
Gender Segregation among College and University Employees

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This article examines the gender composition and degree of job segregation among current and recently hired employees in U.S. four-year colleges and universities. Aggregate-level patterns of women's representation by job category are discussed, and a contextual analysis identifies the level of gender segregation according to organizational conditions and institutional characteristics. The results indicate that the gender composition of an institution's employees is more balanced and men and women are less segregated into different jobs when institutions have a relatively high proportion of women students and women administrators, less emphasis on research, more reliance on federal revenue sources, and smaller endowed sources of revenue. Geographic factors seem to have stronger influences on the gender composition of nonprofessional than of faculty positions. Implications for models of discriminatory processes and for the status of women workers in colleges and universities are discussed.

Although academic institutions occupy a unique employment sector, with unusual organizational characteristics and labor market conditions, they may be viewed as strategic sites for examining the gender segregation of jobs. In most colleges and universities, jobs are clearly segmented into the same distinct categories: faculty, top administrators, professional support personnel, clerical workers, and service workers. This segmentation makes comparisons across firms less problematic than in other employment sectors with more heterogeneous ways of creating a division of labor.

Colleges and universities are unusual in other ways as well. They rely extensively on federal revenues, have mandatory equal employment opportunity (EEO-6) reporting procedures, and are often sponsored by and accountable to state governments. These intersecting conditions create strong pressures for academic organizations to comply with affirmative action regulations, at least minimally. At the same time, considerable variability in the gender composition of employees is to be expected

because of the wide discretion that academic institutions exercise in developing and justifying their affirmative action goals and recruitment procedures, such as variations in the definition and narrowness of job qualifications and classifications and different ways of measuring the pool of available labor (like the state versus the national level).

This article reports on a study of the levels of segregation by gender in academia—an employment sector in which one would expect the results of affirmative action to be especially pronounced. Using 1991 EEO-6 reports from a census of all four-year colleges and universities in the United States, I analyzed the gender composition (percentage female) of current employees and those recently hired, as well as overall measures of job segregation. To avoid the problems of underestimating gender segregation that are associated with the use of aggregate occupational-level data (Bielby and Baron 1984), I used the organization as the unit of analysis.

After describing women's level of representation at the aggregate level across

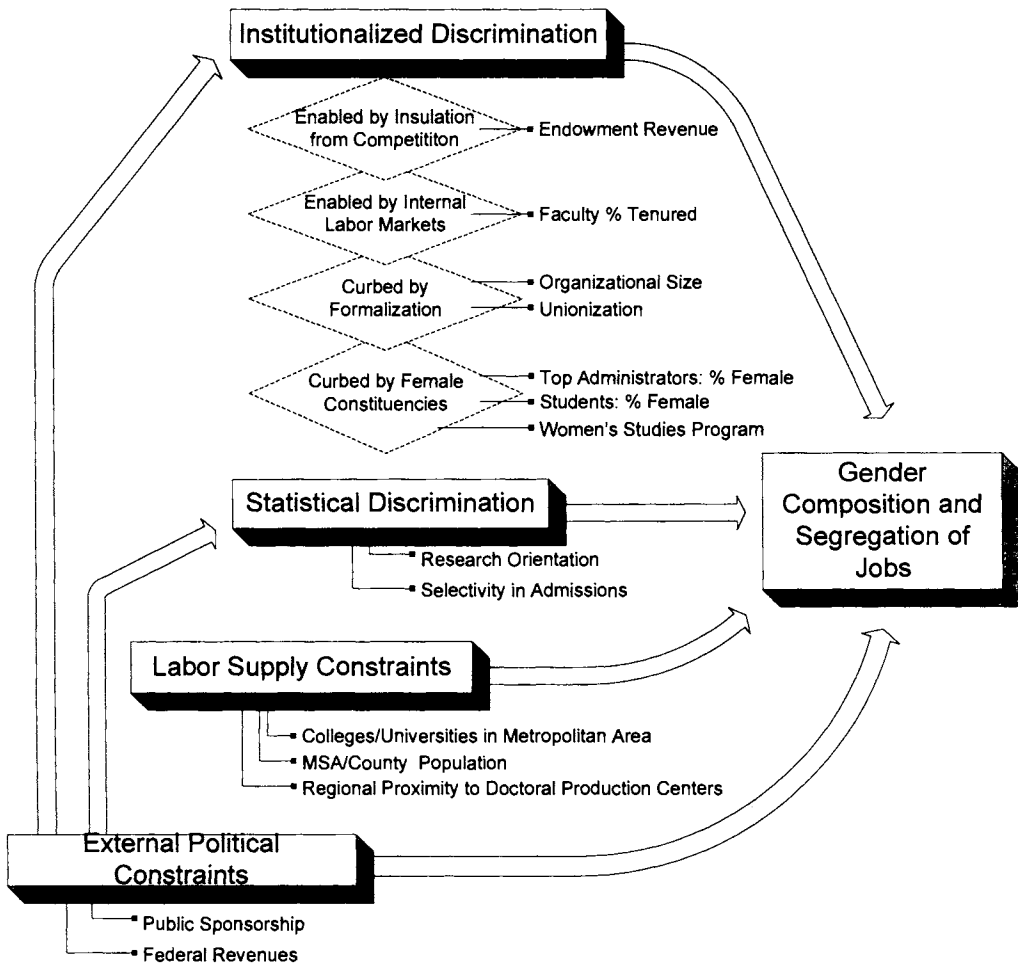


Figure 1. Internal and External Organizational Factors in Gender Gaps in Postsecondary Employment.

various categories of postsecondary jobs, the article then explores the extent to which women’s representation in these categories varies across organizations. Last, a contextual analysis identifies key organizational conditions under which gender segregation of postsecondary workers is the most and least severe. For this portion of the article, I matched EEO-6 employment reports to additional organizational-level data, which allowed me to explore the links among organizational, metropolitan, and regional contexts and the gender composition of the institutions’ employees.

BACKGROUND

Institutional Characteristics

A large array of institutional characteristics has been linked to gender inequities in the workplace, including institutional size, unionization, gender composition of the power structure, and dependence on governmental resources. These factors are important in themselves because they signify organizational variations in personnel procedures, working conditions, or opportunity structures. They are also of interest because they are related, at least indirectly, to different theoretical arguments about the roots of gender discrimination

in organizations: institutionalized discrimination to protect men's organizational positions and privileges, "statistical discrimination" based on employers' expectations of gender differences in training and commitment to work, and organizational responses to constraints imposed by the local and regional labor supply and by political entities.

The relative power of these competing explanations is difficult to assess at the organizational level because the theories pose complex organizational dynamics that escape direct observation. But indirect measures of these processes may be useful in revealing distinctive patterns that align better with one explanation than another. The institutional characteristics I investigated appear in Figure 1.

Curbs on Institutionalized Discrimination

Theories of institutionalized discrimination, or "status closure" (Feagin and Feagin 1978; Tomaskovic-Devey 1993), contend that dominant status groups engage in ongoing attempts, both direct and indirect, to maintain privileged positions in the workplace. These privileges may be ingrained in an organization's norms (Alvarez and Lutterman 1979), recruitment procedures (Reskin and Hartmann 1986), division of labor, and job-allocation processes (Bielby and Baron 1984). Privileges can be perpetuated and restricted to dominant groups through informal networks of information and decision making (Feagin and Eckberg 1980). Those who control access to the ladders of ascending organizational authority may use increasingly elaborate screening mechanisms that are based on their social similarities with potential newcomers, a form of "homosocial reproduction" that is most pronounced in elite organizational positions (Kanter 1977). In this view of institutionalized discrimination, the efforts to maintain male privileges focus on restricting women from the most desirable jobs and assigning them to those of lower quality. This view is consistent with ample evidence of gender sorting

by rank in the workplace, with men represented disproportionately in more highly skilled jobs and those that carry the greatest authority and opportunities for advancement.

In academia, these processes would concentrate women in service-maintenance positions and would increasingly block their access to jobs of greater skill, authority, status, and rewards, culminating in widespread exclusion from top administrative and faculty jobs, particularly those that are tenured. Their subtlety makes most forms of institutionalized discrimination difficult to detect or measure directly (Jenkins 1986). But there is reason to expect to find variations in organizations' ability to exclude women from desirable jobs. Organizations may differ (1) in their exposure to competition and hence in their ability to absorb the economic inefficiencies associated with discrimination, (2) in the presence of structural supports and impediments to discrimination, and (3) in the presence of internal constituencies that influence their personnel practices.

Neoclassical economists have argued that by restricting access to the available labor pool, discrimination imposes costs that organizations in more competitive environments may be unable to afford (Becker 1957). Highly competitive conditions with low profit margins increase the incentive to hire low-cost workers (such as women and minorities), particularly in labor-intensive firms (Cohn 1985) and in the employment categories in firms that have the highest labor costs (Tomaskovic-Devey 1993). The nature of competition in academia is arguably different than it is in most private-sector for-profit firms. Academic competition may conceivably center on scarcities of enrollment, faculty, research grants, governmental funding, or prestige. Rather than attempt to pinpoint the most salient facets of competition among particular colleges, I investigated endowments as a general measure of protection from competition.

Well-endowed institutions could provide greater discretionary resources for

administrators, enabling them to act on personal preferences or to exercise discriminatory tastes even when doing so results in administrative inefficiencies (Child 1972). Their relatively unencumbered financial resources may enable them to absorb better the supposedly higher labor costs of discriminating against women, particularly in the hiring of faculty, an area in which high labor costs in academia are concentrated. Endowments are, of course, related to other key institutional characteristics that may be at work. Because heavily endowed institutions also tend to be more prestigious, their prestige enhances their competitive position in the market for top administrators and faculty. In addition, few public institutions are well endowed, and endowments lessen these institutions' dependence on federal revenues. In the analysis to follow, the large sample of institutions allowed me to examine the impact of endowments while controlling for the influence of some of its concomitants.

Institutionalized discrimination may also be facilitated by the constraints posed by tenure systems on the internal labor market. The degree to which the current faculty have tenured appointments may be an indication of the motivation and opportunity of privileged groups to restrict these privileges to themselves. Widespread tenure also limits opportunities to change the gender composition by hiring new faculty and may freeze past patterns of discrimination in place. But although heavily tenured institutions may have scarce opportunities to hire women faculty, these limitations may lead to more intensive efforts to place women in other professional jobs or in non-tenure-track faculty jobs.¹ It is unlikely that the pervasiveness of tenure will affect women's representation in nonprofessional positions.

Variations in organizational structure may also facilitate or constrain institutionalized forms of discrimination. For example, in firms with more formalized procedures, women are better represented and there is less segregation by job titles (Szafran 1982; Tomaskovic-Devey

1993). Formalized personnel practices help to standardize the search, screening, and interviewing process; help define evaluative criteria; curtail the impact of insider information and nomination networks; and prohibit the extraordinary scrutiny of female candidates, regardless of the employment category. Larger organizations, in turn, are generally more formalized (Child 1973; Pfeffer 1977), so I used organizational size as a proxy for formalization.²

Collective bargaining agreements may also lead to greater formalization (Edwards 1979) by restricting employers' discretion in personnel practices (Cohen and Pfeffer 1986), although with the aim of protecting employees from arbitrary decision making, rather than of prohibiting gender discrimination specifically. At times, unions may actually encourage the use of insider information and influence networks in personnel actions (Finlay 1983). Still, as unions' influence on predominantly male manufacturing jobs has waned, more women's professional and administrative support jobs are being unionized and gender gaps in pay and job tenure are typically decreasing among unionized workers (Baron and Newman 1990; Hartmann, Spalter-Roth, and Collins 1994). The impact of unions on women's representation in academia's jobs is likely to depend on which categories of workers have union representation and the degree to which women exercise power in the unions (Szafran 1982). My measure of unionization simply records whether any of an institution's faculty are encompassed by collective bargaining agreements.

Last, women's representation in key organizational constituencies of top administrators and undergraduate students, as well as the presence of women's studies programs, may be indicators of women's ability to influence personnel actions or to change organizational culture such that evident forms of institutionalized discrimination are not tolerated. Institutions with women in top administrative positions have been found to hire more women for faculty (Szafran 1984) and administrative jobs

(Konrad and Pfeffer 1991), drawing more often from the female labor pool, both inside and outside the institutions. Konrad and Pfeffer concluded that administrative positions in particular institutions become gender typed as a consequence of gender patterns in the succession of incumbents.

How women administrators' influence operates within institutions is less well known. Administrators not only directly influence personnel decisions, but shape recruitment and promotion criteria and monitor their implementation at lower levels (Caplow and McGee 1958; Kenen and Kenen 1978). There is little in the empirical literature to help predict how women administrators might influence positions in academia other than administrative and faculty positions. One possibility is that they may wield even more influence on non-faculty professional positions because these positions are filled through administratively governed recruitment and selection procedures with which faculty are relatively less involved. But it is unclear whether women administrators would be able to lessen appreciably the extreme sex typing of lower-level (clerical and craft) positions, for which severe occupational sex segregation may restrict the availability of labor.

An equally complex relationship may exist between women's representation among students and among employees. Referring to the female clients of academia, Carter (1981) cited the "femaleness of demand" as a potentially important influence on the recruitment and retention of women faculty. Cases of direct intervention by students on behalf of the interests of women faculty may be rare (Baldrige 1971), but the influence may be felt indirectly as administrators tailor recruitment and personnel goals to satisfy the programmatic and curricular expectations of a proportionally large female student body. Again there is little evidence to suggest how these influences may operate on nonfaculty positions.

Similar issues arise when one considers the impact of women's studies pro-

grams on the gender composition of employees. The establishment of women's studies programs implies an institutional recognition of gender issues not only in the curriculum, but in the formal structure of academia. These programs can provide opportunities for the appointment of new faculty members, usually women; an administrative platform for directors of women's studies programs to raise and monitor gender-equity concerns in institutions; and possibly a springboard for higher administrative positions. They also provide opportunities for the creation of sponsorship and mentoring networks, which may aid women faculty's advancement in institutions. Unfortunately, with cross-sectional data, I could not rule out the possibility that women's studies programs are the effect, rather than the cause, of less gender segregation in employment.³ Also, it seems unlikely that women's studies programs would have an appreciable impact on women's employment in nonprofessional jobs.

Organizational Variations in Statistical Discrimination

Statistical discrimination is an indirect form of discrimination, motivated by economic efficiency, not gender prejudices or the promotion of the interests of one's status group. It occurs when employers assess an individual's potential work performance on the basis of the aggregate characteristics of an individual's gender (or racial) group. These assessments may be based on assumptions about women's behavior in the workplace that are unfounded in the case of specific individuals or for the aggregate as a whole. The theory maintains that when employers make personnel decisions, they substitute expectations based on group averages or variances, rather than assess individuals' level of educational achievement, labor productivity, and commitment to work (Arrow 1973; Phelps 1972; Thurow 1975).

Critics have challenged the assumption that these judgments by employers actually optimize economic outcomes, on both logical and empirical grounds

(Bielby and Baron 1986; England 1994). The economic rationale underlying statistical discrimination centers on the expected costs of training and paying employees and employers' uncertainty in assessing applicants' aptitude for specific jobs and future productivity. In the case of potential female employees, statistical-discrimination arguments tend to focus on presumptions about the quality of applicants' education and level of commitment to work, particularly the costs to employers of high turnover rates (Bielby and Baron 1986; Tomaskovic-Devey 1993).

There are ample historical grounds in academia for the presumptions behind statistical discrimination to take root. Women scholars, administrators, and other professionals have experienced a great deal of educational segregation, with advanced training that, until recently, typically occurred in less prestigious institutions. This situation left women largely outside informal networks of prestige and nomination and limited their prospects of attaining faculty jobs because they were viewed as less effective in augmenting departmental prestige or in recruiting others (Caplow and McGee 1958). Many women in academia have obtained positions in teaching-oriented colleges, isolated from networks of federal research funding. Although these patterns started to change in the 1970s (Smelser and Content 1980), women college faculty remain less well represented in highly prestigious research institutions than in other areas of academia.

One legacy of these patterns of exclusion is that they can become self-fulfilling through statistical discrimination. Increasingly outmoded beliefs about the inferior training and performance of professional women workers may continue to have an impact on personnel decisions, decreasing women's chances of obtaining the more desirable jobs and rewards of the workplace.

I could not measure directly employers' assumptions that prompt statistical discrimination. But what institutional pressures are most likely to lead to their emergence? If it is motivated by a desire

to minimize organizations' most expensive training and labor costs in jobs in which skills are the most difficult to assess, statistical discrimination is likely to arise in the highest-status and best-paid jobs in academia, those held by tenured faculty and top administrators. And statistical discrimination is most likely to arise in institutions that are facing the greatest pressure to sort out extraordinarily competent applicants, particularly when indicators of future performance are unavailable, unreliable, or ambiguous. If it is fueled by expectations that female candidates will be less capable of enhancing institutions' prestige and eminence in research, statistical discrimination may emerge with particular force in research-oriented and highly prestigious institutions. This situation would result in a lower level of representation for women in these institutions, but the effects should center primarily on top faculty and executive jobs in which it is most difficult, and most critical, to identify extraordinary talent through uncertain qualitative assessments of the prospective candidates' teaching, research, or administrative ability.

Geographic Constraints on the Supply of Female Professionals

For reasons that are intertwined with family and gender-role dynamics, the mobility of women academics in national labor markets appears to be more restricted than that of their male counterparts (Marwell, Rosenfeld, and Spilerman 1979). Because gender norms give precedence to husbands' over wives' careers and women tend to marry older men with more established careers, married women academics may be at a higher risk of becoming geographically "rooted." In the critical move from college or graduate school to their first jobs, women academics may be disproportionately inclined to seek positions near the sites where they were trained and less likely to consider positions that are far away.

Despite the widespread impression that academic job markets are national in scope, there is evidence that the

move from graduate school to a first faculty job tends to be geographically shorter than expected (Hargens 1969). Those earning degrees on the East and West Coasts are more likely to stay there for their first jobs than one would expect in a freely competitive national market (McGinnis and Long 1988). Thus, women's academic opportunities would tend to be constrained disproportionately to regions that produce the largest number of doctoral recipients (the East Coast, especially the Boston-New York-Washington or "Bosnywash" megalopolis, as well as the West Coast and the Great Lakes region).

Another geographic effect may arise because of the precedence given husbands' careers, which would draw female professionals disproportionately to employment settings where their husbands find plentiful job opportunities, such as large metropolitan areas (Rosenfeld 1984). Perceptions of potential losses to their husbands' careers appear to deter women from considering better job opportunities for themselves at new locations, although this dynamic is lessened when dual-earner couples reject traditional family gender roles (Bielby and Bielby 1992). The problem is exacerbated for those who operate in the tight academic job market because alternative jobs are few and often require moves to distant geographic areas in which both spouses may not be able to find attractive positions.

Still another geographic effect may arise because women in academia are also more likely to be married to fellow academics than are male academics and hence may seek employment in areas with a large number of colleges and universities where both they and their husbands can find jobs more easily (Abramson 1975). According to the logic of these arguments, colleges and universities will find women more readily available in the labor pool for professional jobs if they are located in large metropolitan areas, those with dense clusters of postsecondary job opportunities, and those close to the regional centers of doctoral production.

Of course, the greater availability of conducive employment opportunities in these areas may increase the number of women (and men) competing for jobs in them. Thus, women's individual chances of obtaining employment may actually be worse than in the rural heartland. Moreover, the greater supply of academic women in "favorable" geographic locations may enable institutions in these areas to expand employment in the "secondary sector," directing women disproportionately into non-tenure-track faculty jobs. Although there is a theoretical and empirical precedent to expect these geographic constraints to operate for women in professional positions, I made no predictions regarding their impact on other types of jobs.

External Political Constraints

Theories of organizational change based on organizations' dependence on resources predict that organizations make strategic responses to actual or expected pressure from external constituencies, particularly those capable of withholding critical resources (Pfeffer and Salancik 1978). By influencing the design and effectiveness of affirmative action programs, such external political pressures also shape the representation of employees in colleges and universities. Public sponsorship by state governments also exposes these institutions to outside scrutiny and accountability, in the form of requirements for additional affirmative action reports, civil service regulations, regular audits, and greater public access to personnel records. Postsecondary institutions also vary in their degree of reliance on federal sources of revenues, which has been linked to greater institutional vigilance in complying with EEO laws (DiPrete 1987; DiPrete and Soule 1986, 1988; Salancik, 1979). This external accountability should increase the representation of women in all the employment categories typically dominated by men and should therefore lower the gender segregation of jobs overall.

The competing theoretical perspectives lead to the following different patterns of expected effects:

1. Institutionalized discrimination will be encouraged by insulation from competition and by pervasive tenure systems, decreasing women's representation in top administrative, faculty, and professional job categories in institutions with relatively large endowments and heavily tenured faculties.

2. Institutionalized discrimination will be discouraged by formalization and women's presence in key organizational constituencies, which should increase women's representation across all job categories in large institutions and those where unions operate, where women are more evident among top administrators and students, and where women's studies programs have been established.

3. Statistical discrimination will decrease women's representation in the highest-status faculty and administrative jobs in more selective and research-oriented institutions.

4. To the extent that geography constrains women's representation in the local professional labor market, professional women will be better represented in institutions located in large metropolitan areas or close to regional centers of graduate production and those with many postsecondary institutions and academic job opportunities.

5. In public institutions and those receiving more of their revenues from the federal government, women's representation will be higher in all job categories typically dominated by men, and job segregation by gender will be the lowest.

DATA AND METHODS

The data for this study came from 1991 EEO-6 reports that were filed by virtually every four-year college and university in the United States. These reports are legally required from all institutions and are mandatory to remain eligible for federal assistance to institutions and their students. Because these data constitute a nearly complete census, sampling error is negligible and

conventional notions of statistical significance do not apply. Thus, in this article, I provide information on significance only in regression analyses to flag the most sizable and stable coefficients.

The EEO-6 reports enumerated employees in the fall of 1991, separately by gender and race-ethnicity, in several major employment categories: (1) administrative-executive-managerial, (2) faculty, (3) other support-of-service professionals, (4) technical and paraprofessional, (5) clerical and secretarial, (6) skilled craft, and (7) service-maintenance. The administrative-executive-managerial category (hereafter referred to as administrative) is restricted to "top" administrators—heads of departments, units, or divisions but not other supervisory staff. Faculty are further distinguished by tenure status. The number of newly hired employees for the academic year in each employee category is also recorded in these data. For consistency across institutions I restricted my analyses to full-time employees.

In the organizational-level analyses, I matched the EEO-6 data to other databases with information on institutional size, research orientation, prestige, endowment revenues, sponsorship (public versus private), collective bargaining, gender composition of the student body, women's studies programs, reliance on federal sources of revenues, metropolitan (or county, for nonmetropolitan statistical areas), population size, and the number of other four-year institutions in the local area. The sources and operational definitions of these organizational variables are summarized in Appendix A. I restricted the matched database to four-year postsecondary institutions that have a Carnegie Foundation (1987) classification (such as Research I), which eliminated about 150 vocational schools that were in the original EEO-6 reports from four-year institutions.

I present the results based on aggregate, organizational, and contextual analyses. At the aggregate level, I assessed the size of gender gaps in the national distribution of college and university employees across major employ-

ment categories. At the organizational level, I evaluated how sharply the representation of women in each job category varies across postsecondary institutions. And at the contextual level, I explored contextual factors that may explain these organizational-level variations, linking them to characteristics of the college or university, its local population, and region of the country.

In the contextual analysis, I used ordinary least-squares regression to account for three organizational-level measures of the gender composition or segregation of employees. The first is the percent female among current employees and recently hired employees in distinct job categories (like tenured faculty, top administrators, and clerical staff). The second is an overall index of job segregation by gender, based on Theil and Finizza's (1971) H .⁴ This index, which measures the extent to which men and women in a college or university are concentrated in different job categories, is an adjusted measure of the percentage of employees who would have to change jobs to eliminate differences in the types of jobs held by men and women in the organization. This index differs from most other measures of segregation, such as the index of dissimilarity (Duncan and Duncan 1955), because it gives more weight to skewed gender distributions within a given job class if women are relatively well represented among an institution's employees overall. In other words, H adjusts for the degree to which a gender-integrated workforce is numerically possible in an institution.

The third measure, also based on H , applies only to the composition of the faculty and gauges the extent to which men and women faculty are segregated into six different academic ranks (full, associate, assistant professor, instructor, lecturer, other). The results for this last measure are similar if rank is defined using four levels, with instructors, lecturers, and "other" ranks collapsed into one category and contrasted with full, associate, and assistant professors. H is undefined when the faculty is all male or all female, which excluded the affect-

ed institutions from the analysis. However, only 17 institutions have all-male faculties and 2 more have all-female faculties, constituting only 1 percent of all the institutions in the study.

Of more concern is the possibility that these measures of gender segregation fluctuate radically when there are few employees overall in a college or university. I reexamined the results of regressions of H after I excluded all the small postsecondary institutions with fewer than 100 employees (about 200 cases). The exclusion of these institutions did not change the pattern of effects appreciably, so I retained them in all the results I present next. However, the number of cases available for regression analyses varies somewhat across job categories because some institutions, usually small ones, did not report figures for every job. Appendix B presents descriptive statistics for all the variables in the analyses.

RESULTS

Women's Representation in the Aggregate

There are major differences in the kinds of jobs that male and female college employees hold at the aggregate (national) level. More than a third (36 percent) of all female employees are concentrated in clerical positions, and 24 percent more occupy nonfaculty professional positions (data not presented in the tables). In contrast, the single largest category of employment for men is tenured faculty appointments, which are held by 25 percent of the men but only 6 percent of the women. Proportionally more of the men than of the women are found in top administrative, tenure-track, non-tenure-track, craft, and service jobs.

Figure 2 charts women's share of positions in each job category, but separately for current and recently hired employees. There is a distinctive pattern to the pronounced differences in the sex ratios for various jobs. Except for craft and service jobs, women's level of representation is inversely related to the

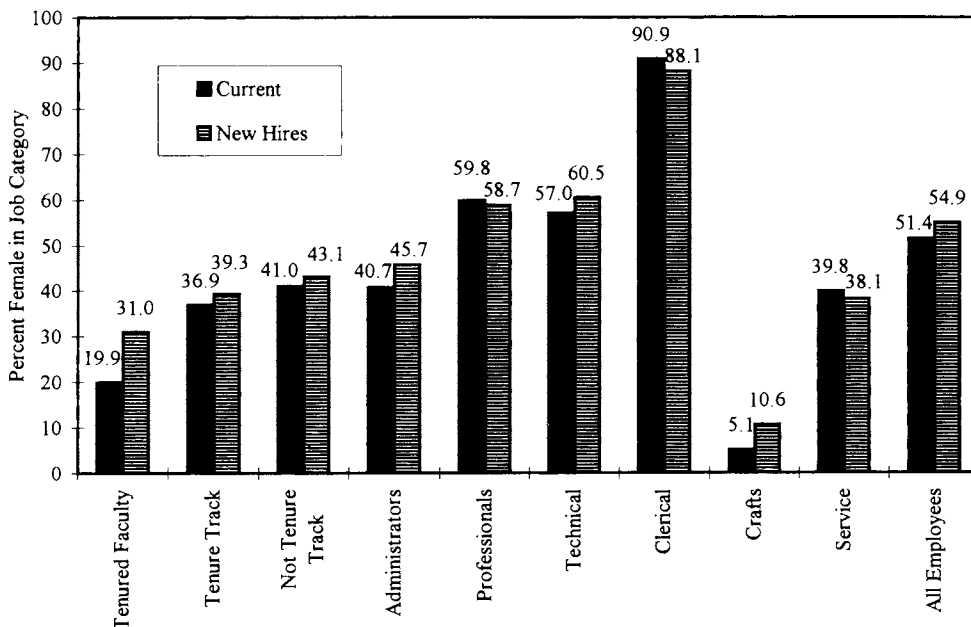


Figure 2. Percent Female among Current Employees and New Hires, by Job Category.

status or authority of the job, especially for current employees and somewhat less pointedly for newly hired employees. Hiring patterns generally reproduce the existing gender distribution in job categories. Yet there is a clear trend: Women are gaining ground in the hiring pools of the more desirable faculty and administrative jobs. Although relatively few faculty are hired with tenure, women are much better represented in this group than among all the faculty who currently have tenure. At the same time, women appear to be making appreciable inroads into the highly male-dominated craft positions. To determine the lasting impact of these trends, it would be necessary to examine data on the retention of newly hired employees, which were not available in this study.

The findings at the aggregate level mirror those for occupations in general, with women underrepresented in higher-status and blue-collar positions. Moving from the aggregate to the organizational level, I next address whether these patterns are typical for all colleges and universities or are subject to great variability.

Organizational Variation

After I sorted institutions into those in which particular job categories are the exclusive domain of one gender (all male or all female), highly gender skewed (over 65 percent female or over 65 percent male), or relatively gender balanced (36–65 percent female), I found that several jobs show little variation in the gender mix across institutions (data not presented in the tables). Clerical work is dominated by women in nearly all institutions and is exclusively women's work in over a quarter of the institutions. Craft work is an even more invariantly male province, with more than half the institutions having all-male craft workforces. The gender composition of the tenured faculty is also stable across institutions. Although women are seldom absent from the ranks of tenured faculty (only 3 percent of the institutions have no tenured women), these jobs are highly skewed toward men in four of five institutions.

While tenured faculty, clerical, and craft positions are consistently dominated by either men or women in the vast majority of institutions, women's level of representation in the remaining job

Table 1. OLS Regression of Percent Female in Job Categories and Gender Segregation Indexes for 1991 Employees (standard errors in italics)

Independent Variables	Tenured Faculty	Tenure Track	Non-Tenure Track	Administrators	Other Professionals	Technical	Clerical	Craft	Service	Job Segregation	Faculty Rank Segregation
% endowment revenues	-0.114* <i>0.051</i>	0.052 <i>0.065</i>	0.059 <i>0.097</i>	0.058 <i>0.066</i>	0.198* <i>0.061</i>	0.243 <i>0.132</i>	0.059* <i>0.027</i>	0.107 <i>0.063</i>	0.105 <i>0.079</i>	0.141* <i>0.035</i>	0.243* <i>0.048</i>
% faculty tenured	-0.027 <i>0.022</i>	0.039 <i>0.029</i>	0.041 <i>0.034</i>	0.016 <i>0.026</i>	-0.046 <i>0.024</i>	-0.110* <i>0.049</i>	0.003 <i>0.010</i>	-0.045 <i>0.025</i>	0.024 <i>0.031</i>	0.039* <i>0.013</i>	0.026 <i>0.018</i>
Institution size	-0.279 <i>0.497</i>	0.671 <i>0.585</i>	0.077 <i>0.892</i>	-1.223 <i>0.712</i>	-0.336 <i>0.649</i>	-0.205 <i>1.197</i>	-1.028* <i>0.296</i>	1.129 <i>0.587</i>	1.626* <i>0.845</i>	-1.603* <i>0.378</i>	0.029 <i>0.509</i>
Unionized (yes = 1, no = 0)	0.956 <i>0.989</i>	1.898 <i>1.159</i>	-1.967 <i>1.776</i>	-0.468 <i>1.364</i>	-1.754 <i>1.252</i>	5.086* <i>2.332</i>	0.198 <i>1.566</i>	0.479 <i>1.183</i>	-4.314* <i>1.622</i>	-0.231 <i>0.724</i>	-2.322* <i>0.975</i>
% female administrators	0.136* <i>0.020</i>	0.080* <i>0.025</i>	0.144* <i>0.034</i>		0.312* <i>0.024</i>	0.044 <i>0.050</i>	-0.028* <i>0.010</i>	-0.006 <i>0.025</i>	0.003 <i>0.031</i>	-0.152* <i>0.013</i>	-0.085* <i>0.018</i>
% female students	0.479* <i>0.024</i>	0.448* <i>0.030</i>	0.414* <i>0.042</i>	0.483* <i>0.028</i>	0.262* <i>0.028</i>	0.219* <i>0.058</i>	0.050* <i>0.012</i>	-0.020 <i>0.029</i>	0.261* <i>0.037</i>	-0.115* <i>0.016</i>	-0.032 <i>0.022</i>
Women's studies (yes = 1, no = 0)	-0.584 <i>0.858</i>	2.458* <i>1.005</i>	1.053 <i>1.561</i>	4.255* <i>1.205</i>	0.176 <i>1.112</i>	-2.360 <i>2.057</i>	0.407 <i>0.503</i>	-1.974 <i>1.016</i>	2.591 <i>1.435</i>	-0.872 <i>0.642</i>	-1.258 <i>0.864</i>
Research orientation	-2.353* <i>0.562</i>	-2.845* <i>0.673</i>	-2.634* <i>0.991</i>	0.929 <i>0.796</i>	-0.486 <i>0.724</i>	1.156 <i>1.350</i>	-0.556 <i>0.331</i>	-0.924 <i>0.662</i>	-0.665 <i>0.944</i>	1.382* <i>0.423</i>	1.194* <i>0.568</i>
Prestige/selectivity	-1.622* <i>0.468</i>	-0.254 <i>0.567</i>	0.861 <i>0.803</i>	1.256* <i>0.621</i>	-0.773 <i>0.570</i>	-0.247 <i>1.088</i>	-0.167 <i>0.258</i>	-0.810 <i>0.557</i>	2.137* <i>0.741</i>	-0.357 <i>0.330</i>	-1.091* <i>0.447</i>
Local colleges/universities	-0.001 <i>0.032</i>	-0.004 <i>0.039</i>	0.029 <i>0.058</i>	0.065 <i>0.043</i>	0.021 <i>0.040</i>	-0.326* <i>0.078</i>	-0.104* <i>0.018</i>	-0.113* <i>0.040</i>	-0.159* <i>0.052</i>	-0.059* <i>0.023</i>	0.016 <i>0.031</i>
Local population	0.498 <i>0.292</i>	0.389 <i>0.347</i>	-0.763 <i>0.514</i>	1.502* <i>0.395</i>	0.951* <i>0.365</i>	0.890 <i>0.712</i>	-0.210 <i>0.165</i>	0.625 <i>0.355</i>	-1.230* <i>0.476</i>	0.319 <i>0.210</i>	0.130 <i>0.284</i>
Bos-NY-Wash (yes = 1, no = 0)	0.707 <i>1.074</i>	2.070 <i>1.288</i>	-2.641 <i>1.933</i>	4.971* <i>1.446</i>	0.598 <i>1.343</i>	-1.743 <i>2.566</i>	-0.506 <i>0.603</i>	-0.544 <i>1.284</i>	-5.661* <i>1.734</i>	0.785 <i>0.771</i>	-1.620 <i>1.044</i>
East Coast (yes = 1, no = 0)	-0.764 <i>0.885</i>	-0.233 <i>1.057</i>	-0.882 <i>1.574</i>	2.164 <i>1.195</i>	1.946 <i>1.097</i>	2.269 <i>2.147</i>	-0.368 <i>0.497</i>	0.096 <i>1.066</i>	-0.425 <i>1.433</i>	-0.496 <i>0.635</i>	-0.619 <i>0.857</i>
Great Lakes (yes = 1, no = 0)	0.184 <i>0.967</i>	1.062 <i>1.142</i>	-1.366 <i>1.668</i>	1.770 <i>1.284</i>	1.000 <i>1.191</i>	3.188 <i>2.325</i>	1.329* <i>0.533</i>	0.343 <i>1.154</i>	-0.567 <i>1.536</i>	1.209 <i>0.682</i>	1.381 <i>0.923</i>
West Coast (yes = 1, no = 0)	-2.364 <i>1.288</i>	0.745 <i>1.537</i>	-2.403 <i>2.119</i>	6.801* <i>1.608</i>	2.270 <i>1.509</i>	-4.575 <i>2.926</i>	-2.062* <i>0.675</i>	2.452 <i>1.528</i>	-6.090* <i>1.963</i>	-0.953 <i>0.858</i>	0.100 <i>1.168</i>
Federal revenues	0.286* <i>0.060</i>	-0.008 <i>0.074</i>	0.071 <i>0.102</i>	0.205* <i>0.079</i>	0.016 <i>0.072</i>	-0.010 <i>0.142</i>	-0.036 <i>0.033</i>	0.191* <i>0.070</i>	0.052 <i>0.095</i>	-0.254* <i>0.042</i>	-0.196* <i>0.057</i>
Public (yes = 1, no = 0)	-2.110* <i>0.886</i>	-2.184* <i>1.051</i>	6.095* <i>1.578</i>	-2.801* <i>1.200</i>	1.287 <i>1.104</i>	1.884 <i>2.105</i>	-0.173 <i>0.499</i>	-1.767 <i>1.065</i>	1.212 <i>1.436</i>	-1.947* <i>0.638</i>	-1.894 <i>0.861</i>
Intercept	-8.636	7.074	18.220	-6.019	27.841	39.669	94.946	6.034	27.749	35.515	15.667
N	1,260	1,194	1,293	1,509	1,461	1,277	1,506	1,217	1,464	1,509	1,487
Adjusted R ₂	0.443	0.307	0.145	0.267	0.276	0.041	0.146	0.022	0.119	0.246	0.084

*p < .05.

categories varies substantially from one institution to another. First, substantial proportions of the institutions (36–61 percent) have achieved relative gender balance in these other jobs. Another sizable segment of institutions exhibit a distinctive tilt toward one gender. Men tend to predominate among the untenured (tenure-track and non-tenure-track) faculty, administrators, and service workers in many of the institutions, while women are predominant among nonfaculty professionals in many schools. The representation of women varies most for technical workers; in approximately an equal number of institutions, this work is exclusively male, skewed toward men, gender balanced, skewed toward women, and exclusively female.⁵

I also examined the relationship between women's level of representation in top administrative and faculty positions, finding that the two types of positions frequently diverge (results not reported in the tables). There are more institutions (61 percent) in which women are better represented proportionally in top administrative than in faculty positions than institutions in which the proportions match or women's faculty representation exceeds their representation in top administrative positions (39 percent). It is not uncommon for women to be substantially better represented in administrative than in faculty positions: In more than a fourth of the institutions, women's proportion of administrative jobs exceeds their proportion of faculty jobs by 50 percent or more.

Predicting Gender Composition for Current Employees

I next attempt to explain these organizational-level variations in women's level of representation among employees in different job categories. Table 1 presents regression results using my model variables to predict the level of representation of women (percent female) in particular job categories for 1991–92 employees at the organization-

al level. The last two columns predict the level of gender segregation in an institution: the overall degree of concentration of men and women employees in different job categories and the degree to which faculty men and women are sorted into different academic ranks.

The variables in the model account for more than a quarter of the variation in women's representation in higher-status jobs—all jobs with professional status except those for non-tenure-track faculty. The model explains the gender composition of clerical and service jobs less well and is negligible in accounting for gender variations in technical and craft jobs. It is also considerably better at explaining the overall segregation of female and male employees into different jobs than the gender segregation of faculty into different academic ranks.

Although they vary greatly in magnitude and are not always consistent, many of the effects form patterns that are consistent with the theoretical perspectives represented in the model. Internal female constituencies have the most pronounced impact on the gender composition and segregation of jobs. The strongest and most consistent effects are the direct relationships between women's representation among an institution's students and their presence among the faculty and top administrators. There is also a smaller, yet sizable, link between women's share of the student body and their share of technical, clerical, and service jobs. Women's proportion of top administrative posts is positively related to their representation in all faculty jobs and strongly linked to their presence in professional nonfaculty positions. It has virtually no effect on the gender composition of lower-level positions, other than a small effect in countering women's domination of an institution's clerical positions.

But by increasing women's representation in higher-status positions, institutions with a higher proportion of women administrators have markedly less gender segregation by job type and substantially less gender segregation

among the faculty by academic rank. To a lesser degree, the gender segregation of employees and faculty is also reduced in institutions with higher proportions of women students. Women's studies programs appear to increase women's share of tenure-track and administrative jobs but have little relationship to other jobs or to the level of job segregation.

Another set of generally consistent effects appears in the inverse relationship between research-oriented schools and women's presence in faculty jobs, which exacerbates the overall level of job segregation by gender as well as the concentration of men and women into different faculty ranks. The other indicator of a possible site that is likely to encourage statistical discrimination against women presents a more complex pattern of effects. More prestigious or selective institutions have proportionally fewer women among the tenured faculty but more among administrators and service workers. Unexpectedly, they also have less faculty-rank segregation by gender. A third area of effects that is consistent with the predictions concerns external political constraints on gender discrimination. Institutions that draw a larger proportion of their revenues from federal sources have appreciably higher representations of women in tenured-faculty, administrative, and craft positions, which reduces both overall job segregation and gender sorting by academic rank. The picture is less clear as to the relative constraints on discrimination in public versus private institutions. Although public institutions have less overall job segregation, this effect seems to be the result of women's increased representation in non-tenure-track jobs, rather than in higher-status tenured, tenure-track, or administrative positions.

There are also small effects consistent with the argument that insulation from competition facilitates institutionalized discrimination. Institutions that are protected from competitive pressures by substantial endowments do have poorer

representation of women in tenured faculty positions, which then exacerbates the degree to which male and female faculty are concentrated at opposite ends of the hierarchy of academic ranks. Better-endowed institutions also have somewhat better odds of placing women in midlevel nonfaculty professional and lower-status clerical positions, which elevates the degree of overall job segregation by gender. The prevalence of tenure is not strongly related to women's representation in faculty positions, but it has a small impact in exacerbating overall job segregation.

The impact of formalization in personnel procedures varies, depending on whether it is measured indirectly by size or by unionization. Larger institutions have less overall gender segregation of jobs, not because women are better represented in higher-level jobs, but because they are less concentrated in clerical jobs and more prevalent in craft and service jobs. Although faculty unionization reduces gender segregation among the faculty by rank, as expected, the effects showing a positive impact of unionization on women's representation in tenured and tenure-track positions have relatively large standard errors. Faculty unionization also has a strong and unexpected positive relationship with women's share of technical jobs and an inverse relationship with their representation in service jobs.

The most unexpected findings come from the ecological and geographic measures of labor-supply constraints. Although there are no strong effects showing that women are more likely to find employment on the faculties of institutions located among dense clusters of colleges, in large cities, or near the regional centers of doctoral production, these locations appear to enhance women's share of top administrative positions. These variables also appear to influence women's representation more in lower-status than in higher-status jobs. The impact of a high concentration of postsecondary institutions is most pronounced in reducing women's representation in nonprofessional jobs, rather

Table 2. OLS Regression of Percent Female among Those Newly Hired, by Job Category (standard errors in italics)

Independent Variables	Tenured Faculty	Tenure-Track	Non-Tenure-Track	Administrators	Other Professionals	Technical	Clerical	Craft	Service
% endowment revenue	0.559 <i>0.423</i>	-0.024 <i>0.148</i>	0.311 <i>0.212</i>	0.061 <i>0.209</i>	0.416* <i>0.160</i>	0.449 <i>0.323</i>	0.062 <i>0.095</i>	0.070 <i>0.278</i>	0.330 <i>0.206</i>
% faculty tenured	-0.073 <i>0.149</i>	0.016 <i>0.058</i>	-0.066 <i>0.069</i>	0.167* <i>0.084</i>	-0.004 <i>0.059</i>	-0.348* <i>0.108</i>	0.028 <i>0.035</i>	0.001 <i>0.099</i>	-0.078 <i>0.073</i>
Institution size	1.782 <i>1.977</i>	1.253 <i>1.295</i>	-1.475 <i>1.429</i>	-3.851* <i>1.799</i>	0.100 <i>1.348</i>	-0.599 <i>1.915</i>	-0.962 <i>0.879</i>	1.198 <i>1.503</i>	3.574* <i>1.617</i>
Unionized	4.435 <i>5.479</i>	1.495 <i>2.591</i>	-1.130 <i>3.111</i>	-1.326 <i>3.811</i>	-1.812 <i>2.811</i>	-2.845 <i>4.598</i>	-0.224 <i>1.818</i>	5.702 <i>4.152</i>	-0.311 <i>3.586</i>
% female administrators	-0.096 <i>0.129</i>	0.212* <i>0.050</i>	0.164* <i>0.064</i>		0.421* <i>0.052</i>	0.121 <i>0.097</i>	0.047 <i>0.034</i>	-0.028 <i>0.088</i>	-0.010 <i>0.067</i>
Women's studies	-4.945 <i>4.465</i>	4.493* <i>2.233</i>	3.487 <i>2.598</i>	8.310* <i>3.212</i>	-1.871 <i>2.388</i>	4.799 <i>3.770</i>	0.114 <i>1.548</i>	-0.992 <i>3.272</i>	2.904 <i>3.024</i>
Research orientation	-1.240 <i>2.381</i>	-5.150* <i>1.454</i>	-3.714* <i>1.626</i>	-0.074 <i>2.004</i>	-1.624 <i>1.499</i>	-0.680 <i>2.152</i>	-0.438 <i>0.991</i>	0.497 <i>1.762</i>	-2.402 <i>1.829</i>
Prestige/selectivity	-5.757* <i>2.515</i>	1.785 <i>1.209</i>	-1.862 <i>1.476</i>	1.269 <i>1.831</i>	-0.415 <i>1.294</i>	4.923* <i>2.037</i>	-1.349 <i>0.814</i>	-2.209 <i>1.841</i>	0.695 <i>1.617</i>
Local competitors	0.295 <i>0.202</i>	0.126 <i>0.089</i>	0.097 <i>0.107</i>	0.037 <i>0.126</i>	-0.041 <i>0.091</i>	-0.073 <i>0.161</i>	-0.112* <i>0.057</i>	-0.035 <i>0.135</i>	-0.060 <i>0.116</i>
Local population	-1.138 <i>1.789</i>	-0.656 <i>0.762</i>	0.703 <i>0.905</i>	2.166 <i>1.155</i>	0.980 <i>0.810</i>	-0.209 <i>1.370</i>	-0.544 <i>0.529</i>	-0.499 <i>1.261</i>	-3.749* <i>1.038</i>
Bos-NY-Wash	10.950 <i>6.870</i>	3.178 <i>2.841</i>	-3.553 <i>3.482</i>	1.080 <i>4.130</i>	1.573 <i>3.023</i>	-6.117 <i>5.124</i>	-0.511 <i>1.926</i>	-3.464 <i>4.720</i>	-6.388 <i>3.817</i>
Remaining East Coast	4.926 <i>5.932</i>	0.260 <i>2.289</i>	0.731 <i>2.855</i>	1.346 <i>3.647</i>	1.850 <i>2.504</i>	0.521 <i>4.190</i>	-0.297 <i>1.621</i>	-0.169 <i>3.839</i>	0.373 <i>3.144</i>
Great Lakes	-2.187 <i>6.062</i>	-0.231 <i>2.546</i>	-0.037 <i>3.054</i>	-3.510 <i>3.860</i>	1.885 <i>2.679</i>	2.220 <i>4.720</i>	-0.414 <i>1.758</i>	6.779 <i>4.389</i>	-3.831 <i>3.461</i>
West Coast	10.798 <i>6.930</i>	-2.972 <i>3.226</i>	-5.462 <i>3.736</i>	-5.674 <i>4.737</i>	-0.624 <i>3.421</i>	4.956 <i>5.430</i>	-3.784 <i>2.134</i>	-1.485 <i>5.337</i>	1.929 <i>4.363</i>
Federal revenues	-0.019 <i>0.379</i>	-0.097 <i>0.161</i>	0.161 <i>0.187</i>	0.165 <i>0.226</i>	-0.071 <i>0.158</i>	0.220 <i>0.256</i>	-0.088 <i>0.109</i>	-0.078 <i>0.225</i>	0.040 <i>0.206</i>
Public	-4.184 <i>5.397</i>	-4.078 <i>2.346</i>	5.918* <i>2.759</i>	-2.039 <i>3.478</i>	5.017* <i>2.473</i>	6.474 <i>4.106</i>	0.688 <i>1.587</i>	-8.288* <i>3.820</i>	-4.836 <i>3.140</i>
Intercept	37.688	36.086	36.447	16.494	35.613	62.077	92.980	18.078	63.866
N	326	1,080	881	941	1,164	693	1,181	426	912
Adjusted R ²	0.047	0.056	0.027	0.020	0.061	0.023	0.024	-0.005	0.044

* $p < .05$.

than in increasing their representation on the faculties. Institutions in large cities, the West Coast, and the Bosnywash corridor have proportionally fewer women in most nonprofessional jobs and only slightly more in tenure-track jobs.

Predicting the Gender Composition of Hiring Pools

Because these results are based on the gender composition of all current employees, regardless of their years of tenure in the jobs, they reflect, to some degree, the forces of organizational inertia and variations in turnover rates. Thus, some of the relationships may be the legacy of organizational influences on personnel decisions that are no longer in operation. Examining the gender composition of recently hired employees opens a window on the impact of current organizational conditions (see Table 2). These analyses, however, explain little of the variance in the gender composition of new hires, especially in comparison to some of the fairly substantial R^2 statistics obtained in analyzing the gender composition of all current employees. It is important to note that many institutions, particularly smaller ones, did no hiring in some of the job categories, which reduces both the number of cases for analysis and the variance to be explained.⁶ In addition, although many of the effects are sizable, they tend to have large standard errors as well. For these reasons, I limit the discussion in the next section to several patterns of relatively strong and stable effects. First, there is a positive link between women's representation in top administrative jobs and the recent hiring of women for tenure-track, non-tenure-track, and other professional positions, but the connection does not extend to hiring for tenured positions. Second, institutions with women's studies programs hire proportionally more women for tenure-track and top administrative jobs. Third, research-oriented institutions generally hire proportionally fewer women for nearly all jobs categories, especially tenure-track jobs. Last, public institutions appear

more likely to hire women faculty, but only for non-tenure-track positions; for tenure-track and tenured hires, there is an inverse relationship.

DISCUSSION

Limitations

The large array of over 1,500 institutions in the EEO-6 data, a virtually complete census, permitted me to sort out and pinpoint the influence of many organizational conditions that have been linked to gender discrimination. Moreover, the national scope of the data allowed me to examine the simultaneous impact of factors operating at the organizational, metropolitan, and regional levels. Nevertheless, these data and their analysis have important limitations.

First, because the EEO-6 reports aggregate jobs other than faculty into broad employment categories, they are likely to disguise the actual degree of gender segregation. The bureaucratization of administrative, professional, clerical, and other support services in academia creates plentiful opportunities to segregate employees by job titles in the same EEO-6 job categories and perhaps to assign men and women to jobs with different working conditions, opportunities for promotion, and actual authority. Therefore, some, and perhaps much, of the considerable gender segregation that occurs at the level of job titles may have not been detected in my results. However, this potential bias would tend to make the EEO-6 data underestimate, not overestimate, the impact of organizational factors on job segregation.

It is possible that the factors I identified as weak or noninfluential operate much more strongly on job segregation at the level of job titles. Some of the weaker effects, such as the effect of large institutional size, which reduces gender segregation by EEO-6 job categories, may actually reverse in direction, whereas previous studies at the job-title level found an opposite relationship (Bielby and Baron 1984).

However, it seems less likely that the stronger influences I uncovered would not operate when the division of labor is broken down more finely. Although I did not pursue another facet of gender segregation—how it is entwined with racial inequities in academia—another article (see Kulis and Shaw, 1996) suggests that gender segregation in postsecondary jobs is much more severe for Whites than for Blacks.

Second, particular caution is required in assessing specific effects in the multivariate analyses. The large number of reporting institutions allowed me to isolate the unique effects of key organizational factors that are typically interrelated and difficult to separate in smaller-scale or case studies. Although my results passed tests for multicollinearity, there are probably clusters of academic institutions in which some of the characteristics (for example, the connections among size, prestige, and research orientation in elite universities) I examined are virtually inseparable.

Third, some of my indicators (formalization, geographically constrained availability of professional employment opportunities, and exposure to competition) are indirect measures of the relevant theoretical constructs. I attempted to narrow the multiple constructs that these indicators may tap by controlling for a range of related factors, but my list is not exhaustive. Although the results are suggestive, they do not constitute definitive tests of the relative power of different theories of the sources of gender inequities in academia or in the workplace in general.

Sex Typing of Postsecondary Jobs

The EEO-6 results show that some sectors of employment are subject to more variation in gender composition than are others. This finding accounts, in part, for the variable role that organizational characteristics play in explaining differences in women's level of representation in different jobs. Clerical and craft work remain almost completely women's work and men's work, respectively, with little institutional

variation and sparse organizational effects. Although sex ratios vary more markedly in the remaining job categories, the impact of organizational variables is most pronounced in jobs in which women's representation tends to vary within a fairly narrow range usually tilted toward male dominance: tenured faculty positions. Even under organizational conditions that are the most conducive to women's professional progress, tenured women faculty remain a numerical minority that falls far short of parity.

Importance of Female Constituencies

As explanations for variations in sex ratios and the degree of job segregation, the results also provide some support for each of the models of gender inequities. But gauged by the strength and patterning of effects, there is perhaps more support for the model of institutionalized discrimination than for other explanations. The model not only predicts the concentration of women employees in academia's lower level jobs, but suggests that women's levels of representation will be inversely proportional to the status of the jobs.

The strongest factor in the results is the impact of internal constituencies of women students and administrators. The role of these constituencies in curbing institutionalized discrimination should not be oversimplified. Unmeasured factors may be responsible for a favorable institutional climate that simultaneously elevates women's presence among students, administrators, faculty, and other workers. It may be tempting to attribute the strong influence of women's representation among students—the best single predictor of their representation among employees—to a special institutional climate in “women's colleges.” But in only 6 percent of the institutions was the student body overwhelmingly composed of women (more than 80 percent female), and the effects were essentially unchanged when these schools were dropped from the regression analyses (results not presented).

To some extent, the findings in schools with majority-female student bodies could reflect a demand for teachers in academic disciplines in which women tend to be better represented, both as undergraduate students and doctoral recipients. But the empirical connection here extends beyond the composition of faculty employees. As more institutions witness their female students becoming a majority, there is likely to be increased pressure to provide women as successful role models in teaching, administrative, and professional staff positions.

In line with evidence that the presence of women executives in academia enhances subsequent appointments of women administrators (Konrad and Pfeffer 1991), I found parallels in their positive impact on women's presence in faculty and other professional jobs. But women administrators' apparent influence is limited and selective. It plays little, if any, role in women's representation in nonprofessional jobs and is much less closely related to women's faculty jobs than to nonfaculty professional jobs. These patterns held when I examined the composition of current employees and of recently hired employees. They may reflect the relative ease with which administrators can influence jobs that are near their own in the administrative hierarchy, rather than those controlled by faculty committees.

The EEO-6 job categories are insufficiently detailed to rule out another possible explanation for the selective influence of women as top administrators: Women administrators may be disproportionately in positions that carry little authority, such as in student affairs and human resources departments. If so, the pattern would be consistent with findings from the private sector that women managers are mainly in lower-level jobs in which they supervise other women and contribute information to decision making that is still dominated by men (Reskin and Ross 1992).

In contrast with the analyses of existing gender compositions, the data for recently hired employees suggest a

more positive long-term impact of women administrators on women's employment on faculties, with proportionally more women hired for entry-level faculty jobs, especially tenure-track jobs. Women's ascension to administrative positions may ultimately prove crucial in increasing the level of awareness and commitment to antidiscriminatory employment practices (Reskin and Hartmann 1986).

Moreover, even with limitations on women's influence, ensuring that women obtain positions in the power structure seems a more certain way to redress gender inequities than do more indirect mechanisms. Internal structural arrangements—size, unionization, and prevalence of tenure—and insulation from competition have a far less consistent or powerful impact in curbing or exacerbating gender inequities. The impact of external constraints on discrimination, as measured by a reliance on federal revenues, suggests that outside pressure can be effective in promoting gender equity in organizations. The findings on public versus private institutions, however, suggest that similar pressures on state colleges and universities yield only minimal compliance. Although there is less job segregation by gender in public institutions, it seems to be accomplished through a tendency to hire women for non-tenure-track jobs, whereas proportionally fewer women are appointed to tenure-track and tenured positions.

The results are also consistent with the operation of statistical discrimination in research-oriented institutions, which have an appreciably lower representation of women in the types of higher-status jobs in which subjective assessments may be most critical in selecting women: tenured and tenure-track faculty positions. Women faculty's scarcer presence in research-oriented schools may simply reflect a lag in women's progression through the tenure system, the legacy of women's historical exclusion from research-oriented doctoral programs and employing institutions. But it is telling that women garnered a consistently smaller share of

faculty positions in research-oriented institutions, and the effect was the largest for those hired for tenure-track positions. Barriers to women's representation on research-oriented faculties do not appear to be breaking down readily.

Loosening Geographic Constraints?

The most unexpected and puzzling findings concern the role of ecology in women's postsecondary job opportunities. Institutions that I expected to be favorably located relative to the supply of women professionals—those in big cities, those with many surrounding colleges or universities, and those in areas that produce many new doctorates—draw women into their top administrative ranks much more consistently than they do into their faculties. Perhaps as women have obtained a larger share of doctorates and faculty positions, they have the requisite role models and mentors to avoid, resist, or overcome these geographic constraints more readily than they did 20 years ago. Or perhaps the constraints themselves are weakening as less traditional marital and gender roles take hold.

The greater presence of women in administrative jobs in certain locations may reflect an adaptation to these constraints as dual-career pressures lead women to seek and accept administrative positions when it is difficult to obtain faculty appointments. Again, it would be useful to know more about the level of hierarchical authority that

women attain through these positions.

A more surprising finding was that the impact of geography is more pronounced on women's representation in nonprofessional than in faculty positions, although not in any consistent direction that my models can account for. This finding may have less to do with what is happening to women's job opportunities than to men's. Women's lower levels of representation in clerical and service jobs in big cities, those with many colleges, and those on the two coasts could be a reflection of the greater availability and interest of men in those jobs.

The results must be placed within the context of their unique employment sector. Postsecondary institutions operate under unique EEO regulations and perhaps unusual affirmative action procedures; only governmental institutions are subject to more stringent and extensive reporting requirements. Since the postsecondary education sector is one in which I expected the impact of EEO regulations and affirmative action procedures to be relatively pronounced, my findings cannot be readily generalized to other employment sectors. But by documenting the current level of gender segregation in postsecondary jobs and its organizational correlates and possible determinants, this study has outlined a mix of dynamics that may shape discriminatory forces in other types of organizations as well.

APPENDIX A
Operational Measures of Organizational Variables

Variable	Measurement	Source ^a
Endowment	Percentage of revenues derived from endowed sources, three-year average	IPEDS
Pervasiveness of tenure	Percentage of total faculty who held tenure in 1991–92	EEO-6 reports
Institution size	Factor score loading on the number of students, faculty, and library holdings	IPEDS
Unionization	Any faculty collective bargaining agreement? Yes = 1, No = 0	Douglas (1992)
Women students	Percentage of undergraduate students who are women	IPEDS
Women administrators	Percentage of top executive-administrative-managerial jobs held by women	EEO-6 reports
Women's studies	Program formally established = 1; otherwise = 0	Stafford (1990)
Research orientation	Factor score loading on classification as a Research I institution, research expenditures per faculty member, and external grant revenues as a fraction of total budget	Carnegie Foundation (1987); IPEDS
Prestige/selectivity	Factor score loading on ratings of average freshman SAT/ACT scores, percentage of applicants accepted for admission, and enrollment rate among those admitted	ACE (1987); Peterson's Guides (1990)
Local colleges or universities	Number of four-year colleges or universities in the standard metropolitan statistical area (SMSA) or within 25 miles if a non-SMSA	ACAC (1967)
Local area population	Natural log of 1990 total population of SMSA, or of the county if a non-SMSA	U.S. Bureau of the Census
Regional centers of doctoral production	Dummy variables: (1) SMSAs in the Boston to Washington megalopolis; (2) remaining locations in East Coast states; (3) states bordering the Great Lakes; (4) West Coast (WA, OR, CA); (5) remaining U.S., the reference category	State and SMSA location from IPEDS
Federal revenues	Percentage of annual revenues derived from federal government sources, averaged over three years	IPEDS
Public institution	Under state or local government auspices: Yes = 1; No = 0	IPEDS

^aACE = American Council on Education, ACAC = Association of College Administration Counselors, and IPEDS = Integrated Postsecondary Education Data System.

APPENDIX B

Descriptive Statistics for All Variables, Measured at Organizational Level

Variable	Mean	<i>SD</i>	<i>N</i>
Tenured faculty: Percent female	24.35	14.41	1,275
Tenure-track faculty: Percent female	39.88	14.98	1,209
Non-tenure-track faculty: Percent female	45.29	20.83	1,307
Top administrators: Percent female	35.21	18.45	1,511
Other professionals: Percent females	58.64	16.94	1,476
Technical workers: Percent female	51.04	26.65	1,291
Clerical workers: Percent female	94.33	7.07	1,524
Craft workers: Percent female	5.53	13.16	1,229
Service workers: Percent female	33.22	19.95	1,480
New Hires—Tenured faculty: Percent female	26.55	32.50	329
New Hires—Tenure-track faculty: Percent female	40.92	26.95	1,091
New Hires—Non-tenure-track faculty: Percent female	47.51	29.14	885
New Hires—Top administrators: Percent female	41.73	37.32	945
New Hires—Other professionals: Percent female	58.91	29.71	1,177
New Hires—Technical workers: Percent female	51.60	37.93	699
New Hires—Clerical workers: Percent female	90.71	18.83	1,195
New Hires—Craft workers: Percent female	9.70	26.56	429
New Hires—Service/maintenance workers: Percent female	33.65	32.96	921
H : Index of gender segregation among all employees	25.76	9.78	1,528
H : Index of gender segregation by rank among faculty	11.60	11.72	1,506
Endowment: Percentage of revenues	3.65	6.88	1,735
Faculty: Percent tenured	55.26	17.29	1,735
Institution size (factor score)	0.00	0.84	1,735
Unionized (yes = 1, no = 0)	0.13	0.34	1,734
Undergraduate students: Percent female	53.81	16.01	1,735
Women's studies program (yes = 1, no = 0)	0.19	0.40	1,733
Research orientation (factor score)	0.00	0.77	1,735
Prestige/Selectivity (factor score)	0.00	0.82	1,735
Number of local colleges or universities	11.09	14.83	1,735
Local area population (log)	6.39	1.57	1,735
In Bos-NY-Wash (yes = 1, no = 0)	0.21	0.41	1,735
On remaining East Coast (yes = 1, no = 0)	0.18	0.39	1,735
In Great Lakes state (yes = 1, no = 0)	0.16	0.37	1,735
On West Coast (yes = 1, no = 0)	0.09	0.29	1,735
Percentage of revenues from federal sources	6.54	8.51	1,735
Public institution (yes = 1, no = 0)	0.32	0.47	1,734

NOTES

1. An institution's faculty may also be highly segmented, with a substantial portion of non-tenure-track instructor or lecturer positions, jobs that bar access to internal labor markets that promise advancement, stable employment, and more generous remuneration. The relative size of this secondary sector of faculty employment may be a gauge of opportunities and motivation to rely on women to staff poorly compensated and less prestigious teaching posts (Rosenblum and Rosenblum, 1990). My analysis addressed this possibility by calculating the fraction of all the faculty who held instructor or lecturer positions in the institutions and examining its impact on the gender composition of various faculty jobs. Because this variable had small effects and was related so closely to another variable (the prevalence of tenure) in the model as to introduce problems of multicollinearity, I do not include it here.

2. The population-ecology perspective suggests a different relationship: that larger organizations are subject to structural inertia and greater resistance to change than are smaller ones and thus adapt less well to pressures to integrate women and minorities (Carroll 1984; Hannan and Freeman 1984).

3. Nor can I rule out the possibility that women's studies programs may be established, in part, to rectify women's severe under representation in traditional departments or to preserve male advantages by segregating women faculty in marginalized programs. This possibility may lead to an inverse bivariate relationship between women's studies and women's level of faculty representation.

4. H is based on a division of labor into seven job categories (top administrative, faculty, other professionals, technical, clerical, craft, and service) and is defined as:

$$H = \frac{E - \sum_{i=1}^n \frac{T_i}{T} E_i}{E}, \text{ where } E_i =$$

$$p_i \log_2 \frac{1}{p_i} + (1 - p_i) \log_2 \frac{1}{1 - p_i}, \text{ and}$$

$$E = p \log_2 \frac{1}{p} + (1 - p) \log_2 \frac{1}{1 - p}.$$

N is the number of job classes in the firm, T_i is the number of employees in the i^{th} job class, T is the firm's total number of employees, p_i is the proportion female in the i^{th} job

class, and p is the proportion female among all employees in the firm.

5. This paragraph describes institutional variations in women's representation among current employees only. Women's presence in hiring pools is far more variable across institutions. Some of this variability is attributable to the small number of employees who are hired annually in certain job categories, especially tenured faculty, administrators, and craft workers. Hiring pools of clerical workers are still generally dominated by women, and men dominate in most institutions among newly hired craft and service workers and tenured faculty members. But the proportion of women who are hired for all other jobs ranges widely from one institution to another.

6. Hiring trends in a single short period may be unstable and unrepresentative of an institution's hiring policies. Moreover, in the academic year I examined (1991-92), there was a national recession and widespread retrenchment in academia, fueled by some of the most severe cutbacks in state funding ever experienced by public colleges. Given this instability and the depressed environment for hiring, there may be less variation to explain in the gender composition of the hiring pools in this study than is typically the case.

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