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Gender and Racial/Ethnic Differences in Salary and Other Characteristics of Postsecondary Faculty: Fall 1998

Statistical Analysis Report

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Statistical Analysis Report

September 2002

Ellen M. Bradburn
Anna C. Sikora
MPR Associates, Inc.

Linda J. Zimbler
Project Officer
National Center for Education Statistics

U.S. Department of Education
Rod Paige
Secretary

Office of Educational Research and Improvement
Grover J. Whitehurst
Assistant Secretary

National Center for Education Statistics
Gary W. Phillips
Deputy Commissioner

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Aurora.D'Amico@ed.gov

Executive Summary

Disparities in salary, rank, and tenure among faculty members have been an interest of leaders and policymakers both inside and outside academe. Researchers have consistently found that faculty characteristics such as experience, research productivity, institution type, and teaching field relate to faculty pay and outcomes (Fairweather 1995; Bellas 1997; Bellas and Toutkoushian 1999). Differences by gender and race/ethnicity are also evident, with relatively few women and minority faculty teaching at doctoral institutions and holding tenure and the highest ranking positions (Jusenius and Scheffler 1981; Alpert 1989; Smart 1991; Ashraf 1996; Nettles, Perna, and Bradburn 2000). Additionally, wage gaps between male and female faculty remain after controlling for numerous sociodemographic, human capital, productivity, and employment characteristics (Barbezat 1991; Glazer-Raymo 1999; Nettles, Perna, and Bradburn 2000). These gender and racial/ethnic equity issues are important to individuals currently working within the professoriate and to those who hope to attract a diverse pool of talent to the profession in the future (American Association of University Professors 1999).

Using data from the 1999 National Study of Postsecondary Faculty (NSOPF:99), this report examines how gender and race/ethnicity relate to a number of faculty outcomes and characteristics, including the following: salary, rank, tenure status, education, experience, institution type, teaching field, workload, and research productivity. The report focuses on full-time faculty and staff who had instructional duties for credit in fall 1998,[1] comparing men and women as well as members of four racial/ethnic groups: White, non-Hispanic; Black, non-Hispanic; Asian/Pacific Islander; and Hispanic. It also includes a regression analysis that shows the residual relationship of gender and race/ethnicity to salary after taking into account other faculty characteristics. As a follow-up to the report *Salary, Promotion, and Tenure Status of Minority and Women Faculty in U.S. Colleges and Universities* (Nettles, Perna, and Bradburn 2000), which used data from the 1993 National Study of Postsecondary Faculty (NSOPF:93), the current report also examines changes in faculty outcomes and characteristics between 1992 and 1998.

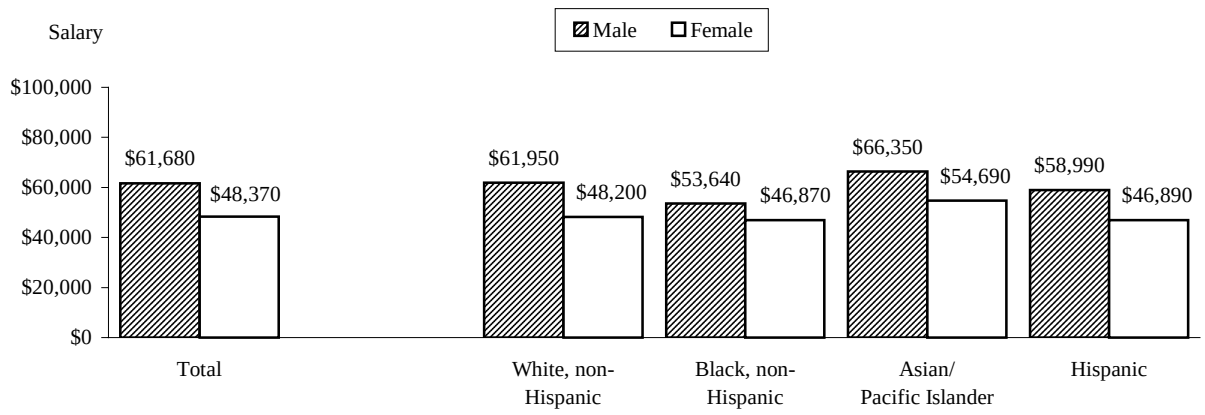
Differences Between Male and Female Faculty Members

Overall, men's salaries were higher than women's salaries: full-time male faculty averaged about $61,700 in base salary from the institution in 1998, compared with $48,400 for full-time female faculty (figure A). Furthermore, men's salary advantage was found among White,[2] Asian, Black, and Hispanic faculty as well. The male-female difference in base salary ranged from about $7,000

[1]Throughout this report, "full-time faculty and staff who had instructional duties for credit" are often referred to simply as "faculty." Included are full-time faculty who had for-credit instructional duties, as well as staff who did not have faculty status, but who did have for-credit instructional duties. Teaching assistants are not included.

[2]For brevity throughout this report, "White" denotes "White, non-Hispanic," "Black" refers to "Black, non-Hispanic," and "Asian" refers to "Asian/Pacific Islander."

Figure A.—Base salary of full-time instructional faculty and staff at degree-granting institutions, by gender and race/ethnicity: Calendar year 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Refers to base salary during calendar year 1998 received from the institution at which the respondent was sampled. Dollar figures are rounded to the nearest 10. Included in total but not shown separately are American Indian/Alaska Native faculty.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

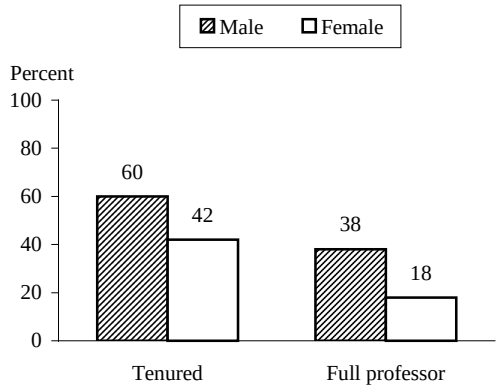
among Black faculty to about $14,000[3] among White faculty. The regression analysis also showed that, after controlling for race, type of institution, teaching field, level of instruction, tenure status, rank, highest degree, years since highest degree, age, average proportion of time spent on teaching and on research, number of classes taught, and number of total publications or other permanent creative works, full-time female faculty members earned nearly 9 percent[4] less than their male counterparts.

Other faculty outcomes and characteristics also differed by gender in fall 1998. Overall, men held higher ranks and were more likely than women to have tenure (figure B). Men were much more likely than women to be full professors, and 60 percent of men had tenure, compared with 42 percent of women. Women were also more likely than men to have jobs that were not on the tenure track. Men's and women's highest degree and years of experience also differed. While about three-quarters (74 percent) of men held doctoral or first-professional degrees, 54 percent of women held these degrees, and women were much more likely than men to have completed their education with a master's degree. Men had also held their highest degrees for longer periods of time, on average, than women and had been teaching longer both in their current jobs and in higher education overall. On the other hand, no

[3]These salary differences were calculated as follows: $53,640 (Black male average salary) – $46,870 (Black female average salary) = $6,770 (salary difference between Black males and females); $61,950 (White male average salary) – $48,200 (White female average salary) = $13,750 (salary difference between White males and females); $66,350 (Asian male average salary) – $54,690 (Asian female average salary) = $11,660 (salary difference between Asian males and females) and $58,990 (Hispanic male average salary) – $46,890 (Hispanic female average salary) = $12,100 (salary difference between Hispanic males and females).

[4]This percentage difference was calculated using male and female average base salaries that were adjusted to take into account differences associated with other variables in the analysis: $58,690 (adjusted male average salary) – $53,620 (adjusted female average salary) = $5,070 (gender salary difference) / $58,690 = .086 x 100 = 9 percent.

Figure B.—Percentage of full-time instructional faculty and staff at degree-granting institutions who were senior faculty, by gender: Fall 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

differences were detected between women and men in the number of jobs in higher education during their careers. Since women's careers were shorter, this result suggests more frequent job turnover among women.

Men were more likely than women to be employed at public doctoral institutions, while women were more likely to work at public 2-year colleges. Gender differences in teaching field were evident as well: men were more likely than women to teach in the natural sciences and engineering, while women were more likely to teach in the health sciences or in the social sciences and education.

Teaching and research activities of male and female faculty members also differed. Women spent a greater average proportion of their total work time on activities related to teaching, averaging about 60 percent of their work time on such activities, compared with about 55 percent for men. Conversely, about 70 percent of men reported that they were engaged in some type of research activity, compared with about 62 percent of women. Men had also produced more scholarly works than women over the previous 2 years.

Because non-Hispanic Whites are the largest racial/ethnic group of faculty, gender differences overall are driven by the differences between White men and White women. Less is known about the extent of gender differences among other racial/ethnic groups. This report found that most of the gender differences among White faculty also existed among Asian faculty, while fewer such differences existed among Black and Hispanic faculty. Yet several differences did emerge. Black women were more likely than Black men to be employed at community colleges. In addition, Black men were more likely to teach in the natural sciences and engineering, while Black women were more likely to teach in the health sciences or social sciences and education. Both Black and Hispanic men were more likely than their female counterparts to hold the most senior positions, and like Asian and White men, Black and Hispanic men tended to have more education than their female counterparts.

Differences Among Racial/Ethnic Groups

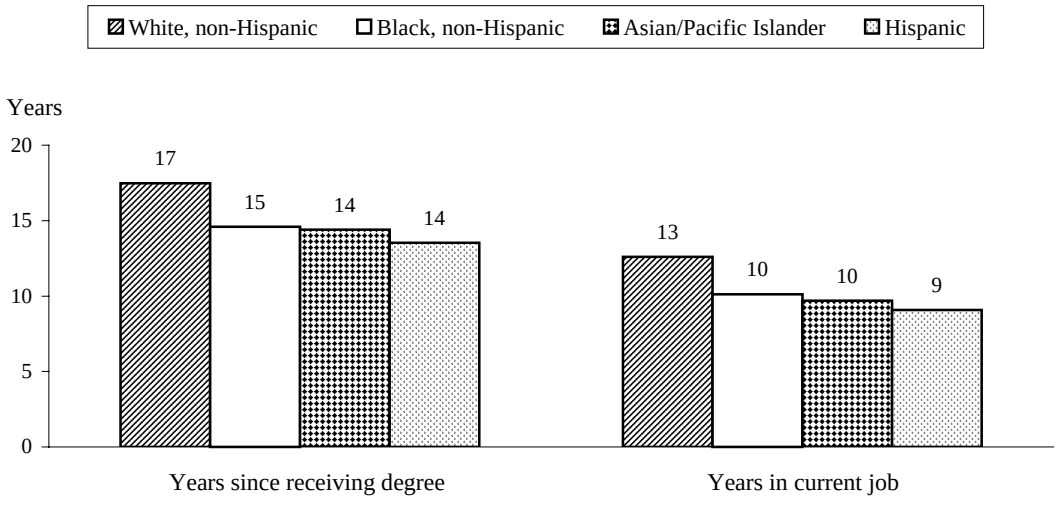
Overall, Asian/Pacific Islander faculty salaries were higher than White faculty salaries, which were higher than Black faculty salaries. Full-time White faculty averaged $57,000 in base salary from their institutions in 1998, compared with $62,800 for Asian faculty and $50,400 for Black faculty. No salary difference was found between Hispanic faculty, who earned about $54,400 on average, and White faculty. After controlling for the other variables in this analysis, no differences

were observed in average salaries across racial/ethnic categories.

The analysis of faculty outcomes and characteristics in fall 1998, which makes racial/ethnic comparisons separately for men and women, shows that racial/ethnic differences were more often found among men than among women. When racial/ethnic differences did emerge, there were more differences between Whites and Asians than between Whites and Blacks. Hispanic faculty displayed the fewest differences from White faculty overall. In some cases, small sample sizes and large standard errors meant that apparent differences were not statistically conclusive.

In general, full-time Asian/Pacific Islander faculty were more likely than full-time White faculty to have several kinds of characteristics that are associated with higher salaries. For example, they were more likely to work at public doctoral institutions and to teach in the natural sciences and engineering. They also spent a higher average proportion of their time engaged in research, and they produced more recent scholarly works. In contrast, Black faculty were less likely than White faculty to have certain characteristics associated with higher pay. Thus, Black faculty were less likely than White faculty to be full professors or to hold tenure. They were also less likely to work at doctoral institutions and more likely to teach in the social sciences and education. While Asian faculty were more likely than White faculty, who in turn were more likely than Black faculty, to have doctoral or first-professional degrees, White faculty had more experience than faculty belonging to any of the other three racial/ethnic groups (figure C). Compared with Asian, Black, and Hispanic faculty, White faculty had held their highest degrees and their current jobs longer.

Figure C.—Years of experience of full-time instructional faculty and staff at degree-granting institutions by race/ethnicity: Fall 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

White faculty were also older than their Asian and Hispanic colleagues.

Other Findings

The multiple regression analysis confirmed that other faculty characteristics besides gender were related to salaries. Tenure status, academic rank, highest degree earned, and number of years since receiving highest degree were all associated with salary. Full professors earned more than associate and assistant professors and faculty in other ranks. Faculty holding doctoral or first-professional degrees earned about 12 percent[5] more than faculty holding other degrees, and those who held their highest degrees for more than 15 years earned an average of at least $6,000[6] more than their colleagues with less experience.

Institution type, teaching field, and teaching and research activities were also associated with salaries. Compared with faculty who taught at public 2-year institutions, faculty who taught at public and private not-for-profit doctoral institutions earned significantly higher salaries after adjusting for the other variables used in the analysis. Faculty who taught in business, law, communications, and health sciences earned significantly higher salaries than faculty in the natural sciences and engineering. Faculty in the natural sciences and engineering earned more than their counterparts in the humanities. Additionally, faculty who reported producing more than 10 total publications or other permanent creative works over the previous 2 years earned more than their counterparts who had produced fewer works. Salaries were also higher for those faculty members who spent an average of 50 percent or less of their time on teaching activities.

A comparison of results from the 1993 and 1999 administrations of NSOPF also showed that differences among faculty have persisted over time. Overall, the status of faculty across racial/ethnic groups changed little between 1992 and 1998. Women's average salary (in constant 1998 dollars) rose significantly between 1992 and 1998, resulting from an increase in salary among White women in particular. But while salaries among other racial/ethnic groups also appeared to have increased for women (and, in some cases, for men), the standard errors were large, and there was not enough statistical evidence to conclude that these results were significant. In addition to having higher average salaries in 1998 than in 1992, White women were also more likely to have doctoral or first-professional degrees and to be full professors. Despite these changes, no change was detected in the gap between the average salary of White men and women between 1992 and 1998. In fact, no significant changes were detected in the salary gaps between male and female full-time instructional staff between 1992 and 1998 across the four racial/ethnic groups examined.

[5]This percentage difference was calculated using average base salaries by highest degree adjusted to control for differences associated with other variables in the analysis: $58,980 (adjusted average salary for faculty holding doctoral/first-professional degrees) – $52,540 (adjusted average salary for faculty holding other degrees) = $6,440 (salary difference) / $52,540 = 0.12 x 100 = 12 percent salary difference.

[6]These salary differences were calculated as follows: $60,690 (adjusted average salary for faculty with more than 15 years of experience) – $54,280 (adjusted average salary of faculty with 11 to 15 years of experience) = $6,410 (salary difference); $60,690 (adjusted average salary for faculty with more than 15 years of experience) – $53,250 (adjusted average salary of faculty with 6 to 10 years of experience) = $7,440 (salary difference); and $60,690 (adjusted average salary for faculty with more than 15 years of experience) – $50,950 (adjusted average salary of faculty with 0 to 5 years of experience) = $9,740 (salary difference).

Foreword

This report describes gender and racial/ethnic differences in salaries and other characteristics of full-time instructional faculty and staff in fall 1998. Gender and racial/ethnic differences among four racial/ethnic groups—White, Asian/Pacific Islander, Black/African American, and Hispanic faculty—are examined with respect to structural characteristics, education and experience, and teaching and research activities. In addition, a regression analysis examines whether salary differences by gender and race/ethnicity persist when controlling for all of these types of factors.

This report uses data from the 1999 National Study of Postsecondary Faculty (NSOPF:99), the third cycle of data collections on postsecondary faculty conducted by the National Center for Education Statistics (NCES). Previous collections were conducted in 1987–88 and 1992–93. Additional NCES reports using NSOPF:99 are planned on such topics as faculty and staff who taught classes to undergraduates, faculty use of technology, involvement of instructional faculty and staff in distance education, part-time faculty, and retirement and other departure plans of faculty. Upon their release, these reports can be accessed and downloaded from the NCES Web Site *(http://nces.ed.gov)*.

The estimates presented in the report were produced using the NCES Data Analysis System (DAS), a microcomputer application that allows users to specify and generate tables, for the NSOPF:99 study. The DAS produces the design-adjusted standard errors necessary for testing the statistical significance of differences among estimates. Researchers are encouraged to use the NSOPF:99 data for their own analysis as well. For more information on the DAS and analysis with NSOPF:99, readers should consult appendix B of this report.

Acknowledgments

The authors appreciate the contributions of staff members at MPR Associates, NCES and other U.S. Department of Education offices, and nongovernmental agencies for their contributions to the production of this report. At MPR Associates, Katharin Peter and Rachael Berger provided considerable skilled assistance with statistical analysis and literature review. Laura Horn contributed to the development of the report with both detailed comments on drafts and a helpful broader perspective on the direction of the report. Expert assistance in the production of the report was supplied by Francesca Tussing and Barbara Kridl. Andrea Livingston and Robin Henke provided helpful editorial and substantive reviews.

Outside of MPR Associates, Linda Zimbler at NCES oversaw the production and development of the report through all stages, providing detailed feedback and guidance on all drafts. Paula Knepper was the senior technical advisor for the report and contributed a great deal to strengthening the complex results reported here. C. Dennis Carroll and Andrew G. Malizio at NCES also reviewed and commented on the report at different stages, and Karen O'Conor adjudicated the report. Other reviewers included Bill Sonnenberg and Jonaki Bose at NCES, Ann Mullen of the Office of Educational Research and Improvement in the U.S. Department of Education, Marcia Bellas at the University of Cincinnati, and Tom Nachazel and Sally Dillow at the Education Statistics Services Institute. We greatly appreciate the input of all the reviewers.

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Introduction

Although real faculty salaries rose during much of the 1990s, overall increases mask persistent disparities among faculty that are reported each year by the American Association of University Professors (Bell 2001). For example, the salary gap favoring faculty at private institutions over those at public institutions has continued to grow (Smallwood 2001). Among the most persistent differences in faculty salaries are those between men and women (Bell 2001). Salary differences among racial/ethnic groups, though sometimes more difficult to assess because of small sample sizes, are also evident. These gender and racial/ethnic equity issues are particularly important to individuals currently working within the professoriate and to those who hope to attract a diverse pool of talent to the profession in the future. The American Association of University Professors (1999) has expressed specific concern about the persistent wage gap between male and female faculty members over the past 2 decades, noting that pay disparities have lingered despite increasing proportions of women entering the profession. Of course, many factors contribute to faculty salaries, and many of those factors vary by gender and race/ethnicity as well (Nettles, Perna, and Bradburn 2000). To fully understand the nature of gender and racial/ethnic differences in faculty outcomes like salary, tenure status, and academic rank, the differences in other background characteristics must also be fully explored and considered. There is also evidence that gender differences in faculty characteristics vary across racial/ethnic groups and that racial/ethnic disparities may differ for men and women (Toutkoushian 1998a).

Have gender and racial/ethnic differences in faculty characteristics and outcomes changed in the 1990s? The 1999 National Study of Postsecondary Faculty (NSOPF:99) provides an updated profile of how a wide variety of faculty characteristics and outcomes differed between men and women and among racial/ethnic groups in fall 1998.[1] This report expands on earlier NSOPF reports by presenting information by race/ethnicity within gender. It also assesses gender and racial/ethnic variation in salaries after controlling for other factors. In addition, the analysis examines the ways in which the standing of men and women of different racial/ethnic groups has changed since 1992.

[1]NSOPF:99 was conducted in 1999 and asked a nationally representative sample of faculty and instructional staff about their employment and activities in fall 1998.

Background

Salary is the most widely used indicator of the status of the professoriate. Most prior research on the question of faculty equity has generally shown that female faculty earn lower salaries on average than male faculty and that these differences have persisted over time (Hirsch and Leppel 1982; Alpert 1989; Weiler 1990; Barbezat 1991; Smart 1991; Ashraf 1996; Toutkoushian 1998b; Hearn 1999). But many factors are associated with the salaries that faculty receive.

Many studies have focused on the structural predictors of faculty outcomes. Tenure status and academic rank are powerful determinants of salary (Smart 1991), and research has also found that women tend to hold lower ranks (Alpert 1989; Smart 1991; Benjamin 1999; Toutkoushian 1999) and are less likely than their male colleagues to earn tenure (Benjamin 1999). For example, Toutkoushian (1999) found that women were significantly less likely than comparably qualified men to be associate or full professors. Nettles, Perna, and Bradburn (2000) found that women were also less likely than men to hold tenured positions.

Researchers have found that faculty in law, business, engineering, computer sciences, physical sciences, health professions, and mathematics earn the highest wages, while faculty in fields such as education, fine arts, humanities, and social sciences earn the lowest (Hansen 1985). Bellas (1997) found that the greatest salary growth occurred in disciplines with relatively few women. In fact, Bellas argues that disciplines with more women suffer a "financial penalty" relative to disciplines in which women are scarce. Whereas one researcher (Chamberlain 1988) found that the employment of women in sciences and engineering has increased, especially at top institutions, most studies show that female faculty are disproportionately under-represented in higher paying disciplines (Benjamin 1999). Salaries also differ considerably at different types of institutions, with private research universities topping the scale (Bell 2001). Benjamin (1999) reports that "women are more likely than men to obtain appointments in lower-paying institution types," such as community colleges and comprehensive public universities, rather than public and private research universities.

Along with these structural characteristics, human capital also plays a role. As elsewhere in the labor market, the education and experience that faculty members bring to their jobs are strongly associated with salary (along with tenure status and academic rank). On this basis, some researchers have argued that female faculty have obtained less education and work experience, which results in lower rank and salary (Smart 1991). This argument can be extended to suggest that as more women and minorities obtain the terminal degrees in their fields and gain experience as faculty members, gender and racial/ethnic disparities in wages will disappear over time. While there is evidence that women hold relatively fewer doctorates, have had their careers

interrupted more, and generally have less work experience than their male counterparts (Smart 1991, p. 521), these factors have not explained wage inequities fully. Several researchers have found that a residual salary gap remains after controlling for institution type, educational attainment, rank, and years of experience (Barbezat 1991; Glazer-Raymo 1999; Nettles, Perna, and Bradburn 2000). Smart (1991) also found that women hold lower ranks than men after controlling for these human capital attributes. Some studies show that the widest salary gap between male and female faculty occurs at the ranks of assistant and full professor (Jusenius and Scheffler 1981; Alpert 1989; Ashraf 1996), but more recent studies find the smallest salary gap among assistant professors (Toutkoushian 1998b).

In neoclassical economics, human capital characteristics are used as proxy indicators of productivity (Smart 1991; England 1992). Some forms of productivity, and the work activities of faculty members more broadly, can also be measured directly and have been shown to influence faculty salaries, rank, and tenure status. Fairweather (1995), for example, found that pay is heavily based on research productivity across institution type. Additionally, Bellas (1999) reports that teaching and service either negatively affect compensation or are unrelated, while research and administrative duties positively affect compensation. Studies have found that women spend a higher average proportion of time than men engaged in teaching and a lower average proportion of time in research (Bellas 1999; Bellas and Toutkoushian 1999; Nettles, Perna, and Bradburn 2000). For example, using NSOPF:93, Bellas and Toutkoushian (1999) found that men spent an average of 18 percent of their time on research activities, and women an average of 12 percent, and men averaged 55 percent of their time on teaching activities, while women averaged 62 percent of their time on teaching. Although these differences were smaller after controlling for race/ethnicity, experience, marital status, number of children, age, highest degree, rank, field, and institution type, gender differences in time spent engaged in teaching and research remained.

Prior research on racial/ethnic faculty outcomes is considerably more sparse than is research on gender (Hearn 1999). Most studies that examine differences in faculty salaries among racial/ethnic groups have been hampered by the low representation of minority faculty in study samples and by the aggregation of all racial/ethnic categories other than Whites into one group (e.g., Fairweather 1993). Nevertheless, some differences have been found. For example, Ashraf (1996) noted that the racial/ethnic earnings differentials attributed to discrimination have risen since 1984, and Jusenius and Scheffler (1981) found that minority (especially Black) male Ph.D. economists earned significantly less than their White counterparts. Nettles, Perna, and Bradburn (2000) found that White faculty generally had higher salaries and were more likely to be full professors and have tenure than Black faculty, while Asian/Pacific Islander full-time faculty had generally higher salaries and were more likely to have higher rank and tenure than White, Black, or Hispanic faculty. However, racial/ethnic differences in faculty salaries were

accounted for when background characteristics were controlled (Toutkoushian 1998a; Nettles, Perna, and Bradburn 2000). For example, Toutkoushian (1998a) found that pay disparities between Asian faculty (who earned more than Whites) and White faculty were explained by human capital and structural variables such as discipline, although these variables themselves may reflect bias (Bellas 1997). Barbezat (1991) found that salary gaps between Black and White faculty were smaller than those in the general labor market.

Finally, Toutkoushian (1998a) stated that "blacks appear to have reached earnings parity with whites in higher education," but, he asserted, salary differences vary widely for men and women within racial/ethnic groups. According to Toutkoushian (1998a), the largest earnings gap occurred between Hispanic and White males in the humanities and professional fields, while White women earned less overall (after controlling for relevant characteristics) than Black women, particularly in social sciences and arts and humanities. Studies of gender and racial/ethnic differences in labor market outcomes for the workforce in general suggest that the employment experiences of women vary considerably across racial/ethnic groups and that the status of subgroups of workers can only be fully understood when compared across both racial/ethnic and gender lines (Amott and Matthaei 1991; Kemp 1994). These results suggest that gender and race/ethnicity must be taken into account simultaneously when exploring differences among faculty.

The myriad factors that may influence pay and the potentially complex interactions of gender and race/ethnicity make a comprehensive portrait of faculty salary differences challenging. Furthermore, as the characteristics and responsibilities of faculty change over time, so may differences in compensation.

Data and Measurement Issues

The many kinds of comparisons suggested by the literature, as mentioned above, lead to certain data and analytic requirements. First, a nationally representative sample of faculty large enough to permit analyses of both gender and racial/ethnic subgroups is essential. Also, the data must include measures not only of salary but also of the wide variety of factors associated with salary, including detailed information on the backgrounds of individuals and the jobs and responsibilities they hold. Finally, examining changes in status over time necessitates careful coding of race/ethnicity to maximize comparability. The National Study of Postsecondary Faculty (NSOPF) meets these criteria. This section describes the NSOPF data, the specific subsample used for the analyses, and scheme for categorizing the racial/ethnic groups. It also provides basic descriptive information about the final sample used in this report.

The 1999 National Study of Postsecondary Faculty (NSOPF:99) is the third cycle of the National Study of Postsecondary Faculty conducted by the U.S. Department of Education's National Center for Education Statistics (NCES), which collected similar information in 1987–88 and 1992–93. NSOPF:99 is a nationally representative sample of college and university faculty and instructional staff who were employed by public and private not-for-profit[2] postsecondary degree-granting institutions in fall 1998.[3] NSOPF:99 contains data about faculty members' job responsibilities, professional backgrounds, salaries, benefits, attitudes, and demographic characteristics.

Because this report looks at factors that contribute to differences in salary, the analyses are restricted to full-time instructional faculty and staff.[4] Employment status itself differs by gender. Male faculty were more likely than female faculty to be employed full time in fall 1998: 62 percent of men were employed full time, compared with 51 percent of women (figure 1). This pattern is consistent with differences between men and women in hours worked in the national workforce generally (U.S. Department of Labor 1999). The fact that men are more likely than women to work full time may be the result of gender differences in a variety of factors, such as competing demands on women's time from family roles, inability to afford child care costs for full-time work, differences in training and experience, or availability of full-time employment (Kemp 1994). As with salary, many of the gender differences found in this report would be even larger if all faculty, including part-time faculty, were included.

Changes in the way data on race are collected in federal data collection efforts were enacted between the 1993 and 1999 administrations of NSOPF.[5] In the earlier survey, respondents were asked to select from five possible categories the racial group that they felt best described them: White; Black; Asian/Pacific Islander; American Indian/Alaska Native; or other. Those who selected "other" were reclassified into one of the other four categories based on additional information provided, and White or Black respondents who indicated Hispanic or Latino ethnicity in a separate question were categorized as Hispanic. Thus, the categories for the primary resulting race/ethnicity variable were as follows: White, non-Hispanic; Black, non-Hispanic; Hispanic; Asian/Pacific Islander; and American Indian/Alaska Native.

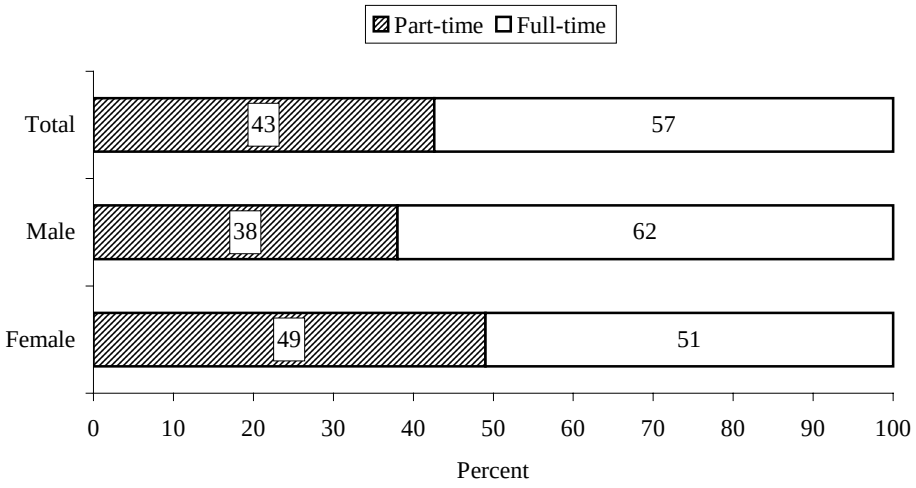
[2]Private for-profit institutions are not included in the sample. Hence, for brevity, "private" is used here to refer only to private not-for-profit institutions. See appendix B for details about the institution sample.

[3]NSOPF:99, conducted in 1999, asked faculty and instructional staff about their activities in fall 1998.

[4]For brevity, the term "faculty" is used interchangeably with instructional faculty and staff. Of the estimated 1,074,000 faculty and instructional staff represented by NSOPF:99 overall, 91 percent, or 976,000, had some instructional duties for credit. Of these instructional faculty and staff, about 560,000 were employed full time and 416,000 were employed part time.

[5]Although earlier data are available, because the 1988 sample size was much smaller than the 1993 and 1999 NSOPF samples and there were differences in how the data were sampled in 1988 versus later years, the analyses for this report were restricted to differences found between fall 1992 and fall 1998.

Figure 1.—Percentage distribution of all instructional faculty and staff according to employment status, by gender: Fall 1998



NOTE: Includes all instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

In the 1999 NSOPF, however, new Office of Management and Budget standards for the collection of race/ethnicity had taken effect. Hispanic or Latino ethnicity was still collected in a separate question. The race question disaggregated the category formerly labeled "Asian or Pacific Islander" into two categories: "Asian" on one hand and "Native Hawaiian or other Pacific Islander" on the other. Further, respondents were permitted to select as many categories for race as were applicable.

While a considerably more detailed, and more realistically complex, understanding of race/ethnicity is now possible, one goal of this report is to examine changes in the standing of racial/ethnic subgroups in various faculty characteristics since fall 1992. To help make this assessment, the race and ethnicity data for faculty in fall 1998 needed to be collapsed into the same set of categories used in 1992.[6] Very few (about 1 percent) of all respondents indicated multiple racial categories, so the reassignment of these cases affected a small proportion of the respondents. First, the Asian and Native Hawaiian/Pacific Islander categories were combined. Next, cases were assigned to the first of the following categories that the respondent had selected: Hispanic; Black/African American; Asian or other Pacific Islander; American

[6]For a distribution of the sample and key salary information according to more detailed categories of race/ethnicity, see tables B1 and B2 in the description of the NSOPF:99 data in appendix B.

Indian/Alaska Native; or White.[7] Then, Asians or other Pacific Islanders who also indicated they were of Hispanic or Latino origin and no other race were assigned to the Asian or other Pacific Islander group, with five categories resulting: non-Hispanic White; non-Hispanic Black or African American; Asian or other Pacific Islander; Hispanic; and American Indian/Alaska Native.[8]

Finally, the number of American Indian/Alaska Native respondents made up only 0.8 percent of the overall sample. Unfortunately, because the group is so small, analyses involving the comparison of this group to others, particularly if subdivided further, are inadvisable because the resulting standard errors are very large and very few apparent differences would achieve statistical significance. For this reason, this report excludes the American Indian/Alaska Native category from analysis, though estimates for this group are shown in the tables.

The estimated size of the population of full-time instructional faculty and staff in fall 1998 was approximately 560,000 (figure 2). Full-time instructional faculty included 305,000 White males, 172,000 White females, 23,000 Asian/Pacific Islander males, 10,000 Asian/Pacific Islander females, 15,000 Black males, 14,000 Black females, 11,000 Hispanic males, 7,000 Hispanic females, 3,000 American Indian males, and 1,000 American Indian females. Among all full-time instructional faculty and staff, 64 percent were male and 36 percent were female (figure 3). Black faculty were more likely than Asian or White faculty to be female (48 percent versus 30 and 36 percent, respectively).[9] As indicated by the estimated population totals, non-Hispanic White faculty constituted the largest racial/ethnic group among full-time faculty (figure 4). Eighty-five percent of full-time faculty were White, compared with 6 percent Asian/Pacific Islander, 5 percent Black, 3 percent Hispanic, and 1 percent American Indian.

Some of the analyses conducted in this report should be interpreted with caution. Many of the eight racial/ethnic/gender subgroups considered here constitute a small proportion of the population of instructional faculty and staff. Because these populations are small, Blacks, Asians, and Hispanics were oversampled in NSOPF:99 to try to minimize the variances for these groups. Nevertheless, the standard errors associated with estimates for these groups are sometimes quite large. This means that the likely range of possible true values for such estimates is correspondingly large; that is, one can be less sure of the precision of the estimates that result from these small samples. When making comparisons between two groups, even seemingly large

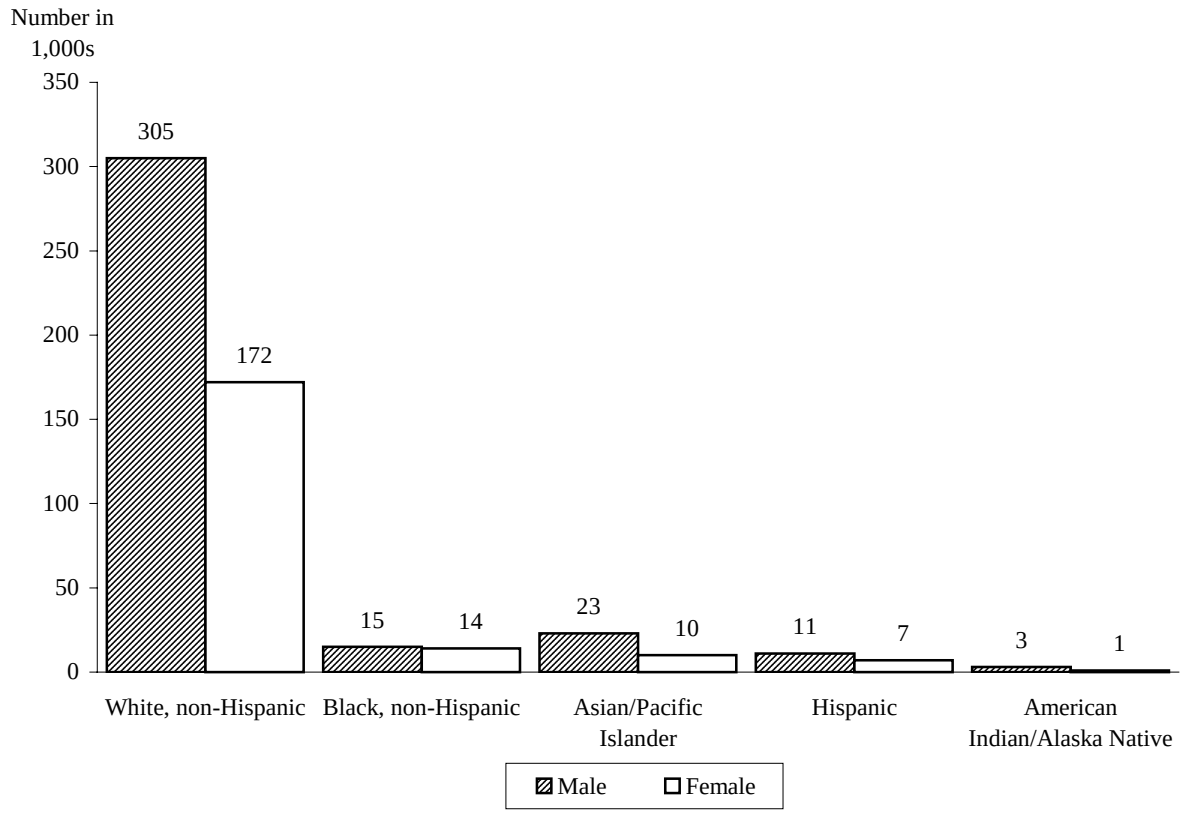
[7]Apart from the Hispanic group, the order of the other groups was based on their size in the general population, assigning them to the largest (minority) group first.

[8]Throughout the report, the following terms are used interchangeably: "White" and "White, non-Hispanic"; "Black" and "Black, non-Hispanic"; and "Asian" and "Asian/Pacific Islander."

[9]While it appears that Black faculty were more likely to be female than Hispanic faculty (38 percent) as well, the standard errors were large and no statistically significant difference was detected.

differences may have a large margin of error. This means that it sometimes is not possible to conclude with a great deal of confidence that a given difference between two subgroups reflects a true underlying difference in the population. To summarize the many tests done for this report, appendix C includes summary tables indicating statistically significant differences in gender and racial/ethnic subgroups.

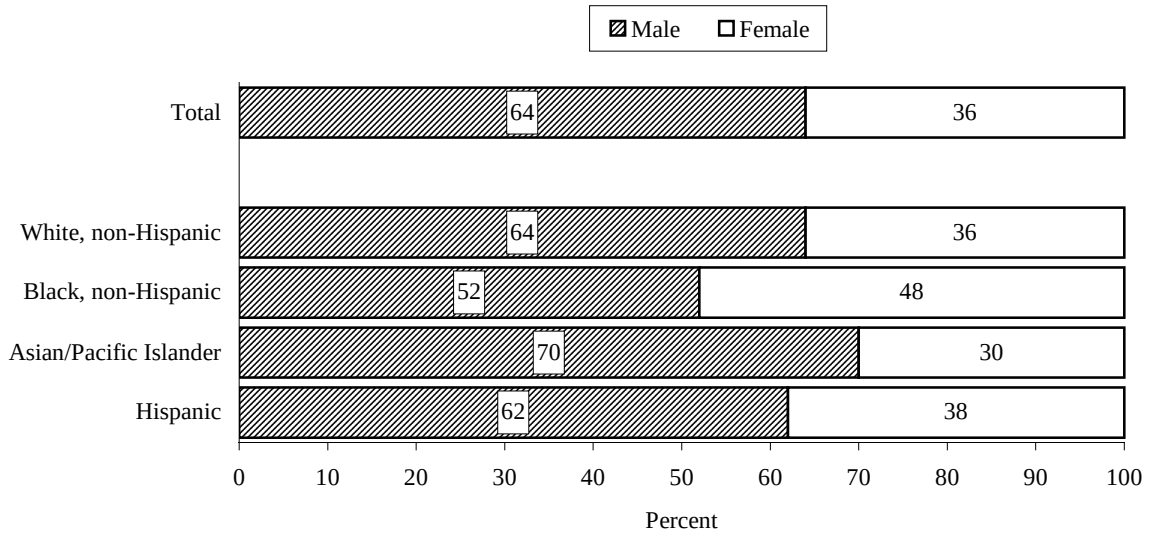
Figure 2.—Estimated number of full-time instructional faculty and staff in the population, by gender and race/ethnicity: Fall 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Figure 3.—Percentage distribution of full-time instructional faculty and staff according to gender, by race/ethnicity: Fall 1998



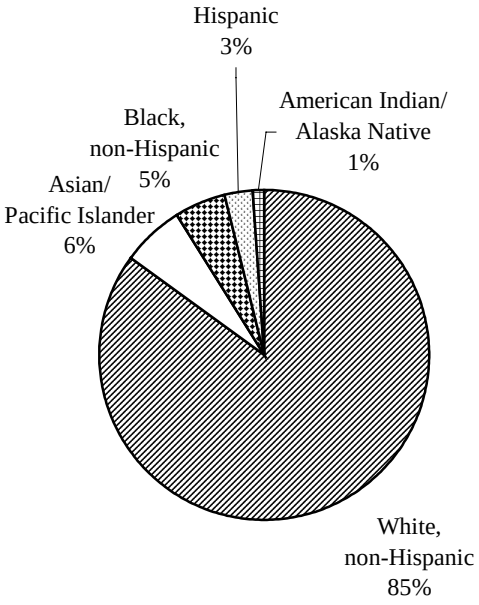
NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Included in total but not shown separately are American Indian/Alaska Native faculty.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Organization of This Report

The remainder of this report is organized as follows. The next section describes gender differences among postsecondary faculty, beginning with a discussion of overall differences between male and female faculty. Then, gender differences are considered separately for each racial/ethnic group. The subsequent section takes a similar approach to exploring racial/ethnic differences. First, overall racial/ethnic differences are explored, comparing White faculty to Asian, Black, and Hispanic faculty in turn, and then racial/ethnic differences among men and women are described. Next, the results of a regression analysis are presented. This analysis examines characteristics associated with salary for full-time instructional faculty and staff, focusing on whether gender and racial/ethnic differences in salary are found after controlling for characteristics of faculty and their jobs. The report concludes by examining how the standing of various subgroups of faculty by race/ethnicity and gender changed between fall 1992 and fall 1998 in terms of selected key characteristics.

Figure 4.—Percentage distribution of full-time instructional faculty and staff across racial/ethnic groups: Fall 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Gender Differences Among Full-Time Instructional Faculty and Staff

Salary Differences in 1998

Gender differences in salaries for full-time faculty are among the most persistent differences among faculty (Bell 2001), and this observation was confirmed in fall 1998. Overall, men's salaries were about 28 percent[10] higher than women's salaries: full-time male faculty averaged about $61,700 in base salary from the institution in 1998, compared with $48,400 for full-time female faculty (table 1 and figure 5; tables begin on page 41). Furthermore, men's salary advantage was found among White, Asian, Black, and Hispanic faculty as well. Of course, many factors determine the salaries that faculty members receive, and men and women have differed with respect to many of these characteristics in the past (Nettles, Perna, and Bradburn 2000). The next section describes the extent to which gender differences were found in such factors in fall 1998.

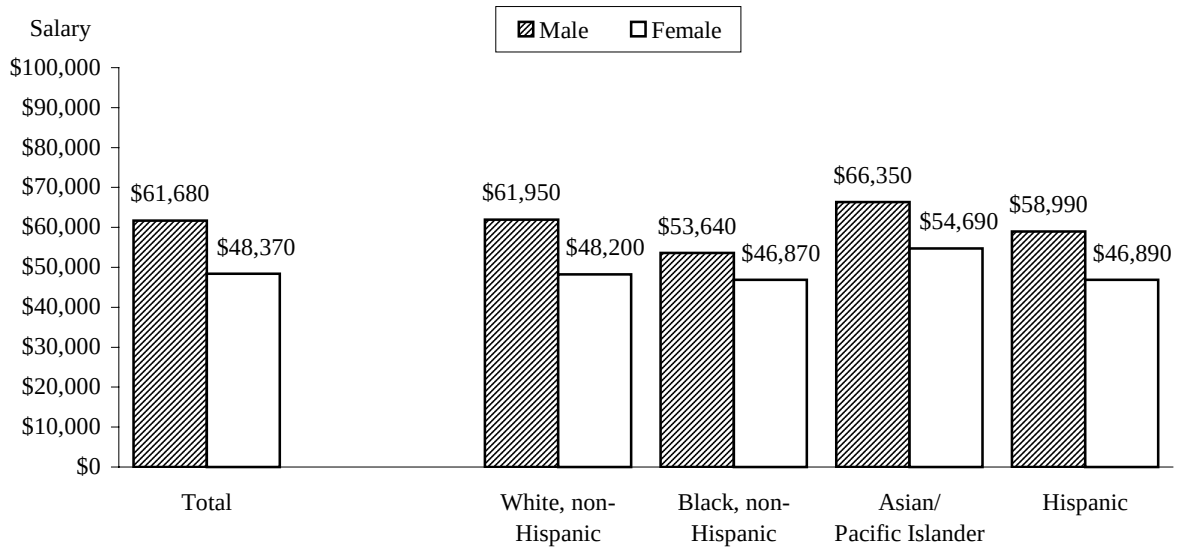
Overall Gender Differences in Other Faculty Characteristics

Overall, gender differences among instructional faculty and staff were prevalent in fall 1998. To begin with, the structural locations of men and women differed. Men were more likely than women to work at public doctoral institutions,[11] although no differences were found in the proportions of men and women employed at public comprehensive institutions (table 2). Women were more likely to work at public 2-year colleges: while 14 percent of men were employed at community colleges, one-quarter of women worked at such institutions. Consistent with these differences, men were also more likely than women to teach graduate students (table 3). Gender differences in teaching field that have been observed elsewhere were also evident: men were more likely than women to teach in the natural sciences and engineering (30 percent versus 15 percent), while women were more likely to teach in the health sciences or in the social sciences and education (table 4).

[10]This percentage difference in salary was calculated as follows: $61,680 (male average salary) – $48,370 (female average salary) = $13,310 (salary difference) / $48,370 = 0.28 x 100 = 28 percent salary difference.

[11]This group includes public research, doctoral, and medical institutions.

Figure 5.—Base salary of full-time instructional faculty and staff at degree-granting institutions, by gender and race/ethnicity: Calendar year 1998



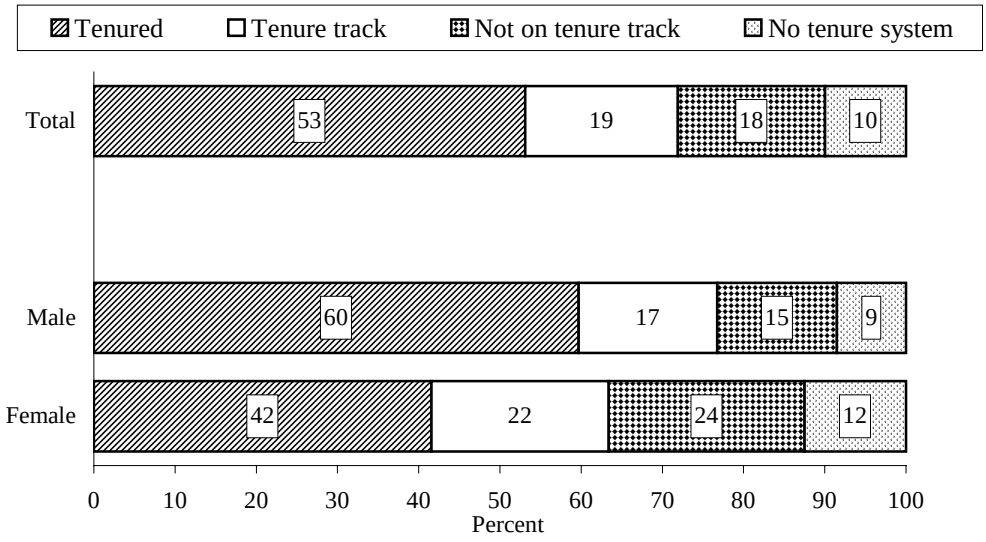
NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Refers to base salary during calendar year 1998 received from the institution at which the respondent was sampled. Dollar figures are rounded to the nearest 10. Included in total but not shown separately are American Indian/Alaska Native faculty.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Finally, men held higher ranks and were more likely than women to have tenure. Men were much more likely than women to be full professors (38 versus 18 percent), while women were more likely to be assistant professors or instructors, lecturers, or other unspecified ranks (table 5). Sixty percent of men, compared with 42 percent of women, had tenure (table 6 and figure 6). Women were more likely than men to be in tenure-track jobs (22 versus 17 percent) or to have jobs that were not on the tenure track (24 versus 15 percent).

Of course, rank and tenure are largely determined by faculty members' education and experience, areas in which men showed a considerable advantage over women. While about three-quarters (74 percent) of men held doctoral or first-professional degrees, 54 percent of women did so (table 7). Women were more likely than men to have completed their education with a master's degree—39 compared with 22 percent. Men had held their highest degrees for longer periods of time than women, on average (table 7), and also had been teaching longer, both in their current jobs and in higher education overall (table 8 and figure 7). On the other hand, no

Figure 6.—Percentage distribution of full-time instructional faculty and staff at degree-granting institutions according to tenure status, by gender: Fall 1998



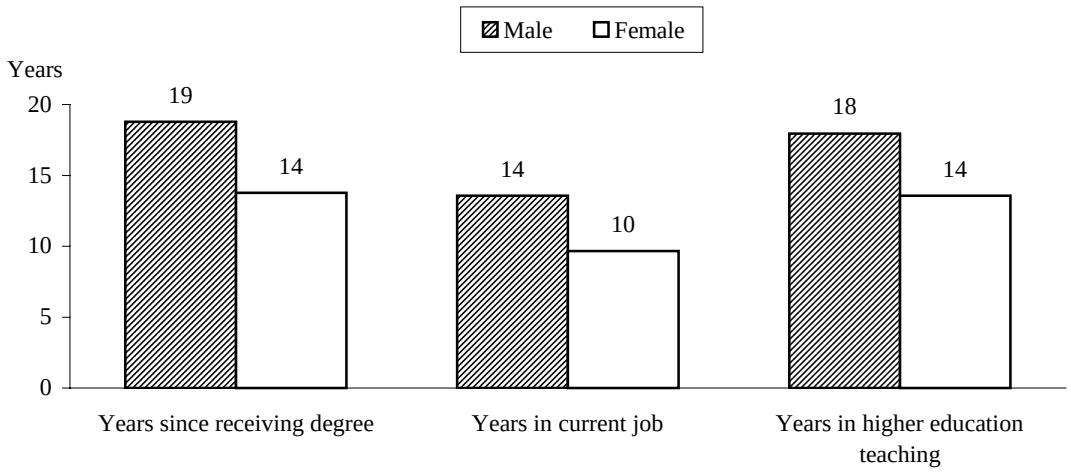
NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

differences were found between women and men in the number of jobs held in higher education during their careers. Since women's careers were shorter, this result suggests more frequent job turnover among women. Gender differences in experience may be accounted for largely by age: male faculty were older than female faculty (50 years old versus 47 years old; table 9). Women are also more likely to interrupt their careers (such as for parenting; Smart 1991), which would hinder their ability to accumulate as much experience as men over the same length of time.

The responsibilities and activities of male and female faculty members differed as well. Women had larger teaching loads than men in terms of number of for-credit classes or sections, course preparations (unique courses taught), and hours taught per week (table 10). Although these differences were statistically significant, they were small; for example, women taught 3.5 for-credit classes in fall 1998, compared with 3.3 for men. As found in previous studies (Bellas and Toutkoushian 1999), women spent a greater average proportion of their total work time on

Figure 7.—Years of experience of full-time instructional faculty and staff at degree-granting institutions, by gender: Fall 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

activities related to teaching[12] as well, averaging about 60 percent of their work time on such activities, while men spent about 55 percent of their time (table 11). These differences in the extent of involvement with teaching may be due, at least partly, to the greater proportion of women at public 2-year institutions (table 2), where teaching loads are generally greater.[13]

Men were more heavily involved in research activities[14] than women. Men spent about 17 percent of their total work time, on average, on research, while women averaged about 12 percent of their time (table 11). About 70 percent of men reported being engaged in some type of research activity, compared with about 62 percent of women (table 12). Consistent with this difference, male faculty produced more publications or other scholarly works in the same period of time: in the previous two years, male faculty had produced about 10 publications or other scholarly works total (including more refereed articles or juried works and more books), compared with about 6 such products for women (table 13). In addition, men had made more presentations, exhibitions, or performances than women. Even among those who conducted

[12]These activities include teaching, grading, advising, preparing courses or curricula, supervising student teachers, and working with student organizations.

[13]U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, Data Analysis System.

[14]Research activities include conducting research, participating in professional meetings, reviewing articles, books, or proposals, seeking funding, and giving performances, exhibitions, or speeches.

research, men and women differed in the type of research they did (table 14). Perhaps partly because of their concentration in science and engineering fields, men are more likely than women to be engaged in funded research (table 12), and to be doing basic or applied/policy-oriented research, while women are more likely to be doing research in other areas (table 14).

Gender Differences by Racial/Ethnic Group

Virtually all of the gender differences described in the previous section were found among non-Hispanic Whites, by far the largest racial/ethnic group of faculty (figure 4). Were the overall gender differences also found among the other racial/ethnic groups? This section describes gender differences separately for each of the other racial/ethnic groups. Appendix figure C1 summarizes which gender differences were detected for faculty overall as well as gender differences for each racial/ethnic group separately, including White faculty.

Gender Differences Among Asian/Pacific Islander Faculty

Most of the gender differences found among faculty overall were also observed among Asian/Pacific Islander faculty. For example, differences in structural characteristics followed the pattern observed among White faculty. Asian male faculty were more likely than their female counterparts to teach at public doctoral universities; in fact, about one-half (51 percent) of Asian male faculty taught at these institutions, while 37 percent of Asian female faculty did so (table 2). On the other hand, 21 percent of Asian women taught at public 2-year colleges, compared with 6 percent of Asian men. Perhaps partly because of these differences, Asian women were more likely than Asian men to teach only undergraduates (table 3). Asian men were more likely than Asian women to teach in the natural sciences and engineering, while Asian women were more likely than their male colleagues to teach in the social sciences and education (table 4). Finally, tenure and academic rank also differed by gender for Asian faculty. Asian men were more likely than Asian women to be full professors (31 versus 13 percent), and they were less likely to hold instructor, lecturer, or other unspecified ranks (11 versus 32 percent; table 5). While 54 percent of Asian male faculty had tenure, 37 percent of Asian female faculty did, and Asian women were more likely to have jobs not on the tenure track (table 6).

The education and experience of Asian faculty differed by gender in ways that resembled the pattern for White faculty as well. While 90 percent of Asian men had doctoral or first-professional degrees, about 72 percent of Asian women did (table 7). Asian women were more likely than Asian men not to hold a degree more advanced than a master's degree (27 versus 9 percent). Like Whites, Asian men had held their highest degrees for a longer period of time than Asian women, and they had been in higher education longer, both in their current jobs and

overall (table 8). Asian men were older than their female counterparts, on average (table 9). As among White faculty, no gender difference was detected among Asian/Pacific Islander faculty in the number of higher education jobs they had held (table 8).

Unlike the pattern among White faculty, few differences were found in the teaching responsibilities of Asian male and female faculty. Although Asian women spent a larger average proportion of their total work time in teaching activities than men (56 percent versus 49 percent; table 11), no significant differences were detected in the number of classes and course preparations and the number of hours spent teaching each week (table 10).

While differences in teaching activities were not found, Asian men were more involved in research activities than Asian women. Asian male faculty reported that they spent about 27 percent of their time in research or scholarly activities, on average, compared with an average of 19 percent for Asian female faculty (table 11). While 83 percent of Asian male faculty did research, about 70 percent of Asian female faculty did so (table 12). Men had produced more publications in the previous 2 years: an average of 13 total publications or permanent creative works, compared with an average of 6 such products among the women, including more refereed articles or juried works and more books (table 13). Asian men had also made more presentations and performances during that period. Among those who did research, Asian men were more likely to be engaged in applied or policy-oriented research, while Asian women's research was more likely to be in other areas such as program or curriculum design and development (table 14).

In summary, the structural characteristics, education and experience, and research activities differed along gender lines for Asian faculty in ways that resembled the patterns for White faculty. Asian males were more heavily concentrated in higher-paying fields and institutions, had more experience, and were more involved in research than were their female counterparts. However, no differences were detected in the teaching activities of male and female Asian faculty.

Gender Differences Among Black/African American Faculty

Overall, fewer gender differences were found among Black or African American faculty.[15] Nevertheless, many of the structural characteristics did vary for Black female and male faculty. For example, Black women were more likely than Black men to be employed at community colleges—26 compared with 17 percent (table 2). Teaching fields also differed along gender lines, with men being more likely to teach in the natural sciences and engineering and women

[15]For brevity, the term "Black" is used throughout to refer to non-Hispanic Black or African American faculty.

being more likely to teach in the health sciences or social sciences and education (table 4). Black men were more likely than Black women to be full professors or have tenure (tables 5 and 6), and women were more likely than men to be instructors or lecturers or to have other unspecified ranks. However, no significant difference was found in the level of instruction provided by Black men and women: about 73–74 percent taught only undergraduates, 11–13 percent taught only graduate students, and the remainder taught at both levels (table 3).

Like both Asian and White faculty, Black male faculty tended to have more education and experience than their female colleagues. While 63 percent of Black men held doctoral or first-professional degrees, about one-half (51 percent) of Black women did so, and women were more likely than men to have no more than a master's degree (table 7). Black men had held their highest degrees longer and also had been employed in higher education longer (table 8). Black men were, on average, 50 years of age, compared with an average age of about 47 for Black women (table 9).

Many of the gender differences found in the teaching responsibilities and other job activities of White and Asian faculty in fall 1998 were not found among Black faculty. No significant differences were found between Black men and women in the average proportion of time they reported spending on teaching activities (58–60 percent; table 11), the number of classes and course preparations, or weekly teaching hours (table 10). Unlike the gender differences detected among Whites and Asians, no significant differences were detected between Black men and women in the average percentage of time spent engaged in research activities (10–11 percent; table 11) or the percentage of Black men and women involved in research (67 and 62 percent, respectively; table 12). Among those engaged in research, no significant differences were observed in the proportions doing funded research or different types of research (tables 12 and 14). Yet Black men had produced more total publications or other permanent creative works in the previous 2 years than Black women had: about eight for Black men, compared with five for Black women, on average (table 13). This difference included a larger number of refereed articles or juried works for Black men than Black women, although no difference was detected in the number of books published during that time. Black men had also produced more presentations or performances during the previous 2 years.

In summary, differences between male and female Black faculty were consistent with overall gender differences in many structural characteristics and in education and experience. Yet many gender differences in teaching and research responsibilities found among all faculty were not observed among Black faculty. Even so, Black men still had more recent scholarly works than Black women. One possible explanation for this result is that women's research efforts are less concentrated, perhaps subject to more interruptions and distractions from other

demands on their attention such as family roles. Alternatively, Bellas (1999) suggests that the self-promotional work of publishing and networking to generate research is more fostered and respected in men than in women.

Gender Differences Among Hispanic Faculty

Few of the gender differences found in the racial/ethnic groups considered so far were observed among Hispanic faculty. For example, unlike all of the other racial/ethnic groups considered here, no differences were found in the distribution of male and female Hispanic faculty across institution types (table 2). Approximately one-third of both male and female Hispanic faculty were employed at public doctoral universities (34 and 36 percent, respectively), and approximately one-quarter of male and female Hispanic faculty were employed at public 2-year institutions (24 and 28 percent, respectively). Also, while Hispanic men were more likely than Hispanic women to teach in the natural sciences and engineering (29 versus 13 percent, table 4), no significant difference was detected in the proportions of Hispanic men and women in the health sciences and in social science and education. Yet in terms of tenure and academic rank, Hispanic male faculty were more likely than their female counterparts to be among the ranks of senior faculty: men were more likely than women to have tenure (56 versus 36 percent; table 6) and to be full professors (31 versus 15 percent; table 5).

Consistent with the results found for White, Asian, and Black faculty, Hispanic male faculty were much more likely than Hispanic female faculty to have doctoral or first-professional degrees (70 versus 54 percent), and much less likely to have a master's degree as their highest degree (24 versus 39 percent; table 7). However, while Hispanic men had been in their current jobs longer than Hispanic women, on average (10 versus 7 years; table 8), no significant differences were found in the length of time since they had received their highest degree (table 7), the length of time they had taught in higher education (table 8), or their age (table 9). Thus, several gender differences in overall teaching experience found among other racial/ethnic groups were not observed among Hispanic faculty.

There were some differences in the research involvement of Hispanic male and female faculty, but not in their teaching involvement. Hispanic men were more likely than Hispanic women to be engaged in research (73 versus 57 percent; table 12), although no significant gender differences were detected in the average proportion of total work time spent on research activities (table 11). While Hispanic men had produced more total publications or other permanent creative works in the previous 2 years (nine versus six publications; table 13), Hispanic faculty were the only group for which no significant gender difference was found in the number of refereed articles or juried works produced or presentations made during that period.

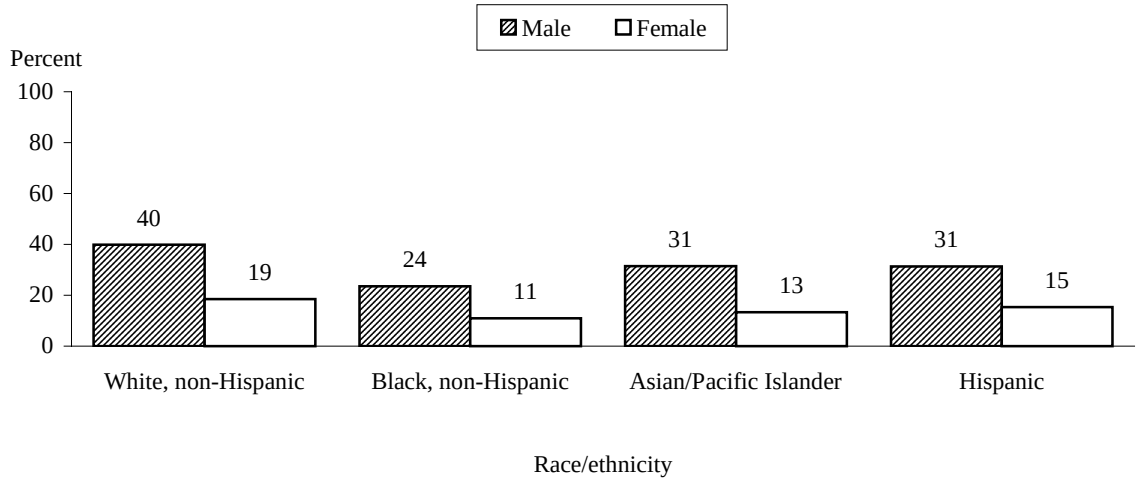
No differences were found in the teaching responsibilities of Hispanic male and female faculty. Male and female Hispanic faculty had 2.5 course preparations (including 3.5–3.7 for-credit classes), spending 11–12 hours per week in the classroom (table 10) and averaging about 55–57 percent of their total work time on teaching activities (table 11).

Summary

Overall gender differences among full-time instructional faculty and staff with respect to factors often associated with salary were widespread in fall 1998, just as they were 6 years earlier (Nettles, Perna, and Bradburn 2000). Men and women differed in the kinds of jobs they took and in the responsibilities and activities they performed in those jobs. Furthermore, men had more advanced degrees and more experience in higher education than their female colleagues.

Some gender differences were found among all faculty within the racial/ethnic groups considered here—White, Asian, Black, and Hispanic faculty. For example, across racial/ethnic groups, men were more likely than women to have tenure. In addition, a larger proportion of men than women were employed as full professors (figure 8). These groups constitute the most senior

Figure 8.—Percentage of full-time instructional faculty and staff at degree-granting institutions who were full professors, by gender and race/ethnicity: Fall 1998

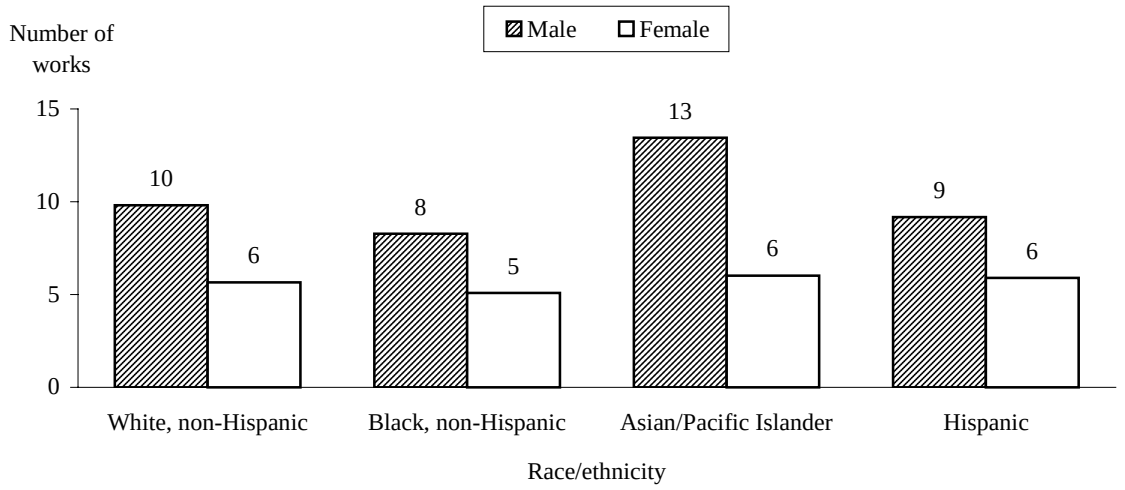


NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

faculty, and the overall greater levels of experience among men are consistent with their representation at this level. Other factors that differ consistently by gender across racial/ethnic groups, however, are not necessarily dependent on length of service, and they contribute to faculty's advancement to senior status as well. For example, across all racial/ethnic groups, a larger proportion of male than female faculty had doctoral or first-professional degrees, and men had produced more total publications or other permanent creative works in the previous 2 years than women (figure 9).

Figure 9.—Number of recent publications or other permanent creative works of full-time instructional faculty and staff at degree-granting institutions, by gender and race/ethnicity: Fall 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Refers to publications or other permanent creative works, such as books, journal articles, and art works shown in juried media, produced in the previous 2 years.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

There were also some variations in the gender differences detected across racial/ethnic groups. Appendix figure C1 summarizes the gender differences found among all of the factors considered in this report, including both overall gender differences and differences within racial/ethnic groups. Gender differences among non-Hispanic White faculty were found on nearly all factors considered in this analysis. Most of the same differences, except for teaching responsibilities, were found among Asian/Pacific Islander faculty. Among Black faculty, men had more education, experience, and research productivity than women, and some differences in the type of institution, teaching field, academic rank, and tenure status were evident, although generally no gender differences were found in research and teaching activities. Unlike other

groups, Hispanic faculty displayed very few gender differences. For example, no differences between Hispanic men and women were detected in the proportions employed in different types of institutions or in the amount of overall work experience in higher education. Even among Hispanics, however, men were more likely than women to have senior faculty positions and to produce more total publications or other permanent creative works.

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Racial/Ethnic Differences Among Full-Time Faculty

Nettles, Perna, and Bradburn (2000) noted that racial/ethnic differences among instructional faculty and staff in 1992 were very complex and somewhat idiosyncratic; they were difficult to summarize, depending on the individual indicator and comparison being made. The analysis for fall 1998, which makes racial/ethnic comparisons separately for men and women, confirms this observation. Racial/ethnic differences were more often found among male faculty than among female faculty. When they did occur, there were more differences between Whites and Asians than between Whites and Blacks, and there were relatively few differences between Whites and Hispanics. In some cases, small sample sizes and large standard errors meant that apparent differences were not always statistically significant.

Salary Differences in 1998

Overall, the faculty salaries of Asians or other Pacific Islanders were higher than those of Whites, which were higher than those of Blacks (table 1). In 1998, full-time White faculty averaged about $57,000 in base salary from the institution, compared with $62,800 for Asian faculty and $50,400 for Black faculty. No salary difference was found between Hispanic faculty, who earned about $54,400 on average, and White faculty. Among males, Black faculty salaries ($53,600) were lower than those of Whites ($62,000), and among females, Asian faculty salaries ($54,700) were higher than those of Whites ($48,200). No significant salary differences were detected between Hispanic and White faculty among either males or females.

Overall Racial/Ethnic Differences in Other Faculty Characteristics

Overall Differences Between Asian/Pacific Islander and White Faculty

The structural locations of Asian/Pacific Islander faculty differed from those of White faculty in several ways. Asian/Pacific Islander faculty were more likely to teach at public doctoral universities[16] and less likely to teach at public 2-year institutions (table 2). Asians were less likely than Whites to teach undergraduates only (56 versus 67 percent) and more likely to teach both graduate and undergraduate students (23 versus 16 percent; table 3). At 42 percent,

[16]These institutions include public research, doctoral, and medical institutions.

the proportion of Asian faculty teaching in the natural sciences and engineering was larger than the proportion of White faculty in the field (24 percent; table 4). No significant differences were found in the proportions of Asian and White faculty in the health sciences and social sciences. While Asians were less likely than Whites to be full professors (26 versus 32 percent), they were more likely to be assistant professors and less likely to be instructors, lecturers, or other unspecified academic ranks (table 5). Approximately one-half of Asian and White faculty had tenure (49 and 54 percent, respectively), but Asians were more likely than Whites to hold tenure-track positions (30 versus 17 percent; table 6).

The education and experience of faculty and staff members are associated with their rank and tenure. Asian or Pacific Islander faculty held more doctoral degrees than White faculty, but Whites had higher levels of experience. While 85 percent of Asian faculty held doctoral or first-professional degrees, 67 percent of White faculty did so (table 7). Although Asians were also less likely than Whites to have completed their education with a master's degree, White faculty reported greater experience along each experience indicator tested. White faculty reported both holding their current jobs longer than Asian faculty (table 8), and earning their highest degrees earlier (table 7). White faculty earned their degrees an average of 17 years before fall 1998, while Asians reported earning their highest degrees an average of 14 years before. These varying levels of experience were also reflected in the average age of White and Asian faculty (table 9). White faculty were older than Asian faculty, on average (50 versus 46 years). However, while White faculty reported longer careers in higher education than Asian faculty (17 versus 13 years), both groups had held about three jobs in the field (table 8).

Asians and Whites also reported differing levels of teaching and research activities. In general, Asian faculty devoted a higher average proportion of their time (24 percent) to research and a smaller average proportion to teaching (51 percent) than White faculty (15 percent and 57 percent, respectively; table 11). While no difference was found in the average number of classes taught by Asian and White faculty, Asian faculty did report fewer course preparations (table 10). Conversely, the proportion of Asian faculty doing research was higher than that of Whites (79 versus 66 percent; table 12). Among those who reported doing research, the proportions of Asian faculty doing funded research and basic research were also higher than the proportions of White faculty involved in such research (tables 12 and 14). Finally, Asian faculty reported producing more total publications or other permanent creative works (including refereed or juried works) in the previous 2 years than Whites, but no differences were found between the two groups in the numbers of books published or in the number of presentations and performances made during that time (table 13).

In summary, nearly one-half (47 percent) of Asian faculty taught at public doctoral institutions, and another 14 percent at private not-for-profit doctoral institutions, while 11 percent taught at public 2-year colleges (table 2). One-quarter (26 percent) of Asian faculty were full professors (table 5); about one-half (49 percent) were tenured with another 30 percent on the tenure track (table 6), and they had been in their current jobs an average of about 10 years (table 8). A large majority (85 percent) had doctoral or first-professional degrees (table 7). About two out of five (42 percent) Asian faculty taught in the natural sciences and engineering (table 4). Asian faculty spent an average of about one-half (51 percent) of their total work time on teaching activities (table 11), teaching about three for-credit classes (table 10). An average of 25 percent of their work time was spent on research activities (table 11), with about four out of five faculty members (79 percent) engaged in some research (table 12). Those research activities had yielded an average of 11 total publications or other permanent creative works in the previous 2 years, including 6 articles or works in refereed media and one book (table 13).

Overall Differences Between Black and White Faculty

White faculty were more likely than Black faculty to teach at public doctoral universities (35 versus 23 percent; table 2), but no difference was found in the proportion of White and Black faculty teaching at public 2-year institutions. No significant difference from White faculty was detected for Black faculty in level of instruction (table 3). Also, Blacks were less likely than Whites to teach in the natural sciences and engineering but were more likely to teach in the social sciences (table 4). Black faculty, like Asian faculty, were less likely than White faculty to be full professors but were more likely to be assistant professors (table 5). Black faculty were also less likely than White faculty to hold tenure (44 versus 54 percent) and more likely to hold a tenure-track position (26 versus 17 percent; table 6).

The education and experience of Black and White faculty members differed as well. Black faculty were less likely to hold doctoral or first-professional degrees (57 versus 67 percent) and were more likely to hold a master's degree as their highest degree earned (39 versus 28 percent; table 7). Furthermore, White faculty reported receiving their highest degrees earlier than Black faculty did. White faculty had more experience teaching as well, both in their current jobs and in higher education overall (table 8). However, both Black and White faculty were about 49–50 years of age, on average (table 9).

In general, few differences were detected between Black and White faculty across teaching and research activities. Black faculty reported teaching more for-credit classes on average than White faculty, but differences were not found in the number of course preparations or hours spent in the classroom (table 10) or in the average proportion of total work time devoted to

teaching activities (table 11). Black faculty spent a smaller average proportion of their time doing research activities (11 versus 15 percent; table 11). Nevertheless, about two-thirds (65 and 66 percent, respectively) of both Black and White faculty members were engaged in research (table 12). Similarly, among those doing research, about one-half of both Black and White faculty engaged in funded research. The type of their primary research activity in fall 1998 differed: White faculty were more likely than Black faculty to be engaged in applied or policy-oriented research, but Black faculty were more likely to be involved in other unspecified types of research (table 14). With the exception of refereed articles and juried works, no significant differences between Black and White faculty were detected in scholarly productivity in the previous 2 years (table 13). Although Black faculty reported producing fewer refereed articles and juried works than White faculty during that period, no difference was found in the numbers of books or presentations and performances.

In sum, about two-thirds of Black faculty taught at public colleges and universities: 23 percent at public doctoral institutions, 22 percent at public comprehensive institutions, and 21 percent at public 2-year colleges (table 2). Seventy-three percent of Black faculty taught undergraduates only (table 3). One-third (33 percent) of Black faculty were assistant professors, while 17 percent were full professors (table 5); 44 percent were tenured (table 6), and Black faculty averaged 10 years in their current jobs (table 8). Fifty-seven percent had doctoral or first-professional degrees, and the highest degree of 39 percent of Black faculty was a master's degree (table 7). About one-quarter (26 percent) of Black faculty taught in the social sciences and education, while 15 percent taught in the natural sciences and engineering (table 4). Black faculty spent an average of 59 percent of their total work time on teaching activities (table 11) and taught about four for-credit classes (table 10). Sixty-five percent of Black faculty reported conducting research, and overall, Black faculty spent an average of 11 percent of their work time on research activities (table 11). They had produced an average of seven total publications or other permanent creative works in the previous 2 years, including three articles or works in refereed media and one book (table 13).

Overall Differences Between Hispanic and White Faculty

At 3 percent of the total number of faculty in fall 1998 (figure 4), Hispanic faculty were the smallest of the three groups that were compared with Whites in this report. While other racial/ethnic groups differed from Whites across many of the indicators, relatively few differences from White faculty were found among Hispanic faculty.

About 35 percent of both White and Hispanic faculty taught at public doctoral institutions, and 11–12 percent taught at private not-for-profit doctoral institutions (table 2). While it

appeared that Hispanic faculty were more likely than White faculty to teach at public 2-year institutions, the difference was not statistically significant. About two-thirds of both White and Hispanic faculty taught undergraduates only, 16 percent of each group taught both graduates and undergraduates, and the remainder taught only graduate students (table 3). About one-quarter of both Hispanic (23 percent) and White faculty (24 percent) taught in the natural sciences and engineering (table 4). About 15 percent of both White and Hispanic faculty taught in the health sciences, while about one-sixth (17 percent) taught in the social sciences and education. Hispanic faculty were more likely than White faculty to be instructors, lecturers, or other unspecified academic ranks (32 versus 23 percent; table 5). While it appeared that White faculty were more likely than Hispanic faculty to be full professors, the standard error was large and the difference not statistically significant. Approximately one-half of both White and Hispanic faculty held tenured positions (54 and 49 percent, respectively; table 6).

Approximately two-thirds of both White and Hispanic faculty held doctoral or first-professional degrees (67 and 64 percent, respectively), and about 3 out of 10 held a master's degree as their highest degree (28 and 30 percent, respectively; table 7). As among other groups, however, Whites reported higher levels of experience than Hispanics. Hispanic faculty reported earning their degrees an average of 14 years before fall 1998 compared with 17 years among White faculty. Hispanic faculty also reported holding their current jobs for fewer years than White faculty and having fewer years of experience in higher education overall (table 8). Consistent with these differences in experience, Hispanic faculty were also younger than White faculty (46 versus 50 years of age, on average; table 9).

While the teaching and research activities of other racial/ethnic groups differed from those of Whites, differences were not found between Hispanic and White faculty members in these characteristics. Both groups spent an average of 56–57 percent of their total work time on teaching activities, and 15–16 percent of their time on research activities (table 11). Hispanic faculty taught approximately four classes for credit, worked on three course preparations, and spent 12 hours in the classroom each week (table 10). Sixty-seven percent of Hispanic faculty reported conducting research, and of those, 54 percent reported receiving funding for their research (table 12). Forty-four percent of Hispanic faculty were engaged in basic research, 24 percent were engaged in applied or policy-oriented research, and 19 percent were engaged in other types of research (table 14). Finally, no differences were found between Hispanic and White faculty in the number of total publications or other permanent creative works or in the number of presentations or performances in the previous 2 years: each group had produced about eight publications total, including four refereed articles or juried works and one book, and 10–11 presentations, exhibitions, or performances (table 13).

Racial/Ethnic Differences Among Male and Female Faculty

As described above, there is evidence that gender differences are not uniform across racial/ethnic groups and that racial/ethnic differences are not the same for both men and women either among faculty or in the larger labor market (Toutkoushian 1998a; Amott and Matthaei 1991). To explore this variation, the previous section examined gender differences among full-time faculty both overall and within separate racial/ethnic groups and found evidence that gender differences, while present among all racial/ethnic groups, did indeed vary within various groups. A similar analysis was conducted for race/ethnicity. In addition to the overall racial/ethnic differences described above, analyses were conducted separately to explore racial/ethnic differences among men and among women. Despite oversampling of racial/ethnic minorities, however, the small samples of several groups under consideration yielded large standard errors. As a result, as discussed in the introduction, there was not enough statistical evidence to determine underlying population patterns conclusively. Consequently, this report does not provide a detailed discussion of racial/ethnic differences for male and female faculty separately. For interested readers, appendix figures C2, C3, and C4 summarize which tests produced statistically significant differences between racial/ethnic groups for all full-time faculty, for full-time male faculty, and for full-time female faculty, respectively.

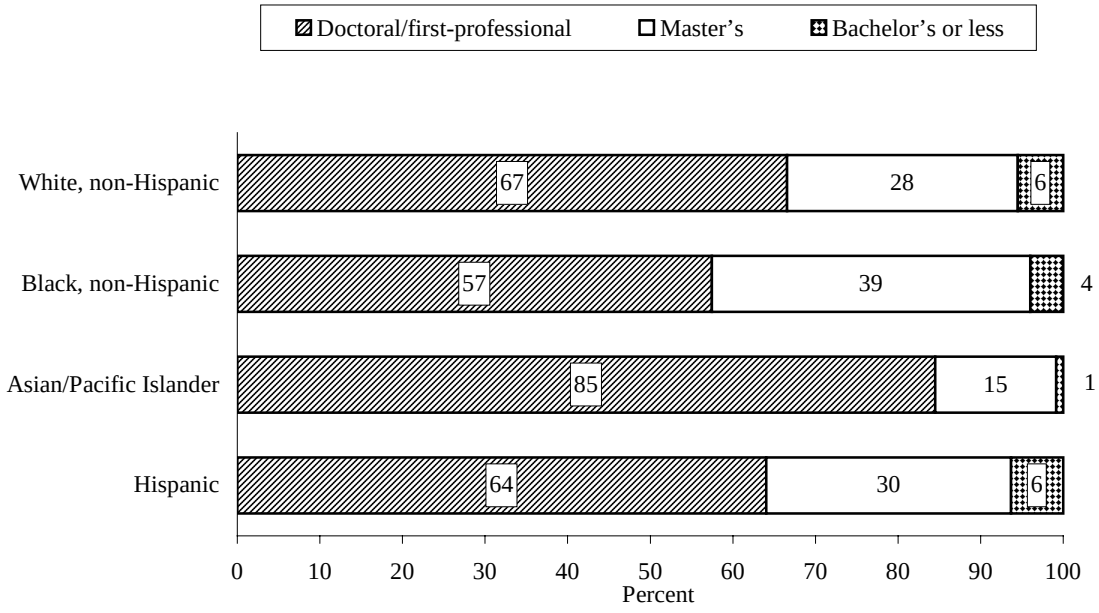
Overall, there were fewer racial/ethnic differences among female faculty than there were among male faculty. This may reflect both more similarity among women of different racial/ethnic groups and the greater margin of error in the estimates produced for minority women because they are based on smaller samples. Lower representations of women in the professoriate also means that the overall racial/ethnic differences discussed in the preceding paragraphs may have been driven by racial/ethnic differences among male faculty and do not necessarily reflect differences among female faculty. Those racial/ethnic differences that did occur among women were observed primarily between White and Asian female faculty. Consistent with the comparisons between White and Hispanic faculty overall, few differences emerged between White and Hispanic male or female faculty.

Summary

Full-time Asian/Pacific Islander faculty had higher salaries on average than White faculty, and they were also more likely to have several characteristics associated with higher salaries, such as holding doctoral or first-professional degrees and conducting research. In contrast, Black faculty had lower salaries than White faculty and were less likely to have other characteristics associated with higher pay. In contrast, for many of these characteristics, no differences were found between Hispanic and White faculty. For example, Asian faculty were more likely than

White faculty, who were more likely than Black faculty, to have doctoral or first-professional degrees and less likely to have completed their education with a master's degree (figure 10). Approximately two-thirds of both Hispanic and White faculty had advanced degrees (64 and 67 percent, respectively).

Figure 10.—Percentage distribution of full-time instructional faculty and staff at degree-granting institutions according to highest degree earned, by race/ethnicity: Fall 1998

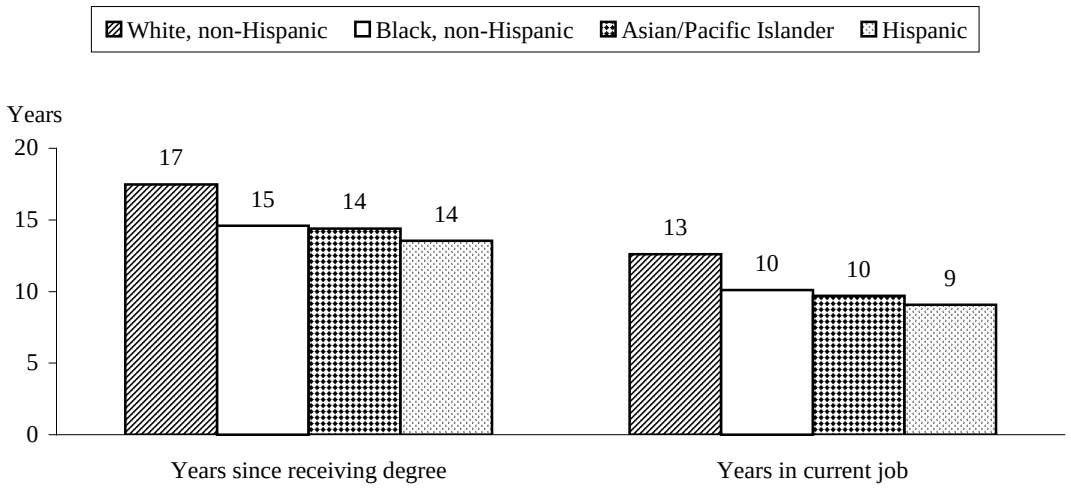


NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

On the other hand, White faculty had more experience than faculty belonging to any of the other three racial/ethnic groups (figure 11). Compared with Asian, Black, and Hispanic faculty, White faculty had held their highest degrees and their current jobs longer. Consistent with this difference in experience, Whites were more likely than both Blacks and Asians to be full professors and less likely to be assistant professors, although Hispanic faculty, despite the difference in overall experience, displayed no differences from Whites in the proportions at these

Figure 11.—Years of experience of full-time instructional faculty and staff at degree-granting institutions, by race/ethnicity: Fall 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

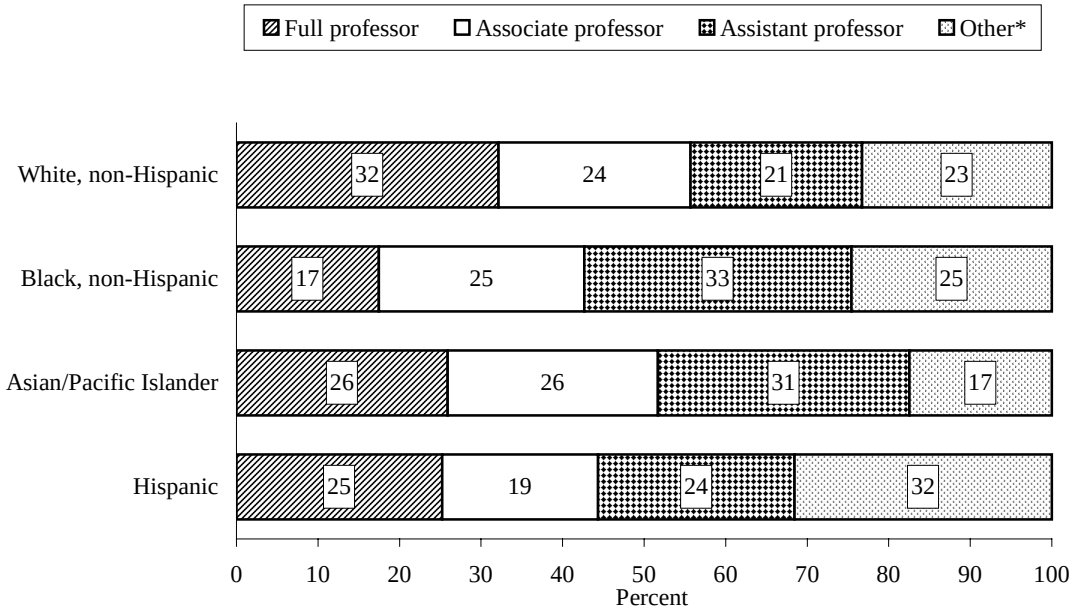
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

ranks (figure 12). Asian and Black faculty were also more likely than White faculty to be on the tenure track (figure 13), the most common status for assistant professors.[17]

Finally, no differences across racial/ethnic groups were found for some characteristics. For example, no differences by racial/ethnic group were detected in student contact hours (table 10). In short, among full-time instructional faculty and staff, overall racial/ethnic differences in factors often associated with salary were as complex in fall 1998 as they were 6 years earlier (Nettles, Perna, and Bradburn 2000).

[17]U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), Data Analysis System.

Figure 12.—Percentage distribution of full-time instructional faculty and staff at degree-granting institutions according to academic rank, by race/ethnicity: Fall 1998

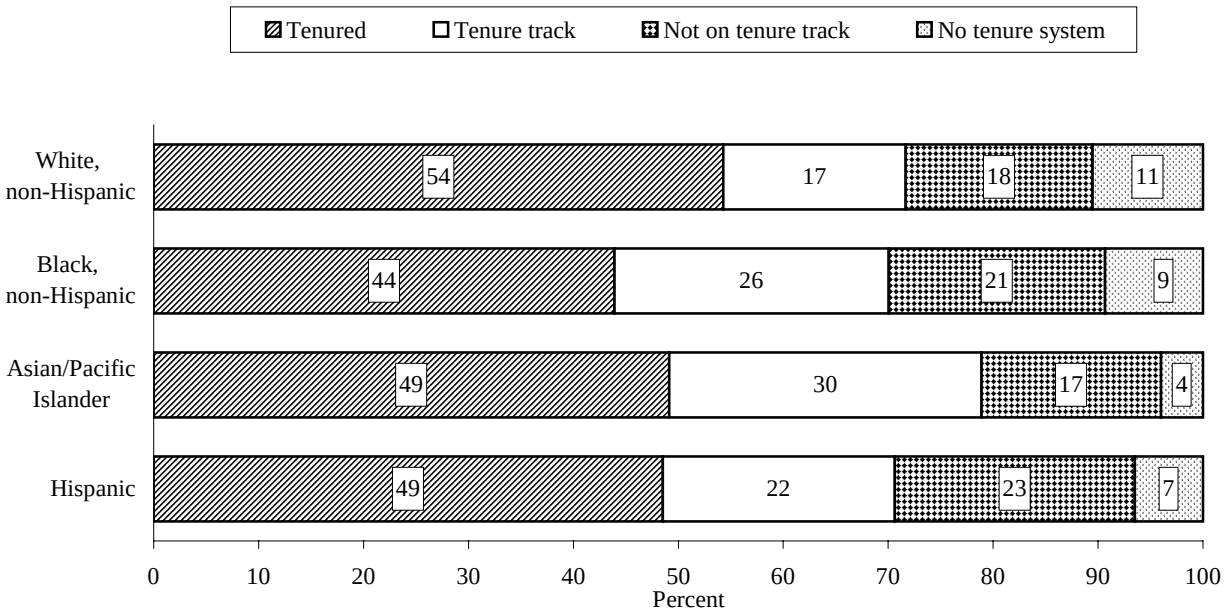


*Includes instructors, lecturers, other ranks, and those without an academic rank.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Figure 13.—Percentage distribution of full-time instructional faculty and staff at degree-granting institutions according to tenure status, by race/ethnicity: Fall 1998



NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Detail may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Gender and Racial/Ethnic Differences in Salary Controlling for Other Characteristics

As the previous two chapters show, differences in faculty characteristics by gender and race/ethnicity are common. While overall salary variations between men and women and among faculty across racial/ethnic groups suggest persistent disparities, they do not take into account other differences in factors that contribute to salary. Thus, it is not clear whether the salaries of different gender or racial/ethnic groups of faculty vary in ways that can be accounted for by differences in other characteristics, such as the types of institutions at which faculty teach, their levels of experience, or their research activities. Because many such characteristics vary together, it is necessary to conduct a multiple regression analysis that takes this covariation into account in order to understand the net differences, if any, in salary by gender and race/ethnicity. See appendix B for a description of the regression procedure used here.

Table 15 offers two estimates of the mean basic salaries for full-time faculty members and staff who had instructional duties for credit in 1998. The first column of estimates shows unadjusted average salaries, while the second column presents average salaries that have been adjusted to take into account covariation among the independent variables in the table.

After controlling for race, type of institution, teaching field, level of instruction, tenure status, rank, highest degree, years since highest degree, age, time spent teaching, number of classes taught, time spent engaged in research, and number of total publications or other permanent creative works in the previous 2 years, full-time female faculty members earned an average of $53,600 compared with $58,700 for men. For 1992, Nettles, Perna, and Bradburn (2000) found similar results. They found that women earned 8 percent less than men when a similar group of characteristics, including academic rank and tenure status, were controlled.[18] The 1992 and 1998 regression results reveal a persistent gap between male and female faculty salaries.

[18]The inclusion of academic rank and tenure status as independent variables in a model of faculty salaries will generally minimize the gender differences in salary that are found (Toutkoushian 1998b). Nettles, Perna, and Bradburn (2000) estimated four different models with NSOPF:93 data to investigate covariance. When academic rank and tenure status were excluded from the model, but other variables reflecting education, experience, institution type and location, and teaching and research activities were still included, women earned 11 percent less than men (Nettles, Perna, and Bradburn 2000). The regression analysis presented in this report only includes one model as shown in table 15.

A wage gap based on race/ethnicity did not emerge in 1998. After controlling for the other variables shown in table 15, no differences were observed in average salaries across racial/ethnic categories. Though the unadjusted mean salary of Black faculty members was lower than that of White faculty, no difference was found in the adjusted mean salary of Black and White faculty members. The lower proportions of Black faculty members working at doctoral institutions and holding tenure and full professor positions could account for the lack of adjusted salary variation. Conversely, Asian faculty had a higher unadjusted mean salary compared with White faculty. Taking into account such factors as the type of institution by which they were employed, involvement in research, and highest degree held, no statistically significant differences were found in the salaries of Asian faculty and White faculty. Salary differences did not emerge between Hispanic and White faculty. Similar to the bivariate comparisons between Hispanic and White faculty characteristics and outcomes, no differences were detected in the adjusted salaries of these two groups.

While differences in salary between faculty of different racial/ethnic groups were not detected in the regression analysis, there may still be racial/ethnic differences in various situational variables (such as tenure status and academic rank) that were controlled in these regression models. The bivariate results show that many differences in such characteristics do exist. These differences could be the result of discrimination on the basis of race/ethnicity. Alternatively, they may result from other antecedent factors. That is, for example, racial/ethnic differences in academic rank could be the result of discrimination—differential treatment of people of different races who otherwise have the same characteristics—or the result of racial/ethnic differences in other characteristics that are associated with rank, such as education and years of experience.[19]

Besides gender, several other faculty characteristics affected adjusted mean salaries in the model shown in table 15. Tenure status and academic rank were associated with salary. After controlling for other variables, faculty members holding tenure earned more than faculty who were not on a tenure track or who worked in an institution without a tenure system. Similarly, full professors earned more than associate and assistant professors and faculty in other ranks. Faculty members' highest degree earned and the number of years since receiving their highest degree were also positively associated with salary. Faculty holding doctoral or first-professional degrees earned about $59,000 compared with $52,500, the adjusted mean salary of faculty who

[19]The maximum effect size (r^2) of the relationships of the other variables shown in table 15 with the racial/ethnic variables was 0.009. Effect sizes of this magnitude may be considered relatively small (Cohen 1988).

held any other type of degree. Those who held their highest degrees for more than 15 years earned an average of at least $6,000[20] more than their colleagues with less experience.

Institution type, teaching field, and teaching and research activities were also associated with salaries. Compared with faculty who taught at public 2-year institutions, faculty who taught at public and private not-for-profit doctoral institutions earned higher adjusted salaries, while faculty who taught at private liberal arts colleges earned less than their counterparts at public 2-year institutions. Faculty who taught in business, law, communications, and health sciences earned higher salaries than those in the natural sciences and engineering. In turn, faculty in the natural sciences and engineering earned more than their counterparts in the humanities, but no differences were detected when comparing their salaries to those of faculty teaching in the social sciences, education, and occupationally specific programs. Additionally, while no differences in adjusted salaries were found based on time spent doing research after controlling for other factors, those who reported producing more than 10 recent publications or other permanent creative works total earned more than their counterparts who produced fewer works. Salaries were also higher for faculty members who spent an average of 50 percent or less of their time teaching, and faculty who taught more than two classes earned less than those who taught fewer classes.

[20]These differences were calculated using average base salaries for groups with different levels of experience that were adjusted to take into account differences associated with other variables in the analysis: $60,690 (adjusted average salary for faculty with more than 15 years of experience) – $54,280 (adjusted average salary of faculty with 11 to 15 years of experience) = $6,410 (salary difference); $60,690 (adjusted average salary for faculty with more than 15 years of experience) – $53,250 (adjusted average salary of faculty with 6 to 10 years of experience) = $7,440 (salary difference); and $60,690 (adjusted average salary for faculty with more than 15 years of experience) – $50,950 (adjusted average salary of faculty with 0 to 5 years of experience) = $9,740 (salary difference).

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Subgroup Changes Between 1992 and 1998

The previous section showed that the salaries of full-time male and female faculty members differed in 1998 even controlling for many other factors that contribute to faculty salaries, although racial/ethnic differences in salary were accounted for by variation in other characteristics. These results were consistent with differences found in 1992 (Nettles, Perna, and Bradburn 2000). Have the characteristics of male and female faculty of different racial/ethnic groups changed during the 1990s? The NSOPF surveys provide an opportunity to examine how the subgroups may have changed in terms of some of the characteristics studied here.

Women's average salaries (in constant 1998 dollars) increased between 1992 and 1998, a finding that resulted particularly from an increase in salary among White women (table 16). Although other groups appeared to have increased their salaries as well, the standard errors were large, and there was not enough statistical evidence to conclude that this was the case. Despite the significant growth in White women's average salary during the period, no change was found in the gap between the average salary of White men and women between the 2 years. In fact, no changes in the salary gaps between male and female full-time instructional staff were detected among any of the racial/ethnic groups.

White men were less likely to be employed at public 2-year colleges in 1998 than in 1992 (14 versus 17 percent; table 17). Although other groups also appeared to decrease their representation at this type of institution, these apparent differences were not statistically significant. Black, Hispanic, and Asian women appeared to have increased their representation in public doctoral universities between 1992 and 1998, but these differences were also not statistically significant.

Between 1992 and 1998, the percentages of White and Asian women holding a doctoral or first-professional degree increased (table 18). In addition, greater percentages of White women rose to the rank of full professor, from 16 percent in 1992 to 19 percent in 1998 (table 19). They were also less likely to be employed as assistant professors in 1998 than in 1992. While some other groups, such as Hispanic men, appeared to show similar patterns, the changes for other groups were not statistically significant.

White men and women as well as Hispanic men were less likely to be on a tenure track in 1998 than in 1992 (table 20). White men and Hispanic women were also more likely to be in

nontenure track jobs in 1998 than in 1992. Although Hispanic men appeared to be more likely, and Hispanic women less likely, to have tenure in 1998 than in 1992, these estimates had large standard errors and the differences were not statistically significant. Between 1992 and 1998, the gap between the percentage of White men and White women holding tenure positions narrowed, while the gap between Hispanic men and women holding tenure grew.

In summary, the status of faculty of various racial/ethnic groups changed little between 1992 and 1998. Although the status of White women changed somewhat—they were more likely to hold doctoral or first-professional degrees, to be full professors, and have higher salaries in 1998—salary differences by gender remained, even after taking into account other factors (table 15).

Conclusion

Gender and racial/ethnic differences were observed in faculty salaries and in many characteristics that affect salary for full-time faculty with for-credit instructional duties in fall 1998. In some cases, these differences are easy to summarize. Despite some gains for women during the 1990s, gender differences in salary and many other factors—such as education and experience, teaching and research activities, and academic rank and tenure—persisted in 1998. Furthermore, many of these differences were present across racial/ethnic groups: White, Asian/Pacific Islander, Black, and Hispanic faculty all displayed gender differences in several aspects of faculty status. Hispanic faculty exhibited the fewest gender differences. Finally, gender differences in salary persisted even after taking into account a broad array of faculty characteristics.

Racial/ethnic differences are also widespread. Asian/Pacific Islander faculty often fare well relative to White faculty, with higher average salaries, more doctoral or first-professional degrees, and more time for research. They have less experience overall and, perhaps partly because they have more recently entered the professoriate, are no more likely than Whites to have joined the ranks of senior faculty.

In contrast, Black faculty are often at a disadvantage relative to White faculty. Their salaries are lower than those of Whites, and they are less likely to have doctoral or first-professional degrees. Because Blacks have less experience as faculty members, they also are less likely than Whites to have tenure or full professorships.

Hispanic faculty, the smallest of the racial/ethnic groups considered here, displayed few observed differences from White faculty. In fact, although Hispanic faculty have less experience on average than White faculty, no differences were found in the proportions of these two groups who were employed as senior faculty. In addition, no differences were detected in salaries, teaching, and research activities of Hispanic and White faculty.

Racial/ethnic differences in salary are generally a function of the many other differences in faculty characteristics observed in this report. After controlling for such factors as institution type, education and experience, teaching and research activities, and academic rank and tenure, there were no statistically significant differences in the average salary of faculty. However, the

other results in this report highlight the fact that faculty from different racial/ethnic backgrounds *do* vary considerably in other characteristics that contribute to salary.

Finally, there was little evidence that the status of male and female faculty from different racial/ethnic backgrounds changed during the 1990s. Compared with results for fall 1992, no differences were observed for most groups in their representation at various levels and types of institutions. This overall stability no doubt contributed to the similar gender and racial/ethnic differences found among full-time faculty in fall 1992 and 1998.

Tables

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Table 1.—Percentage distribution of full-time instructional faculty and staff according to base salary, and average base salary, by gender and race/ethnicity: Calendar year 1998

Race/ethnicity	Percent making:				Average base salary
	Less than $40,000	$40,000–59,999	$60,000–79,999	$80,000 or more	
			Total		
Total	27.2	37.4	19.5	15.8	$56,850
Race/ethnicity					
White, non-Hispanic	27.7	36.6	19.7	16.1	57,000
Black, non-Hispanic	28.4	49.3	13.6	8.7	50,360
Asian/Pacific Islander	18.1	38.0	22.9	21.0	62,800
Hispanic	28.3	40.3	19.6	11.9	54,370
American Indian/Alaska Native	40.1	34.6	16.1	9.2	48,090
			Male		
Total	21.0	36.1	22.5	20.4	61,680
Race/ethnicity					
White, non-Hispanic	21.1	35.5	22.6	20.8	61,950
Black, non-Hispanic	23.6	49.0	15.6	11.9	53,640
Asian/Pacific Islander	13.3	37.0	24.7	25.0	66,350
Hispanic	24.3	35.2	24.7	15.9	58,990
American Indian/Alaska Native	37.9	32.8	19.0	10.3	48,510
			Female		
Total	38.3	39.7	14.3	7.8	48,370
Race/ethnicity					
White, non-Hispanic	39.3	38.5	14.4	7.8	48,200
Black, non-Hispanic	33.5	49.6	11.5	5.4	46,870
Asian/Pacific Islander	29.1	40.2	18.9	11.8	54,690
Hispanic	34.7	48.4	11.5	5.4	46,890
American Indian/Alaska Native	45.1	38.6	9.7	6.6	47,170

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Refers to base salary during calendar year 1998 received from the institution at which the respondent was sampled. Percentages may not sum to 100 due to rounding. Dollar figures are rounded to the nearest 10.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 2.—Percentage distribution of full-time instructional faculty and staff according to institution type, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Public doctoral[1]	Private, not-for-profit doctoral[1]	Public comprehensive	Private, not-for-profit comprehensive	Private, not-for-profit liberal arts	Public 2-year	Other[2]
				Total			
Total	34.9	10.6	14.8	6.7	8.5	18.3	6.2
Race/ethnicity							
White, non-Hispanic	34.8	10.5	14.4	6.9	8.8	18.3	6.3
Black, non-Hispanic	23.2	8.2	21.8	6.0	10.7	21.5	8.7
Asian/Pacific Islander	46.8	14.2	15.0	4.3	4.2	10.6	4.9
Hispanic	34.8	11.7	16.0	5.5	4.1	25.5	2.4
American Indian/Alaska Native	34.2	5.7	10.9	11.4	12.7	19.9	5.2
				Male			
Total	38.0	11.7	14.4	6.7	8.3	14.4	6.6
Race/ethnicity							
White, non-Hispanic	38.1	11.7	13.9	6.7	8.5	14.4	6.7
Black, non-Hispanic	20.3	8.9	22.1	7.2	13.0	16.8	11.7
Asian/Pacific Islander	51.1	14.8	14.9	5.1	4.5	6.1	3.7
Hispanic	33.9	13.2	16.6	6.2	3.3	24.2	2.7
American Indian/Alaska Native	34.0	5.3	11.2	13.1	10.1	24.7	1.6
				Female			
Total	29.4	8.7	15.6	6.8	8.9	25.1	5.5
Race/ethnicity							
White, non-Hispanic	28.9	8.5	15.3	7.3	9.3	25.3	5.4
Black, non-Hispanic	26.3	7.5	21.4	4.7	8.3	26.5	5.5
Asian/Pacific Islander	37.2	13.1	15.3	2.5	3.5	20.7	7.7
Hispanic	36.2	9.3	15.1	4.4	5.5	27.7	1.8
American Indian/Alaska Native	34.5	6.6	10.3	7.8	18.6	9.1	13.3

[1]Includes research, doctoral, and medical institutions.

[2]Other institutions include private not-for-profit 2-year institutions, public liberal arts colleges, and other specialized institutions.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 3.—Percentage distribution of full-time instructional faculty and staff according to level of instruction, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Undergraduate only	Both undergraduate and graduate	Graduate only
		Total	
Total	66.6	16.4	17.0
Race/ethnicity			
White, non-Hispanic	66.8	16.1	17.1
Black, non-Hispanic	73.4	14.5	12.2
Asian/Pacific Islander	56.3	23.4	20.4
Hispanic	65.8	15.7	18.5
American Indian/Alaska Native	74.4	15.3	10.2
		Male	
Total	63.1	18.3	18.5
Race/ethnicity			
White, non-Hispanic	63.2	18.0	18.8
Black, non-Hispanic	73.5	13.6	12.9
Asian/Pacific Islander	52.8	26.4	20.9
Hispanic	64.4	19.4	16.2
American Indian/Alaska Native	75.1	15.4	9.5
		Female	
Total	72.6	13.0	14.4
Race/ethnicity			
White, non-Hispanic	73.2	12.8	14.0
Black, non-Hispanic	73.2	15.4	11.4
Asian/Pacific Islander	64.7	16.1	19.2
Hispanic	68.2	9.2	22.6
American Indian/Alaska Native	(#)	(#)	(#)

#Too small to report.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Categories refer to primary level of students in up to five classes taught for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 4.—Percentage distribution of full-time instructional faculty and staff according to field of teaching, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Business/ law/com- munications	Health sciences	Human- ities	Natural sciences/ engineering	Social sciences/ education	Occupa- tionally specific	Other
				Total			
Total	10.3	15.2	14.6	24.7	17.8	2.9	14.6
Race/ethnicity							
White, non-Hispanic	10.5	15.2	14.4	24.3	17.5	2.9	15.1
Black, non-Hispanic	10.8	13.2	13.2	14.5	26.3	3.5	18.5
Asian/Pacific Islander	8.2	16.2	12.1	41.5	13.9	1.8	6.4
Hispanic	5.7	15.1	28.8	23.1	16.6	2.5	8.2
American Indian/Alaska Native	15.7	15.2	7.8	12.3	27.6	9.9	11.5
				Male			
Total	10.5	11.8	12.8	30.1	16.0	3.9	15.0
Race/ethnicity							
White, non-Hispanic	10.6	11.8	12.8	29.2	16.2	3.9	15.6
Black, non-Hispanic	13.6	7.5	13.3	20.4	19.3	3.9	22.0
Asian/Pacific Islander	9.1	14.3	6.3	51.7	11.2	2.2	5.2
Hispanic	4.7	12.4	26.6	29.3	14.2	3.9	8.9
American Indian/Alaska Native	20.2	11.1	7.0	15.0	22.8	14.2	9.8
				Female			
Total	9.9	21.1	17.9	15.1	21.0	1.3	13.8
Race/ethnicity							
White, non-Hispanic	10.4	21.3	17.3	15.6	19.9	1.2	14.2
Black, non-Hispanic	7.7	19.4	13.0	8.2	33.9	3.0	14.8
Asian/Pacific Islander	6.0	20.5	25.2	18.4	20.0	0.8	9.1
Hispanic	7.2	19.6	32.4	13.0	20.5	0.2	7.1
American Indian/Alaska Native	5.4	24.5	9.7	6.2	38.8	0.0	15.4

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 5.—Percentage distribution of full-time instructional faculty and staff according to academic rank, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Full professor	Associate professor	Assistant professor	Other*
		Total		
Total	30.7	23.6	22.3	23.4
Race/ethnicity				
White, non-Hispanic	32.2	23.5	21.0	23.3
Black, non-Hispanic	17.5	25.2	32.8	24.6
Asian/Pacific Islander	25.9	25.8	30.9	17.5
Hispanic	25.3	19.1	24.1	31.6
American Indian/Alaska Native	17.8	17.4	23.6	41.1
		Male		
Total	38.2	24.3	19.3	18.2
Race/ethnicity				
White, non-Hispanic	39.8	24.1	18.0	18.0
Black, non-Hispanic	23.6	27.4	29.0	20.0
Asian/Pacific Islander	31.4	28.1	29.4	11.1
Hispanic	31.4	20.3	20.3	28.0
American Indian/Alaska Native	23.6	18.2	16.9	41.3
		Female		
Total	17.6	22.2	27.6	32.6
Race/ethnicity				
White, non-Hispanic	18.5	22.5	26.3	32.6
Black, non-Hispanic	11.0	22.9	36.7	29.4
Asian/Pacific Islander	13.3	20.3	34.3	32.0
Hispanic	15.4	17.1	30.2	37.3
American Indian/Alaska Native	5.0	15.8	38.6	40.7

*Includes instructors, lecturers, other ranks, and those without an academic rank.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 6.—Percentage distribution of full-time instructional faculty and staff according to tenure status, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Tenured	Tenure track	Not on tenure track	No tenure system
		Total		
Total	53.1	18.8	18.1	10.0
Race/ethnicity				
White, non-Hispanic	54.3	17.4	17.8	10.5
Black, non-Hispanic	43.9	26.1	20.6	9.3
Asian/Pacific Islander	49.1	29.8	17.1	4.0
Hispanic	48.5	22.1	22.9	6.5
American Indian/Alaska Native	29.4	34.4	24.2	12.0
		Male		
Total	59.7	17.1	14.7	8.5
Race/ethnicity				
White, non-Hispanic	60.9	15.7	14.4	9.0
Black, non-Hispanic	50.6	23.0	17.1	9.3
Asian/Pacific Islander	54.3	28.5	14.3	2.8
Hispanic	56.2	19.3	18.4	6.2
American Indian/Alaska Native	29.9	34.9	24.9	10.3
		Female		
Total	41.6	21.8	24.1	12.5
Race/ethnicity				
White, non-Hispanic	42.5	20.3	23.9	13.3
Black, non-Hispanic	36.8	29.5	24.3	9.4
Asian/Pacific Islander	37.3	32.7	23.4	6.6
Hispanic	36.0	26.8	30.2	7.0
American Indian/Alaska Native	28.5	33.2	22.6	15.8

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 7.—Percentage distribution of full-time instructional faculty and staff according to highest degree attained and average years since receiving highest degree, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Percent with:			Years since receiving degree
	Doctoral/ first-professional	Master's	Bachelor's or less	
		Total		
Total	67.0	27.8	5.2	17.0
Race/ethnicity				
White, non-Hispanic	66.6	27.9	5.5	17.5
Black, non-Hispanic	57.5	38.5	4.0	14.6
Asian/Pacific Islander	84.5	14.6	0.9	14.4
Hispanic	64.0	29.6	6.3	13.5
American Indian/Alaska Native	53.2	38.2	8.7	11.9
		Male		
Total	74.2	21.5	4.3	18.8
Race/ethnicity				
White, non-Hispanic	73.9	21.6	4.6	19.4
Black, non-Hispanic	63.4	33.7	2.9	15.8
Asian/Pacific Islander	89.9	9.4	0.7	15.5
Hispanic	70.5	23.8	5.8	14.2
American Indian/Alaska Native	50.4	40.9	8.7	12.5
		Female		
Total	54.3	38.9	6.8	13.8
Race/ethnicity				
White, non-Hispanic	53.5	39.2	7.2	14.0
Black, non-Hispanic	51.1	43.7	5.2	13.3
Asian/Pacific Islander	72.1	26.6	1.3	11.8
Hispanic	53.6	39.2	7.2	12.4
American Indian/Alaska Native	59.3	32.2	8.6	10.6

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 8.—Among full-time instructional faculty and staff, average years in current job, years of higher education teaching experience, and number of jobs in higher education, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Years in current job	Years in higher education teaching	Number of higher education jobs
		Total	
Total	12.2	16.4	2.7
Race/ethnicity			
White, non-Hispanic	12.6	16.9	2.7
Black, non-Hispanic	10.1	14.7	2.9
Asian/Pacific Islander	9.7	13.2	2.7
Hispanic	9.1	12.8	2.7
American Indian/Alaska Native	8.2	11.3	2.8
		Male	
Total	13.6	17.9	2.8
Race/ethnicity			
White, non-Hispanic	14.1	18.5	2.8
Black, non-Hispanic	11.2	16.1	2.9
Asian/Pacific Islander	11.0	14.3	2.7
Hispanic	10.1	13.4	2.7
American Indian/Alaska Native	8.4	11.4	2.8
		Female	
Total	9.7	13.6	2.7
Race/ethnicity			
White, non-Hispanic	10.0	13.9	2.7
Black, non-Hispanic	9.0	13.2	3.0
Asian/Pacific Islander	6.8	10.5	2.7
Hispanic	7.5	11.8	2.8
American Indian/Alaska Native	7.6	11.0	2.7

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 9.—Percentage distribution of full-time instructional faculty and staff across age groups and average age, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Percent				Average age
	Under 35	35 to 44	45 to 54	55 and above	
			Total		
Total	7.3	25.3	36.0	31.4	49.2
Race/ethnicity					
White, non-Hispanic	7.1	23.9	36.0	33.0	49.6
Black, non-Hispanic	6.8	25.5	40.9	26.8	48.6
Asian/Pacific Islander	9.3	38.4	31.4	20.8	46.1
Hispanic	11.7	35.7	35.3	17.3	45.6
American Indian/Alaska Native	6.9	36.1	39.6	17.5	46.9
			Male		
Total	6.1	23.8	33.5	36.6	50.2
Race/ethnicity					
White, non-Hispanic	5.9	22.0	33.3	38.8	50.7
Black, non-Hispanic	4.5	23.9	42.5	29.0	49.7
Asian/Pacific Islander	6.5	41.1	29.5	22.9	46.8
Hispanic	12.6	34.7	32.4	20.4	45.7
American Indian/Alaska Native	6.0	37.5	40.1	16.4	47.1
			Female		
Total	9.5	28.0	40.3	22.2	47.4
Race/ethnicity					
White, non-Hispanic	9.2	27.4	40.7	22.7	47.6
Black, non-Hispanic	9.3	27.1	39.1	24.5	47.4
Asian/Pacific Islander	15.7	32.4	35.8	16.2	44.7
Hispanic	10.3	37.4	40.1	12.3	45.4
American Indian/Alaska Native	8.9	32.9	38.2	20.0	46.6

NOTE: Includes instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 10.—Among full-time instructional faculty and staff, average number of course preparations, for-credit classes, hours taught per week, and student contact hours per week, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Course preparations	For-credit classes	Hours taught per week	Student contact hours per week*
		Total		
Total	2.6	3.4	11.0	321
Race/ethnicity				
White, non-Hispanic	2.6	3.4	11.1	323
Black, non-Hispanic	2.6	3.8	11.4	309
Asian/Pacific Islander	2.2	3.1	10.0	288
Hispanic	2.5	3.6	11.5	312
American Indian/Alaska Native	2.7	3.9	11.7	429
		Male		
Total	2.5	3.3	10.8	330
Race/ethnicity				
White, non-Hispanic	2.5	3.3	10.8	331
Black, non-Hispanic	2.7	3.8	11.9	338
Asian/Pacific Islander	2.2	3.1	9.7	290
Hispanic	2.5	3.7	11.3	317
American Indian/Alaska Native	2.7	4.3	12.9	485
		Female		
Total	2.6	3.5	11.4	304
Race/ethnicity				
White, non-Hispanic	2.6	3.5	11.5	308
Black, non-Hispanic	2.5	3.8	10.8	278
Asian/Pacific Islander	2.3	3.1	10.8	286
Hispanic	2.5	3.5	11.9	303
American Indian/Alaska Native	(#)	(#)	(#)	(#)

#Too small to report.

*Product of number of students in class by number of hours per week the class met, summed over up to five for-credit classes.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 11.—Among full-time instructional faculty and staff, average percentage of time spent on various activities, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Teaching activities[1]	Research[2]	Administration[3]	Service and other activities[4]
		Total		
Total	56.6	15.2	13.9	14.3
Race/ethnicity				
White, non-Hispanic	56.9	14.8	14.4	14.0
Black, non-Hispanic	58.7	10.6	12.8	17.9
Asian/Pacific Islander	51.1	24.5	9.7	14.7
Hispanic	55.6	16.2	11.2	16.9
American Indian/Alaska Native	64.3	10.0	12.6	13.0
		Male		
Total	54.8	17.1	13.8	14.2
Race/ethnicity				
White, non-Hispanic	55.0	16.7	14.3	14.0
Black, non-Hispanic	57.7	11.3	13.1	17.8
Asian/Pacific Islander	48.8	27.0	9.7	14.5
Hispanic	54.5	17.8	12.2	15.5
American Indian/Alaska Native	67.2	9.2	10.0	13.6
		Female		
Total	59.8	11.7	14.0	14.5
Race/ethnicity				
White, non-Hispanic	60.1	11.4	14.5	14.0
Black, non-Hispanic	59.8	9.8	12.5	17.9
Asian/Pacific Islander	56.2	18.8	9.8	15.3
Hispanic	57.4	13.7	9.8	19.2
American Indian/Alaska Native	57.8	11.8	18.6	11.8

[1]Teaching activities include teaching, grading, advising, preparing courses or curricula, supervising student teachers, and working with student organizations.

[2]Research activities include conducting research, participating in professional meetings, reviewing articles, books, or proposals, seeking funding, and giving performances, exhibitions, or speeches.

[3]Administration includes departmental or institution-wide meetings or committee work.

[4]Service and other activities include professional service, professional growth, and outside consulting, freelance work, and other non-teaching professional activities.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 12.—Percentage of full-time instructional faculty and staff engaged in research or other scholarly work and of those, percentage in funded research, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Any research*	Of those, percent in funded research
	Total	
Total	67.0	52.5
Race/ethnicity		
White, non-Hispanic	66.4	51.8
Black, non-Hispanic	64.6	48.6
Asian/Pacific Islander	79.1	63.3
Hispanic	67.1	54.4
American Indian/Alaska Native	62.8	51.7
	Male	
Total	70.2	54.1
Race/ethnicity		
White, non-Hispanic	69.3	53.4
Black, non-Hispanic	66.9	45.8
Asian/Pacific Islander	83.1	65.5
Hispanic	73.2	57.0
American Indian/Alaska Native	59.7	50.5
	Female	
Total	61.6	49.2
Race/ethnicity		
White, non-Hispanic	61.2	48.4
Black, non-Hispanic	62.2	51.8
Asian/Pacific Islander	69.9	57.5
Hispanic	57.2	48.9
American Indian/Alaska Native	69.9	(#)

#Too small to report.

*Based on response to the question, "During the 1998 Fall Term, were you engaged in any professional research, proposal writing, creative writing, or creative works (either funded or non-funded) at this institution?"

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 13.—Among full-time instructional faculty and staff, number of various types of recent scholarly works, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Publications or other permanent creative works			Presentations/ exhibitions/ performances
	Total[1]	Articles/ works in refereed/ juried media	Books[2]	
		Total		
Total	8.4	3.9	1.0	10.8
Race/ethnicity				
White, non-Hispanic	8.3	3.8	1.0	10.8
Black, non-Hispanic	6.7	2.5	1.0	9.6
Asian/Pacific Islander	11.2	6.4	1.0	11.4
Hispanic	7.9	3.7	1.2	10.1
American Indian/Alaska Native	6.8	2.4	1.6	12.9
		Male		
Total	9.9	4.7	1.1	11.7
Race/ethnicity				
White, non-Hispanic	9.8	4.6	1.1	11.7
Black, non-Hispanic	8.3	3.1	1.2	11.6
Asian/Pacific Islander	13.4	7.8	1.3	12.8
Hispanic	9.2	4.2	1.6	11.3
American Indian/Alaska Native	6.4	2.8	0.8	11.5
		Female		
Total	5.7	2.4	0.7	9.1
Race/ethnicity				
White, non-Hispanic	5.7	2.3	0.7	9.3
Black, non-Hispanic	5.1	1.8	0.9	7.4
Asian/Pacific Islander	6.0	3.2	0.5	8.3
Hispanic	5.9	3.0	0.5	8.1
American Indian/Alaska Native	7.8	1.7	3.4	15.9

[1]Includes other types of works not shown separately, such as articles or works in non-refereed journals or non-juried media, book reviews, or book chapters in edited volumes.

[2]Includes textbooks, books, monographs, and research or technical reports.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Refers to scholarly works produced in the previous 2 years.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 14.—Of full-time instructional faculty and staff engaged in research or other scholarly work, percentage distribution across types of research, by gender and race/ethnicity: Fall 1998

Race/ethnicity	Basic research	Applied or policy-oriented research	Literary, performance, or exhibitions	Other*
		Total		
Total	42.4	25.8	10.8	21.0
Race/ethnicity				
White, non-Hispanic	41.7	26.2	11.0	21.1
Black, non-Hispanic	37.5	20.0	10.5	32.1
Asian/Pacific Islander	53.7	26.3	7.3	12.7
Hispanic	43.6	23.6	14.3	18.5
American Indian/Alaska Native	36.7	23.3	11.8	28.2
		Male		
Total	45.9	27.2	10.4	16.5
Race/ethnicity				
White, non-Hispanic	45.4	27.4	10.7	16.5
Black, non-Hispanic	42.1	19.7	10.0	28.2
Asian/Pacific Islander	55.5	29.6	5.0	10.0
Hispanic	44.0	24.9	15.7	15.4
American Indian/Alaska Native	34.2	26.6	14.1	25.1
		Female		
Total	35.4	23.1	11.6	29.9
Race/ethnicity				
White, non-Hispanic	34.4	23.9	11.5	30.2
Black, non-Hispanic	32.2	20.2	11.0	36.6
Asian/Pacific Islander	49.0	17.2	13.6	20.2
Hispanic	42.7	21.0	11.4	24.9
American Indian/Alaska Native	(#)	(#)	(#)	(#)

#Too small to report.

*Includes program/curriculum design and development.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Responses describe the primary professional research, writing, or creative work during the fall 1998 term. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 15.—Average base salary of full-time instructional faculty and staff at degree-granting institutions, and average salary after taking into account the covariation of the variables listed, by selected characteristics: Calendar year 1998

Variable[1]	Unadjusted mean[2]	Adjusted mean[3]	Least squares coefficient[4]	Standard error[5]
Total	$56,851	$56,851	$67,339	$2,797
Gender				
Female	48,374*	53,620*	-5,074	1,015
Male	*61,685*	*58,694*	*(†)*	*(†)*
Race/ethnicity				
White, non-Hispanic	*57,003*	*56,618*	*(†)*	*(†)*
Black, non-Hispanic	50,360*	56,950	332	2,075
Asian/Pacific Islander	62,798*	60,331	3,714	1,961
Hispanic	54,372	57,042	424	2,543
American Indian/Alaska Native	48,095*	54,873	-1,744	5,360
Institutional type				
Public doctoral	66,120*	59,641*	4,191	1,827
Private, not-for-profit doctoral	77,649*	67,424*	11,974	2,218
Private, not-for-profit liberal arts	43,605	51,349*	-4,101	2,052
Public 2-year	*44,636*	*55,450*	*(†)*	*(†)*
Other[6]	49,307*	51,885*	-3,566	1,610
Field of teaching				
Business/law/communications	57,724	59,586*	5,245	1,699
Health sciences	75,238*	72,491*	18,151	1,589
Humanities	47,703*	51,017*	-3,323	1,531
Natural sciences and engineering	*58,449*	*54,341*	*(†)*	*(†)*
Social sciences/education	54,276	54,204	-136	1,447
Occupationally specific	47,224*	55,199	858	2,857
Other	49,339*	52,308	-2,033	1,549
Level of instruction				
Undergraduates only	48,840*	55,136*	-3,086	1,359
Both graduates and undergraduates	*61,016*	*58,222*	*(†)*	*(†)*
Graduates only	74,104*	62,238*	4,016	1,639
Tenure status				
Tenured	*65,399*	*59,055*	*(†)*	*(†)*
Tenure track	48,835*	56,959	-2,096	1,632
Not on tenure track	47,889*	51,824*	-7,232	1,659
No tenure system	42,725*	54,049*	-5,006	1,787
Academic rank				
Full professor	*74,762*	*66,468*	*(†)*	*(†)*
Associate professor	57,685*	53,722*	-12,746	1,330
Assistant professor	48,229*	51,730*	-14,738	1,770
Other	40,725*	52,261*	-14,207	1,833

See footnotes at end of table.

Table 15.—Average base salary of full-time instructional faculty and staff at degree-granting institutions, and average salary after taking into account the covariation of the variables listed, by selected characteristics: Calendar year 1998—Continued

Variable[1]	Unadjusted mean[2]	Adjusted mean[3]	Least squares coefficient[4]	Standard error[5]
Highest degree attained				
Doctorate/First-professional	$64,057*	$58,976*	$6,431.60	$1,328.36
Other	*42,250*	*52,545*	*(†)*	*(†)*
Years since receiving highest degree				
0–5 years	41,451*	50,951*	-9,740	1,768
6–10 years	47,305*	53,253*	-7,438	1,551
11–15 years	53,485*	54,278*	-6,413	1,448
More than 15 years	*65,907*	*60,691*	*(†)*	*(†)*
Age				
Less than 35	39,882*	54,243	-3,467	2,293
35–44	51,114*	56,453	-1,257	1,551
45–54	57,872*	56,915	-795	1,174
More than 54	*64,278*	*57,710*	*(†)*	*(†)*
Percentage of time engaged in teaching				
50 percent or less	67,718*	60,604*	6,525	1,304
51–75 percent	51,996*	54,578	499	1,241
More than 75 percent	*45,906*	*54,079*	*(†)*	*(†)*
Number of for-credit classes taught				
1–2	60,663*	58,251*	2,974	989
More than 2	*48,627*	*55,278*	*(†)*	*(†)*
Percentage of time engaged in research				
None	46,984*	56,772	631	1,531
1–10 percent	54,934*	57,666	1,524	1,200
More than 10 percent	*65,366*	*56,141*	*(†)*	*(†)*
Recent total publications				
None	45,495*	54,523*	-6,593	1,504
1–5	55,219*	56,472*	-4,645	1,333
6–10	61,543*	56,211*	-4,905	1,529
More than 10	*72,513*	*61,116*	*(†)*	*(†)*

*$p \leq .05$.

†Not applicable for the reference group.

[1]The italicized group in each category is the reference group being compared.

[2]The estimates are from the NSOPF:99 Data Analysis System.

[3]The values are adjusted for differences associated with other variables in the table (see appendix B).

[4]Least squares coefficient from multiple regression (see appendix B).

[5]Standard error of least squares coefficient, adjusted for design effect (see appendix B).

[6]Other institutions include public and private not-for-profit comprehensive universities, private not-for-profit 2-year institutions, public liberal arts colleges, and other specialized institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Table 16.—Average base salary (in constant 1998 dollars) of full-time instructional faculty and staff and percentage making selected amounts, by gender and race/ethnicity: Calendar years 1992 and 1998

Race/ethnicity	Average base salary		Percent making:			
			Less than $40,000		$80,000 or more	
	1992	1998	1992	1998	1992	1998
			Total			
Total	$56,240	$56,850	29.5	27.2	12.0	15.8
Race/ethnicity						
White, non-Hispanic	56,450	57,000	39.4	27.7	8.1	16.1
Black, non-Hispanic	48,410	50,360	24.1	28.4	16.3	8.7
Asian/Pacific Islander	62,770	62,800	36.4	18.1	7.1	21.0
Hispanic	50,120	54,370	30.3	28.3	5.7	11.9
American Indian/Alaska Native	63,990	48,090	29.4	40.1	12.3	9.2
			Male			
Total	61,540	61,680	21.9	21.0	15.8	20.4
Race/ethnicity						
White, non-Hispanic	61,880	61,950	21.4	21.1	16.1	20.8
Black, non-Hispanic	52,130	53,640	31.7	23.6	10.3	11.9
Asian/Pacific Islander	67,100	66,350	20.4	13.3	18.9	25.0
Hispanic	53,130	58,990	25.3	24.3	8.3	15.9
American Indian/Alaska Native	58,080	48,510	27.1	37.9	10.7	10.3
			Female			
Total	45,580	48,370	44.9	38.3	4.6	7.8
Race/ethnicity						
White, non-Hispanic	45,380	48,200	45.7	39.3	4.6	7.8
Black, non-Hispanic	44,260	46,870	41.5	33.5	3.5	5.4
Asian/Pacific Islander	49,620	54,690	35.3	29.1	8.2	11.8
Hispanic	43,990	46,890	40.4	34.7	0.6	5.4
American Indian/Alaska Native	74,550	47,170	61.3	45.1	3.4	6.6

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Dollar figures are rounded to the nearest 10. Estimates for 1992 were adjusted to constant 1998 dollars using the Consumer Price Index. The collection of information about race/ethnicity differed in 1992 and 1998. In 1992, respondents were not given the option of selecting more than one race category. See appendix A for more details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 and 1999 National Study of Postsecondary Faculty (NSOPF:93 and NSOPF:99).

Table 17.—Percentage of full-time instructional faculty and staff at selected types of institutions, by gender and race/ethnicity: Fall 1992 and fall 1998

Race/ethnicity	Public doctoral*		Private not-for-profit doctoral*		Public 2-year	
	1992	1998	1992	1998	1992	1998
			Total			
Total	31.9	34.9	11.7	10.6	20.7	18.3
Race/ethnicity						
White, non-Hispanic	32.1	34.8	11.4	10.5	20.4	18.3
Black, non-Hispanic	20.3	23.2	11.2	8.2	24.7	21.5
Asian/Pacific Islander	40.6	46.8	16.9	14.2	12.9	10.6
Hispanic	32.3	34.8	12.4	11.7	32.3	25.5
American Indian/Alaska Native	21.7	34.2	5.1	5.7	40.9	19.9
			Male			
Total	35.5	38.0	12.6	11.7	16.9	14.4
Race/ethnicity						
White, non-Hispanic	35.6	38.1	12.4	11.7	16.8	14.4
Black, non-Hispanic	20.9	20.3	13.2	8.9	18.9	16.8
Asian/Pacific Islander	44.0	51.1	16.6	14.8	9.8	6.1
Hispanic	36.3	33.9	13.1	13.2	29.1	24.2
American Indian/Alaska Native	23.9	34.0	4.8	5.3	44.2	24.7
			Female			
Total	24.7	29.4	9.7	8.7	28.3	25.1
Race/ethnicity						
White, non-Hispanic	24.9	28.9	9.4	8.5	27.9	25.3
Black, non-Hispanic	19.6	26.3	9.0	7.5	31.2	26.5
Asian/Pacific Islander	30.4	37.2	17.8	13.1	22.2	20.7
Hispanic	24.0	36.2	11.1	9.3	39.0	27.7
American Indian/Alaska Native	17.8	34.5	5.6	6.6	35.0	9.1

*Includes research, doctoral, and medical institutions.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. The collection of information about race/ethnicity differed in 1992 and 1998. In 1992, respondents were not given the option of selecting more than one race category. See appendix A for more details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 and 1999 National Study of Postsecondary Faculty (NSOPF:93 and NSOPF:99).

Table 18.—Percentage of full-time instructional faculty and staff whose highest degree is a doctoral or master's degree, by gender and race/ethnicity: Fall 1992 and fall 1998

Race/ethnicity	Doctoral/first-professional		Master's	
	1992	1998	1992	1998
		Total		
Total	65.1	67.0	29.7	27.8
Race/ethnicity				
White, non-Hispanic	65.2	66.6	29.7	27.9
Black, non-Hispanic	53.2	57.5	40.8	38.5
Asian/Pacific Islander	79.3	84.5	18.1	14.6
Hispanic	63.2	64.0	28.2	29.6
American Indian/Alaska Native	48.1	53.2	41.1	38.2
		Male		
Total	72.9	74.2	22.4	21.5
Race/ethnicity				
White, non-Hispanic	72.9	73.9	22.5	21.6
Black, non-Hispanic	61.6	63.4	33.6	33.7
Asian/Pacific Islander	85.8	89.9	11.4	9.4
Hispanic	66.1	70.5	24.7	23.8
American Indian/Alaska Native	55.9	50.4	30.5	40.9
		Female		
Total	49.6	54.3	44.3	38.9
Race/ethnicity				
White, non-Hispanic	49.5	53.5	44.4	39.2
Black, non-Hispanic	43.9	51.1	48.7	43.7
Asian/Pacific Islander	59.3	72.1	38.2	26.6
Hispanic	57.3	53.6	35.2	39.2
American Indian/Alaska Native	34.4	59.3	59.8	32.2

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. The collection of information about race/ethnicity differed in 1992 and 1998. In 1992, respondents were not given the option of selecting more than one race category. See appendix A for more details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 and 1999 National Study of Postsecondary Faculty (NSOPF:93 and NSOPF:99).

Table 19.—Percentage of full-time instructional faculty and staff at selected academic ranks, by gender and race/ethnicity: Fall 1992 and fall 1998

Race/ethnicity	Full professor		Assistant professor		Other*	
	1992	1998	1992	1998	1992	1998
			Total			
Total	30.4	30.7	23.5	22.3	22.7	23.4
Race/ethnicity						
White, non-Hispanic	31.5	32.2	22.6	21.0	22.2	23.3
Black, non-Hispanic	19.6	17.5	27.6	32.8	29.3	24.6
Asian/Pacific Islander	28.1	25.9	31.9	30.9	19.5	17.5
Hispanic	21.7	25.3	29.6	24.1	28.1	31.6
American Indian/Alaska Native	16.1	17.8	21.0	23.6	42.7	41.1
			Male			
Total	37.9	38.2	20.1	19.3	17.3	18.2
Race/ethnicity						
White, non-Hispanic	39.3	39.8	19.0	18.0	16.6	18.0
Black, non-Hispanic	24.6	23.6	25.1	29.0	25.1	20.0
Asian/Pacific Islander	34.1	31.4	29.4	29.4	15.5	11.1
Hispanic	25.6	31.4	27.7	20.3	27.1	28.0
American Indian/Alaska Native	19.9	23.6	16.5	16.9	40.2	41.3
			Female			
Total	15.2	17.6	30.5	27.6	33.5	32.6
Race/ethnicity						
White, non-Hispanic	15.7	18.5	30.0	26.3	33.6	32.6
Black, non-Hispanic	14.0	11.0	30.4	36.7	34.0	29.4
Asian/Pacific Islander	9.9	13.3	39.8	34.3	31.7	32.0
Hispanic	13.7	15.4	33.4	30.2	30.2	37.3
American Indian/Alaska Native	9.3	5.0	29.0	38.6	47.1	40.7

*Includes instructors, lecturers, other ranks, and those without an academic rank.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. The collection of information about race/ethnicity differed in 1992 and 1998. In 1992, respondents were not given the option of selecting more than one race category. See appendix A for more details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 and 1999 National Study of Postsecondary Faculty (NSOPF:93 and NSOPF:99).

Table 20.—Percentage distribution of full-time instructional faculty and staff according to tenure status, by gender and race/ethnicity: Fall 1992 and fall 1998

Race/ethnicity	Tenured		On tenure track		Not on tenure track		No tenure system	
	1992	1998	1992	1998	1992	1998	1992	1998
				Total				
Total	54.2	53.1	21.5	18.8	16.0	18.1	8.4	10.0
Race/ethnicity								
White, non-Hispanic	55.6	54.3	20.2	17.4	15.5	17.8	8.8	10.5
Black, non-Hispanic	43.5	43.9	29.1	26.1	22.1	20.6	5.4	9.3
Asian/Pacific Islander	47.1	49.1	29.1	29.8	19.3	17.1	4.6	4.0
Hispanic	44.9	48.5	34.5	22.1	14.5	22.9	6.1	6.5
American Indian/Alaska Native	43.0	29.4	26.5	34.4	16.6	24.2	13.9	12.0
				Male				
Total	61.3	59.7	19.3	17.1	12.6	14.7	6.8	8.5
Race/ethnicity								
White, non-Hispanic	63.2	60.9	17.8	15.7	11.9	14.4	7.1	9.0
Black, non-Hispanic	48.3	50.6	27.1	23.0	21.7	17.1	2.9	9.3
Asian/Pacific Islander	51.3	54.3	28.7	28.5	16.0	14.3	4.0	2.8
Hispanic	45.8	56.2	35.4	19.3	13.0	18.4	5.9	6.2
American Indian/Alaska Native	46.3	29.9	25.3	34.9	10.0	24.9	18.5	10.3
				Female				
Total	39.7	41.6	26.0	21.8	22.8	24.1	11.5	12.5
Race/ethnicity								
White, non-Hispanic	40.0	42.5	25.2	20.3	22.7	23.9	12.2	13.3
Black, non-Hispanic	38.3	36.8	31.2	29.5	22.4	24.3	8.1	9.4
Asian/Pacific Islander	34.3	37.3	30.1	32.7	29.2	23.4	6.5	6.6
Hispanic	43.2	36.0	32.7	26.8	17.5	30.2	6.6	7.0
American Indian/Alaska Native	37.1	28.5	28.7	33.2	28.5	22.6	5.8	15.8

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. The collection of information about race/ethnicity differed in 1992 and 1998. In 1992, respondents were not given the option of selecting more than one race category. See appendix A for more details. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 and 1999 National Study of Postsecondary Faculty (NSOPF:93 and NSOPF:99).

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Appendix A—Glossary

This glossary describes the variables used in this report. The variables were taken directly from the NSOPF:99 and NSOPF:93 Data Analysis Systems (DAS), separate NCES software applications that generate tables from the NSOPF:99 and NSOPF:93 datasets. A description of the DAS software can be found in appendix B.

In the index below, the variables are organized by general topic and, within topic, listed in the order they appear in the report. The glossary is in alphabetical order by variable label. Variables from NSOPF:99 are given first, followed by those from NSOPF:93.

GLOSSARY INDEX

NSOPF:99 VARIABLES

Academic rank **X01Z8**

Identifies a respondent's academic rank, title, or position at their sampled institution or identifies that ranks are not assigned.

Full professor	
Associate professor	
Assistant professor	
Other	Includes instructors, lecturers, and those without an academic rank.

Age in 1999 **X01Z82**

Reports a respondent's age.

Any classes for credit taught, total **Q40**

Faculty response to the question "How many of the classes/sections that you taught during the 1998 Fall Term were for credit?" This analysis looks at the average number of classes.

Any creative work/writing/research **Q52**

Faculty response to the question "During the 1998 Fall Term, were you engaged in any professional research, proposal writing, creative writing, or creative works (either funded or non-funded) at this institution?" This analysis looks at respondents who engaged in research or other scholarly work.

Any creative work/writing/research, type **Q53**

Faculty response to the question "How would you describe your primary professional research, writing, or creative work during the 1998 Fall Term?"

Basic research	
Applied or policy-oriented research	
Literary, performance or exhibitions	
Other	Includes program/curriculum design, grant writing/proposals, writing textbooks, and research that is both basic and applied.

Any funded research **Q54**

Faculty response to the question "During the 1998 Fall Term were you engaged in any funded research or funded creative work? Include any grants, contracts, or institutional awards. Do not include consulting services." Among those with a "Yes" response in Q52, this analysis looks at those with a "Yes" response to this question.

Any instructional duties for credit **X01Z1**

Indicates whether respondents had any instructional duties for credit at the institution from which they were sampled during the 1998 Fall Term. This analysis looks only at respondents who had instructional duties for credit.

Basic salary from institution **Q76A**

Faculty response to the question "How much compensation did you receive for your basic salary for the calendar year?" The item refers to calendar year 1998.

Courses taught, total **Q34**

Faculty response to the question "How many different courses (preparations) do [the total number of classes/sections taught in fall 1998] represent?" This analysis looks at the average number of courses.

Full- or part-time employment at this institution **Q5**

Faculty response to the question "During the 1998 Fall Term, did this institution consider you to be employed part-time or full-time?" This analysis looks at respondents who worked full time.

Gender **Q81**

Faculty response to the question "Are you male or female?"

Male
Female

Highest degree **X01Z16**

Describes the highest degree or award achieved by a respondent. For this analysis, the responses were aggregated into the following categories:

Doctoral/first-professional
Master's
Bachelor's or less

Highest degree, years since receiving **X15Z16**

Calculates the number of years since the respondent attained the highest degree. This analysis looks at the average number of years.

Institution type **X03Z0**

A modification of the sampling strata of the NSOPF:99 institutions, based on each institution's control and category in the 1994 Carnegie Classification of Institutions of Higher Education. More information about the Carnegie Classification system and the 2000 revision is available at *http://www.carnegiefoundation.org/classification*.

Public doctoral	Includes public Research Universities I and II and Doctoral Universities I and II. These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. Also included are public medical schools and medical centers. These institutions award most of their professional degrees in medicine. In some

	instances, their programs include other health professional schools, such as dentistry, pharmacy, or nursing.
Private not-for-profit doctoral	Includes private not-for-profit Research Universities I and II and Doctoral Universities I and II. These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. Also included are private not-for-profit medical schools and medical centers. These institutions award most of their professional degrees in medicine. In some instances, their programs include other health professional schools, such as dentistry, pharmacy, or nursing.
Public comprehensive	Includes public Master's (Comprehensive) Colleges and Universities I and II. These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree.
Private not-for-profit comprehensive	Includes private not-for-profit Master's (Comprehensive) Colleges and Universities I and II. These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree.
Private not-for-profit liberal arts	Includes private not-for-profit Baccalaureate (Liberal Arts) Colleges I and II. These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs.
Public 2-year	Includes public Associate of Arts Colleges. These institutions offer associate of arts certificate or degree programs and, with few exceptions, offer no baccalaureate degrees.
Other	Includes private not-for-profit 2-year institutions (Associate of Arts Colleges), public liberal arts colleges (Baccalaureate Colleges I and II). Also included are Professional and Specialized Institutions, which offer degrees ranging from the bachelor's to the doctorate. At least 50 percent of the degrees awarded by these institutions are in a single discipline.

Level of students in classes for credit **X06Z41**

Reports a respondent's level of classroom credit instruction based on the primary level of students in up to five for-credit classes that they taught.

Undergraduate only
Both undergraduate and graduate
Graduate only

Number of positions in higher education during career **Q23**

Faculty response to the question "In total, how many professional positions in higher education institutions have you held?" This analysis looks at the average number of positions.

Number of years teaching in higher education institution **Q25**

Faculty response to the question "How many years have you been teaching in higher education institutions?" This analysis looks at the average number of years.

Principal field of teaching **X03Z14**

Classifies the program area of a respondent's principal field of teaching to be able to separately identify occupationally specific/vocational programs.

Business/law/communications	
Health sciences	
Humanities	
Natural sciences/engineering	
Social sciences/education	
Occupationally specific	
Other	Includes Agribusiness and Agriculture; Agricultural, Animal Production; Renewable Natural Resources; Other Agriculture; Architecture and Environmental Planning; City, Community and Regional Planning; Interior Design; Other Architecture and Environmental Planning: Art History and Appreciation; Crafts; Dance; Design; Dramatic Arts; Film Arts; Fine Arts; Music; Music History and Appreciation; Other Visual and Performing Arts; Home Economics; Industrial Arts; Library and Archival Studies; Theology; Physical Education; Public Affairs; Other.

Race/ethnicity (report) **X03Z84**

This derived variable was created to categorize individuals into one and only one racial/ethnic category. Respondents were asked to pick one or more race categories (White/Caucasian; Black/African American; Asian; Native Hawaiian or other Pacific Islander; or American Indian/Alaska Native) to identify themselves. Very few individuals picked more than one race category. Respondents also were asked to identify if they were of Hispanic origin. For those individuals who picked more than one racial/ethnic category, a coding scheme was devised to place them into one and only one racial/ethnic category. Asian and Native Hawaiian/other Pacific Islander categories were combined. Then, if the respondents identified themselves as Hispanic, they were coded as Hispanic, except that those Asians who also indicated they were of Hispanic or Latino origin and no other race were assigned to the Asian/Pacific Islander group. If the respondents indicated they were Black or African American and any other race other than Hispanic, they were coded as Black. If they were Asian or Pacific Islander and any other race (except for Black), they were coded as Asian. If they were American Indian or Alaska Native and any other race (except for Black or Asian), they were coded as Native American. This variable was used for the race/ethnicity categories shown in the main text of the report. For more detailed categories shown in appendix tables B1 and B2, see X07Z84 below.

White, non-Hispanic
Black, non-Hispanic
Asian/Pacific Islander
Hispanic
American Indian/Alaska Native

Race/ethnicity (appendix B) **X07Z84**

This derived variable was created to separate out respondents who are Hispanic from respondents who are single or multi-race but not Hispanic. Respondents were asked to pick one or more race categories (White/Caucasian; Black/African American; Asian; Native Hawaiian or other Pacific Islander; or American Indian/Alaska Native) to identify themselves. Respondents also were asked in a separate item to identify if they were of Hispanic or Latino origin. Those who identified themselves as Hispanic or Latino are grouped together in this variable regardless of the race(s) they selected. Then, all those who selected more than one race category were grouped together. The remaining respondents are placed in the category of the single race group they selected. This variable was used for the detailed categories shown in appendix tables B1 and B2. For race/ethnicity categories shown in the main text of the report, see X03Z84 above.

White, non-Hispanic
Black or African American, non-Hispanic
Asian, non-Hispanic
Native Hawaiian or other Pacific Islander, non-Hispanic
American Indian or Alaska Native, non-Hispanic
More than one race, non-Hispanic
Hispanic or Latino

Recent total articles/works in refereed/juried media **X01Z29**

Combines the total number of articles the respondent had published in the past 2 years in refereed professional or trade journals or creative works published in juried media for which they had sole responsibility or joint responsibility. This analysis looks at the average number of articles/works in refereed/juried media.

Recent total books, textbooks, monographs, reports **X04Z29**

Combines the total number of textbooks, other books, monographs, and research or technical reports disseminated internally or to clients that the respondent had published in the past 2 years for which they had sole responsibility or joint responsibility. This analysis looks at the average number of books.

Recent total presentations, exhibitions, or performances **X05Z29**

Combines the total number of presentations at conferences and workshops; or exhibitions or performances in the fine or applied arts that the respondent had in the past 2 years for which they had sole responsibility or joint responsibility. This analysis looks at the average number of presentations/exhibitions/performances.

Recent total publications or permanent creative works **X08Z29**

Combines the total number of publications over the past 2 years, whether they were sole responsibility or joint responsibility, including articles published in refereed journals, articles published in nonrefereed journals, published reviews of books or chapters in edited volumes and textbooks and reports. This analysis looks at the average number of publications.

Tenure status **Q10**

Faculty response to the question “What was your tenure status at this institution during the 1998 Fall Term?”

Tenured
Tenure track
Not on tenure track
No tenure system

Time spent at administration **Q31A5**

Faculty response to the question "What percent of your time do you spend in administration (including departmental or institution-wide meetings or committee work)?" This analysis looks at the average percentage.

Time spent at research **Q31A3**

Faculty response to the question "What percent of your time do you spend in research/scholarship activities (including research; reviewing or preparing articles or books; attending or preparing for professional meetings or conferences; reviewing proposals; seeking outside funding; giving performances or exhibitions in the fine or applied arts; or giving speeches)?" This analysis looks at the average percentage.

Time spent at teaching **X01Z31**

Reports the actual percentage of work time respondents spent in teaching activities for undergraduate or graduate classes during the Fall of 1998. Teaching activities include teaching, grading, preparing courses, developing new curricula, advising or supervising students, supervising student teachers and interns, and working with student organizations or intramural athletics. This analysis looks at the average percentage.

Time spent in other activities **X03Z31**

Reports the actual percentage of work time respondents spent in activities other than teaching, research, or administration during the Fall of 1998. These include professional growth activities, service activities, and outside consulting, freelance work, or other non-teaching professional activities. This analysis looks at the average percentage.

Total hours/week teaching classes **X01Z41**

Provides a calculation of the total number of hours spent teaching per week at five or fewer classes for credit. This analysis looks at the average number of hours.

Total student contact hours/week **X02Z41**

Provides a calculation of the total student contact hours per week with students in five or fewer classes for credit. Student contact hours are derived by multiplying the number of students in each class by the number of hours spent in the classroom each week for that class, and summing over up to five for-credit classes. This analysis looks at the average number of student contact hours.

Years held current job **X01Z7**

Indicates the number of years a respondent has been at the position held during the 1998 Fall Term at their sampled institution. This analysis looks at the average number of years.

NSOPF:93 VARIABLES

Academic rank **X01A9**

Identifies a respondent's academic rank, title, or position at their sampled institution or identifies the fact that ranks are not assigned. The variable is categorized as follows:

Full professor	
Associate professor	
Assistant professor	
Other	Includes instructors, lecturers, and those without an academic rank.

Any instructional duties for credit **X01Z1**

Indicates whether respondents had any instructional duties for credit at the institution from which they were sampled during the 1992 Fall Term. This analysis looks at respondents who had instructional duties for credit.

Basic salary from institution **E47A**

Faculty response to the question "For the calendar year 1992, estimate your gross compensation before taxes from each of the sources listed below. [Compensation from this institution: Basic salary.]" The original estimates in 1992 dollars were converted to constant 1998 dollars using the Consumer Price Index.

Full- or part-time employment at this institution **A4**

Faculty response to the question "During the 1992 Fall Term, did this institution consider you to be employed part-time or full-time?" This analysis looks at respondents who worked full time.

Gender **F51**

Faculty response to the question "Are you male or female?"

Male
Female

Highest degree **X01B16**

Describes the highest degree or award achieved by a respondent. The variable is categorized as follows:

Doctoral/first-professional
Master's
Bachelor's or less

Institution type **X09**

Reflects the classification and control of each NSOPF:93 institution, based on groupings of the 1994 Carnegie Classification of Institutions of Higher Education. More information about the Carnegie Classification system and the 2000 revision is available at *http://www.carnegiefoundation.org/classification*. The variable is categorized as follows:

Public doctoral	Includes public Research Universities I and II and Doctoral Universities I and II. These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. Also included are public medical schools and medical centers. These institutions award most of their professional degrees in medicine. In some instances, their programs include other health professional schools, such as dentistry, pharmacy, or nursing.
Private not-for-profit doctoral	Includes private not-for-profit Research Universities I and II and Doctoral Universities I and II. These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. Also included are private not-for-profit medical schools and medical centers. These institutions award most of their professional degrees in medicine. In some instances, their programs include other health professional schools, such as dentistry, pharmacy, or nursing.
Public comprehensive	Includes public Master's (Comprehensive) Colleges and Universities I and II. These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree.
Private not-for-profit comprehensive	Includes private not-for-profit Master's (Comprehensive) Colleges and Universities I and II. These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree.
Private not-for-profit liberal arts	Includes private not-for-profit Baccalaureate (Liberal Arts) Colleges I and II. These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs.
Public 2-year	Includes public Associate of Arts Colleges. These institutions offer associate of arts certificate or degree programs and, with few exceptions, offer no baccalaureate degrees.
Other	Includes private not-for-profit 2-year institutions (Associate of Arts Colleges), public liberal arts colleges (Baccalaureate Colleges I and II). Also included are Professional and Specialized Institutions, which offer degrees ranging from the bachelor's to the doctorate. At least 50 percent of the degrees awarded by these institutions are in a single discipline.

Race/ethnicity **X02F53**

This derived variable was created to categorize respondents by racial/ethnic group. Respondents were asked to identify their race, with categories of American Indian or Alaska Native; Asian or Pacific Islander; African American/Black; White; and Other. The first four responses were coded accordingly. If the respondent answered "Other," reassignment to one of the other four categories based on the specific answer given was carried out according to federal guidelines. In a separate question, respondents were asked whether they were of Hispanic origin. Respondents who indicated a race of White or African American/Black and also indicated Hispanic descent were recoded as Hispanic, with the resulting categories below. This variable was used in the main text of the report for the 1992 sample. The comparable variable for the 1998 sample is X03Z84 in the NSOPF:99 section of the glossary above. For the 1998 data shown in appendix tables B1 and B2, the variable X07Z84 (in the NSOPF:99 section of the glossary) was used.

White, non-Hispanic
Black, non-Hispanic
Asian/Pacific Islander
Hispanic
American Indian/Alaska Native

Tenure status **A7**

Faculty response to the question "What was your tenure status at this institution during the 1992 Fall Term?"

Tenured
On tenure track
Not on tenure track
No tenure system

Years held current job **X01A6**

Indicates the number of years a respondent has been at the position held during the 1992 Fall Term at their sampled institution. This analysis looks at the average number of years.

Appendix B—Technical Notes

The 1999 National Study of Postsecondary Faculty (NSOPF:99)

The 1999 National Study of Postsecondary Faculty (NSOPF:99) was sponsored by the U.S. Department of Education's National Center for Education Statistics (NCES). The Gallup Organization conducted the third cycle of NSOPF, which included 960 degree-granting postsecondary institutions and an initial sample of 28,700 faculty and instructional staff from these institutions. NSOPF:99 was designed to provide a national profile of faculty, including their professional backgrounds, responsibilities, workloads, salaries, benefits, and attitudes. This third cycle followed the first NSOPF—conducted in 1987–88 with a sample of 480 institutions (including 2-year, 4-year, doctorate-granting, and other colleges and universities), more than 3,000 department chairpersons, and more than 11,000 faculty—and the 1993 NSOPF, with a sample of 974 public and private not-for-profit degree-granting postsecondary institutions and 31,400 faculty and instructional staff. Additional information on the first two cycles of NSOPF is available at the NCES Web site (*http://nces.ed.gov/surveys/nsopf/*).

A two-stage stratified, clustered probability design was used to select the NSOPF:99 sample. The institution universe for the survey was defined by the following criteria: Title IV degree-granting institutions;[21] public and private not-for-profit institutions;[22] institutions that conferred associate's, bachelor's, or advanced degrees; and institutions that were located in the United States. This definition covered most colleges (including junior and community colleges), universities, and graduate and professional schools. It excluded institutions that either offered only less-than-2-year programs; were private for-profit; or were located outside the United States (e.g., in U.S. territories). In addition, it excluded institutions that offered instruction only to employees of the institutions, tribal colleges, and institutions that offered only correspondence courses. According to the NCES Integrated Postsecondary Education Data System (IPEDS), 3,396 institutions met these criteria and were eligible for the NSOPF:99 sample. The first-stage sampling frame consisted of this group of institutions, stratified based on the highest degrees offered and the amount of federal research dollars received. The strata distinguished public and

[21]Earlier rounds of NSOPF selected institutions that the U.S. Department of Education (ED) recognized as accredited. However, ED no longer distinguishes among institutions based on accreditation level. As a result, NCES now subdivides the postsecondary institution universe into schools that have signed participation agreements to receive Title IV federal financial assistance and those that have not.

[22]Private for-profit institutions are not included even though they may be Title IV degree-granting institutions.

private institutions, as well as several types of institutions based on the Carnegie Foundation's classification system.[23]

Each institution was asked to complete an Institution Questionnaire and to provide a list of all faculty and instructional staff at their institution. Unlike NSOPF:88, which was limited to faculty whose assignment included instruction, the faculty universes for NSOPF:93 and NSOPF:99 were expanded to include all those who were designated as faculty, whether their responsibilities included instruction, and other (nonfaculty) personnel with instructional responsibilities. Teaching assistants were not included in any cycle of NSOPF. Institution coordinators were asked to provide a list of these full- and part-time faculty and instructional staff who had faculty status or instructional responsibilities during the 1998 fall term (i.e., the term that included November 1, 1998).

Of the 960 institutions in the sample, one was ineligible because it had merged with another institution. A total of 818 institutions provided lists of faculty and instructional staff, for a weighted list participation rate of 88.4 percent. A total of 865 institutions returned the institution questionnaire, for a weighted response rate of 92.8 percent. Initially, 28,600 faculty and instructional staff were selected from institutions that provided a list of their faculty and instructional staff. A subsample of 19,800 faculty and instructional staff was drawn for intensive follow-up. Approximately 18,000 faculty and instructional staff questionnaires were completed, for a weighted response rate of 83.0 percent. The overall weighted faculty response rate (institution list participation rate multiplied by the faculty questionnaire response rate) was 73.4 percent.

Faculty nonresponse bias analyses did not detect any bias. Item nonresponse occurred when a respondent did not answer one or more survey questions. The item nonresponse rates were generally low for the faculty questionnaire. For more information about NSOPF:99, including a full description of faculty and item nonresponse, see the *1999 National Study of Postsecondary Faculty: Methodology Report* (NCES 2002–154).

As described in the section of the text on "Data and Measurement Issues," the race/ethnicity data available in NSOPF:99 were combined into collapsed categories for comparison purposes with the NSOPF:93 survey. However, additional information about the more detailed race categories, and about respondents with more than one race, is available. Table B1 shows the percentage distribution of the NSOPF:99 sample according to the following more

[23]See *A Classification of Institutions of Higher Education*, The Carnegie Foundation for the Advancement of Teaching (Princeton, NJ: 1994).

Table B1.—Percentage distribution of faculty and instructional staff according to detailed race/ethnicity categories: Fall 1998

Race/ethnicity	All respondents	Full-time faculty and staff with instructional duties for credit
White, non-Hispanic	85.6	85.1
Black or African American, non-Hispanic	4.8	4.9
Asian, non-Hispanic	4.7	5.4
Native Hawaiian or other Pacific Islander, non-Hispanic	0.2	0.1
American Indian or Alaska Native, non-Hispanic	0.5	0.3
More than one race, non-Hispanic	0.6	0.7
Hispanic or Latino	3.7	3.4

NOTE: Includes faculty and staff at Title IV degree-granting institutions. Percentages may not sum to 100 due to rounding. The variable used to create the detailed race/ethnicity categories shown in these tables is X07Z84. See the glossary for more information on this variable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

detailed categories recommended for presentation: White, non-Hispanic; Black or African American, non-Hispanic; Asian, non-Hispanic; Native Hawaiian or other Pacific Islander, non-Hispanic; American Indian or Alaska Native, non-Hispanic; more than one race, non-Hispanic; and Hispanic or Latino. In these categories, respondents who indicated in the ethnicity question on the survey that they were Hispanic or Latino were grouped together, regardless of the race categories they selected. Then, those who selected more than one race category were grouped together. Finally, remaining respondents were placed in the race category they selected. Both the distribution of the full NSOPF:99 sample and the distribution of the subsample used for analyses in this report, full-time faculty and staff with instructional duties for credit, are shown. In addition, table B2 shows key information on faculty salaries by gender and race/ethnicity simultaneously, using the more detailed categorization of race/ethnicity. This table is comparable to table 1 of the report (which uses the combined racial/ethnic categories).

Accuracy of Estimates

The statistics in this report are estimates derived from a sample. Two broad categories of error occur in such estimates: sampling and nonsampling errors. Sampling errors occur because observations are made only on samples of populations rather than entire populations. Nonsampling errors occur not only in sample surveys but also in complete censuses of entire populations. Nonsampling errors can be attributed to a number of sources: inability to obtain complete information about all sample members (e.g., some faculty or institutions refused to

Table B2.—Percentage distribution of full-time instructional faculty and staff according to base salary, and average base salary, by gender and detailed race/ethnicity categories: Calendar year 1998

Race/ethnicity	Percent making:				Average base salary
	Less than $40,000	$40,000–59,999	$60,000–79,999	$80,000 or more	
			Total		
Total	27.2	37.4	19.5	15.8	$56,850
Race/ethnicity					
White, non-Hispanic	27.7	36.6	19.7	16.1	57,000
Black or African American, non-Hispanic	28.6	49.2	13.7	8.5	50,320
Asian, non-Hispanic	17.7	38.0	23.5	20.8	63,270
Native Hawaiian or other Pacific Islander, non-Hispanic	(#)	(#)	(#)	(#)	(#)
American Indian or Alaska Native, non-Hispanic	37.3	34.8	12.2	15.7	52,040
More than one race, non-Hispanic	34.3	36.0	17.3	12.4	50,120
Hispanic or Latino	27.9	40.2	19.4	12.5	54,560
			Male		
Total	21.0	36.1	22.5	20.4	61,690
Race/ethnicity					
White, non-Hispanic	21.1	35.5	22.6	20.8	61,950
Black or African American, non-Hispanic	23.8	49.1	15.8	11.4	53,530
Asian, non-Hispanic	12.9	37.2	25.1	24.8	66,750
Native Hawaiian or other Pacific Islander, non-Hispanic	(#)	(#)	(#)	(#)	(#)
American Indian or Alaska Native, non-Hispanic	(#)	(#)	(#)	(#)	(#)
More than one race, non-Hispanic	33.3	28.7	21.8	16.2	52,800
Hispanic or Latino	23.9	35.0	24.0	17.1	59,380

See footnotes at end of table.

Table B2.—Percentage distribution of full-time instructional faculty and staff according to base salary, and average base salary, by gender and detailed race/ethnicity categories: Calendar year 1998—Continued

Race/ethnicity	Percent making:				Average base salary
	Less than $40,000	$40,000–59,999	$60,000–79,999	$80,000 or more	
			Female		
Total	38.3	39.7	14.3	7.8	$48,370
Race/ethnicity					
White, non-Hispanic	39.3	38.5	14.4	7.8	48,200
Black or African American, non-Hispanic	33.6	49.3	11.6	5.5	46,940
Asian, non-Hispanic	28.9	39.9	19.7	11.5	55,160
Native Hawaiian or other Pacific Islander, non-Hispanic	(#)	(#)	(#)	(#)	(#)
American Indian or Alaska Native, non-Hispanic	(#)	(#)	(#)	(#)	(#)
More than one race, non-Hispanic	36.2	49.5	9.0	5.4	45,160
Hispanic or Latino	34.3	48.5	12.0	5.1	46,910

#Too small to report.

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Refers to base salary during calendar year 1998 received from the institution at which the respondent was sampled. Percentages may not sum to 100 due to rounding. Dollar figures are rounded to the nearest 10. The variable used to create the detailed race/ethnicity categories shown in these tables is X07Z84. See the glossary for more information on this variable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

participate, or faculty participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data.

Data Analysis System

The estimates presented in this report were produced using the NSOPF:1999 Data Analysis Systems (DAS). The DAS software makes it possible for users to specify and generate their own tables from the NSOPF:99 data. With the DAS, users can replicate or expand upon the tables presented in this report. In addition to the table estimates, the DAS calculates proper standard

errors[24] and weighted sample sizes for these estimates. For example, table B3 contains standard errors that correspond to table 1 of this report, and was generated by the DAS. If the number of valid cases is too small to produce a reliable estimate (fewer than 30 cases), the DAS prints the message "low-N" instead of the estimate.

In addition to tables, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Included in the output with the correlation matrix are the design effects (DEFTs) for each variable in the matrix. Since statistical procedures generally compute regression coefficients based on simple random sample assumptions, the standard errors must be adjusted with the design effects to take into account the NSOPF:99 stratified sampling method.

The DAS can be accessed electronically at *http://nces.ed.gov/DAS*. For more information about the NSOPF:99 Data Analysis System, contact:

Aurora D'Amico
Postsecondary Studies Division
National Center for Education Statistics
1990 K Street NW
Washington, DC 20006-5652
(202) 502-7334
aurora.d'amico@ed.gov

Statistical Procedures

Differences Between Means

The descriptive comparisons were tested in this report using Student's *t* statistic. Differences between estimates are tested against the probability of a Type I error,[25] or significance level. The significance levels were determined by calculating the Student's *t* values for the differences between each pair of means or proportions and comparing these with published tables of significance levels for two-tailed hypothesis testing.

[24]The NSOPF:99 samples are not simple random samples, and therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. The DAS takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by the DAS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the Taylor series method.

[25]A Type I error occurs when one concludes that a difference observed in a sample reflects a true difference in the population from which the sample was drawn, when no such difference is present.

Table B3.—Standard errors for table 1: Percentage distribution of full-time instructional faculty and staff according to base salary, and average base salary, by gender and race/ethnicity: Calendar year 1998

Race/ethnicity	Percent making:				Average base salary
	Less than $40,000	$40,000–59,999	$60,000–79,999	$80,000 or more	
			Total		
Total	0.80	0.76	0.60	0.77	$689
Race/ethnicity					
White, non-Hispanic	0.87	0.85	0.65	0.82	728
Black, non-Hispanic	2.30	2.70	1.44	1.38	1,060
Asian/Pacific Islander	1.86	2.43	1.93	2.07	1,575
Hispanic	3.06	3.42	3.29	1.87	1,950
American Indian/Alaska Native	6.94	5.86	4.27	3.67	3,009
			Male		
Total	0.86	0.99	0.79	1.00	835
Race/ethnicity					
White, non-Hispanic	0.95	1.08	0.85	1.06	869
Black, non-Hispanic	2.66	3.60	2.02	2.13	1,497
Asian/Pacific Islander	2.03	2.86	2.14	2.68	1,914
Hispanic	4.18	4.30	4.60	2.86	2,944
American Indian/Alaska Native	9.28	7.44	5.71	4.92	3,864
			Female		
Total	1.11	0.98	0.74	0.60	641
Race/ethnicity					
White, non-Hispanic	1.21	1.06	0.80	0.67	726
Black, non-Hispanic	3.40	3.74	1.88	1.38	1,114
Asian/Pacific Islander	4.15	4.63	4.02	2.35	2,507
Hispanic	4.48	5.12	4.15	1.47	1,618
American Indian/Alaska Native	9.10	8.89	5.41	4.53	4,622

NOTE: Includes full-time instructional faculty and staff at Title IV degree-granting institutions with at least some instructional duties for credit. Refers to base salary during calendar year 1998 received from the institution at which the respondent was sampled.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Student's *t* values may be computed to test the difference between estimates with the following formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}} \quad (1)$$

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors. This formula is valid only for independent estimates. When estimates are not independent, a covariance term must be added to the formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2 - 2(r)se_1\, se_2}} \quad (2)$$

where *r* is the correlation between the two variables.[26] The denominator in this formula will be at its maximum when the two estimates are perfectly negatively correlated; that is, when $r = -1$. This means that a conservative dependent test may be conducted by using –1 for the correlation in this formula, or

$$t = \frac{E_1 - E_2}{\sqrt{(se_1)^2 + (se_2)^2 + 2se_1 se_2}}. \quad (3)$$

The estimates and standard errors are obtained from the DAS.

There are hazards in reporting statistical tests for each comparison. First, comparisons based on large *t* statistics may appear to merit special attention. This can be misleading since the magnitude of the *t* statistic is related not only to the observed differences in means or percentages but also to the number of respondents in the specific categories used for comparison. Hence, a small difference compared across a large number of respondents would produce a large *t* statistic.

A second hazard in reporting statistical tests for each comparison occurs when making multiple comparisons among categories of an independent variable. For example, when making paired comparisons among different levels of income, the probability of a Type I error for these comparisons taken as a group is larger than the probability for a single comparison. When more than one difference between groups of related characteristics or "families" are tested for

[26]U.S. Department of Education, National Center for Education Statistics, *A Note from the Chief Statistician,* no. 2, 1993.

statistical significance, one must apply a standard that assures a level of significance for all of those comparisons taken together.

Comparisons were made in this report only when $p \leq .05/k$ for a particular pairwise comparison, where that comparison was one of k tests within a family. This guarantees both that the individual comparison would have $p \leq .05$ and that for k comparisons within a family of possible comparisons, the significance level for all the comparisons will sum to $p \leq .05$.[27]

For example, in a comparison of the percentages of males and females with tenure, only one comparison is possible (males versus females). In this family, k=1, and the comparison can be evaluated without adjusting the significance level. When respondents are divided into five racial/ethnic groups and all possible comparisons are made, then k=10, and the significance level of each test must be $p \leq .05/10$, or $p \leq .005$. The formula for calculating family size (k) is as follows:

$$k = \frac{j(j-1)}{2} \tag{4}$$

where j is the number of categories for the variable being tested. In the case of race/ethnicity, there are five racial/ethnic groups (American Indian/Alaska Native; Asian/Pacific Islander; Black, non-Hispanic; Hispanic; White, non-Hispanic), so substituting 5 for j in equation 4,

$$k = \frac{5(5-1)}{2} = 10$$

Adjustment of Means to Control for Background Variation

Many of the independent variables included in the analyses in this report are related, and to some extent the pattern of differences found in the descriptive analyses reflect this covariation. For example, when examining the salary of the faculty by gender, it is possible that some of the observed relationship is due to differences in other factors related to gender, such as institution type, tenure status, and so on. However, if nested tables were used to isolate the influence of these other factors, cell sizes would become too small to identify the significant differences in patterns. When the sample size becomes too small to support controls for another level of variation, other methods must be used to take such variation into account. The method used in

[27]The standard that $p \leq .05/k$ for each comparison is more stringent than the criterion that the significance level of the comparisons should sum to $p \leq .05$. For tables showing the t statistic required to ensure that $p \leq .05/k$ for a particular family size and degrees of freedom, see Olive Jean Dunn, "Multiple Comparisons Among Means," *Journal of the American Statistical Association* 56 (1961): 52–64.

this report estimates adjusted means with a regression model, an approach sometimes referred to as communality analysis.

For the analysis of faculty salaries, multiple linear regression was used to obtain means that were adjusted for covariation among a list of control variables.[28] Variables that showed significant gender or racial/ethnic differences in the crosstabular analyses were selected for inclusion in the regression model. Some eliminations were then made for variables that were highly correlated; in those cases, different combinations of variables were estimated in models not shown in the report to determine which combinations of variables demonstrated robust results. The final list of variables included in the regression is as follows: gender, race/ethnicity, type of institution, teaching field, level of instruction, tenure status, rank, highest degree, years since highest degree, age, time spent teaching, number of classes taught, time spent engaged in research, and number of total publications or other permanent creative works in the previous 2 years. Each independent variable is divided into several discrete categories. To find an estimated mean value on the dependent variable for each category of an independent variable, while adjusting for its covariation with other independent variables in the equation, substitute the following in the equation: (1) a one in the category's term in the equation, (2) zeroes for the other categories of this variable, and (3) the mean proportions for all other independent variables. This procedure holds the impact of all remaining independent variables constant, and differences between adjusted means of categories of an independent variable represent hypothetical groups that are balanced or proportionately equal on all other characteristics included in the model as independent variables.

For example, consider a hypothetical case in which two variables, age and gender, are used to describe an outcome, *Y* (such as salary). The variables age and gender are recoded into a dummy variable representing age, *A*, and a dummy variable representing gender, *G*:

Age	*A*
Less than 35 years old	1
35 years or older	0

and

Gender	*G*
Female	1
Male	0

[28]For more information about least squares regression, see Michael S. Lewis-Beck, *Applied Regression: An Introduction*, Vol. 22 (Beverly Hills, CA: Sage Publications, Inc., 1980); William D. Berry and Stanley Feldman, *Multiple Regression in Practice*, Vol. 50 (Beverly Hills, CA: Sage Publications, Inc., 1987).

The following regression equation is then estimated from the correlation matrix output from the DAS as input data for standard regression procedures:

$$\hat{Y} = a + b_1 A + b_2 G \tag{5}$$

To estimate the adjusted mean for any subgroup evaluated at the mean of all other variables, one substitutes the appropriate values for that subgroup's dummy variables (1 or 0) and the mean for the dummy variable(s) representing all other subgroups. For example, suppose *Y* represents faculty salary, which is being described by age (*A*) and gender (*G*), coded as shown above. Suppose the unadjusted mean values of these two variables are as follows:

Variable	Mean
A	0.355
G	0.411

Next, suppose the regression equation results are as follows:

$$\hat{Y} = 63{,}000 - 13{,}000A - 5{,}000G \tag{6}$$

To estimate the adjusted value for younger faculty, one substitutes the appropriate parameter estimates and variable values into equation 6.

Variable	Parameter	Value
a	63,000	—
A	-13,000	1.000
G	-5,000	0.411

This results in the following equation:

$$\hat{Y} = 63{,}000 - (13{,}000)(1) - (5{,}000)(0.411) = 47{,}945$$

In this case, the adjusted mean for younger faculty is 47,945 and represents the expected outcome for younger faculty who resemble the average faculty member across the other variables (in this example, gender). In other words, the adjusted salary of younger faculty, controlling for gender, is $47,945.

It is relatively straightforward to produce a regression model using the DAS, since one of the DAS output options is a correlation matrix, computed using pairwise missing values. In regression analysis, there are several common approaches to the problem of missing data. The two simplest are pairwise deletion of missing data and listwise deletion of missing data. In pairwise deletion, each correlation is calculated using all of the cases for the two relevant

variables. For example, suppose you have a regression analysis that uses variables X1, X2, and X3. The regression is based on the correlation matrix between X1, X2, and X3. In pairwise deletion, the correlation between X1 and X2 is based on the nonmissing cases for X1 and X2. Cases missing on either X1 or X2 would be excluded from the calculation of the correlation. In listwise deletion, the correlation between X1 and X2 would be based on the nonmissing values for X1, X2, and X3. That is, all of the cases with missing data on any of the three variables would be excluded from the analysis.

The correlation matrix can be used by most statistical software packages as the input data for least squares regression. That is the approach used for this report, with an additional adjustment to incorporate the complex sample design into the statistical significance tests of the parameter estimates (described below).[29]

Most statistical software packages assume simple random sampling when computing standard errors of parameter estimates. Because of the complex sampling design used for the NSOPF survey, this assumption is incorrect. A better approximation of their standard errors is to multiply each standard error by the design effect associated with the dependent variable (DEFT),[30] where the DEFT is the ratio of the true standard error to the standard error computed under the assumption of simple random sampling. It is calculated by the DAS and produced with the correlation matrix output.

[29]Although the DAS simplifies the process of making regression models, it also limits the range of models. Analysts who wish to estimate other types of models, such as logit models, can apply for a restricted data license from NCES.

[30]The adjustment procedure and its limitations are described in C.J. Skinner, D. Holt, and T.M.F. Smith, eds., *Analysis of Complex Surveys* (New York: John Wiley & Sons, 1989).

Appendix C—Supplemental Figures

Figure C1.—Summary of gender differences among full-time instructional faculty and staff, by racial/ethnic group and for various characteristics: Fall 1998

	Total	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic
1998 base salary	M	M	M	M	M
Structural characteristics					
Selected institution types					
Public doctoral	M	M	M		
Private not-for-profit doctoral					
Public 2-year	F	F	F	F	
Level of instruction					
Undergraduates only	F	F	F		
Both graduates and undergraduates	M	M	M		M
Graduates only	M	M			
Selected teaching fields					
Natural sciences/engineering	M	M	M	M	M
Health sciences	F	F		F	
Social sciences/education	F	F	F	F	
Academic rank					
Full professor	M	M	M	M	M
Associate professor					
Assistant professor	F	F			
Other	F	F	F	F	
Tenure status					
Tenured	M	M	M	M	M
On tenure track	F	F			
Not on tenure track	F	F	F		
No tenure system	F	F			
Education and experience					
Highest degree					
Doctoral/first-professional	M	M	M	M	M
Master's	F	F	F	F	F
Bachelor's or less	F	F			
Years since receiving highest degree	M	M	M	M	
Years in current job	M	M	M	M	M
Years teaching in higher education	M	M	M	M	
Number of higher education jobs		F			

See legend at end of figure.

Figure C1.—Summary of gender differences among full-time instructional faculty and staff, by racial/ethnic group and for various characteristics: Fall 1998—Continued

	Total	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic
Average age	M	M	M	M	
Job activities and responsibilities					
Average percentage of time on teaching activities	F	F	F		
Number of for-credit classes	F	F			
Number of unique course preparations	F	F			
Hours in the classroom per week	F	F			
Average percentage of time on research	M	M	M		
Conducted any research	M	M	M		M
Had any funded research	M	M			
Primary research type					
Basic research	M	M			
Applied/policy-oriented research	M	M	M		
Literary/performance/exhibition					
Other	F	F	F		
Number of recent publications/ permanent works	M	M	M	M	M
Number of recent refereed articles/ works in juried media	M	M	M	M	
Number of recent books	M	M	M		
Number of recent presentations/ performances	M	M	M	M	

M Indicates that percentage or estimate for men is significantly larger than percentage or estimate for women.
F Indicates that percentage or estimate for women is significantly larger than percentage or estimate for men.

NOTE: Includes full-time instructional faculty and staff at Title-IV degree-granting institutions with at least some instructional duties for credit. Only statistically significant differences are shown.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Figure C2.—Summary of differences of selected racial/ethnic groups compared with non-Hispanic Whites among full-time instructional faculty and staff, for various characteristics: Fall 1998

	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic
1998 base salary	A	W	
Structural characteristics			
Selected institution types			
Public doctoral	A	W	
Private not-for-profit doctoral			
Public 2-year	W		
Level of instruction			
Undergraduates only	W		
Both graduates and undergraduates	A		
Graduates only			
Selected teaching fields			
Natural sciences/engineering	A	W	
Health sciences			
Social sciences/education		B	
Academic rank			
Full professor	W	W	
Associate professor			
Assistant professor	A	B	
Other	W		H
Tenure status			
Tenured		W	
On tenure track	A	B	
Not on tenure track			
No tenure system	W		
Education and experience			
Highest degree			
Doctoral/first-professional	A	W	
Master's	W	B	
Bachelor's or less	W		
Years since receiving highest degree	W	W	W
Years in current job	W	W	W
Years teaching in higher education	W	W	W
Number of higher education jobs			

See legend at end of figure.

Figure C2.—Summary of differences of selected racial/ethnic groups compared with non-Hispanic Whites among full-time instructional faculty and staff, for various characteristics: Fall 1998—Continued

	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic
Average age	W		W
Job activities and responsibilities			
Average percentage of time on teaching activities	W		
Number of for-credit classes		B	
Number of unique course preparations	W		
Hours in the classroom per week			
Average percentage of time on research	A	W	
Conducted any research	A		
Had any funded research	A		
Primary research type			
Basic research	A		
Applied/policy-oriented research		W	
Literary/performance/exhibition			
Other	W	B	
Number of recent publications/ permanent works	A		
Number of recent refereed articles/ works in juried media	A	W	
Number of recent books			
Number of recent presentations/performances			

A Indicates that percentage or estimate for Asian/Pacific Islander faculty is significantly larger than percentage or estimate for White faculty.

B Indicates that percentage or estimate for Black/African American faculty is significantly larger than percentage or estimate for White faculty.

H Indicates that percentage or estimate for Hispanic faculty is significantly larger than percentage or estimate for White faculty.

W Indicates that percentage or estimate for White faculty is significantly larger than percentage or estimate for faculty in the racial/ethnic group designated for the column.

NOTE: Includes full-time instructional faculty and staff at Title-IV degree-granting institutions with at least some instructional duties for credit. Only statistically significant differences are shown.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Figure C3.—Summary of differences of selected racial/ethnic groups compared with non-Hispanic Whites among full-time male instructional faculty and staff, for various characteristics: Fall 1998

	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic
1998 base salary		W	
Structural characteristics			
Selected institution types			
Public doctoral	A	W	
Private not-for-profit doctoral			
Public 2-year	W		
Level of instruction			
Undergraduates only	W		
Both graduates and undergraduates	A		
Graduates only			
Selected teaching fields			
Natural sciences/engineering	A	W	
Health sciences			
Social sciences/education	W		
Academic rank			
Full professor	W	W	
Associate professor			
Assistant professor	A	B	
Other	W		
Tenure status			
Tenured		W	
On tenure track	A		
Not on tenure track			
No tenure system	W		
Education and experience			
Highest degree			
Doctoral/first-professional	A	W	
Master's	W	B	
Bachelor's or less	W		
Years since receiving highest degree	W	W	W
Years in current job	W	W	W
Years teaching in higher education	W	W	W
Number of higher education jobs			

See legend at end of figure.

Figure C3.—Summary of differences of selected racial/ethnic groups compared with non-Hispanic Whites among full-time male instructional faculty and staff, for various characteristics: Fall 1998—Continued

	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic
Average age	W		W
Job activities and responsibilities			
Average percentage of time on teaching activities	W		
Number of for-credit classes		B	
Number of unique course preparations	W		
Hours in the classroom per week			
Average percentage of time on research	A	W	
Conducted any research	A		
Had any funded research	A		
Primary research type			
Basic research	A		
Applied/policy-oriented research		W	
Literary/performance/exhibition	W		
Other	W		
Number of recent publications/ permanent works			
Number of recent refereed articles/ works in juried media	A	W	
Number of recent books			
Number of recent presentations/performances			

A Indicates that percentage or estimate for Asian/Pacific Islander faculty is significantly larger than percentage or estimate for White faculty.

B Indicates that percentage or estimate for Black/African American faculty is significantly larger than percentage or estimate for White faculty.

W Indicates that percentage or estimate for White faculty is significantly larger than percentage or estimate for faculty in the racial/ethnic group designated for the column.

NOTE: Includes full-time instructional faculty and staff at Title-IV degree-granting institutions with at least some instructional duties for credit. Only statistically significant differences are shown.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).

Figure C4.—Summary of differences of selected racial/ethnic groups compared with non-Hispanic Whites among full-time female instructional faculty and staff, for various characteristics: Fall 1998

	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic
1998 base salary	A		
Structural characteristics			
Selected institution types			
Public doctoral			
Private not-for-profit doctoral			
Public 2-year			
Level of instruction			
Undergraduates only			
Both graduates and undergraduates			
Graduates only			
Selected teaching fields			
Natural sciences/engineering		W	
Health sciences			
Social sciences/education		B	
Academic rank			
Full professor		W	
Associate professor			
Assistant professor		B	
Other			
Tenure status			
Tenured			
On tenure track	A		
Not on tenure track			
No tenure system	W		W
Education and experience			
Highest degree			
Doctoral/first-professional	A		
Master's	W		
Bachelor's or less	W		
Years since receiving highest degree	W		
Years in current job	W		W
Years teaching in higher education	W		W
Number of higher education jobs			

See legend at end of figure.

Figure C4.—Summary of differences of selected racial/ethnic groups compared with non-Hispanic Whites among full-time female instructional faculty and staff, for various characteristics: Fall 1998—Continued

	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic
Average age	W		W
Job activities and responsibilities			
Average percentage of time on teaching activities			
Number of for-credit classes			
Number of unique course preparations			
Hours in the classroom per week			
Average percentage of time on research	A		
Conducted any research			
Had any funded research			
Primary research type			
Basic research	A		
Applied/policy-oriented research			
Literary/performance/exhibition			
Other			
Number of recent publications/ permanent works			
Number of recent refereed articles/ works in juried media			
Number of recent books			
Number of recent presentations/performances			

A Indicates that percentage or estimate for Asian/Pacific Islander faculty is significantly larger than percentage or estimate for White faculty.

B Indicates that percentage or estimate for Black/African American faculty is significantly larger than percentage or estimate for White faculty.

W Indicates that percentage or estimate for White faculty is significantly larger than percentage or estimate for faculty in the racial/ethnic group designated for the column.

NOTE: Includes full-time instructional faculty and staff at Title-IV degree-granting institutions with at least some instructional duties for credit. Only statistically significant differences are shown.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99).