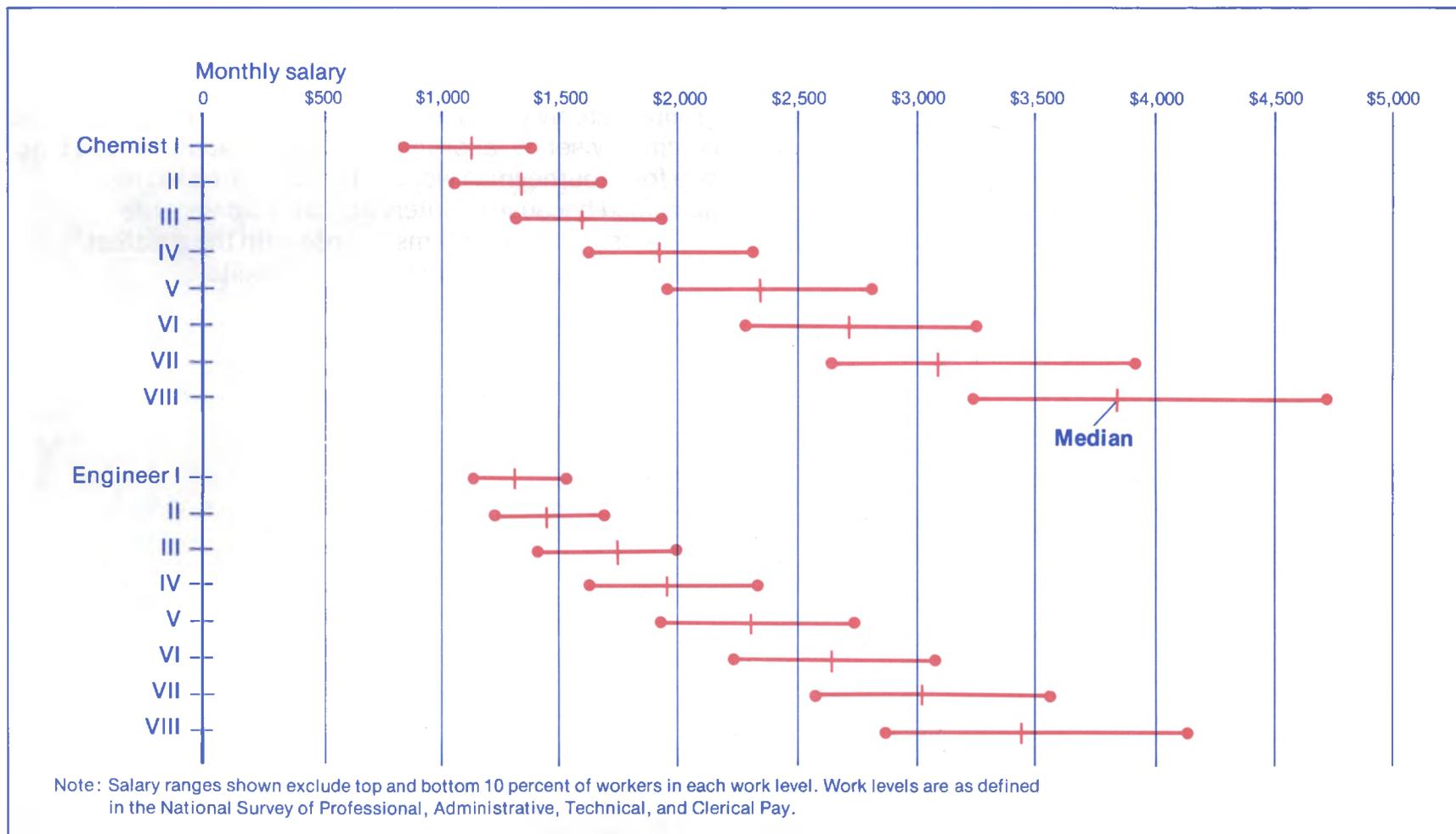
In white-collar occupations, median salaries of workers in the highest work levels are several times as high as those in entry or developmental positions of the same occupation. The latter usually require less training, embody simpler job functions, and carry little or no supervisory responsibility.

Although they may be at equivalent work levels, workers in different occupations, such as engineers and chemists, may find the pay advantage shifting as they move up the ladder:

*Median monthly salary,
March 1978*

| | |
|---------------------|---------|
| Engineer I | \$1,316 |
| Chemist I | 1,135 |
| Engineer IV | 1,983 |
| Chemist IV | 1,942 |
| Engineer VIII | 3,450 |
| Chemist VIII | 3,859 |

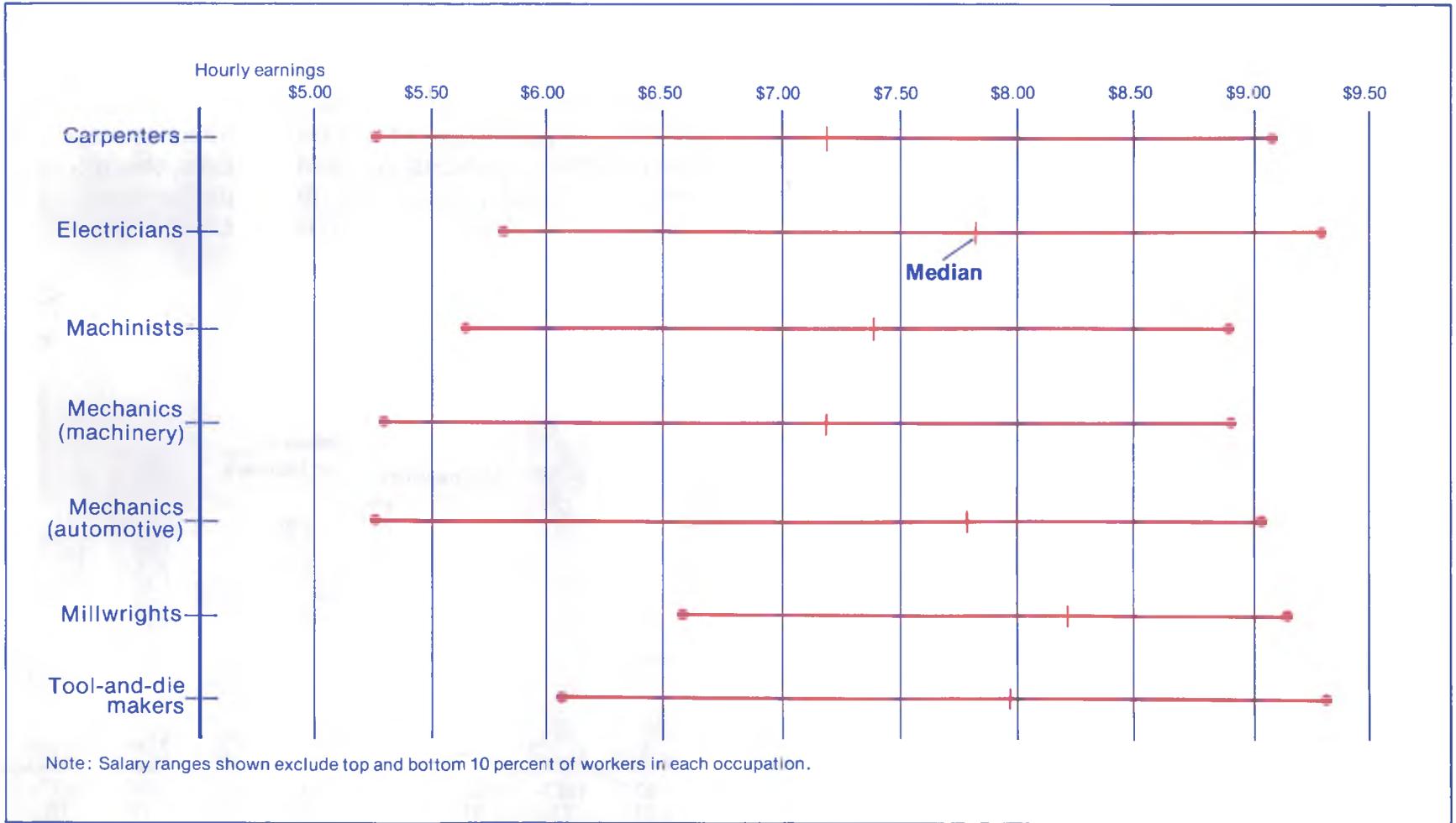
Chart 4. Salary ranges of chemists and engineers in private industry, March 1978



Maintenance craft workers have a fairly homogeneous pay structure

As is true in every occupation, there is a range of earnings within each of the highly skilled maintenance craft jobs. The range is generally narrower, however, than for other groups, largely because pay rates in these occupations are commonly set by labor-management agreements at a single rate for a journeyman worker. Earnings are also less dispersed because maintenance craft workers are concentrated in large firms—those with the greatest demand for workers with specialized skills.

Chart 5. Earnings in maintenance craft occupations, July 1977



The wage advantage of skilled over unskilled workers has narrowed substantially since the turn of the century

Skilled craft workers generally have not maintained their earlier substantial pay advantage over unskilled workers. Uniform cents-per-hour increases to unionized journeymen and helpers and laborers in construction, for example, contributed to a steady narrowing of the difference in wage rates over several decades. By the mid-1960's, this differential stabilized at about one-third. A similar trend occurred in manufacturing during the first half of the century.

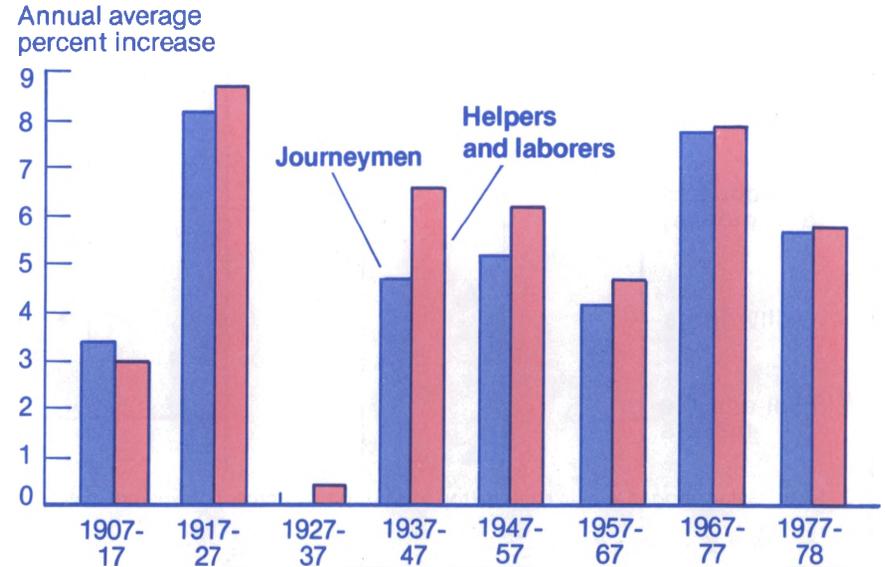
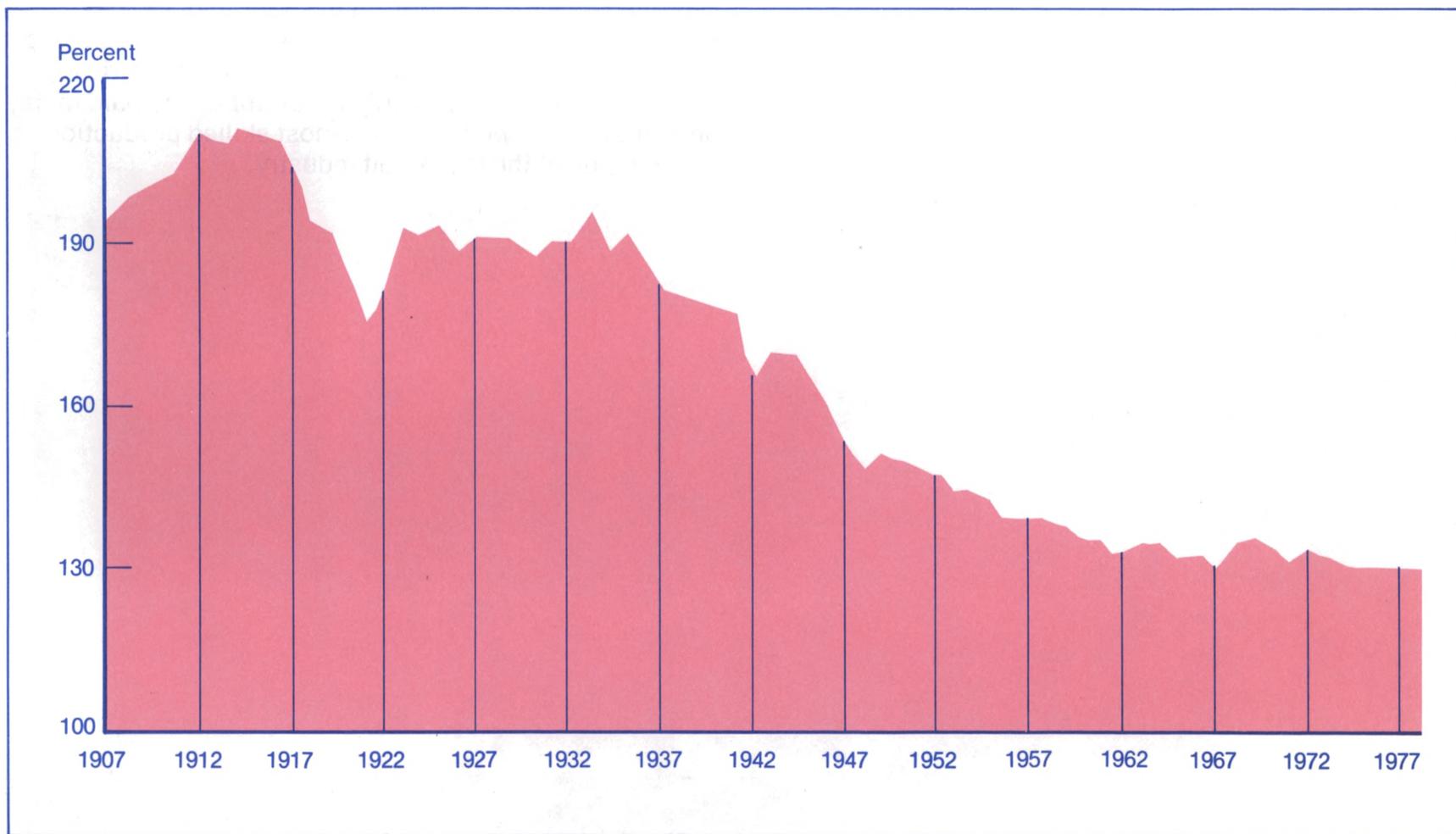


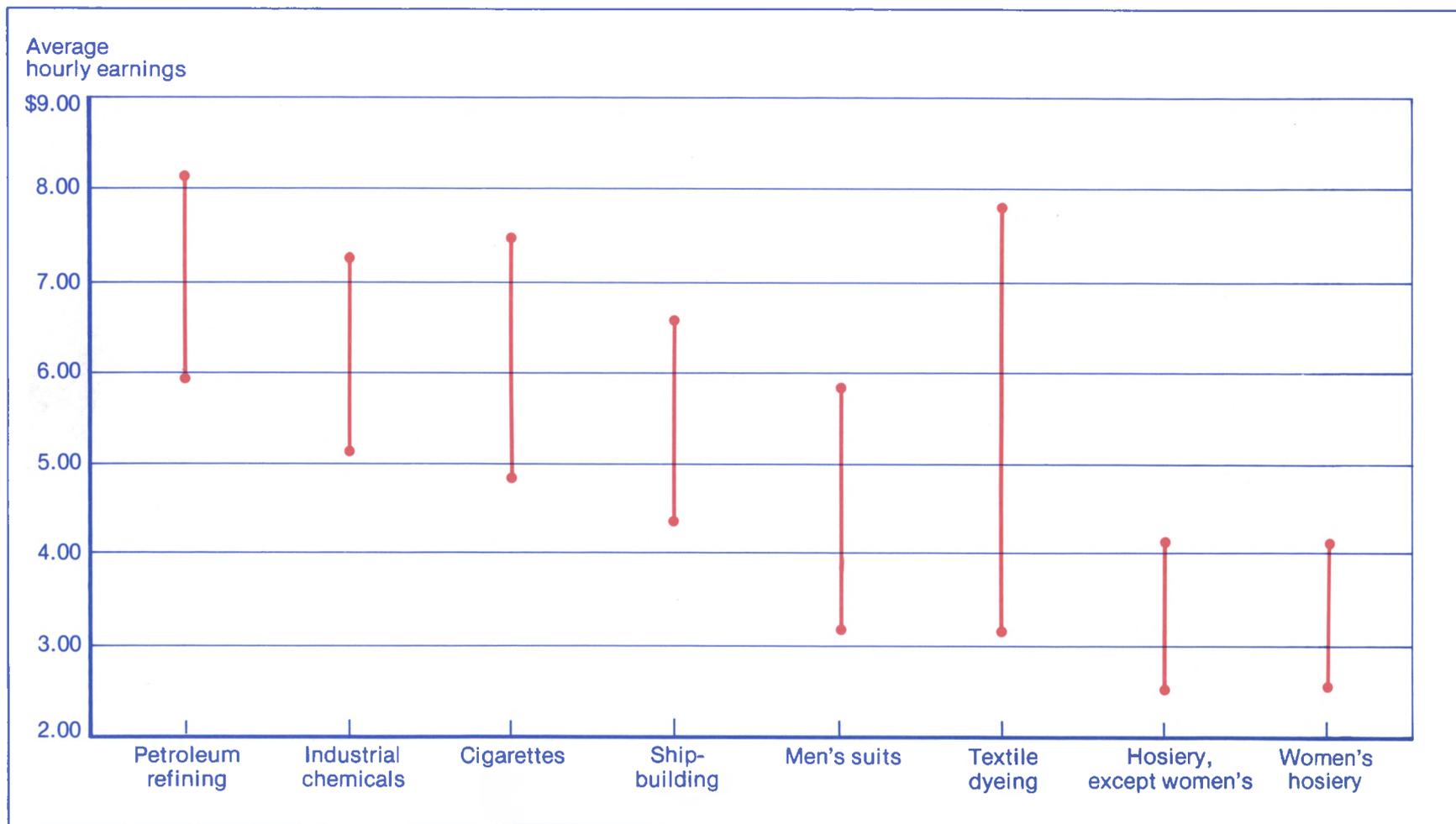
Chart 6. Average union wage rates for journeymen as a percent of rates for helpers and laborers, building construction, 1907-78



The industry in which a job is located may be a more important influence on pay than the occupation itself

Unskilled jobs invariably are at the bottom of the pay structure in an industry. Yet they may pay more than jobs that are higher in the pay structure in other industries. Janitors in petroleum refining, for example, are paid more, on average, than workers in the most skilled production occupations of the men's suit industry.

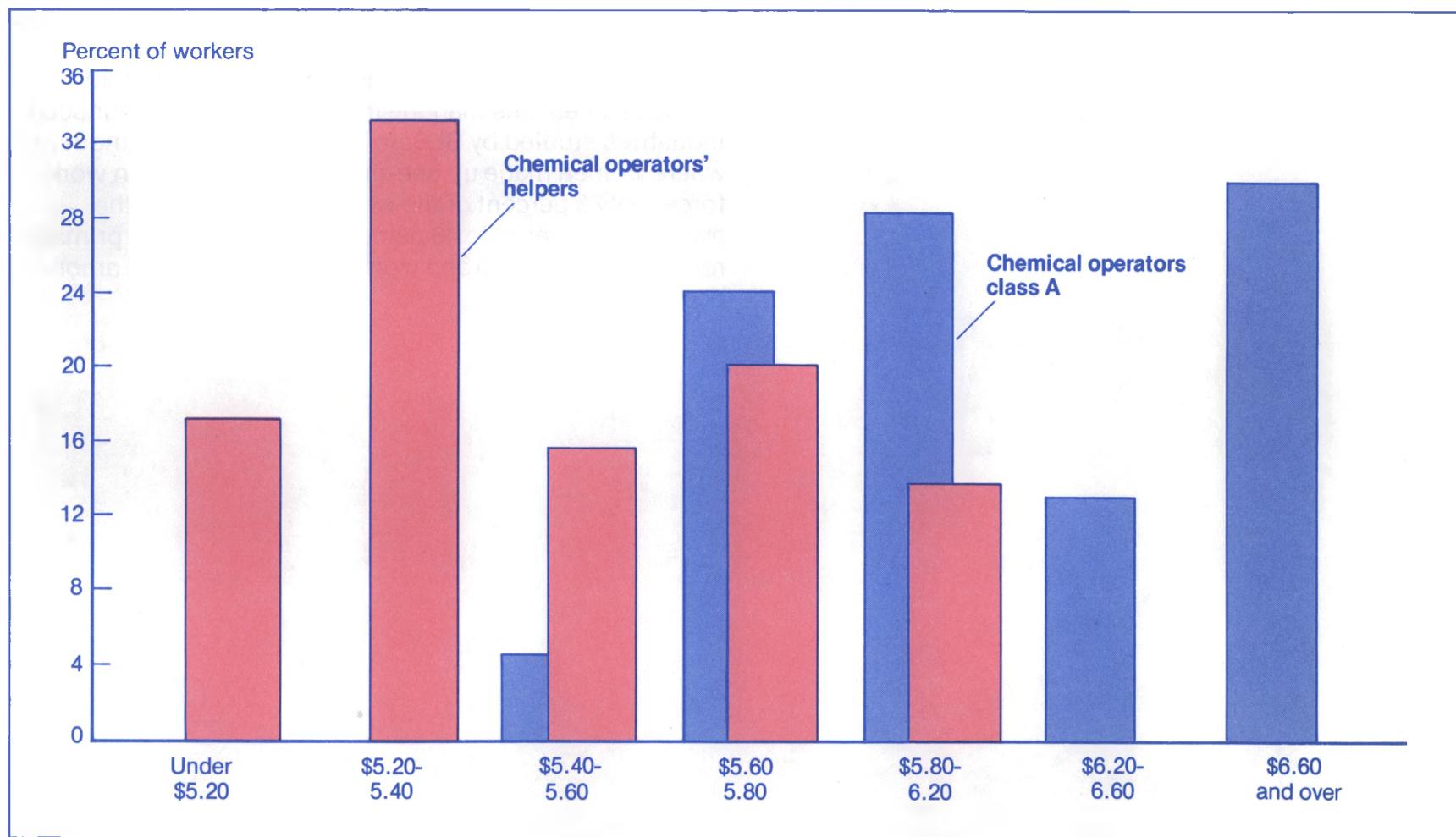
Chart 7. Industry pay ranges in production worker occupations,
April - September 1976



Earnings of individuals in the same job may vary greatly

Length of employee service and differing pay scales among establishments are two of the factors leading to differences in pay for workers doing the same job. For these same reasons, workers in different jobs, one skilled and the other unskilled—as in the example shown—may have similar earnings.

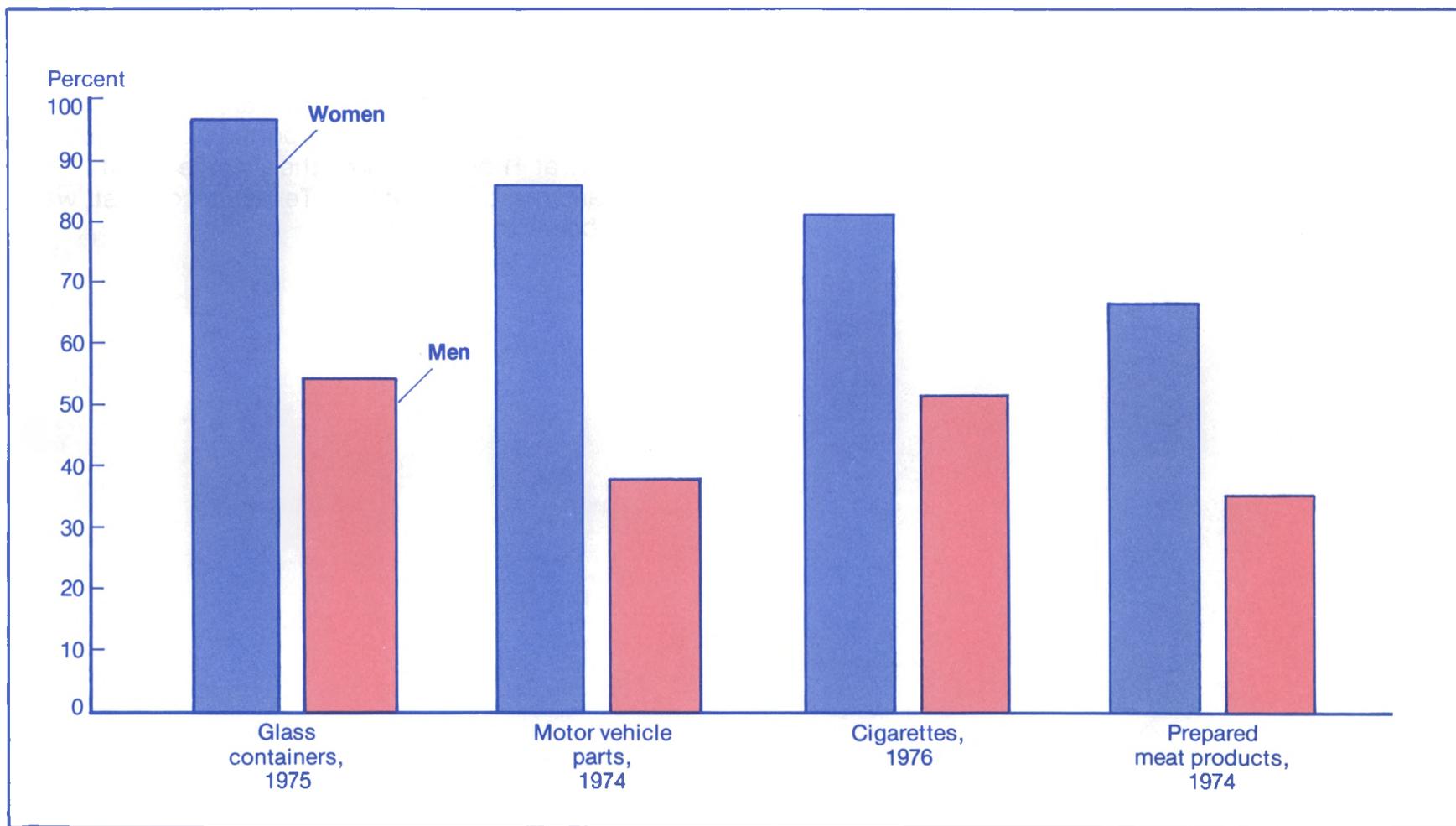
Chart 8. Earnings distributions for chemical operators and helpers in industrial chemicals establishments, Chicago metropolitan area, June 1976



Most women earn less than the average for the industry in which they work, even in high-paying manufacturing industries

As is true for some other groups of workers, women do not necessarily reap the benefits of being employed in a high-paying manufacturing industry. A large majority of women earned less than the industry average in four such industries studied by BLS. In the glass container industry, where women made up one-third of the production work force, only 3 percent of the women earned above the average, compared to 46 percent of the men. This primarily reflects the way men and women were distributed among occupations.

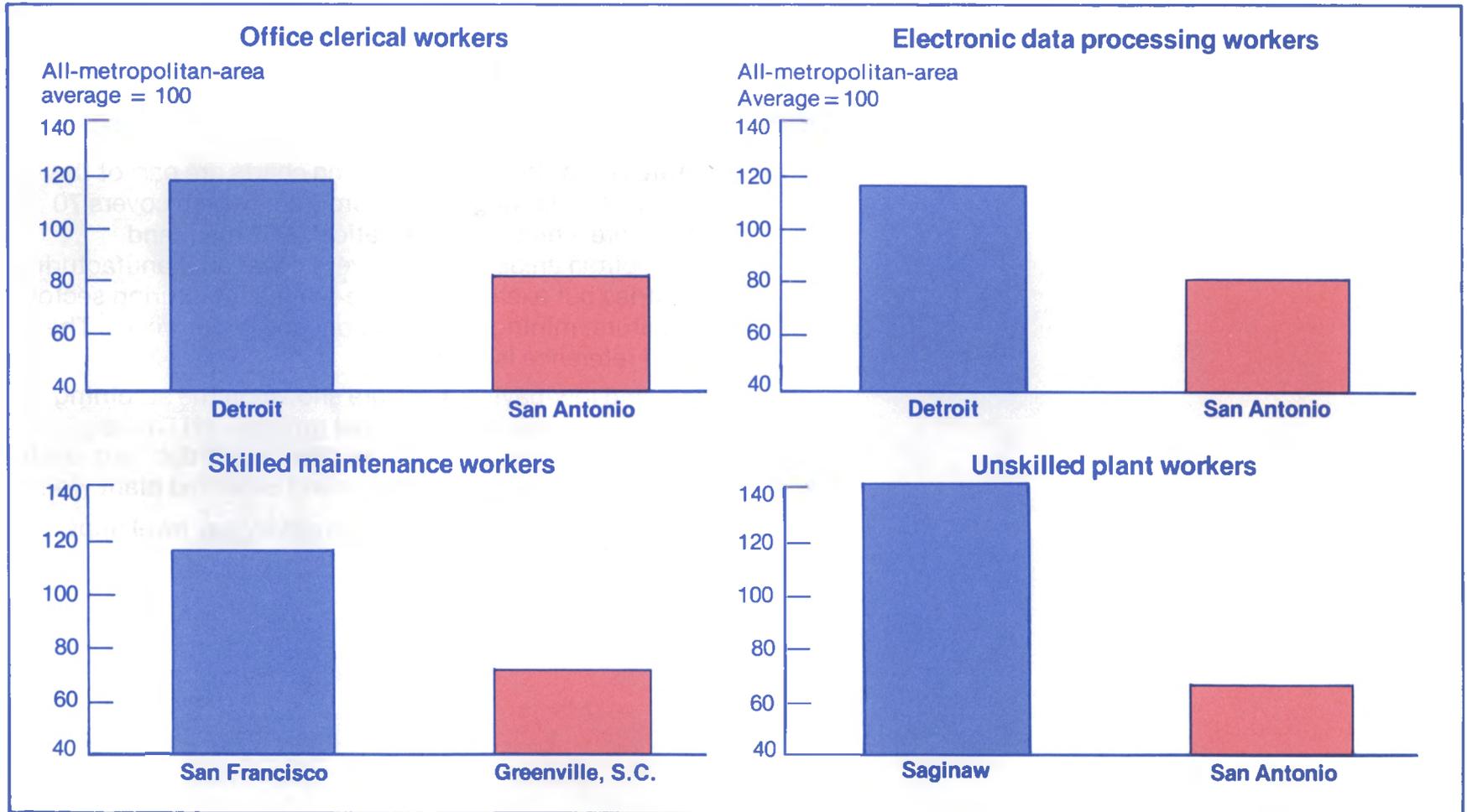
Chart 9. Percent of women and men production workers earning less than their industry average, 1974-76



Broad wage differences exist among metropolitan areas

Location is an important factor in pay levels for most groups of workers. This is especially true of unskilled workers, whose pay is strongly affected by local labor market forces. Among 70 metropolitan areas studied by BLS in 1976, Saginaw, Michigan, reported pay for unskilled plant workers at 41 percent above the average for all metropolitan areas; San Antonio, Texas, in contrast, was 33 percent below that average.

Chart 10. Areas with highest and lowest pay relatives for four occupational groups in private industry, 1976



Part II. Profiles of High- and Low-paying Metropolitan Areas

Metropolitan areas are the hub of most economic activity—labor markets within which 2 of every 3 of the Nation's workers reside. This section depicts some characteristics of high- and low-paying urban areas that help explain their relative pay levels.

The areas profiled in the following charts are part of the Bureau's annual wage survey program, which covers 70 areas representative of the Nation's 262 mainland metropolitan areas. These surveys cover all manufacturing industries but exclude from the nonmanufacturing sector agriculture, mining, construction, and government. The year of reference is 1976.

High- and low-paying areas are shown on the adjoining page for two broad occupational groups: (1) Office workers, referring to clerical and electronic data processing personnel; and (2) maintenance and unskilled plant workers.

The methodology for selecting areas by pay level appears in appendix A.

Office workers

High-paying areas

Anaheim-Santa Ana-
Garden Grove
Atlanta
Chicago
Detroit
Los Angeles-Long Beach
Newark
New York
San Francisco-Oakland
San Jose
Seattle-Everett

Low-paying areas

Chattanooga
Greenville-Spartanburg
Jackson (Miss.)
Memphis
New Orleans
Oklahoma City
Richmond
San Antonio

Maintenance and unskilled plant workers

High-paying areas

Buffalo
Chicago
Cleveland
Davenport-Rock Island-
Moline
Dayton
Detroit
Kansas City
Milwaukee
Minneapolis-St. Paul
Portland (Oreg.-Wash.)
Sacramento
San Francisco-Oakland
San Jose
Seattle-Everett
Toledo

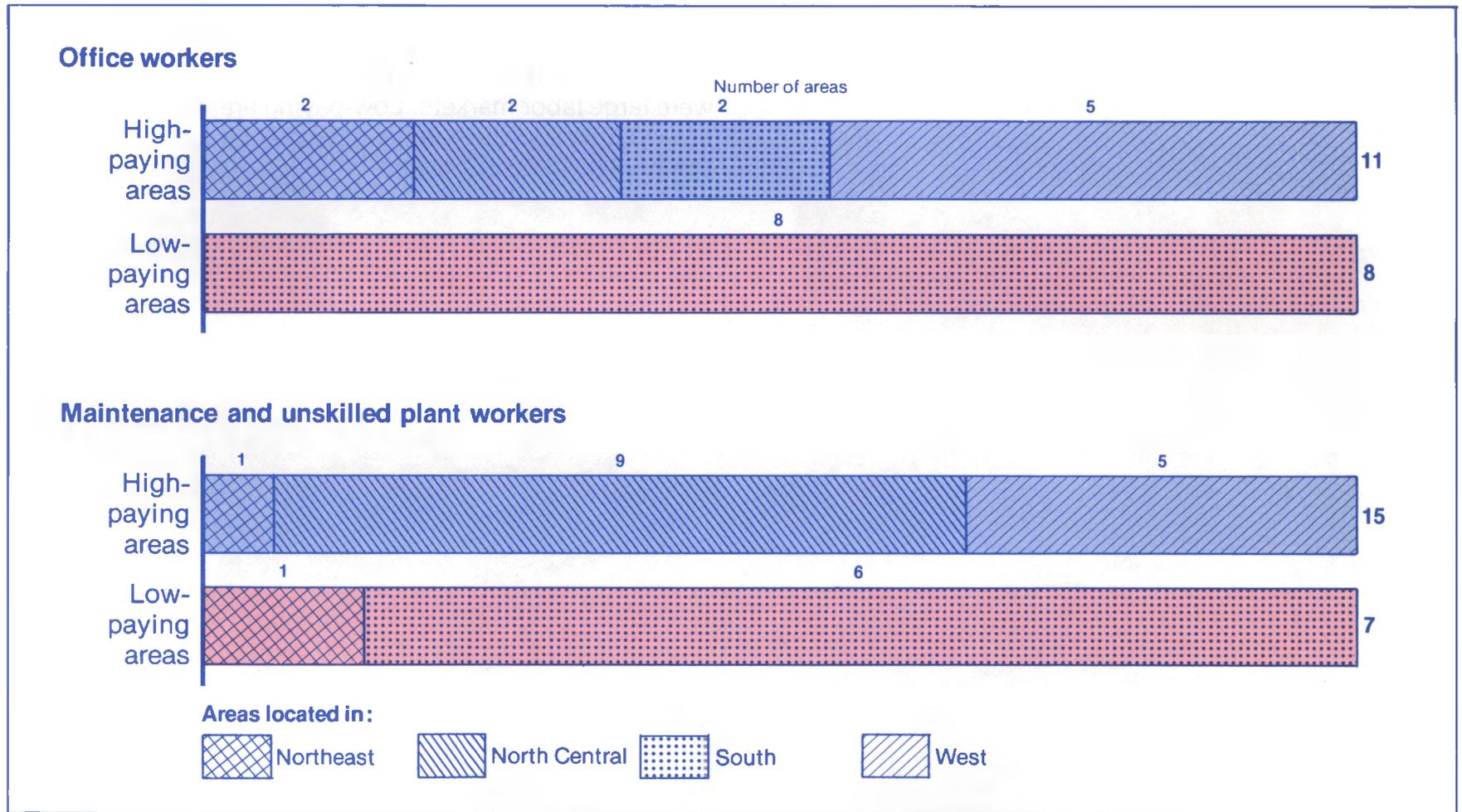
Low-paying areas

Greenville-Spartanburg
Huntsville
Jackson (Miss.)
Miami
Norfolk-Virginia Beach-
Portsmouth
Oklahoma City
Providence-Warwick-
Pawtucket

Regional location is a factor in pay differences among labor markets

High-paying metropolitan areas are predominantly in the North Central region and the West; low-paying areas are typically in the South. However, two large Southern areas—Atlanta and Washington—are among the high-paying areas for office workers.

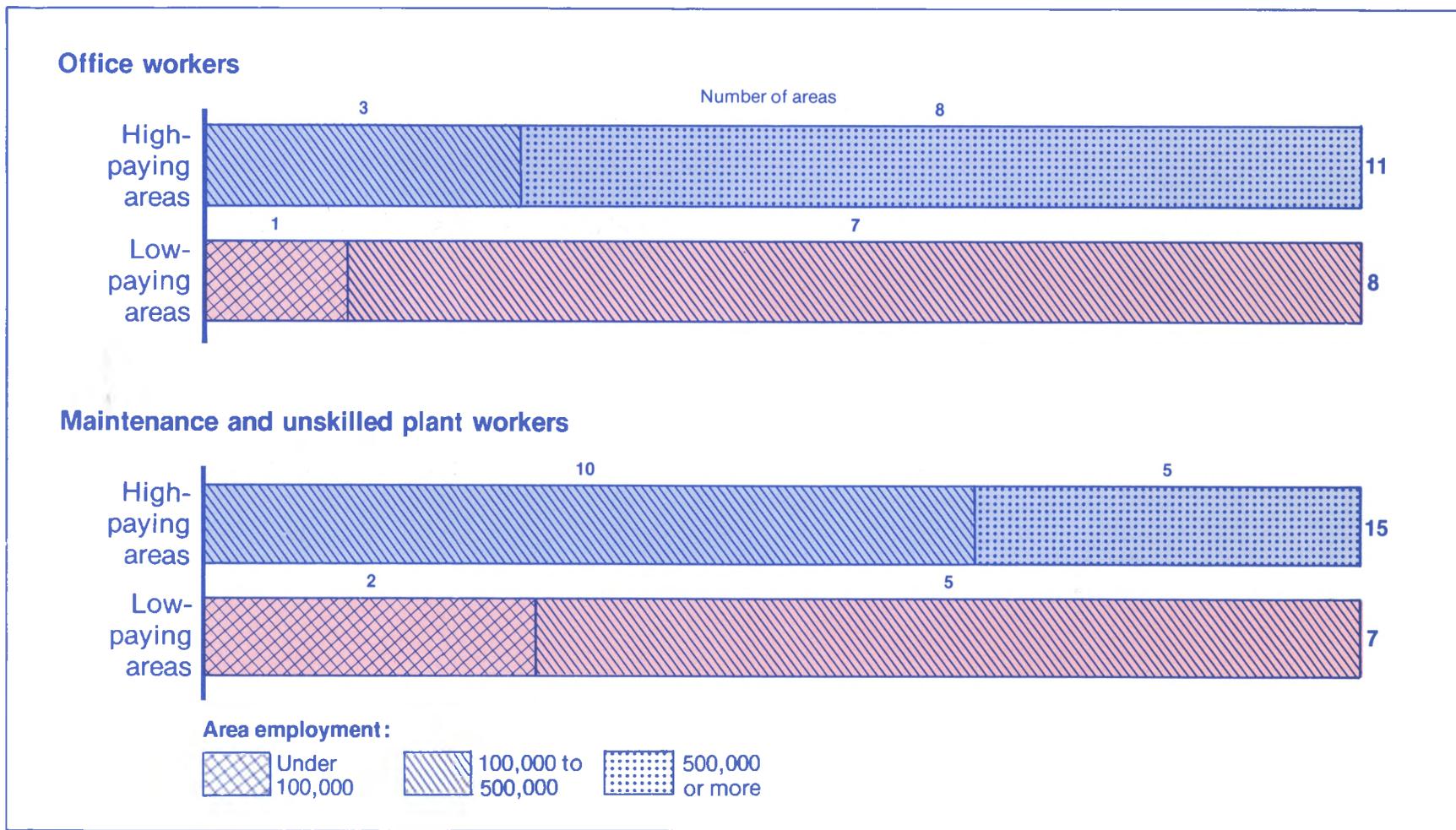
Chart 11. Distribution of areas by Census region



High-paying areas commonly are larger labor markets

Large areas are often associated with high pay levels that may compensate in part for higher living and commuting costs. Half of the high-paying areas studied, for example, were large labor markets. Low-paying areas, however, were of medium size; the number of workers usually fell within the 100,000 -500,000 range.

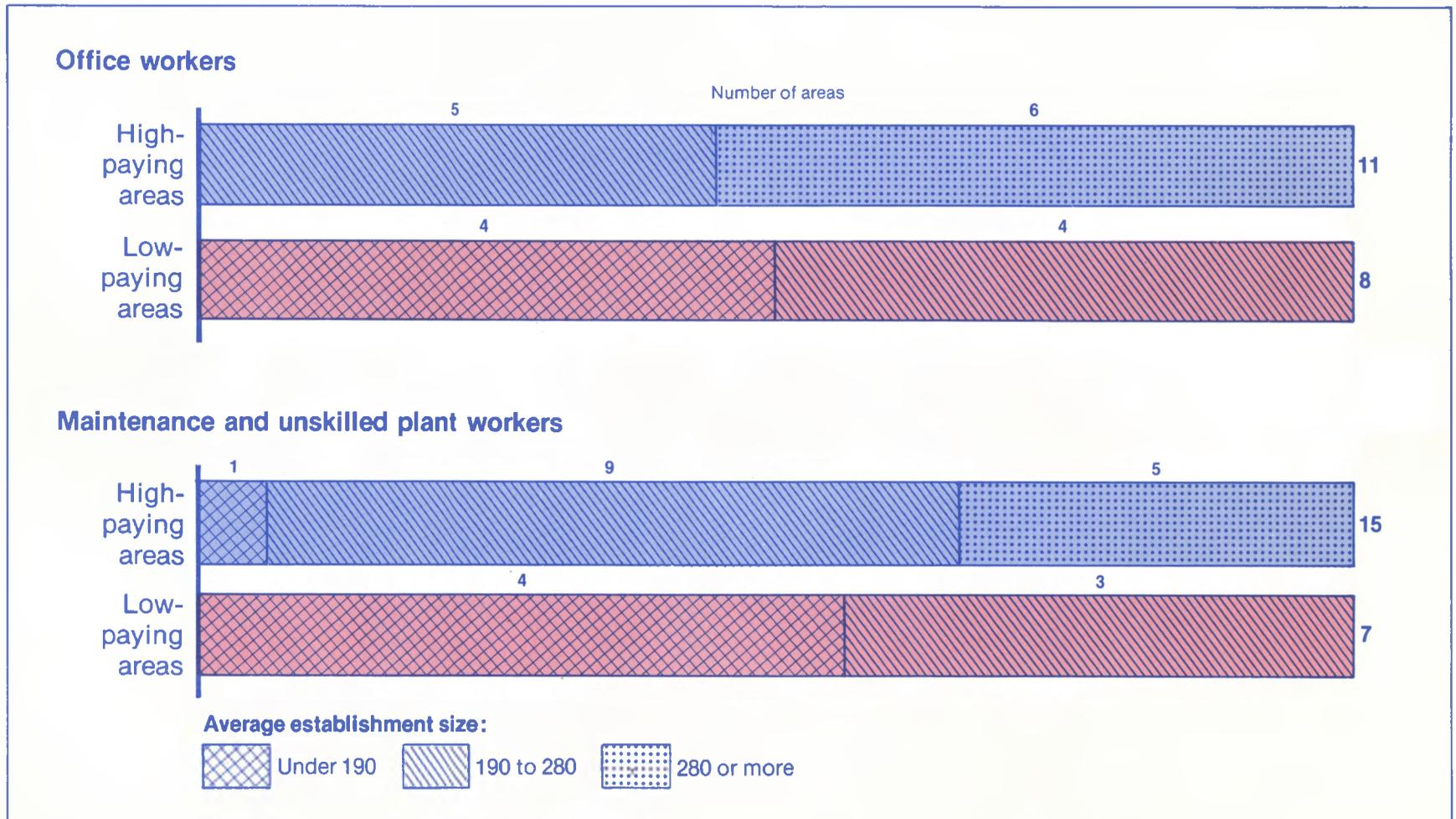
Chart 12. Distribution of areas by size of area employment



Large establishment size is more closely associated with high pay for office workers than for plant workers

Large establishments have long been thought to have high pay levels. The evidence, however, is not conclusive—often holding only for certain industries or groups of workers. In just over half of the high-paying areas for office workers and one-third of those for plant workers, establishments were above average in size. Small establishment size characterized about half of the low-paying areas for both plant and office workers.

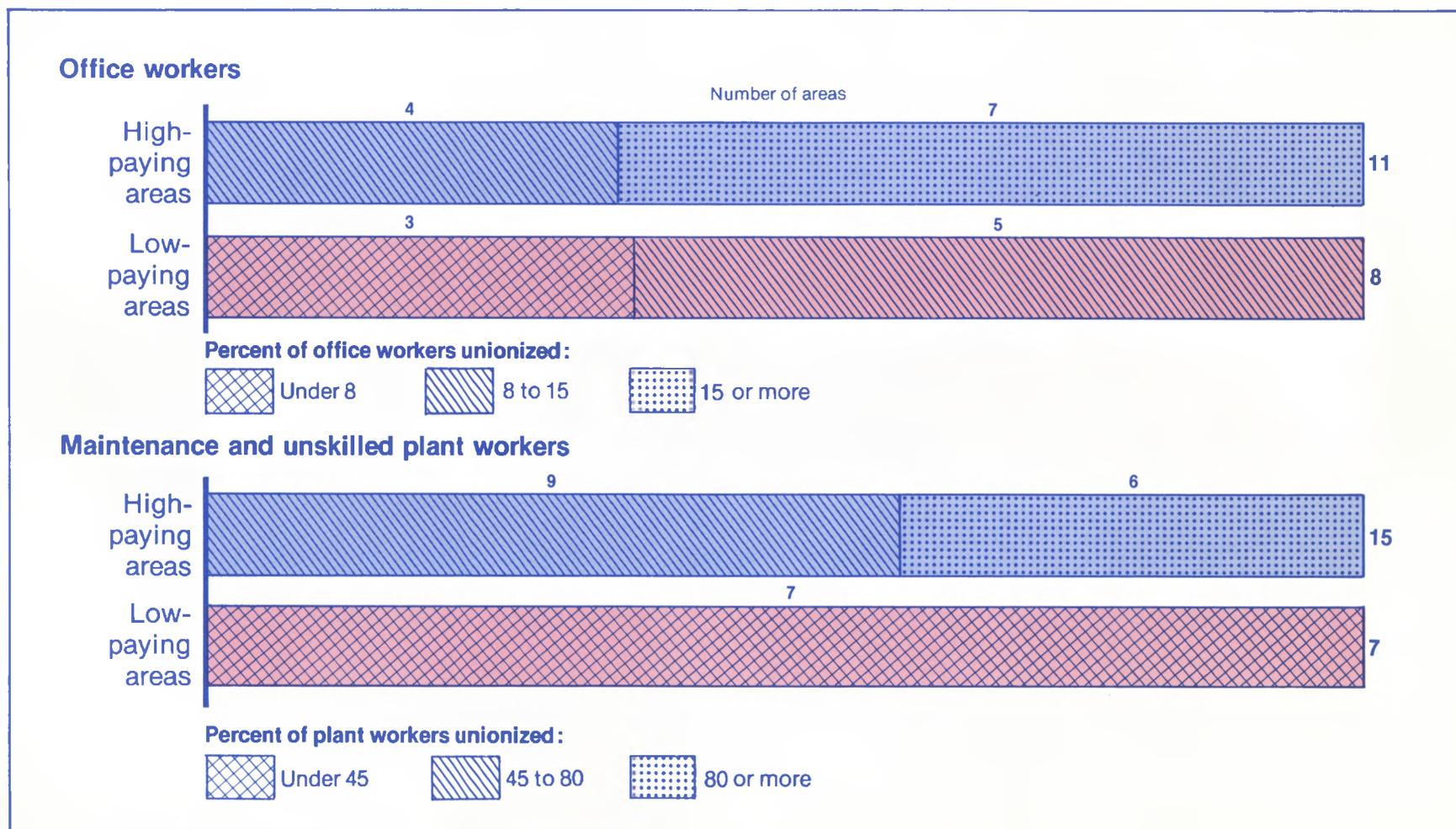
Chart 13. Distribution of areas by average establishment size



Unionization is more common in high-paying areas

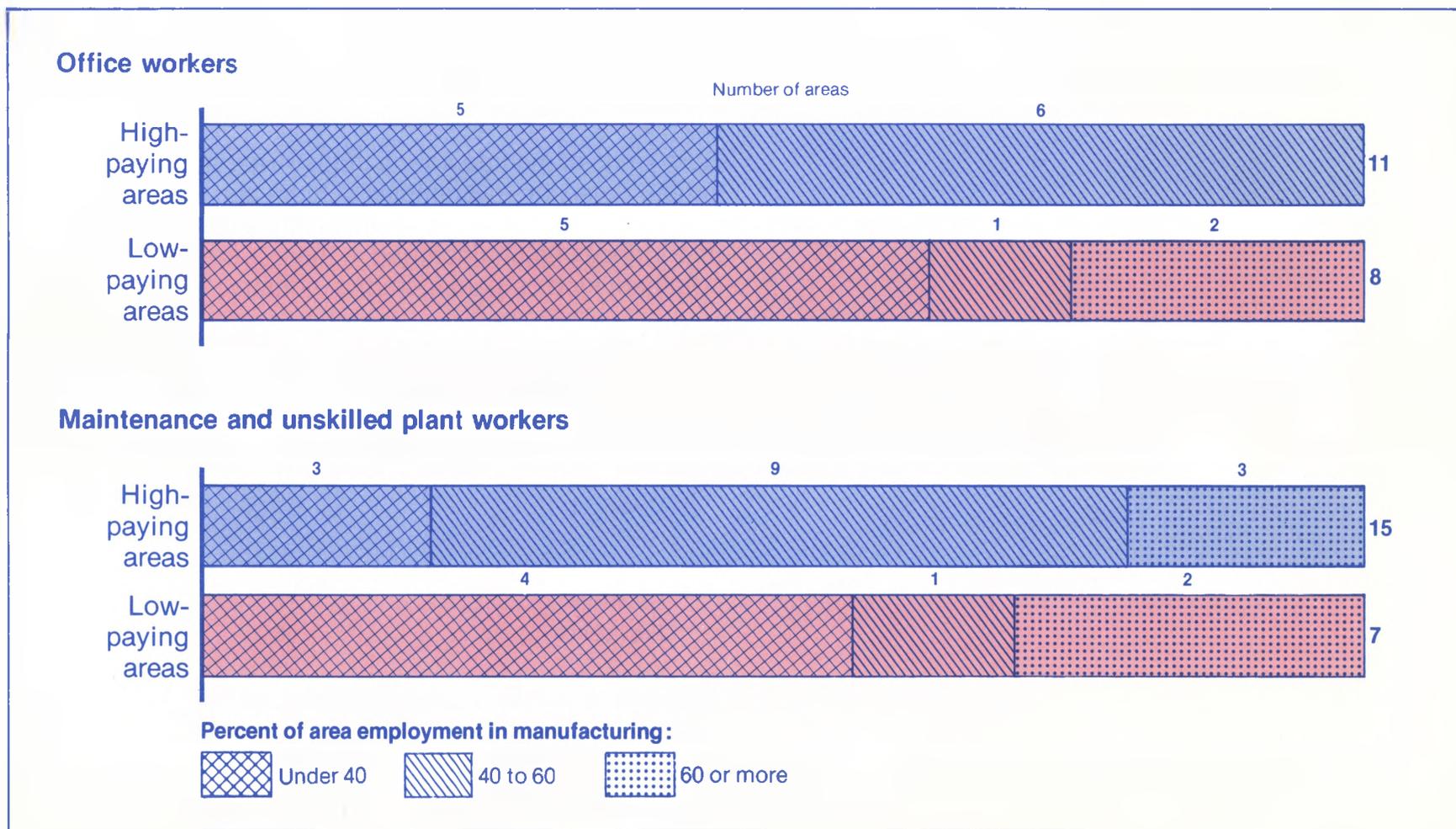
Unionization tends to raise pay levels. Workers in high-paying areas are more unionized than in low-paying ones. This is true for both office and plant workers, although the degree of unionization among plant workers is much greater.

Chart 14. Distribution of areas by extent of labor-management contract coverage



**Wage variation among areas is not associated with the relative presence
or absence of manufacturing activity . . .**

Chart 15. Distribution of areas by relative importance of manufacturing employment



...but is associated with the kind of manufacturing industry in an area

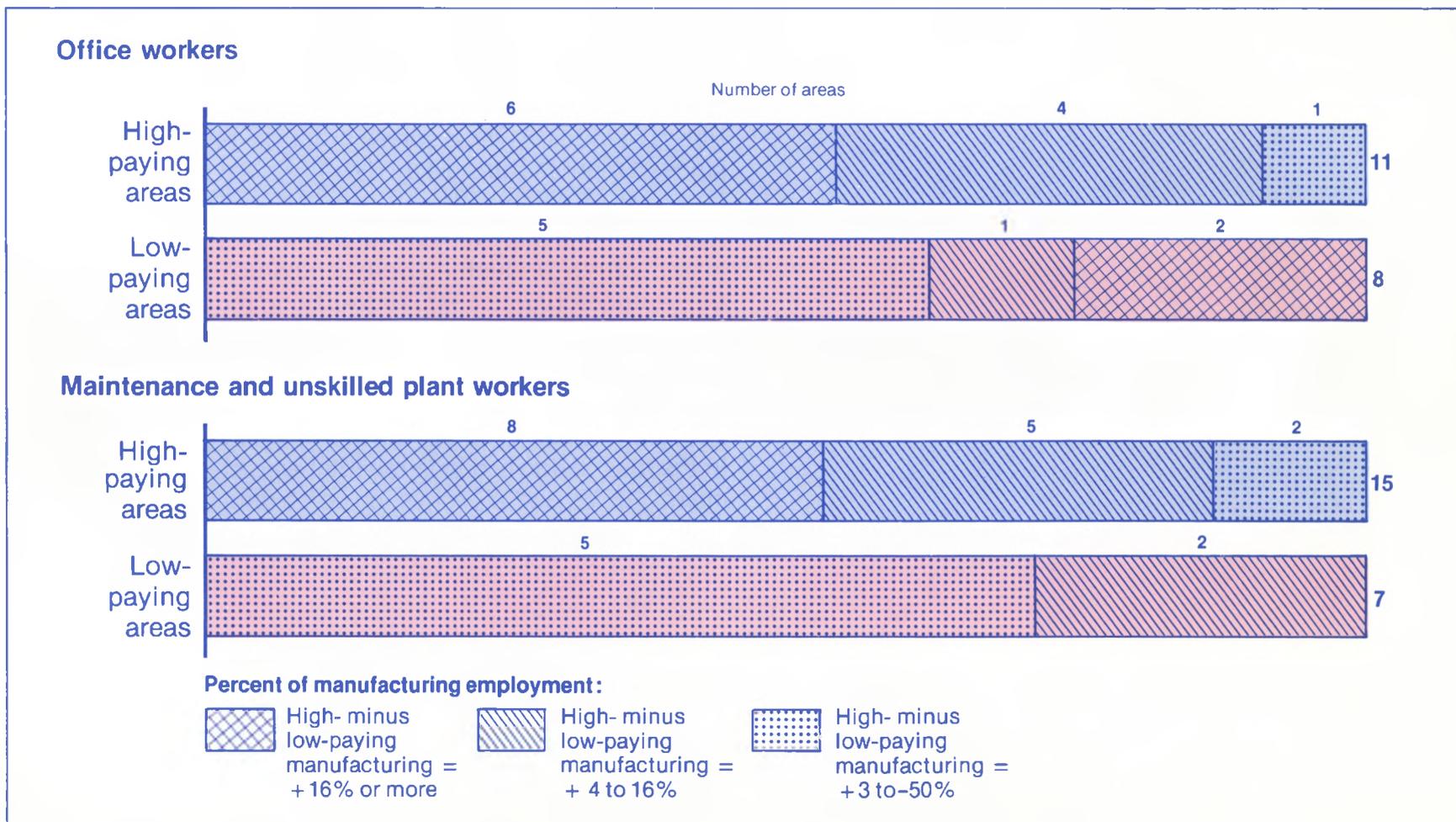
High-paying areas typically have a significant proportion of their manufacturing work force in high-paying industries; low-paying areas usually reflect more the presence of low-paying manufacturing.

Both kinds of manufacturing industry are present in virtually every area. Examples of high- and low-paying areas are shown below, along with measures of the relative importance of manufacturing in these areas and of the dominant kind of manufacturing industry:

| | <i>Percent of total employment in manufacturing</i> | <i>Mix of manufacturing industry¹</i> |
|---------------------------|---|--|
| High-paying areas: | | |
| Toledo | 61 | 30 |
| Davenport | 66 | 13 |
| Low-paying areas: | | |
| Greenville | 77 | -49 |
| Providence | 66 | -32 |

¹ Employment in 5 high-paying manufacturing industries minus employment in 6 low-paying manufacturing industries as a percent of total manufacturing employment.

Chart 16. Distribution of areas by relative importance of high- or low-paying manufacturing



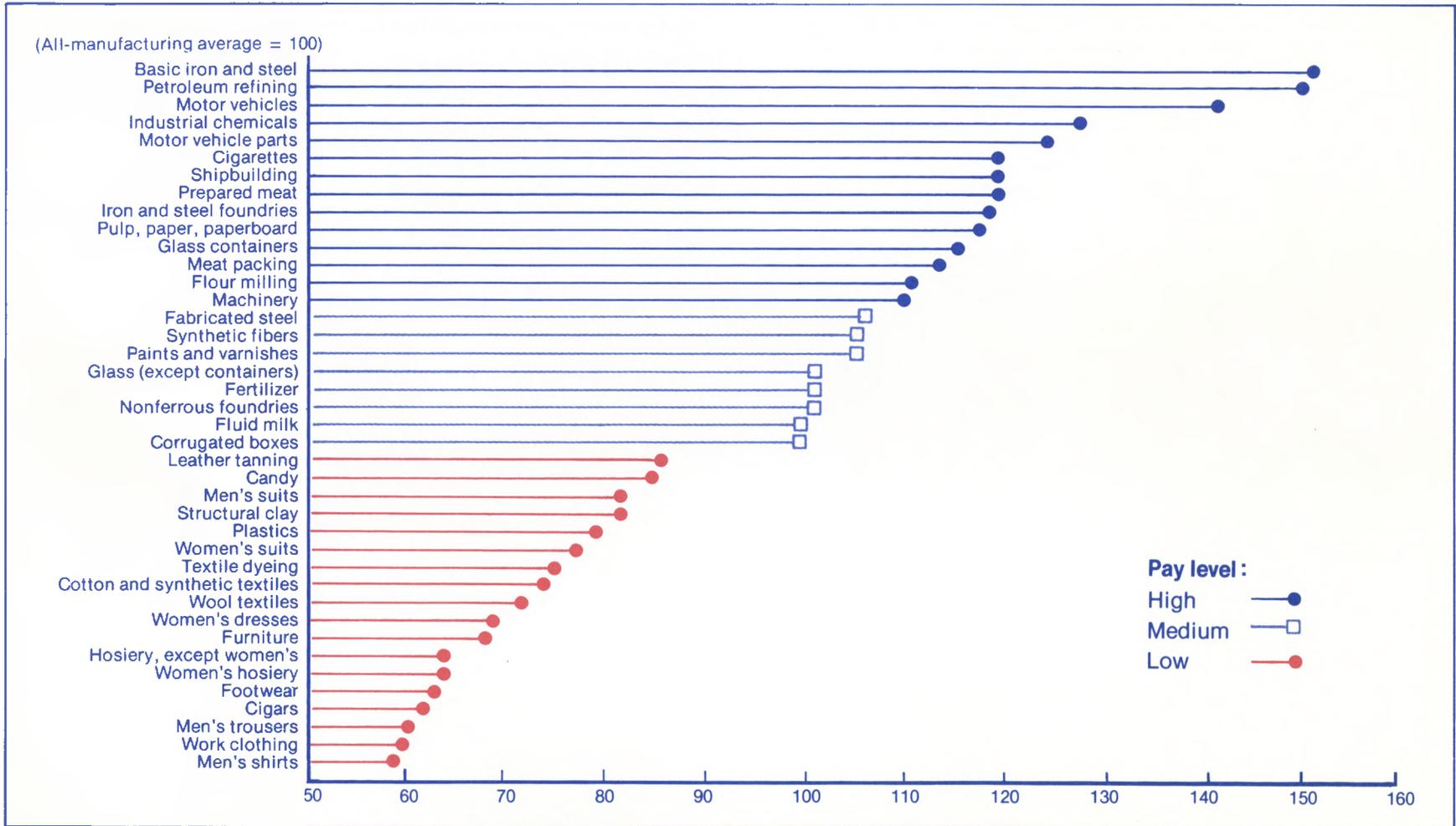
Part III. Profiles of High- and Low-Paying Manufacturing Industries

Manufacturing industries employ 3 in every 10 of the Nation's private nonfarm workers. The following charts portray some characteristics of high- and low-paying manufacturing industries. The industries, part of the Bureau's industry wage survey program, represent nearly all kinds of manufacturing activity.

In selecting industries for the following analysis, hourly earnings for production and related workers in 40 manufacturing industries were compared to the average for all manufacturing in 1977. High-paying industries are those in which hourly earnings were at least 10 percent above the average; low-paying industries are those in which earnings were at least 10 percent below the average.

Fourteen industries are in the high-paying group and 18 are in the low-paying group in the following charts, except for charts 18, 22, and 25, for which some data were not available.

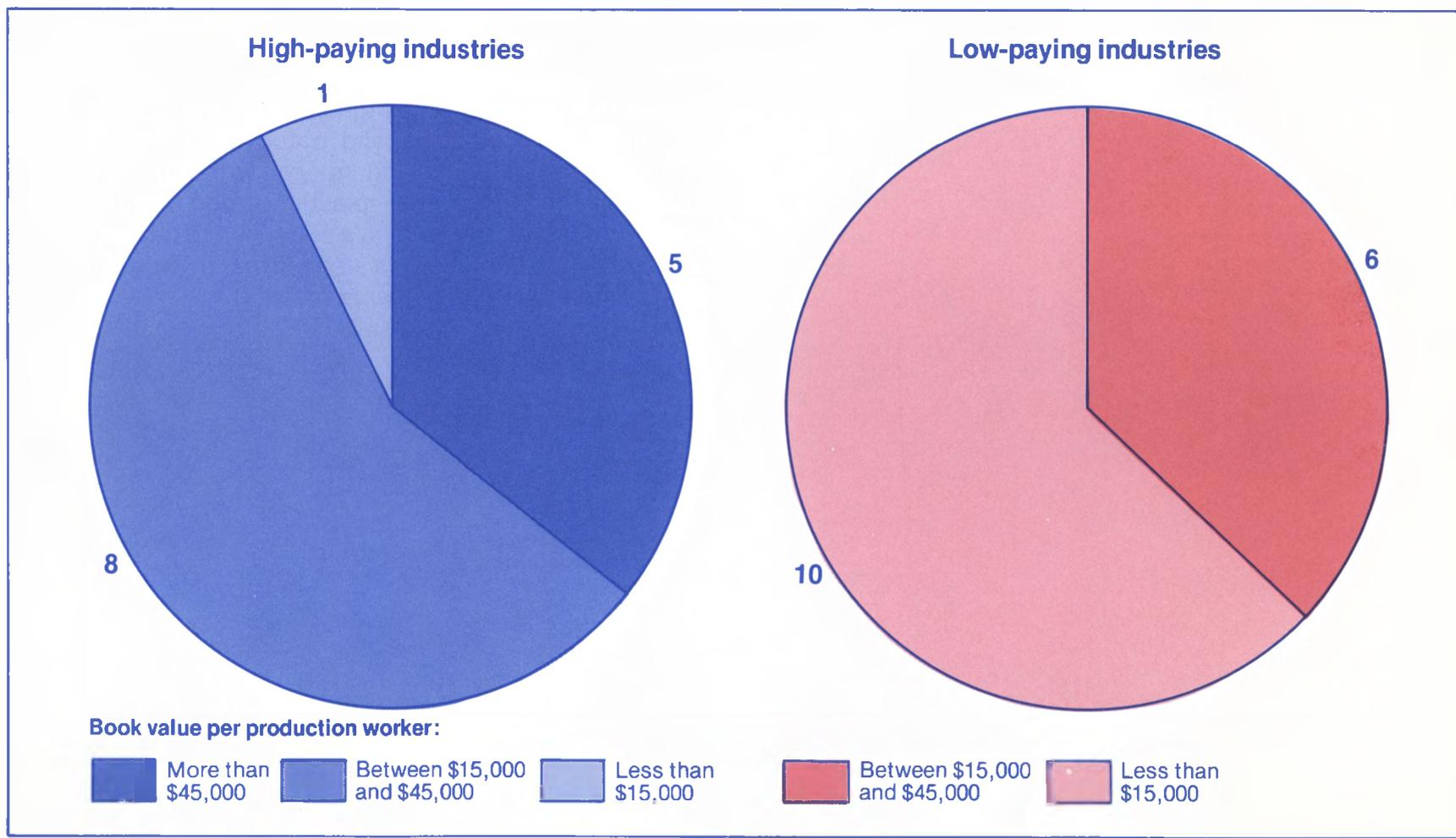
Chart 17. Pay relationships for production and related workers among 40 manufacturing industries, 1977



Capital intensity is lower in low-paying industries

Capital intensity, measured by the book value of an industry's plant and equipment assets per production worker, is typically low in low-paying industries, especially in apparel manufacturing. The ratio of capital to labor is high, in contrast, in some industries associated with "high pay" factors such as high skill requirements and greater opportunities for productivity advance. It was highest by far in the petrochemical industries and also well above the all-manufacturing average in basic iron and steel, flour milling, and papermaking.

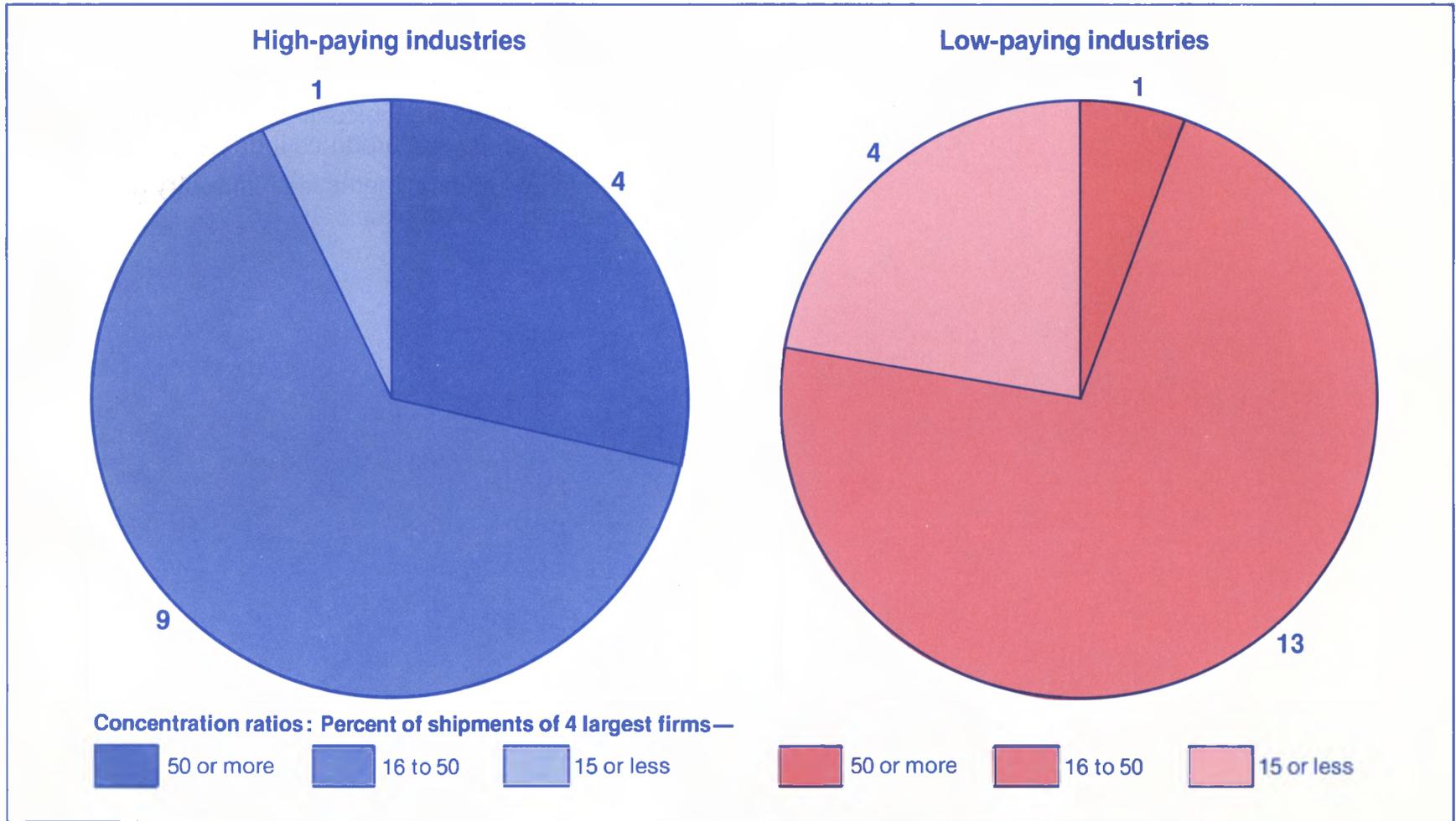
Chart 18. Distribution of manufacturing industries by capital-to-labor ratio



Although not typical of most industries, concentration of shipments in a few large firms is more common in high-paying than in low-paying industries

A concentrated industry has been defined as one in which four firms account for half or more of the value of shipments. Few industries studied met this criterion, but, of those that did, four were high paying—cigarettes, glass containers, motor vehicles, and motor vehicle parts. Only one low-paying industry—cigars—fell within the definition. Four low-paying industries—plastics, wood furniture, women's dresses, and women's suits—were characterized by the presence of numerous small firms, as was one high-paying industry—prepared meats.

Chart 19. Distribution of manufacturing industries by extent of shipments concentrated in large firms

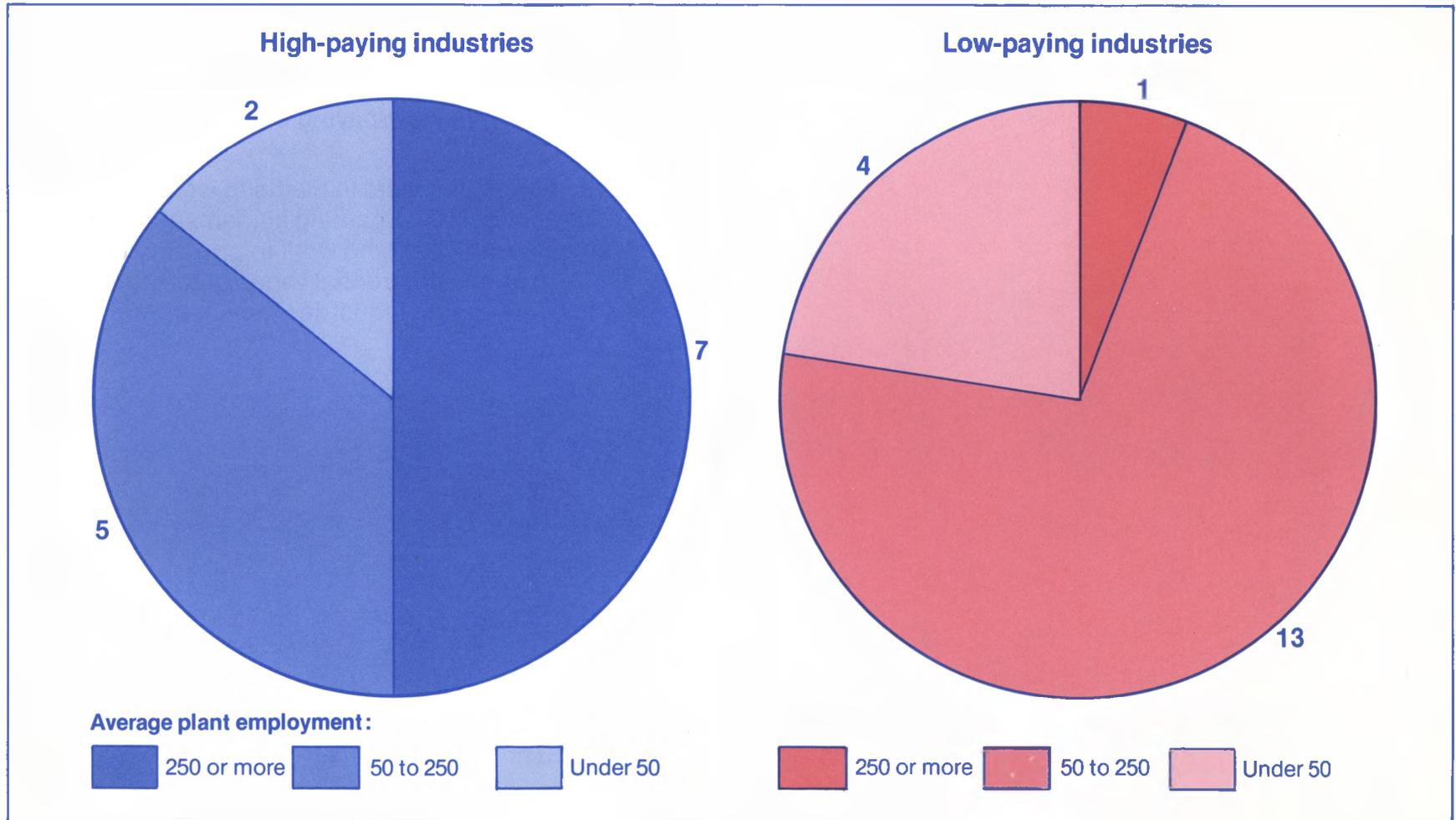


Large plants are more typical of high-paying industries

In half of the high-paying industries, the average plant has at least 250 workers; in only one low-paying industry—cotton and synthetic textiles—is the average plant as large. However, small plants are typical in the high-paying flour milling and prepared meat products industries.

Earnings in large establishments in an industry are higher, on average, than in small ones.

Chart 20. Distribution of manufacturing industries by average plant size

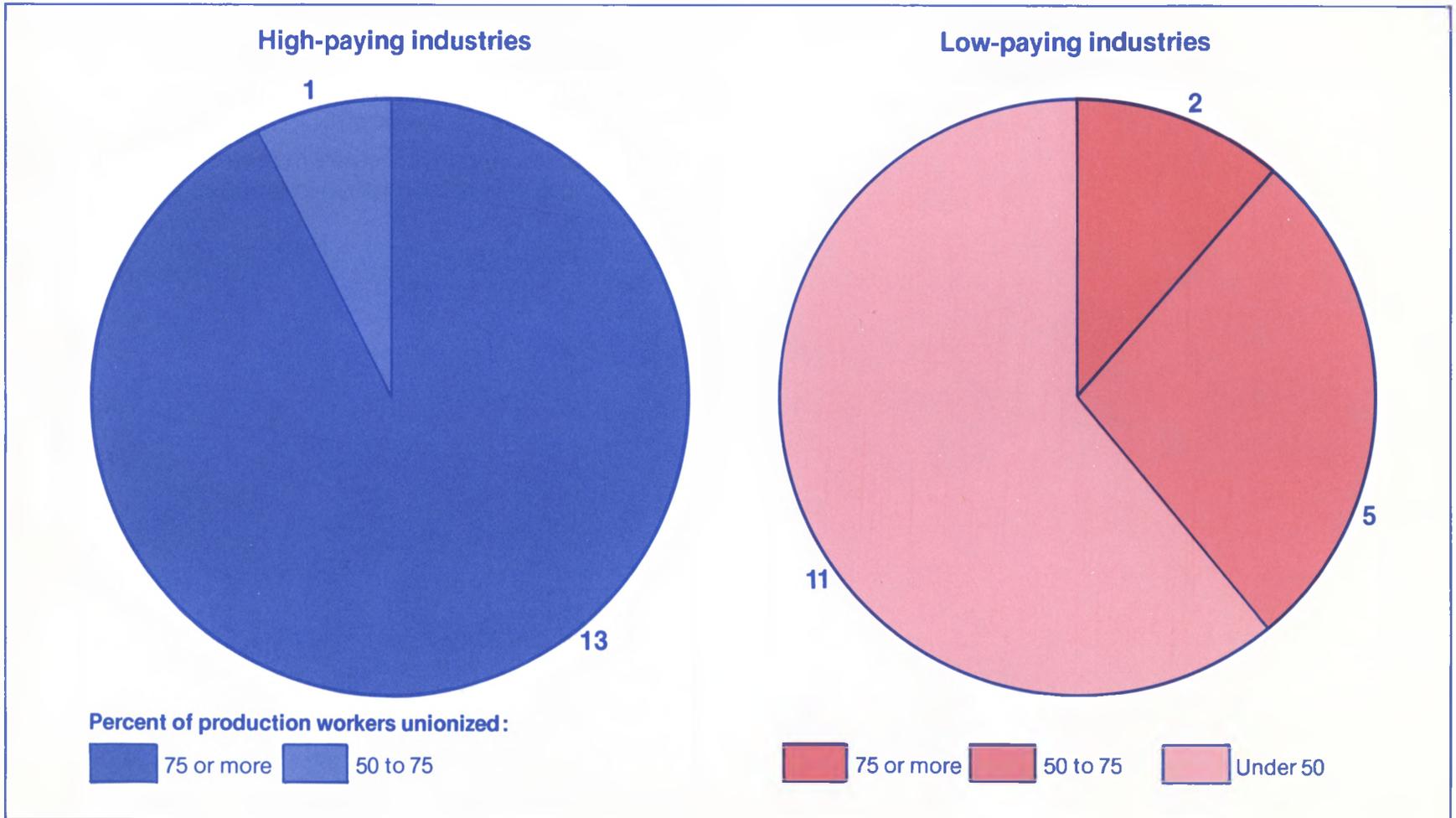


Unionized workers are predominant in high-paying industries but are in the minority in most low-paying ones

All but one high-paying industry—machinery—are at least three-fourths unionized; in contrast, only two low-paying industries—men's and women's suits and coats—are as heavily organized. Most low-paying industries, in fact, are primarily nonunion.

Within each industry, workers in plants in which a majority are covered by collective bargaining agreements have a wage advantage over those who work in primarily nonunion plants. The size of this differential varies greatly and is larger in some low-paying industries than in high-paying ones.

Chart 21. Distribution of manufacturing industries by extent of labor-management contract coverage

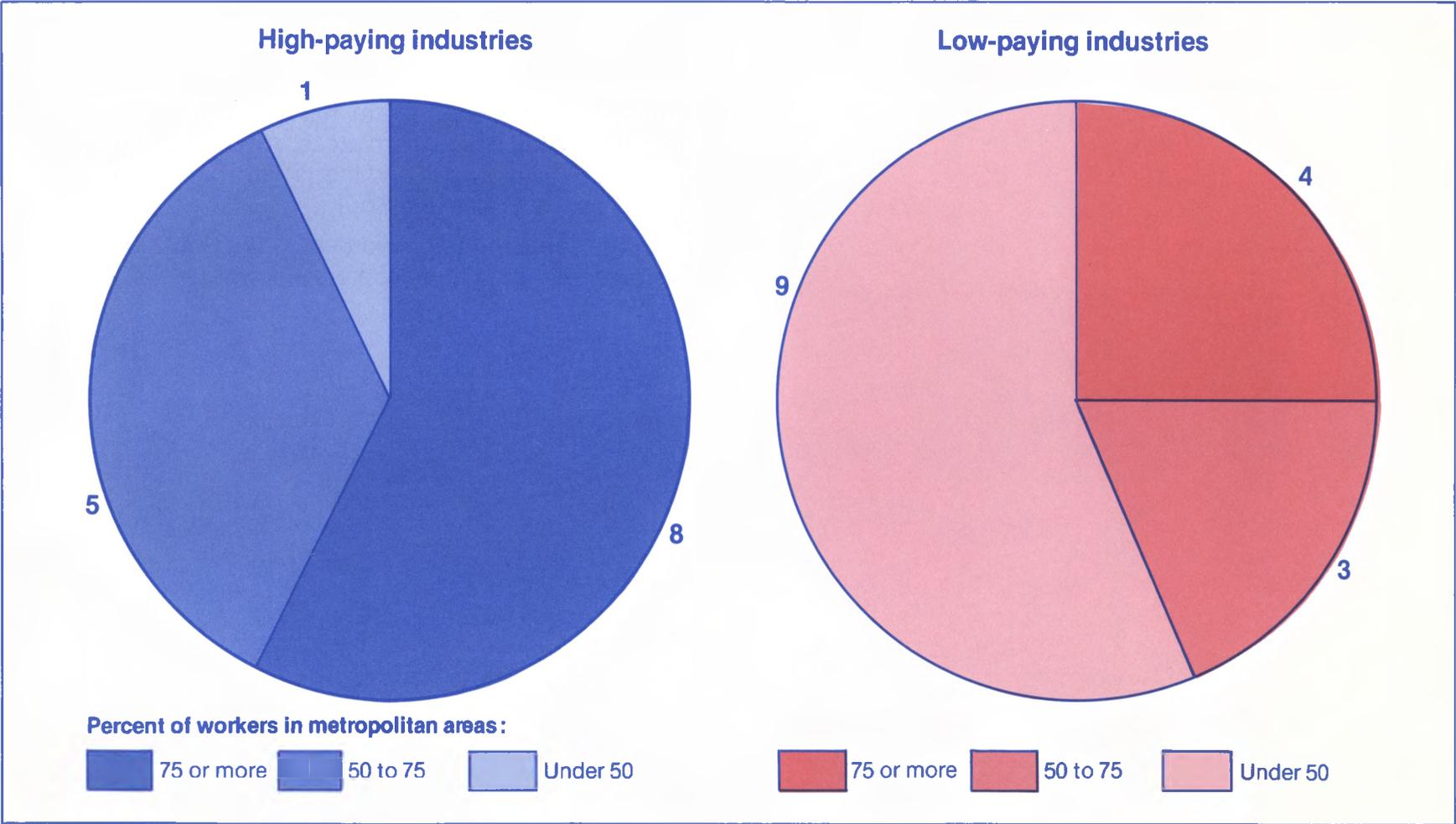


Most workers in high-paying industries are located in metropolitan areas while a majority in many low-paying industries work in smaller communities

In all but one high-paying industry—paper—the work force is predominantly located in metropolitan areas; most workers in low-paying industries are in smaller communities, often in the South.

In most industries, plants located in metropolitan areas have higher pay levels than those in smaller communities.

Chart 22. Distribution of manufacturing industries by extent of location in metropolitan areas

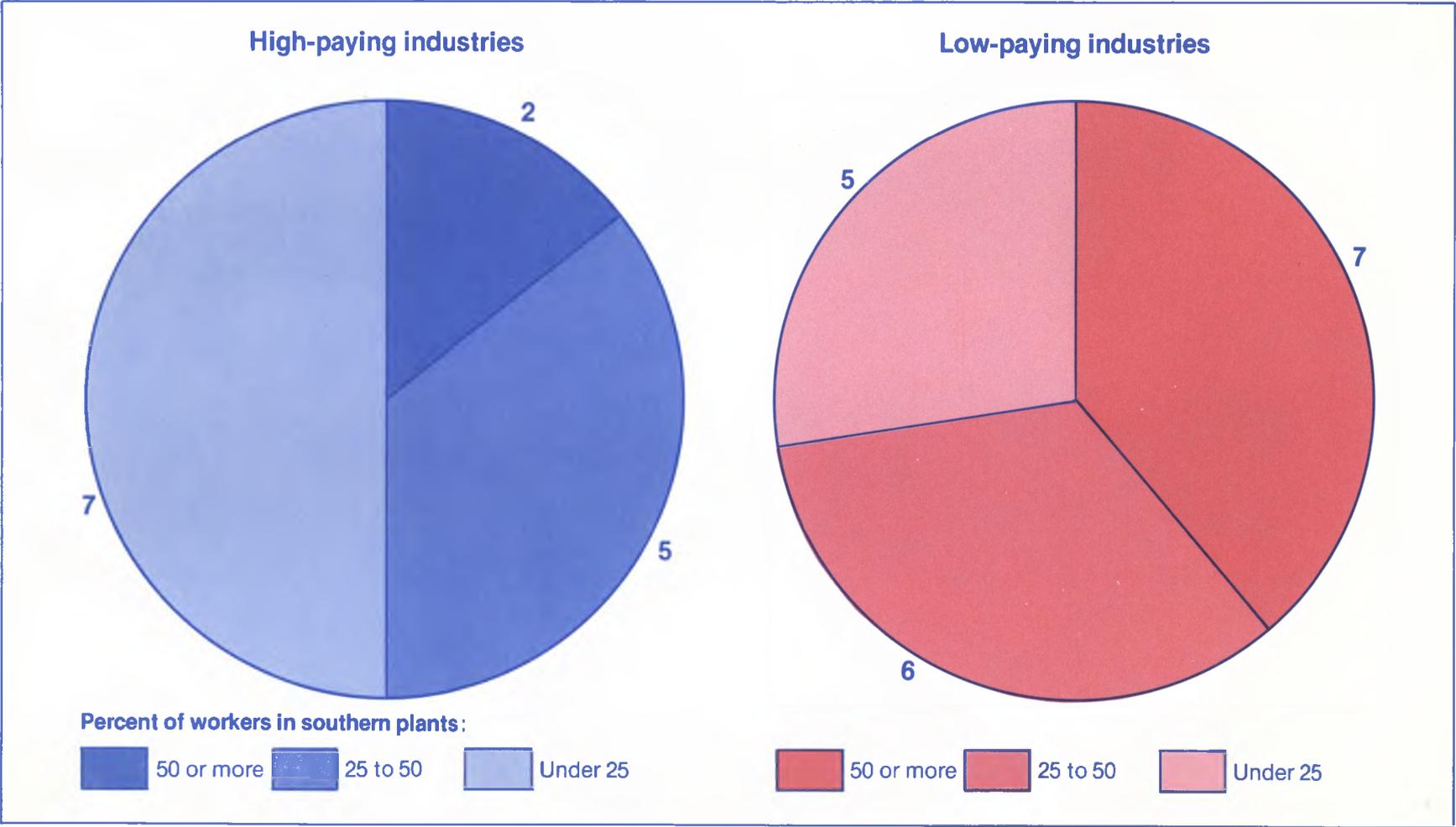


Low-paying industries have a much larger proportion of their work force in the South than do high-paying industries

Low-paying industries commonly employ a majority of their workers in the South; most high-paying industries employ less than one-fourth of their workers in southern plants. Textiles and apparel dominate in the low-paying industries primarily located in southern areas. Among the high-paying group, only the cigarette and industrial chemical industries typically are located in the South.

Within the same industry, workers in the South usually have lower earnings than workers elsewhere.

Chart 23. Distribution of manufacturing industries by extent of location in the South

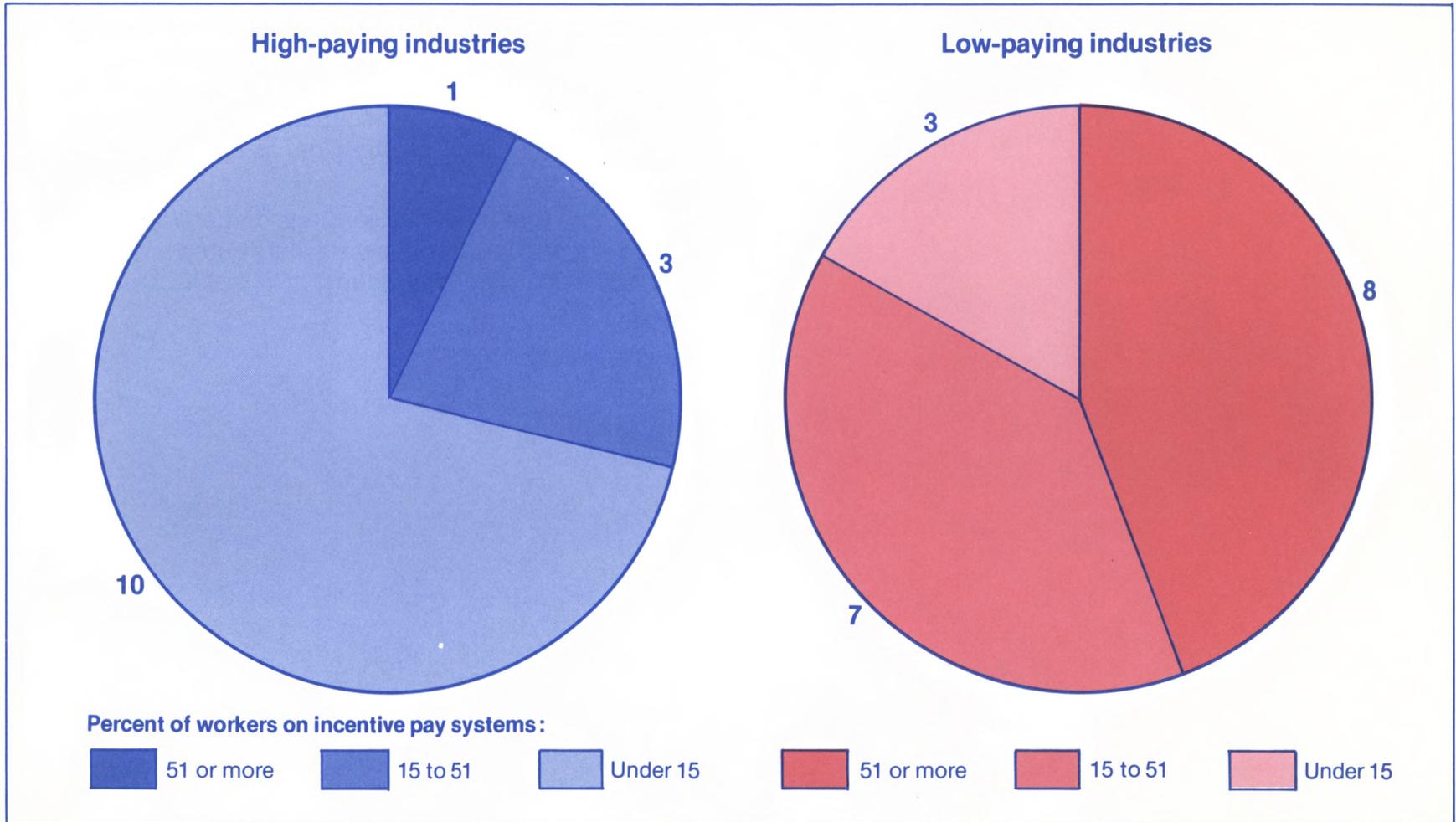


Incentive pay systems are more prevalent in low-paying industries

Piecework, bonus, and other incentive pay systems apply to a majority of workers in nearly half of the low-paying industries. Only in basic steel are such pay plans predominant in the high-paying group. Low-paying, incentive-oriented industries are highly labor intensive. (See chart 18.)

Although “incentive industries” are typically low-paying, incentive-paid workers usually earn more than their time-rated counterparts, regardless of industry.

Chart 24. Distribution of manufacturing industries by incidence of incentive pay systems

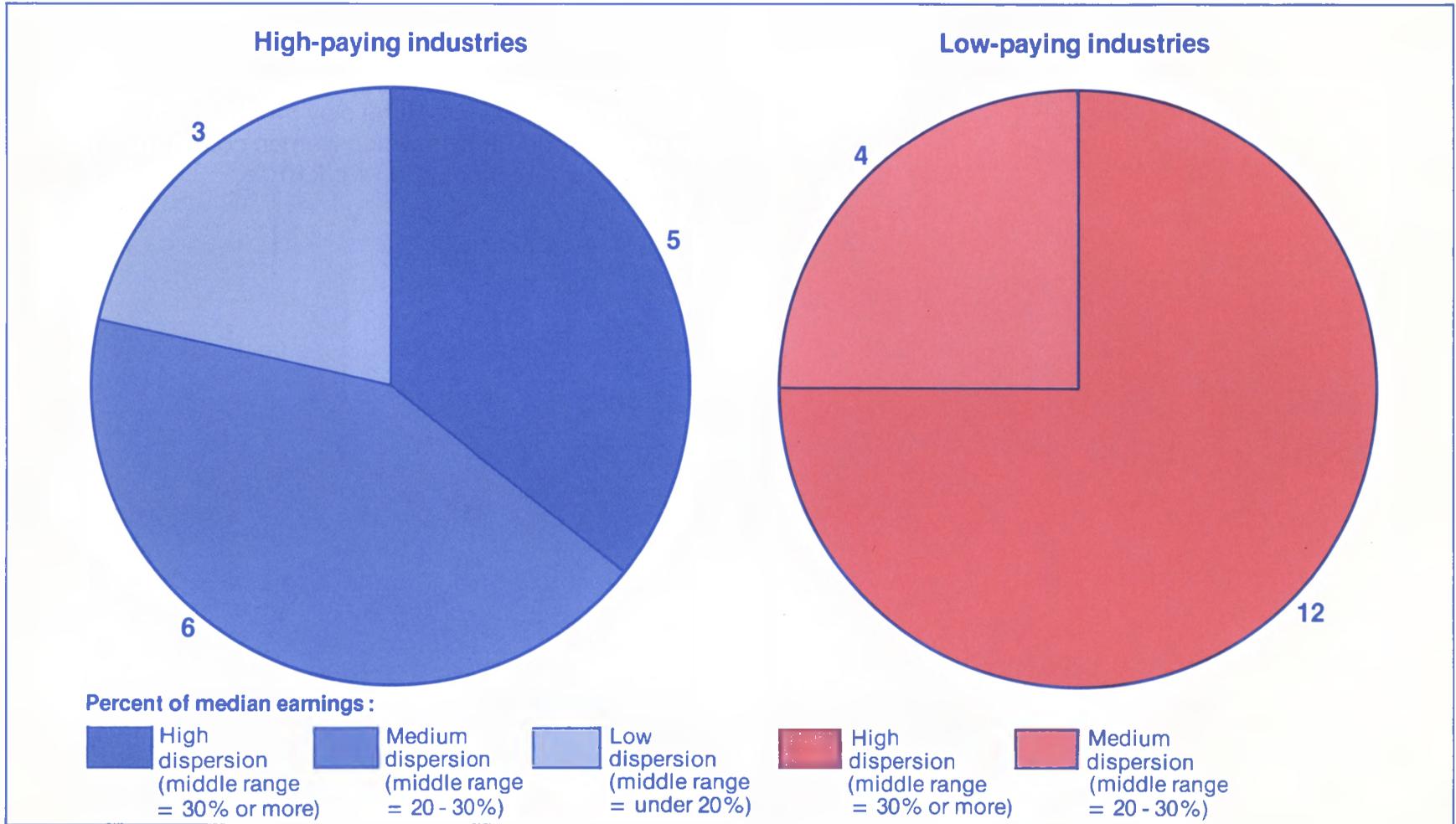


The range of employee earnings is wider in low-paying than in high-paying industries

The earnings spread typically is highest in low-paying industries, where incentive pay systems prevail. In high-paying industries the spread is narrower primarily because single rates for an occupation—negotiated companywide or even industrywide, as in motor vehicles—are common.

Other factors that influence earnings dispersion in an industry are the ways workers are distributed among regions and occupational groups.

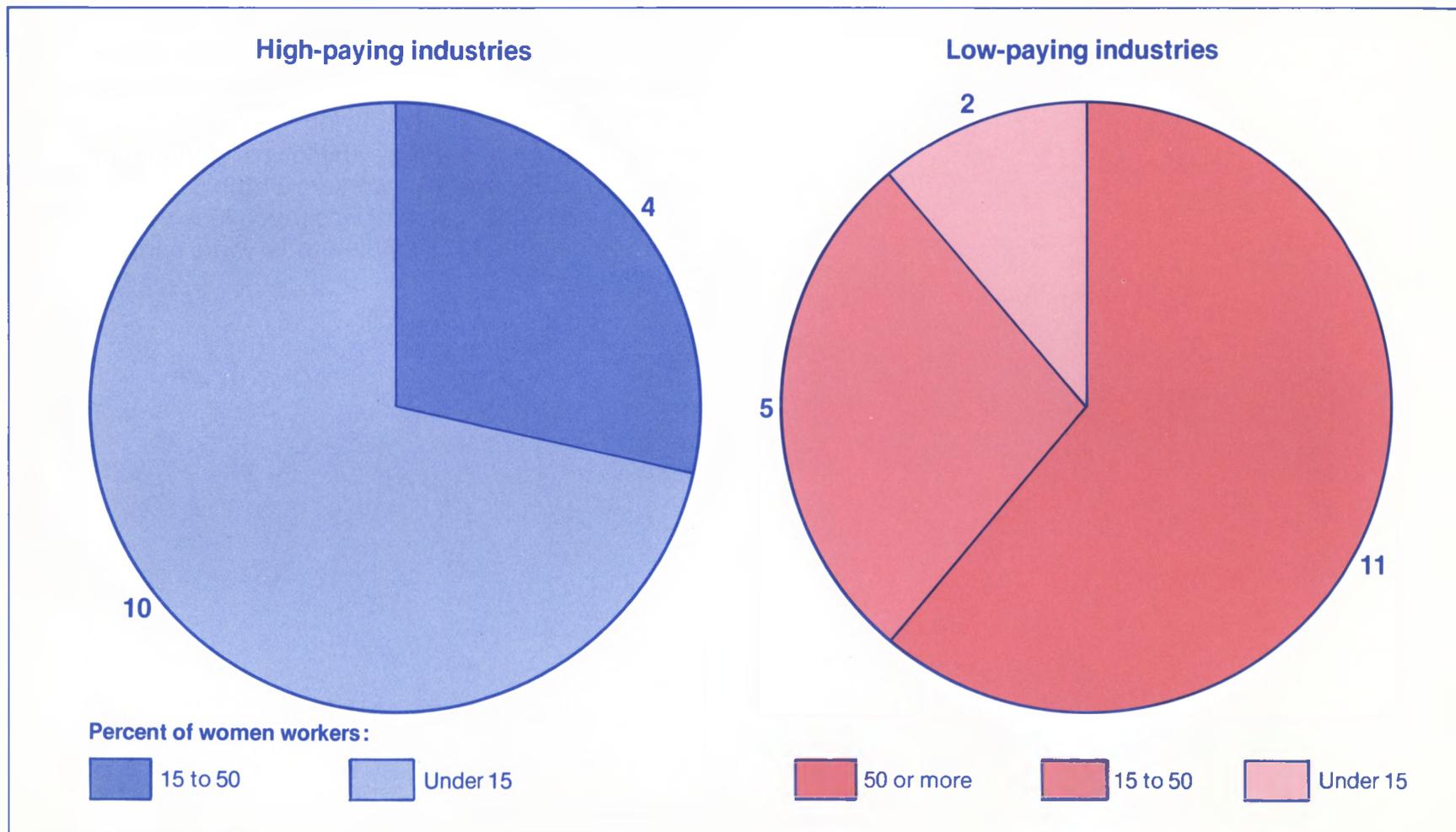
Chart 25. Distribution of manufacturing industries by relative dispersion of earnings



Women are a much larger proportion of the production work force in low-paying industries

Women usually make up a majority of the production workers in low-paying manufacturing industries but less than 15 percent in the high-paying group. Exceptions are leather tanning and structural clay products—two low-paying industries in which women constitute only one-fourth of the production work force.

Chart 26. Distribution of manufacturing industries by proportion of women production workers

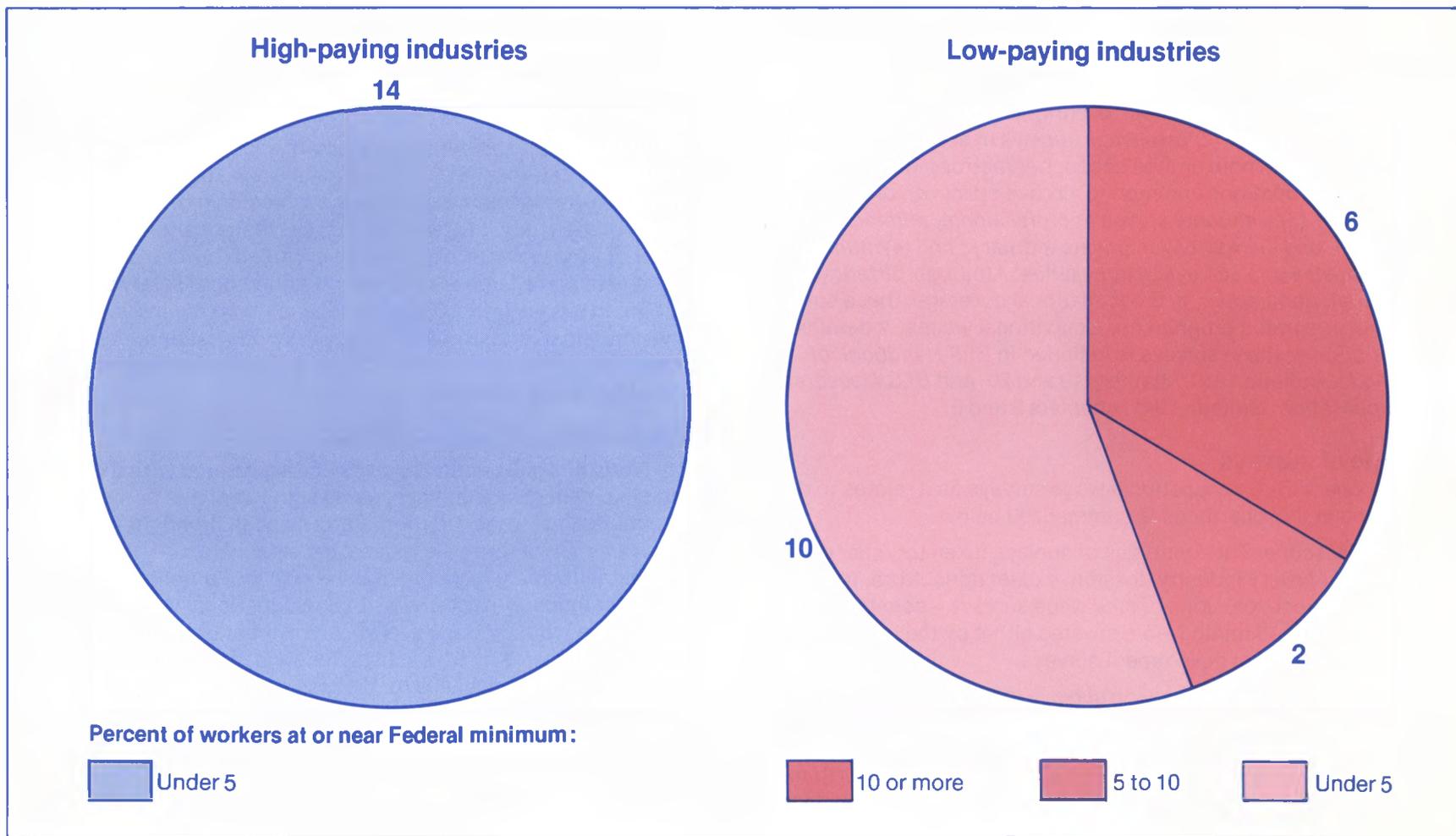


Relatively few industries have significant proportions of workers at or near the Federal minimum wage

In the mid-1970's, none of the high-paying industries had even 5 percent of their workers at or near the minimum wage, and only one-third of the low-paying industries had 10 percent or more at or near the minimum.

Even in shirt manufacturing—the lowest paying industry studied—the proportion of workers within 5 cents of the \$2 minimum in 1974 (27 percent) was much less than the proportion near the \$1.25 minimum 10 years earlier (40 percent).

Chart 27. Distribution of manufacturing industries by worker attachment to the Federal minimum wage, mid-1970's



Appendix A. BLS Occupational Wage Surveys

Four major types of surveys are conducted currently in the Bureau of Labor Statistics Office of Wages and Industrial Relations to provide information on straight-time earnings by occupation:

(1) *Industry wage surveys* in selected manufacturing and nonmanufacturing industries covering occupations peculiar to a particular industry; (2) *area wage surveys* in selected metropolitan areas (and, on a more limited scope, nonmetropolitan areas) covering occupations common to a broad spectrum of private industries; (3) a *national survey of professional, administrative, technical, and clerical pay* in private industry; and (4) *municipal government wage surveys* in large cities. Although differing in industrial, geographic, and occupational coverage, these surveys form an integrated program on occupational wages. A detailed description of these surveys is included in *BLS Handbook of Methods*, Bulletin 1910, chapters 19 and 20, and *BLS Measures of Compensation*, Bulletin 1941, chapters 2 and 3.

Scope of surveys

The scope of BLS occupational wage surveys as it relates to data depicted in this chartbook is summarized below.

Industrial scope. The four types of surveys taken together cover at least part of every industry division, except agriculture, forestry, and fishing. Major exclusions of area wage surveys—construction, government, and mining—are covered either by the industry surveys or by the municipal government surveys.

Geographic scope. Nationwide surveys are conducted for virtually all industries in manufacturing (with selected regional and area detail) and for the professional, administrative, technical, and clerical pay study. Area wage surveys are conducted in 70 Standard Metropolitan Statistical Areas selected on a probability basis to represent all such areas. Industry wage surveys limited to the union

sector are carried out in 60 to 70 cities with at least 100,000 inhabitants. These cities also are selected on a probability basis to represent all cities of that size. Municipal government wage surveys are limited to the 26 U.S. cities with at least 500,000 inhabitants, with the addition of Atlanta.

Minimum establishment size. To obtain appropriate accuracy at minimum cost, most BLS occupational wage surveys establish a minimum employment size for establishments to be within the scope of the study. In area wage surveys, establishments employing fewer than 50 workers are generally excluded (fewer than 100 workers in some large areas); for the white-collar salary survey, the minimum ranges from 100 to 250 depending on the industry division. Most industry wage surveys exclude establishments with fewer than 20 workers. No minimums are applicable to union and municipal wage surveys.

Establishment characteristics

Pay levels and pay relationships can be associated with many establishment characteristics, some significant and some marginal determinants of wage variation. Parts II and III highlight some of the most common of these—e.g. area and establishment employment size, establishment location, and the extent of unionization within an area or industry—covered by BLS occupational wage surveys. Nationwide industry wage surveys in manufacturing usually develop separate estimates by these characteristics, as well as by others such as type of product and/or process.

Wage and salary measures

The Bureau's occupational wage surveys summarize a highly specific measure—the rate of pay for individual workers, excluding premiums for overtime and for work on weekends, holidays, and late

shifts. Collecting data on individual workers permits the publication of the full earnings distribution and/or measures of central tendency, e.g. median and middle range, as illustrated in several charts in parts I and III. Union wage studies, unlike the other BLS occupational wage surveys, measure only the basic (minimum) wage rates found in labor-management agreements; they do not include individual worker earnings that may exceed these minimums.

Analytical approaches

A profile of wage-determining characteristics was developed in parts II and III for groupings of representative high- and low-paying areas and industries. Areas were selected, for example, based on their relative pay position for office workers and plant workers. High- or low-paying areas are those falling in the highest or lowest quartiles for (a) clerical and electronic data processing occupations and (b) maintenance and unskilled plant occupations. Earnings distributions were used in parts I and III to illustrate wage dispersion by occupation and industry as well as to focus on groups of workers at the lower end of the earnings array. Details on the preparation of individual charts are available upon request.

Sources

All except the following charts are based on data from the occupational wage survey program: Charts 1 and 3, Office of

Current Employment Analysis, Bureau of Labor Statistics; chart 2, Division of General Compensation Structures, Bureau of Labor Statistics; chart 17, Office of Employment Structure and Trends, Bureau of Labor Statistics; charts 18 and 19, Bureau of the Census.

Uses

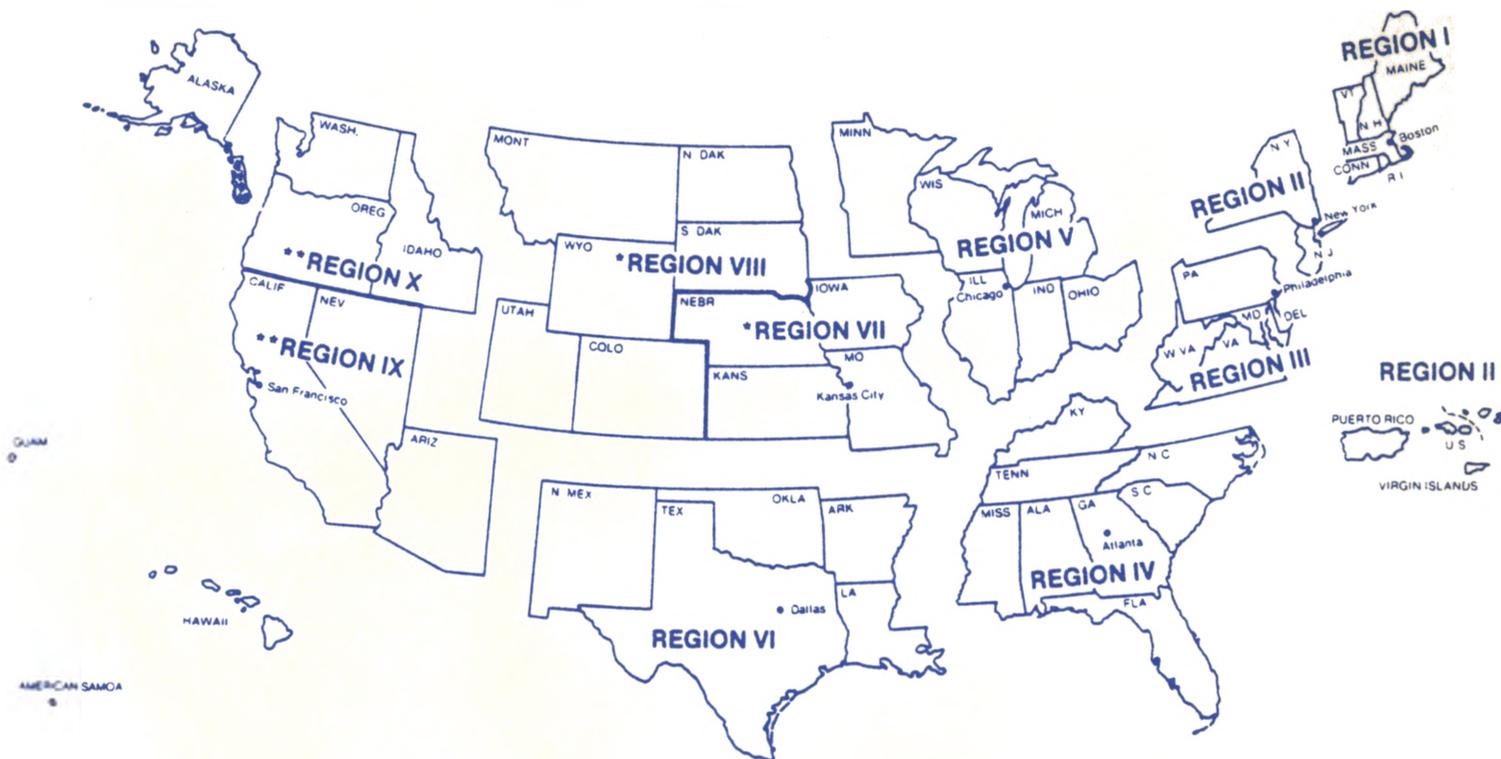
Bureau data are often used by public agencies concerned with wage policy. These data also are used extensively in the private sector in connection with wage and salary determinations by employers or in the collective bargaining process. To the extent that wages are a factor, survey data also are considered by employers in locating new facilities and in estimating costs. Occupational counselors often use information on relative pay levels and trends in connection with career guidance.

Occupational wage surveys are not designed to supply mechanical answers to questions of pay policy. The applicability of survey results depends upon the selection and definition of industries, the geographic units for which estimates are developed, the occupations and associated items studied, and the reference dates of particular surveys. Depending upon specific needs, users may find it necessary to interpolate for occupations, industries, or areas not covered by the surveys.

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