

Gender differences in occupational employment

Substantial differences in occupational employment by gender still remain; the degree of these differences varies according to several factors, such as educational attainment and age

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The differences in employment distributions of women and men within occupations have been, and continue to be, a prominent feature of the labor market.¹ Past research has indicated a high degree of difference that remained fairly constant from the early 1900s up until about 1970.² The 1970s were a watershed period in occupational desegregation, as indicated by significant declines in measures of occupational differences.³ The advances of the women's movement, the enactment of laws prohibiting sex discrimination, increases in female enrollment in higher education and professional schools, the steady increase in women's labor force participation, and reductions in gender stereotyping in both education and employment all contributed to this trend. Women continued to make inroads into male-dominated occupations in the 1980s, although the pace of change slowed.⁴

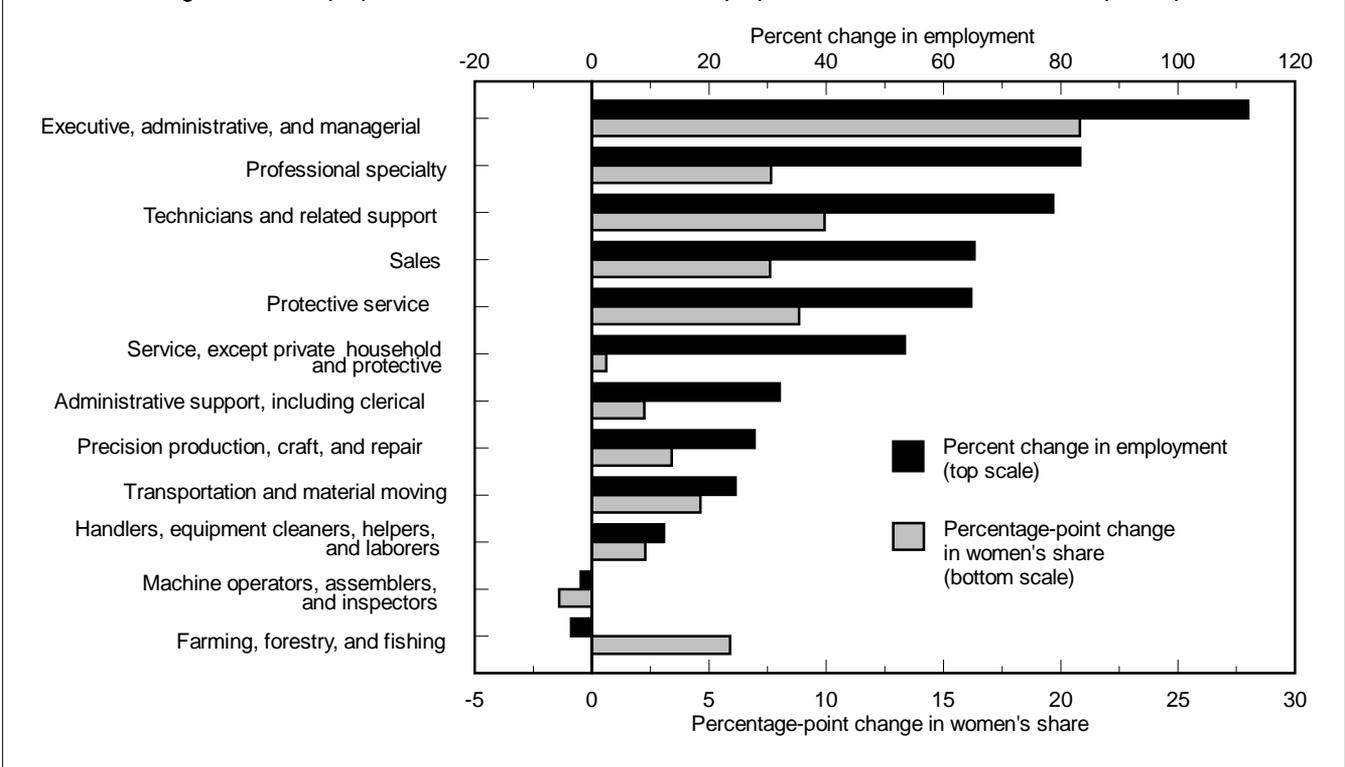
This analysis seeks to update past research on occupational differences between the sexes by evaluating trends over the past two decades, particularly during the period from the mid-1980s to the mid-1990s. It includes an overview of current patterns of the gender distribution of employment within occupations and the ways in which they have changed over the past two decades.⁵ This is followed by an analysis of aggregate levels of occupational differences using a summary measure—the dissimilarity or difference index. Finally, there is a discussion of the change in gender-dominated jobs.

Differences and trends

The degree to which the jobs that women and men hold differ, reflecting a number of factors including: the amount and types of education that workers have completed; the types of jobs that have expanded or declined; personal preferences; societal attitudes about gender roles, which can affect both the kind of work that men and women choose and how family responsibilities enter into work decisions; and, in some cases, discrimination. Data that are available for broad occupational groups for the past two decades clearly indicate two major points.⁶ First, the gender distribution of many occupations has shifted substantially. Second, despite these shifts, women and men still tend to be concentrated in different occupations: women are highly overrepresented in clerical and services occupations, for example, while men are disproportionately employed in craft, operator, and laborer jobs.

Women generally have moved most rapidly into those occupational groups in which employment has been expanding over the past two decades. (See chart 1.) This is not surprising; because there is a greater demand for workers in faster growing occupations, growth could lower barriers to entry, such as gender discrimination.⁷ During 1975 to 1995, overall job growth was fastest among managers and professionals and slowest among machine operators, helpers and laborers, and farming occupations. Over this period, women increased their representation sig-

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Chart 1. Change in total employment and in women's share of employment between 1975 and 1995 by occupation

nificantly among managerial and professional specialty occupations: in 1995, women accounted for 43 percent of managerial and related employment, nearly double their share in 1975 (22 percent); and women's share of employment in professional occupations also rose over this period, from 45 percent to 53 percent. By contrast, women made few gains in employment share among a number of occupations that posted little or even negative growth during this period. For example, among operators, fabricators, and laborers, women's share of employment remained unchanged between 1975 and 1995, at 24 percent. (See table 1.)

Currently, women and men are most equally represented among managers and professionals; in 1995, women held about half of such jobs. (See table 1.) Employment of technicians and sales occupations also was about evenly split between women and men. Gender differences were still pronounced, however, among workers in other major occupational groups. For example, women held 4 out of 5 administrative support jobs. Women also were represented heavily in services occupations, particularly private household occupations (in which they account for 96 percent of employment) and service occupations, except private household and protective services (65 percent). Men, by comparison, were much more likely than women to work in the precision production, craft, and repair occupational group—which includes construction trades—holding 9 out of 10 such jobs

in 1995. Men also continued to account for the large majority of employment in protective service (84 percent); farming, forestry, and fishing (80 percent); and operating, fabricating, and laboring occupations (76 percent).

Because large occupational categories can mask underlying differences in employment by gender, it is important to examine data for more detailed occupations, even within aggregate groups that employ comparable proportions of men and women. Within professional specialties, for example, 93 percent of registered nurses and 84 percent of elementary school teachers employed in 1995 were women, compared with 3 of 10 computer systems analysts and scientists and fewer than 1 of 10 engineers. Differences were less pronounced among workers in managerial occupations, as women accounted for 40 percent to 60 percent of employees in most managerial jobs; at the extremes, however, 6 percent of construction inspectors were women, compared with 80 percent of medicine and health managers. The most pronounced differences in occupational employment by gender occurred in precision production, craft, and repair occupations—in 1995, for example, only 1 percent each of auto mechanics and carpenters were women. Differences by gender also were large among salesworkers. While women accounted for 1 of every 2 sales employees overall, they made up 83 percent of apparel sales personnel, but only 31 percent of persons selling securities and financial services.

The distributions of men and women among specific occupations in 1995, while still very different from one another, were much less so than 20 years earlier. The tabulation below highlights some selected occupations and shows the degree to which women's share of employment changed—or did not—over the 1975–95 period. Women have made substantial inroads into some areas, such as financial management and law, but by 1995, they still rarely worked as carpenters or mechanics.

Occupation	Proportion female	
	1975	1995
Automobile mechanics	0	1
Cashiers	87	79
Carpenters	1	1
Computer systems analysts	15	30
Engineers	1	8
Financial managers	24	50
Lawyers	7	26
Physicians	13	24
Police and detectives	3	14
Registered nurses	97	93
Social workers	61	68
Teachers, college and university	31	45
Teachers, elementary	85	84
Waiters and waitresses	91	78

of occupational differences called the dissimilarity or difference index.⁸ The index measures the degree of difference in the distributions of two groups (here, women and men) across occupations. Values range from 0 to 100, with the difference index denoting the percent of men or women who would have to change occupations in order for the employment distribution of each sex to be identical, which is the same as achieving representation in each occupation that is equivalent to their share of total employment. Put another way, because women make up about 46 percent of employed persons, the index indicates the proportion of women who would need to switch occupations in order for women to hold 46 percent of employment in every occupation.

For example, if all women and men were employed in only two occupations, engineering and law, and half of women were engineers and half were lawyers, while 20 percent of men were engineers and 80 percent were lawyers, the difference index would be:

$$1/2\{|(50-20)| + |(50-80)|\} = 30$$

That is, 30 percent of women would need to switch from engineering to the law or 30 percent of men would need to make the reverse switch in order for there to be perfect occupational integration.⁹

Measuring occupational differences

To examine occupational differences between women and men over time and by various characteristics such as education and age, analyses typically employ a summary measure

Extent of occupational differences

The difference index can be used to examine aggregate differences in the gender distribution within occupations both

Table 1. Women as a proportion of the total employed by occupation, annual averages, 1975 and 1995

[Numbers in thousands]

Occupation	1975 employed		1995 employed	
	Total women	Percent women	Total	Percent
Total	85,846	39.6	124,900	46.1
Managerial and professional specialty	17,996	34.8	35,318	48.0
Executive, administrative, and managerial	8,105	21.9	17,186	42.7
Professional specialty	9,891	45.3	18,132	52.9
Technical, sales, and administrative support	25,259	61.3	37,417	64.4
Technicians and related support	2,187	41.5	3,909	51.4
Sales occupation	9,147	41.9	15,119	49.5
Administrative support, including clerical	13,925	77.2	18,389	79.5
Service occupation	11,582	61.0	16,930	60.0
Private household	1,183	97.5	821	95.5
Protective service	1,359	7.1	2,237	15.9
Service, except private household and protective	9,040	64.4	13,872	65.0
Precision production, craft, and repair	10,584	5.5	13,524	8.9
Operators, fabricators, and laborers	16,658	24.4	18,068	24.3
Machine operators, assemblers, and inspectors	8,062	38.7	7,907	37.3
Transportation and material moving occupations	4,154	4.8	5,171	9.5
Handlers, equipment cleaners, helpers, and laborers	4,442	16.9	4,990	19.1
Farming, forestry, and fishing	3,777	14.0	3,642	19.9

NOTE: Data for 1995 are not directly comparable with data for 1975 because they reflect a major redesign of the Current Population Survey (CPS) and incorporate 1990 census-based population controls, adjusted for the estimated

undercount. For additional information, see "Revisions in the Current Population Survey Effective January 1994" *Employment and Earnings* (Bureau of Labor Statistics, February 1994).

over time and by various characteristics at one point in time. The following section describes trends in this summary measure of occupational difference over the 1985–95 period, followed by a discussion of how the index varied by educational attainment, age, and race and ethnicity in 1995.

Changes over time. As measured by the difference index using the most detailed occupational categories, the level of occupational difference declined from 58.1 in 1985 to 53.5 in 1995, a decline of 4.6 percentage points.¹⁰ (See table 2.) This compares with estimated declines of 8.5 points in the 1970s,¹¹ and 6.5 points from 1980 to 1990.¹² The rate of occupational desegregation through the mid-1990s thus appears to have been somewhat slower than the pace seen during the 1970s and 1980s.

Education. In general, the higher the level of education attained, the smaller the occupational differences between the sexes. Using more aggregate occupational categories,¹³ the difference index for the total of all education levels was 46 in 1995.¹⁴ College graduates had a lower degree of occupational gender differences (37.2) than did high school graduates (52.3). (See table 3.) Those college graduates with doctoral (20.2) or professional degrees (18.2) had even lower levels of differentiation. The highest level of occupational difference occurred among those possessing an occupational associate degree (61.1); within this group, women tended to be concentrated in health-related and clerical occupations, while men were concentrated in precision production and operator occupations.

Age. The level of occupational gender differentiation varies by age, though not nearly as much as by education.¹⁵ (See table 4.) For workers aged 25 and older, occupational differentiation in 1995 was lowest for the 25- to 34-year age group (53.5), and higher for each successively older 10-year age cohort, with those over age 65 having the highest level (60.9). These findings correspond with what one might expect; that is, that there is less occupational difference between the sexes for younger age cohorts who should be benefiting from increases in the educational attainment of women over the last several decades, improvements in equality of employment opportunities due to changes in the law, and changes in societal attitudes about gender roles. Occupational differences among teens and young adults were slightly higher than those for persons in their prime working years (ages 25 to 54), perhaps reflecting greater occupational differences among younger workers who may not yet have completed all of their education.¹⁶

Race and ethnicity. Occupational differences between the sexes do not differ greatly when calculated by race and eth-

Table 2. Difference index of occupational employment for men and women 16 years and older, 1985–95

Year	Difference index ¹
1985	58.1
1986	57.6
1987	57.0
1988	56.1
1989	55.5
1990	55.0
1991	55.1
1992	55.4
1993	54.2
1994	53.8
1995	53.5

¹ Derived from 1985–95 annual averages.

nic origin. In 1995, blacks had the lowest degree of occupational differentiation by gender, with an index value of 52.9, followed by whites, 54.1, and Hispanics, 56.0.

Decomposing trends

Part of the decline in occupational differences between women and men can be attributed to changes in the mix of occupations—for example, relatively faster growth of occupations that are more integrated in terms of gender composition. Another factor is that shifts have occurred in the gender composition of employment within particular occupations—for example, women’s increasing employment share in managerial occupations. As the following tabulation shows, changes in the difference index can be decomposed into (1) changes attributable to shifts in the occupational mix of the economy (“occupation mix effect”) and (2) changes attributable to the distribution of men and women within occupations (“gender composition effect”), and (3) an interaction effect between the two components.¹⁷

Cause of change	Change	Percent
Total	-4.72	100
Changes in occupational mix	-1.90	40
Changes in gender composition	-3.07	65
Interaction	0.25	-5

Decomposing the change in the difference index indicates that the majority (65 percent) of the decline in occupational segregation between 1985 and 1995 can be attributed to changes in the gender composition within occupations. The proportion of the decline due to this factor was slightly less than in the 1970s and the 1980s.¹⁸ Changes in the occupational mix accounted for 40 percent of the decline in segregation between 1985 and 1995, somewhat more than in the 1970s and 1980s,¹⁹ and the interaction effect accounted for the balance of the difference.

Who changed jobs?

Integration of individual occupations can result from women entering predominantly male occupations or men entering female-dominated occupations. Studies of the 1970s and early 1980s indicate that most of the decline in occupational difference occurred from the expansion of already integrated occupations and from women's movement into predominantly male occupations, with very little contribution from men's entry into female-dominated occupations.²⁰ The following section examines changes in the gender composition of occupations in more detail to determine whether this continued to be the case between 1985 and 1995.

One way to look at the difference between occupational employment patterns of women and men is to analyze the extent to which women and men are concentrated in occupations that employ predominantly one sex. First, one must determine criteria for what constitutes a "female" or "male" occupation. Such a determination is necessarily somewhat arbitrary. Some analysts have defined such occupations as those in which employment consists of 80

percent or more of one sex;²¹ others have used more than 70 percent as the cutoff.²²

In 1985, 48 percent of women were employed in female-dominated occupations, defined as occupations in which women made up 80 percent or more of employment; by 1995, this proportion had dropped to 38 percent.²³ (See chart 2.) The proportion of women employed in "male" occupations, analogously defined, was little changed at 5 percent in 1985 and 4 percent in 1995. As chart 2 shows, there was a large increase in the proportion of women employed in occupations in which women made up 60 to 80 percent of employment.

Over the past decade, shifts in the distribution of male occupational employment among male- and female-dominated occupations show patterns similar to those for women. Employment of men in occupations that were more than 80 percent male declined from 50 percent in 1985 to 41 percent in 1995. (See chart 3.) The proportion of men employed in female-dominated occupations was about unchanged, at 4 percent in 1985 and 3 percent in 1995. Men's employment share increased most in occupations in which employment was 60 percent to 80 percent male.

The previous section of this analysis thus indicates that much of the decline in occupational segregation between 1985 and 1995 occurred as a result of both women's and men's employment shifting from occupations dominated by one sex to more integrated occupations. Next, we analyze disproportionate shifts in the gender composition of specific occupations from 1985 to 1995.²⁴

Determining what constitutes "disproportionate" change is another somewhat arbitrary decision. One criterion that has been used in the past, and that is adopted in this analysis, is to use twice the increase in women's share of total employment over the period examined.²⁵ Between 1985 and 1995, for example, women's share of employment increased by 2 percent; thus, we consider there to have been a disproportionate shift in occupational employment if women's share of an occupation increased by 4 percent or more.

As shown in table 5, a wide range of predominantly male occupations (here defined as occupations in which 1985 employment was 60 percent or more male), became more integrated over the decade as the female share of employment increased disproportionately. Women made disproportionate employment gains in a number of managerial and related occupations, including financial managers, purchasing managers, marketing managers, and inspectors and compliance officers. Some of the occupations with disproportionate gains in women's share of employment, however, were already dominated by women in 1995. These included medicine and health managers and personnel, training, and labor relations specialists.

Among professional occupations, women's employment share rose among a wide range of occupations—from archi-

Table 3. Difference index of occupational employment for men and women 25 years and older by educational attainment, 1995

Educational attainment	Difference index ¹
Total	46.1
Less than high school	49.0
High school graduate, no college	52.3
Some college, no degree	48.9
Associate degree	
Occupational ²	61.1
Academic	49.5
College graduates, total	37.2
Bachelor's degree	38.9
Master's degree	37.3
Professional degree	18.2
Doctoral degree	20.2

¹ Derived from 1995 annual averages.

² This category includes associate degree programs that prepare a person to work in a specific occupation.

Table 4. Difference index of occupational employment for men and women, by age, 1995

Age	Difference index ¹
Total, 16 years and older	53.5
16 to 19 years	55.5
20 to 24 years	55.4
25 to 34 years	53.5
35 to 44 years	54.7
45 to 54 years	55.3
55 to 64 years	59.5
65 years and older	60.9

¹ Derived from 1995 annual averages.

Chart 2. Distribution of female employment among occupations employing varying concentrations of women, 1985 and 1995

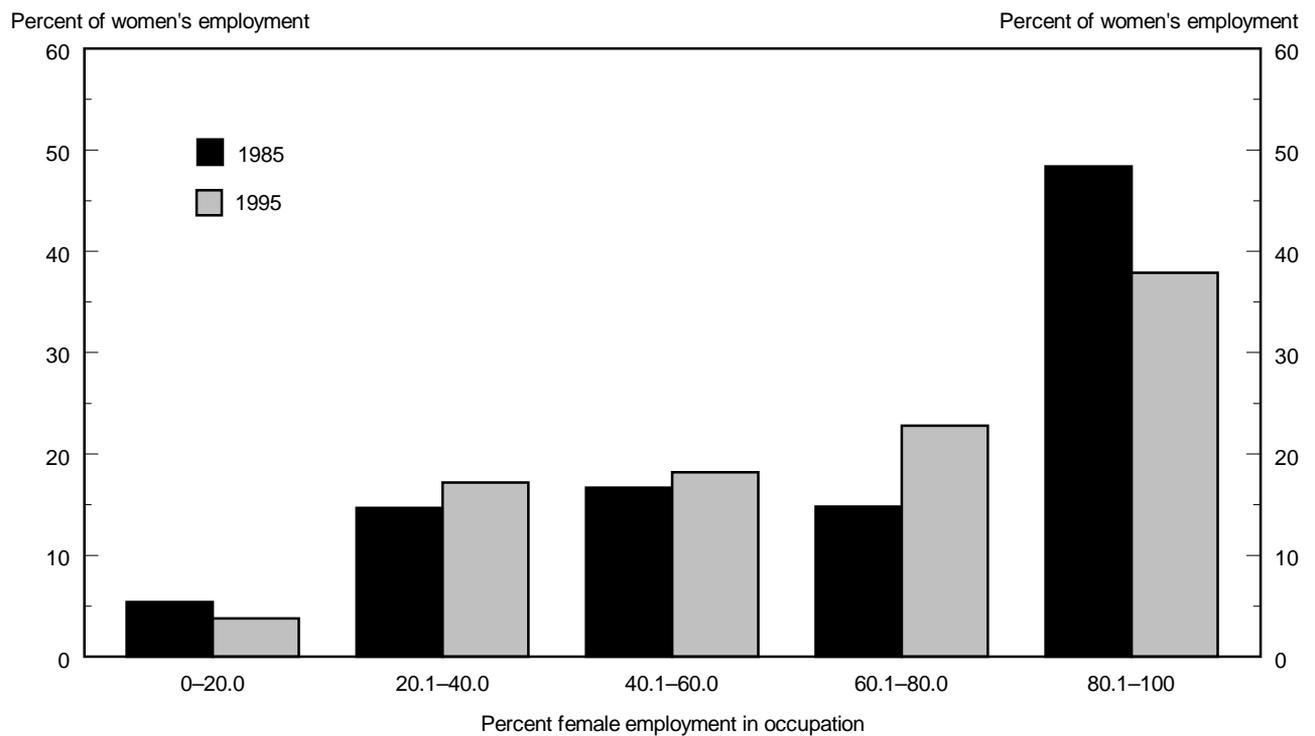


Chart 3.

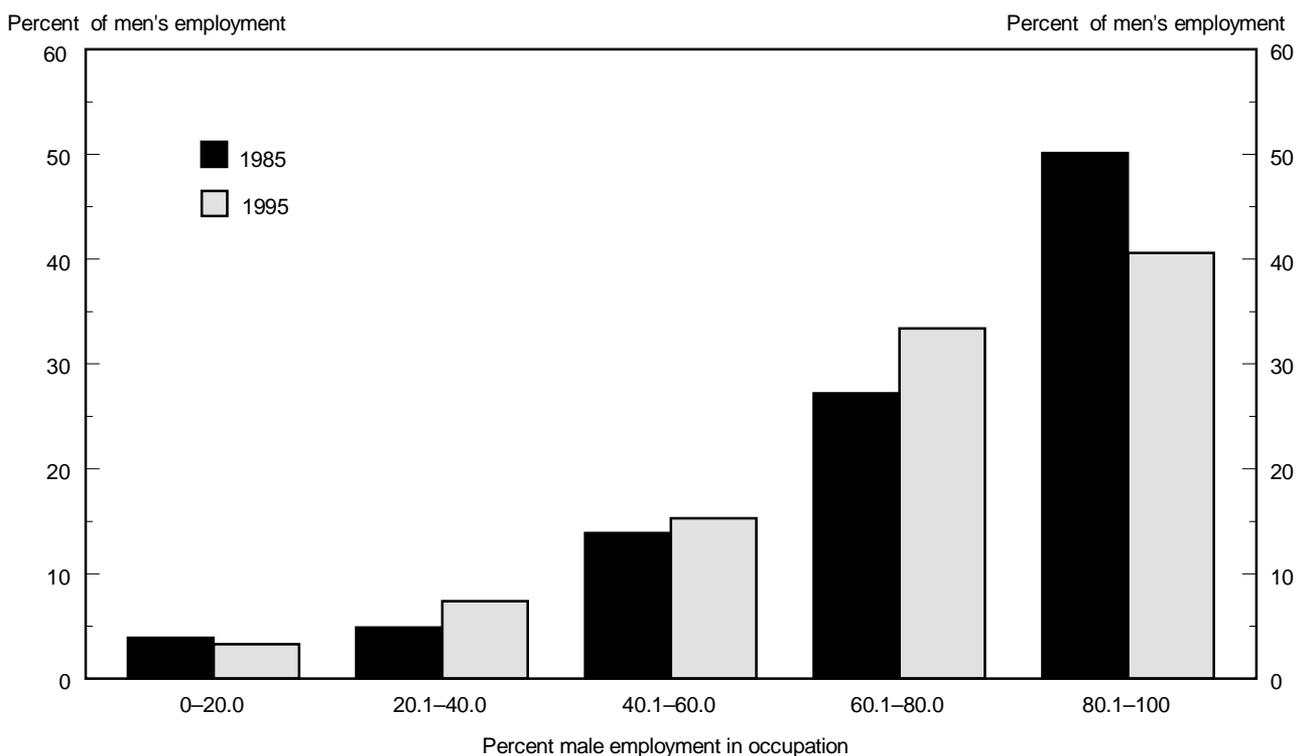


Table 5. Occupations in which women's representation increased disproportionately between 1985 and 1995

Occupation	Women as a percent of total employment		Change
	1985	1995	1985-95
Total employed, 16 years and older	44.1	46.1	2.0
Executive, administrative, and managerial:			
Managers, medicine and health	59.2	79.9	20.7
Purchasing managers	24.4	41.5	17.1
Financial managers	35.7	50.3	14.6
Personnel and labor relations managers	44.5	58.5	14.0
Managers, marketing, advertising, and public relations	23.8	35.7	11.9
Administrators, education and related fields	48.2	58.7	10.5
Inspectors and compliance officers, except construction	22.9	32.2	9.3
Officials and administrators, public administration	40.7	49.8	9.1
Managers, properties and real estate	41.0	49.8	8.8
Personnel, training, and labor relations specialists	56.5	65.1	8.6
Accountants and auditors	44.1	52.1	8.0
Buyers, wholesale and retail trade, except farm products	48.7	56.3	7.6
Underwriters and other financial officers	48.0	53.2	5.2
Professional specialty:			
Technical writers	35.6	53.9	18.3
Economists	34.5	50.3	15.8
Counselors, educational and vocational	55.9	68.3	12.4
Chemists, except biochemists	21.0	31.9	10.9
Teachers, college and university	35.2	45.2	10.0
Public relations specialists	48.7	57.9	9.2
Psychologists	50.4	59.2	8.8
Architects	11.3	19.8	8.5
Lawyers	18.1	26.4	8.3
Physicians	17.2	24.4	7.2
Recreation workers	67.5	74.7	7.2
Musicians and composers	30.3	37.3	7.0
Designers	51.1	57.6	6.5
Pharmacists	29.8	36.2	6.4
Authors	48.0	54.2	6.2
Clergy	6.0	11.1	5.1
Athletes	20.5	25.3	4.8
Operations and systems researchers and analysts	34.9	39.1	4.2
Industrial engineers	10.9	14.9	4.0
Technicians and related support:			
Biological technicians	43.2	50.0	6.8
Legal assistants	75.6	80.0	4.4
Sales:			
Insurance sales	27.7	37.1	9.4
Supervisors and proprietors	31.2	38.9	7.8
Securities and financial services sales	24.6	31.3	6.7
News vendors	30.7	35.8	5.1
Administrative support, including clerical:			
Mail carriers, postal service	17.2	31.9	14.7
Supervisors, distribution, scheduling, and adjusting clerks	20.6	34.6	14.0
Production coordinators	48.6	58.5	9.9
Stenographers	85.9	95.1	9.2
Statistical clerks	75.4	84.3	8.9
Supervisors, financial records processing	69.8	77.4	8.9
Insurance adjusters, examiners, and investigators	65.9	73.9	8.0
Traffic, shipping, and receiving clerks	25.5	32.5	7.0
Dispatchers	47.9	54.1	6.2
Bill and account collectors	66.3	72.2	5.9
Expeditors	61.9	67.2	5.3
Payroll and timekeeping clerks	86.8	90.9	4.1
Service:			
Sheriffs, bailiffs, and other law enforcement officers	8.2	16.3	8.1
Waiters' and waitresses' assistants	40.1	46.2	6.1
Bartenders	47.9	53.5	5.6
Janitors and cleaners	29.4	35.0	5.5
Precision production, craft, and repair:			
Optical goods workers	45.9	54.1	8.2
Data processing equipment repairers	10.4	15.2	4.8
Operators, fabricators, and laborers:			
Machine feeders and offbearers	32.4	46.0	13.6
Stock handlers and baggers	22.1	28.2	6.1
Industrial truck and tractor equipment operators	3.1	7.1	4.0
Farming, forestry, and fishing:			
Farmers	14.2	27.1	12.9
Animal caretakers, except farm	58.2	66.5	8.3
Farm managers	11.2	15.7	4.5

NOTE: Data are based on 1985 and 1995 annual averages. Excludes occupations with a total employment base of less than 50,000, as well as miscellaneous or broad occupational categories that cannot be more specifically identified.

to physicians to clergy to athletes. Women also increased their employment share among economists, lawyers, musicians and composers, and college and university teachers. Absent from the list of professional occupations in which women experienced disproportionate gains over the decade were many scientific and technical occupations such as engineers, computer scientists, and technicians. Among predominantly male scientific occupations, disproportionate female gains were limited to chemists, with small gains also for industrial engineers and operations and systems researchers and analysts.

Between 1985 and 1995, women made gains in a few traditionally male sales occupations such as securities and financial services and insurance sales. Women increased their employment share in few male-dominated service occupations, such as protective services occupations. They also made little headway among precision production, craft, and repair occupations—experiencing small share increases only among data processing equipment repairers and optical goods

workers — and among operating and fabricating occupations.

Among administrative support occupations, women's employment share increased among the traditionally male postal clerks category. But the female share of employment also increased for a number of clerical occupations that already were dominated by women (for example, payroll and timekeeping clerks, insurance adjusters, and statistical clerks).

Men were less likely than women to experience disproportionate shifts in employment toward occupations that predominantly employed women. (See table 6.) This is consistent with findings from past research, covering the periods 1970–80 and 1980–88;²⁶ however, men made disproportionate gains into more predominantly female occupations between 1985 and 1995 than they had during earlier periods. These occupations included some health-related occupations (respiratory therapists and health aides, except nursing), as well as data-entry keyers, waiters and waitresses, sales counter clerks, electrical equipment assemblers, and textile

Table 6. Occupations in which men's representation increased disproportionately between 1985 and 1995

Occupation	Percentage of men		Change, 1985–95
	1985	1995	
Total employed, 16 years and older	55.9	53.9	-2.0
Executive, administrative, and managerial:			
Respiratory therapists	35.7	39.9	4.2
Technicians and related support:			
Computer programmers	65.7	70.5	4.8
Sales:			
Sales counter clerks	27.8	34.3	6.5
Sales occupations, other business services	52.8	59.0	6.2
Salesworkers, furniture and home furnishings	49.0	54.7	5.7
Salesworkers, other commodities	25.4	29.9	4.5
Administrative support, including clerical:			
Weighers, measurers, checkers, and samplers	50.8	59.1	8.3
Data-entry keyers	9.3	17.1	7.8
Computer operators	33.5	39.5	6.0
Order clerks	21.2	25.9	4.7
Service:			
Health aides, except nursing	14.4	24.0	9.6
Waiters and waitresses	16.0	22.3	6.3
Food counter, fountain, and related occupations	20.5	25.2	4.7
Kitchen workers, food preparation	25.2	29.3	4.1
Precision production, craft, and repair:			
Electrical and electronic equipment assemblers	28.2	34.0	5.8
Operators, fabricators, and laborers:			
Molding and casting machine operators	64.8	74.8	10.0
Punching and stamping press machine operators	70.9	78.7	7.8
Winding and twisting machine operators	22.1	29.9	7.8
Hand packers and packagers	34.8	41.1	6.3
Laundering and dry cleaning machine operators	37.4	42.9	5.5
Textile sewing machine operators	9.2	14.3	5.1
Packaging and filling machine operators	39.9	44.1	4.2
Farming, forestry, and fishing:			
Farmworkers	76.7	81.9	5.2

NOTE: Data are based on 1985 and 1995 annual averages. Excludes occupations with a total employment base of less than 50,000, as well as

miscellaneous or broad occupational categories that cannot be more specifically identified.

sewing machine operators.

OCCUPATIONAL DIFFERENCES between women and men continued to decline between 1985 and 1995, although at a somewhat gender composition within occupations accounted for a larger share of the decline in occupational segregation during 1985 to 1995 than did changes in the occupational mix of the work force.

Footnotes

¹ See, for example, Francine D. Blau and Marianne A. Ferber, *The Economics of Women, Men, and Work* (Englewood Cliffs, NJ, Prentice-Hall, 1986); and Barbara F. Reskin and Heidi I. Hartmann, *Women's Work, Men's Work: Sex Segregation on the Job* (Washington, National Academy Press, 1986).

² See David A. Cotter, Joann M. DeFiore, Joan M. Hermsen, Brenda M. Kowalewski, and Reeve Vanneman, "Occupational Gender Desegregation in the 1980s," *Work and Occupations*, February 1995, pp. 3–21.

³ Barbara F. Reskin and Patricia A. Roos, eds., *Job Queues and Gender Queues* (Philadelphia, Temple University Press, 1990), p. 16; and Jerry A. Jacobs, "Long-term trends in occupational segregation by sex," *American Journal of Sociology*, July 1989, pp. 160–73.

⁴ See Cotter and others, "Occupational Gender Desegregation in the 1980s"; and Mary C. King, "Occupational segregation by race and sex, 1940–1988," *Monthly Labor Review*, April 1992, pp. 30–37.

⁵ The data used in this article are annual averages derived from the Current Population Survey (cps), a monthly sample survey of about 50,000 households, conducted by the Bureau of the Census for the Bureau of Labor Statistics. The cps has the benefit of providing the most current data available, as well as consistency in source over time. Some prior research has compared census data for one point in time to cps data for another point in time (see, for example, King, "Occupational segregation by race and sex, 1940–1988"), which can be problematic because these sources can show different occupational distributions for the same year. See Suzanne M. Bianchi and Nancy F. Rytina, "The decline in occupational sex segregation during the 1970s: Census and cps comparisons," *Demography*, 1986, vol. 23, pp. 79–86, note 2. Also, since 1983, relatively few changes have been made to the occupational classification system used in the cps, providing comparability for nearly all of the detailed occupational categories over the period examined.

⁶ Technological and organizational changes create new kinds of jobs and affect the structure of existing jobs. These changes are reflected in revisions to the occupational structures used to collect data, making detailed comparisons over long periods difficult. Thus, comparable cps data for detailed occupational categories are not available prior to 1983; comparisons of broader occupational groups can be made back to 1972.

⁷ See, for example, Judith Fields and Edward N. Wolff, "The Decline of Sex Segregation and the Wage Gap, 1970–80," *The Journal of Human Resources*, Fall 1991, pp. 608–22 (finding that high employment growth within an occupation is a major factor associated with declines in gender segregation, particularly for male-dominated occupations).

⁸ The index is calculated as follows:
$$D.I. = 1/2(\sum |x_i - y_i|),$$

where x_i is the percentage of working women employed in occupational category i , and y_i is the percentage of men employed in the same occupation i . See O.D. Duncan and B. Duncan, "A methodological analysis of segregation indexes," *American Sociological Review*, 1955, vol. 20, pp. 210–17.

⁹ The appeal of the index is both that it is widely used and that its meaning is fairly intuitive. A limitation of the index, and of other measures of occupational difference, is apparent when trying to compare levels of segregation

over time. Changes to the occupational classification structure over time may result in an index that overstates or understates the degree of change. In this article, we focus the analysis on the 1985 to 1995 period, because there were only a handful of changes to the cps classification structure during that time. Numerous changes to the occupational structure implemented in the cps in 1983 make it problematic to extend the analysis back prior to that time.

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A different problem that exists for the analysis, regardless of the period, is that a number of occupational categories—"not elsewhere classified" (n.e.c.) and "miscellaneous" categories—consist of an unknown, heterogeneous mix of jobs. One option would be to exclude these groupings from the analysis because they are not "true" occupational categories; however, this would result in a reduction of the number of occupational categories examined from 501 to 438 and a loss of about 15 percent of total employment from the analysis. For this reason, and because the gender makeup of these categories typically is similar to that for specific related occupations, these categories were included in the index calculation.

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¹⁰ The indexes for each year from 1985 through 1995 show a slow downward trend, with little change between 1991 and 1992. This puts to rest any apprehension that the introduction of 1990 changes to the census occupational structure into the 1992 cps would alter trends in the data.

¹¹ Bianchi and Rytina, "The decline in occupational sex segregation," table 2, p. 81. This figure is from census data. Using cps data for 1972 and 1982, Bianchi and Rytina find a decline in the difference index of 7.4 percent.

¹² Cotter and others, "Occupational Gender Desegregation," p. 13. This figure (6.5 points) is based on the full 1980 census and the 1990 census 5-percent Public Use Microdata Samples.

¹³ Difference indexes by educational attainment were calculated using less aggregated occupational categories than those used in the other calculations in this article because they were the most detailed data available. There are 45 of the less aggregated or "intermediate" occupational categories. Also, the occupational data by educational attainment are based on persons aged 25 and older—those most likely to have completed their education.

¹⁴ The difference index is sensitive to the level of occupational aggregation or number of occupations examined. In general, finer levels of definitions generate a higher index, unless the gender distribution within each of these finer categories is identical to the broader occupational grouping. Because the index by educational attainment was calculated using 45 intermediate-level occupations, the total for all educational levels in 1995 was somewhat lower (46) than the total index using the 501 most-detailed level occupations (53.5).

¹⁵ Difference indexes were calculated using detailed-level occupational categories.

¹⁶ These findings differ from the findings of Holden and Hansen with regard to the 1970s. They concluded that occupational differences were least pronounced among teens, those aged 16 to 19, and among those over age 65. See Karen Holden and W. Lee Hansen, "Part-time work, full-time work, and occupational segregation," in Claire Brown and Joseph Pechman, eds., *Gender in the Workplace* (Washington, The Brookings Institution, 1987), pp. 217–46.

The largest differences among teens in the gender distribution within occupations in 1995 occurred among occupations that do not require a high

level of education. Women aged 16 to 19 tend to hold a disproportionate employment share of salesworkers, apparel; cashiers; secretaries; receptionists; clerks; waitresses; food counter, fountain, and related occupations; child care workers; and early childhood teacher's assistants. Men aged 16 to 19, by contrast, tend to be disproportionately employed as cooks; janitors and cleaners; truckdrivers; farmworkers; groundskeepers; and various laborers and handlers.

¹⁷ See Francine D. Blau and Wallace F. Hendricks, "Occupational segregation by sex: trends and prospects," *The Journal of Human Resources*, 1979, vol. 14, no. 2, pp. 197–210, at pp. 199–200. To decompose the change over time, the 1995 difference index is standardized on the 1985 occupational structure. The occupational mix effect represents the change in the difference index that would have occurred had the gender composition of each occupation remained constant between 1985 and 1995. The gender composition effect represents the change in the difference index that would have resulted had the occupational employment structure remained constant over time.

¹⁸ See Bianchi and Rytina, "The decline in occupational sex segregation," table 2, p. 81. This study found the composition effect responsible for 75 percent of the decline in occupational segregation during the 1970s. Also see Cotter and others, "Occupational Gender Desegregation," table 3, p. 14, which attributed 71 percent of the decline during the 1980s to the composition effect.

¹⁹ Bianchi and Rytina, "The decline in occupational sex segregation"; and Cotter and others, "Occupational Gender Desegregation."

²⁰ See Reskin and Roos, *Job Queues and Gender Queues*, p. 16; and

Bianchi and Rytina, "The decline in occupational sex segregation," p. 82.

²¹ Suzanne M. Bianchi and Nancy F. Rytina, "Occupational change, 1970–1980," Paper prepared for the Population Association of America, Minneapolis, May 1984 (cited in Reskin and Roos, *Job Queues and Gender Queues*, p. 6).

²² Rachel A. Rosenfeld and Kenneth I. Spenner, "Occupational sex segregation and women's early career job shifts," *Work and Occupations*, November 1992, pp. 424–49, at p. 429.

²³ However, if one were to use a 70-percent concentration as the cutoff for "female" occupations, the proportion of women employed in such occupations would edge down only slightly from 57 percent in 1985 to 55 percent in 1995. Similarly, if a 60-percent cutoff were used, the share of women's employment in female-dominated occupations would edge down from 63 percent in 1985 to 61 percent in 1995. These differing results are not surprising because, as mentioned in the text, the share of women's employment increased most over the decade in occupations composed of 60 percent to 80 percent women.

²⁴ Occupational titles that encompassed heterogeneous jobs (n.e.c., miscellaneous, and "all other" categories) were excluded from this analysis because such categories are not analytically meaningful. Occupations with a small sample base (estimates of less than 50,000) also were excluded because of their large associated sampling error.

²⁵ See Reskin and Roos, *Job Queues and Gender Queues*, pp. 16–20.

²⁶ Reskin and Roos, *Job Queues and Gender Queues*, p. 21.