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Perceptions of female faculty treatment in higher education: which institutions treat women more fairly?

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Abstract

This paper analyzes a national sample of postsecondary faculty first to determine whether treatment of female faculty is perceived as fair and second to examine what institutional characteristics are related to fair treatment. The results indicate that the majority of male and female faculty believe female faculty are treated fairly. However, perceived treatment varies with a number of institutional and faculty characteristics. © 2001 Published by Elsevier Science Ltd.

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1. Introduction

Economists have long been interested in the treatment of women in the labor force. Countless studies consider male–female differences in labor supply, wages, occupations, turnover, and training. Despite such attention there is still substantial disagreement over whether women are treated fairly in the labor market, and which industries and firms treat women more equitably. This paper examines worker (faculty) perceptions of female treatment in the higher education industry. The purpose of this paper is twofold: to determine whether treatment of female faculty is perceived to be fair and to determine

what institutional and faculty characteristics are related to the fair treatment of female faculty.

Several prior studies examine worker perceptions of discrimination. They compare measures of discrimination derived from wage regressions to those measures obtained from self-reported observations. As such these studies compare self-reported discrimination to discrimination estimated as the difference between women's actual and predicted wage. For example, Kuhn (1987) examined a sample of Canadian workers, but did not find a significant correlation between discrimination estimated from wage regressions and self-reports reflecting being a victim of discrimination. He suggested that most discrimination is non-wage in nature and includes differences in benefits or treatment on the job. Thus, measures of wage discrimination are unlikely to capture most of the discrimination women feel they encounter.

Barbezat and Hughes (1990) examined a sample of U.S. higher education faculty, and also did not find a relationship between the wage regression measure of discrimination and respondent's satisfaction with affirmative action programs at their institution. Both Kuhn (1987) and Barbezat and Hughes (1990) noted that occu-

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pational or firm characteristics might be important determinants of discrimination. However, Kuhn's data had no information on occupation or firm characteristics. Barbezat and Hughes' institutional characteristics were limited to whether the institution is public or private and the institution's Carnegie classification. In general, little is known about how discrimination varies across different firms or institutions because studies that examine self-reported discrimination have been unable to link individual data with employer characteristics.³

One exception is Dey, Korn, and Sax (1996) who examined the relationship between several individual and institutional factors, and perceived sexual harassment in higher education. They used the 1992–93 Higher Education Research Institute Faculty Survey, which has information on institution size, type, control, selectivity, and the proportion of women at the institution. The authors found that the female victims of sexual harassment are more likely to be single, of higher rank, work in public selective institutions, and have fewer female colleagues.

Other research has attempted to pinpoint gender differences in the perception of discriminatory acts. For example, Shotland and Craig (1988) in their study on sexual harassment found that men and women differed in their threshold for the perception of sexual intent. LaRocca and Kromrey (1999) came to a similar conclusion finding that females tend to perceive sexual harassment more often than their male counterparts when presented with similar scenarios.

In contrast to wage-based discrimination or sexual harassment studies, a whole genre of analysis perceives discrimination to take the form of occupational segregation. Here, studies assume that occupations and industries exhibiting the lowest proportions of women discriminate against women most. Given current trends, this type of discrimination would appear to be declining as occupational barriers erode. For example, in higher education, the National Center for Education Statistics reports a consistent increase in the proportion of full-time female faculty; from 18 percent in 1960, to 28 percent in 1981, and 33 percent in 1992 (Kirshstein, Matheson, Jing, & Zimble, 1997). Despite this growth, many researchers have found that higher education institutions still discriminate against women. For example, compared to men, women are in lower academic ranks (Nettles, Perna, Bradburn, & Zimble, 2000), teach at lower prestige institutions (Barbezat, 1992), earn less money (Nettles et al., 2000) and take longer to receive tenure (Kahn, 1997). We determine how some of these and other factors relate to the perceived treatment of women.

³ Hampton and Heywood (1993) were able to find a positive correlation between discrimination estimated from wage regressions and self-reports of gender income differences.

2. Data

A growing amount of research in economics uses matched employee–employer data. Such matched data enable a researcher to link discrimination to specific employer characteristics. To date much of the research using matched data is limited to the manufacturing sector, but to our knowledge only Dey et al. (1996) compare educational institutions. Others look at perceived discrimination within specific schools but this type of analysis does not permit cross-school comparisons (e.g. Fitzgerald & Shullman, 1988; McKinney, 1990).

In this study we use two unique data sources, the 1993 National Study of Postsecondary Faculty (NSOPF) and the 1993 Integrated Postsecondary Education Data System (IPEDS) to match individual faculty data with information on their higher education institutions. The NSOPF provides a profile of the nation's faculty, what they do, and why many aspects of the profession are changing.⁴ We limit our sample to full-time tenured or tenure track faculty of the rank full, associate, or assistant professor, employed at institutions from the Carnegie classifications of Research, Doctoral, Comprehensive, and Liberal Arts.⁵

An interesting aspect of the survey is that information is collected on the perceived treatment of female faculty at the institution. The NSOPF survey asks the following question: "Please indicate the extent to which you agree or disagree with the following statement. Female faculty members are treated fairly at this institution." The four possible responses to the question are disagree strongly, disagree somewhat, agree somewhat, or agree strongly. Table 1 provides the response frequencies for the sample of 11099 faculty. Seventy-three percent of surveyed faculty agree (either strongly or somewhat) that females are treated fairly; with 83.1 percent of men and 56.9 percent of women agreeing that females are treated fairly. Two points are worth noting. First, a considerable majority of respondents report that female faculty are treated fairly at their institution. Second, men are 26.2 percentage points less likely to sense unfair treatment of females than women. Of course, over one-quarter of respondents do not feel women are treated fairly, and we turn our attention to examining what institutional and faculty

⁴ NSOPF data are available for 1988 and 1993, and optimally we would like to examine changes in female faculty treatment across time. However, the NSOPF was not designed to be a longitudinal data set, preventing such an analysis.

⁵ Limiting the sample to full-time permanent faculty at four-year institutions has benefits and costs. Part-time temporary faculty may not have sufficient knowledge about the institution to accurately judge the treatment of female faculty. However, by excluding part-time faculty, we overlook a group that may be subject to hiring or other types of discrimination.

Table 1
Frequencies of treatment variable responses in NSOPF-93 data^a

	Agree strongly	Agree somewhat	Disagree somewhat	Disagree strongly	Sample size
Entire sample	33.2	39.5	25.0	8.2	11099
Males	41.8	41.3	12.6	4.3	6676
Females	20.2	36.8	28.9	14.1	4423

^a Faculty responses to the following statement: "Female faculty members are treated fairly at this institution".

characteristics are related to the perceived treatment of women.

Institution and faculty characteristics are from IPEDS, a data set that contains 1500 variables for over 12,000 postsecondary education institutions. It might be argued that faculty characteristics should include respondent characteristics from the NSOPF as well as institution-level characteristics from IPEDS. However, the female faculty treatment question refers to the institution as a whole and does not indicate the individual is a victim of discrimination.

3. Specification

The faculty treatment measure is an ordered categorical variable ranging from one (disagree strongly) to four (agree strongly). We estimate ordered probit regressions to determine what factors influence the perceived treatment of female faculty:⁶

$$\text{Treatment}_{ij} = X_j\beta + \varepsilon_{ij}$$

where X denotes institution j 's characteristics, and i denotes individual faculty. Observations are weighted using weights provided in the NSOPF data. The following sections discuss the variables in the specification and provide a justification for each variable's inclusion.

3.1. Institutional characteristics

Whether the institution is public or private may play a role in the treatment of female faculty. Public institutions may treat female faculty fairly due to several factors including government oversight and having more personnel devoted to upholding such laws. Also, information on salaries is in the public domain limiting public institutions' ability to discriminate against women (Barbezat and Hughes, 1990).

We include the average wage paid to female faculty at the institution to control for the monetary benefits provided by the institution. Motivation for including this

variable is provided by Clark and Oswald (1996), who found that comparison wages are an important determinant of job satisfaction. Monetary benefits will be important to the perceived treatment of women if women's wages are compared across institutions. We expect a positive relationship between women's average wage and the perceived treatment of female faculty.

We also include the male-female wage ratio to examine how gender wage differences influence the perceived treatment of women.⁷ The male-female wage ratio is also a comparison wage, with women's wages compared to men's within an institution. It should be noted that this wage difference is unadjusted for differences in worker characteristics. Given the vast literature that measures discrimination as the gender wage gap, we expect a large unadjusted male-female wage gap is a component of perceived poor treatment.

We also examine the relationship between perceived female faculty treatment and the faculty-student ratio. The faculty-student ratio will provide some information on the average teaching load and/or class size at the institution, with a larger faculty-student ratio indicating lighter teaching loads or smaller class sizes. Massey and Zensky (1997) show that faculty prefer lighter teaching loads. A larger faculty-student ratio improves the perceived treatment of both men and women, but we have no a priori expectation as to whether it makes treatment more equitable.

Women comprise a much larger proportion of faculty at teaching institutions than research institutions. Gibbons, Fielden, and Fish (1988) found that women choose to associate with institutions that do not require publications, suggesting that women tend to prefer teaching institutions. Ethington, Smart, and Zeltman (1989) found that women are more satisfied at teaching oriented institutions. Alternatively, the smaller proportion of female faculty at research institutions may indicate differences between research and teaching institutions in female treatment (e.g., in hiring or tenure decisions). Thus, we

⁶ See Greene (1990) for information on the estimation of ordered probit models.

⁷ Relative wage by rank might be preferable, but this information is not available in IPEDS. Alternatively, one might argue that faculty rank should not be accounted for as women's lower average rank may indicate discrimination.

include categorical variables denoting the institution's Carnegie classification in the specification.

Institutions differ with respect to research and teaching emphases within each Carnegie classification. For example, as most would expect, Harvard University and the University of Chicago are both classified as Research I universities. However, the University of Cincinnati and Wayne State University are also classified as Research I institutions. While both are fine schools, few would consider them to be the research equals of Harvard and Chicago. We include expenditures on instruction, research, and institutional support in the specification to provide additional information on the institution's focus.⁸ These variables are measured as a proportion of total educational and general expenditures since larger schools have greater expenditures in each category. On average, these categories account for 56 percent of an institution's expenditures.

3.2. Faculty characteristics

Since we do not include individual-level variables in the specification, we examine characteristics of the faculty as a group. Faculty characteristics include unionization and the gender composition of the institution's faculty. Unionization is likely to improve the treatment of women by improving non-monetary benefits and standardizing pay scales. For example, Lillydahl and Singell (1993) found that unionized employees are more satisfied with salaries, benefits, and job security.

Previous research suggests that the gender composition of workers may affect such factors as wages, turnover, and sexual harassment. For example, turnover is greater in departments with a greater proportion of female faculty (Tolbert, Simons, Andrews, & Rhee, 1995). Tolbert et al. argue that a larger (but still minority) proportion of female faculty leads to greater conflict with the male majority and a more hostile working environment for women. However, Dey et al. (1996) found that the likelihood of being a victim of sexual harassment falls as the proportion of women at the institution increases, suggesting that treatment becomes better as the proportion of women increases.

Several theories are relevant to the relationship between the gender composition of workers and treat-

ment. Competition theory posits that as the proportion of the minority group increases, cooperation by the majority group falls and hostility increases towards the minority group (Blalock, 1957). Hostility towards the minority group arises when an increase in this group's size is seen as a threat to the power of the majority group. Thus, female faculty treatment would worsen as the proportion of female faculty increases.

Alternatively, it is conceivable that a growing female minority increases interaction between men and women, resulting in better, not worse treatment. For example, social contact theory is based on a social-psychological analysis of the effect of social contact on people's attitudes (Allport, 1954). The increased interaction between the majority and minority groups leads to a removal of biases and a decrease in discriminatory actions towards the minority group.

While competition and social contact theories focus on intergroup relations, intragroup relations may also be important. Female workers may act as role models or mentors to other women in the firm, improving job satisfaction and productivity. For example, a role model's performance is observed and mimicked by junior faculty who may observe the work habits or teaching style of senior faculty, while a mentor may guide junior faculty's research by answering questions or co-authoring articles and books. If we assume junior women are more likely to be mentored by senior women than by senior men, a larger proportion of female faculty especially senior faculty increases the number of potential role models and mentors.

The increased interaction between women has the potential to improve job satisfaction and productivity, and, as a result, enhance the perceived treatment of women. For example, a lack of role models or mentors may be partially responsible for women having greater difficulty in finding co-authors and getting published (Ferber & Treiman, 1980). McDowell and Smith (1992) find that economists tend to co-author articles with individuals of the same sex, and as a result women are less likely to co-author. Such issues are particularly important at research institutions, at which there are relatively few women.⁹

We include a variable measuring the percentage of faculty at the institution who are women. Given the prior research on gender composition in the workplace, we have no a priori expectation regarding how an institution's gender composition is related to the treatment of female faculty. We would also like to examine the gen-

⁸ Instruction expenditures include funds to support general academic instruction, occupational and vocational instruction, and tutorial services conducted by faculty for students. Research expenditures include funds for activities specifically organized to produce research outcomes and are commissioned by an organizational unit within the institution. Expenditures for institutional support include day-to-day operational support for the institution such as administrative services, executive direction and planning, and public relations, but excluding physical plant operations.

⁹ While most studies suggest that an increase in the proportion of female faculty has intra-group benefits, there is some contrary evidence. For example, Broder (1993) found that female reviewers gave lower ratings to National Science Foundation proposals authored by women than male reviewers.

der composition of faculty at the department level since interactions between faculty are more likely within departments. This is particularly true for collaboration on research. However, the NSOPF and IPEDS data do not have information on the gender composition of a respondent's department.

While the proportion of women is expected to be important, the rank distribution of men and women is also a determinant of female faculty treatment. The gender composition of senior faculty is important as a larger proportion of female full professors on the faculty indicates greater promotion potential and greater institutional attention to issues important to female faculty (Denton and Zeytinoglu, 1993). A larger proportion of female full professors also indicates a greater supply of potential role models for junior female faculty, more female department chairs, and more women on tenure, promotion, and other important committees. On the other hand, a larger proportion of male full professors on the faculty suggests less attention to issues meaningful to women and fewer women on key committees.

There are two ways to examine how the rank distribution of faculty influences female faculty treatment. First, we could include a variable measuring the percentage of full professors at an institution who are women. Second, we could include two variables; one denoting the percentage of women who are full professors and another denoting the percentage of men who are full professors. We chose the second option because the first option is highly correlated with the overall gender composition of faculty and would add relatively little to the specification. The second option enables us to examine how the rank distribution of each gender influences female faculty treatment while holding constant the overall gender composition.

3.3. A control group

One shortcoming of the female faculty treatment measure is the lack of a clear control group. It is uncertain whether poor perceived treatment indicates institutions treat women unfairly compared to men or that all faculty are treated unfairly. We would prefer to compare the treatment of women to the treatment of men, and we expect that most respondents interpret the question in this manner. However, the data do not provide information on the treatment of male faculty to test this assumption. In order to provide an explicit control group, we utilize a variable in the NSOPF data on the perceived institutional treatment of minority faculty. Similar to the question regarding female faculty treatment, respondents are asked whether they strongly agree, somewhat agree, somewhat disagree, or strongly disagree that minority faculty are treated fairly at the institution. By controlling for minority treatment, we determine whether the insti-

tutional and faculty characteristics lead to differences in the perceived treatment of women and minorities.

4. Results

Table 2 contains the results from four regressions with two examining men's perceptions of female faculty treatment and two focusing on women's perceptions of treatment. We examine men's and women's perceptions separately since Shotland and Craig (1988) and LaRocca and Kromrey (1999) found that men and women perceive similar situations differently.

Among the institutional characteristics, both men and women perceive better female treatment at institutions with higher female wages. For men, the relationship is statistically significant only when controlling for minority treatment. Interestingly, women report better treatment at institutions with lower male–female wage ratios, but the wage ratio is not related to men's perceptions of female treatment. Thus, controlling for women's wages, women perceive better treatment as the difference between men and women's wages diminishes. Men do not view the wage differential as an important factor in the institution's treatment of women.

The results do not provide evidence that women are treated better at teaching oriented institutions. Men feel women are treated better at teaching oriented liberal arts institutions than research institutions without controls for minority treatment, but men perceive better treatment as the proportion of instructional expenditures decreases when controlling for minority treatment. Women perceive better treatment as the proportion of research expenditures falls without minority treatment controls, but perceive worse treatment as the proportion of instructional expenditures increases. Women also perceive poorer treatment at comprehensive than research institutions. Overall, the results examining the relationship between the institution's teaching emphasis and female treatment are not consistent and vary for both men and women depending on the specification.

Among the faculty characteristics, both men and women perceive poorer female treatment at unionized institutions. This result was unanticipated and might indicate that unionized institutions tend to be less prestigious, and organize to improve the treatment of both men and women. A positive relationship exists between the proportion of female faculty and women's perceptions of fair treatment. Consistent with social contact theory, this result suggests that an increase in female faculty enhances intergroup interaction between men and women. Such a result is also consistent with the importance of intragroup relationships, with an increase in the proportion of women providing greater opportunities for women to collaborate. Men do not view the overall gender composition of faculty as important to female treatment.

Table 2
Ordered probit regression results^{a,b}

Variables	Specification #1		Specification #2	
	Men	Women	Men	Women
Intercept	−0.2542 (0.2365)	−1.135* (0.2879)	−2.283* (0.2686)	−3.706* (0.3108)
<i>Institutional characteristics</i>				
Public institution	0.0171 (0.0390)	0.0328 (0.0460)	0.0895* (0.0424)	0.0185 (0.0480)
Average female wage	0.0027 (0.0028)	0.0081* (0.0032)	0.0071* (0.0031)	0.0099* (0.0034)
Relative wage	−0.0586 (0.0500)	−0.2498* (0.0641)	0.0629 (0.0546)	−0.1783* (0.0672)
Faculty–student ratio	0.0361 (0.1853)	−0.0868 (0.2063)	−0.0043 (0.1970)	−0.1166 (0.2165)
Comprehensive institution	0.0886 (0.0581)	−0.0562 (0.0735)	−0.0351 (0.0627)	−0.1611* (0.0769)
Doctoral institution	0.0368 (0.0511)	−0.3328 (0.0647)	0.0230 (0.0552)	−0.0808 (0.0676)
Liberal Arts institution	0.2723* (0.0901)	0.0066 (0.10257)	0.1610 (0.0984)	−0.0114 (0.1074)
Pct. instruction expenditures	−0.0025 (0.0025)	−0.0088* (0.0029)	−0.0073* (0.0027)	−0.0030 (0.0031)
Pct. research expenditures	0.0016 (0.0030)	−0.0084* (0.0039)	−0.0019 (0.0032)	−0.0063 (0.0041)
Pct. institutionally support expenditures	0.0152* (0.0048)	0.0224* (0.0058)	0.0094** (0.0052)	0.0243* (0.0061)
<i>Faculty characteristics</i>				
Union	−0.1745* (0.0453)	−0.2837* (0.0494)	−0.2120* (0.0486)	−0.1797* (0.0516)
Percent female faculty	−0.0001 (0.0035)	0.0140* (0.0035)	0.0012 (0.0038)	0.0119* (0.0037)
Percent male full professors	−0.0076* (0.0026)	−0.0062** (0.0031)	−0.0111* (0.0028)	−0.0032 (0.0032)
Percent female full professors	0.0263* (0.0084)	0.0333* (0.0091)	0.0289* (0.0092)	0.0187* (0.0095)
<i>Minority treatment</i>				
Somewhat disagree: –	–	0.5269*	1.096*	
Minorities treated fairly			(0.0838)	(0.0762)
Somewhat agree:	–	–	1.383*	2.092*
Minorities treated fairly			(0.0786)	(0.0748)
Strongly agree:	–	–	2.965*	2.981*
Minorities treated fairly			(0.0818)	(0.0797)
μ_1	1.182* (0.0191)	1.081* (0.0231)	1.674* (0.0272)	1.410* (0.030)
μ_2	1.948* (0.0291)	2.021* (0.0300)	2.677* (0.0394)	2.667* (0.0404)
Log likelihood	−7435.84	−5641.08	−5609.61	−4588.02
Pseudo <i>r</i> -squared	0.15	0.23	0.36	0.37
Sample size	6676	4423	6676	4423

^a Dependent variable is the individual faculty response to the statement: “Female Faculty members are treated fairly at this institution”.

^b *Significant at 5% level; **significant at 10% level. Standard errors are in parentheses.

Controlling for the proportion of female faculty, treatment improves as the percentage of women who are full professors increases and the percentage of men who are full professors falls. In other words, when comparing institutions with the same proportions of female faculty, perceived treatment is better at the institutions where women are concentrated in positions of power while men are concentrated in positions with less power. The presence of senior women also provides potential role models and mentors for junior faculty, which may indirectly improve perceived treatment through increased productivity.

4.1. Elasticities

Of course, probit coefficients cannot be interpreted directly as marginal effects. Comparing the marginal effects across variables is also difficult since the means vary considerably across the independent variables. For example, a ‘one-unit’ change in the relative wage would be a considerable change in the male–female wage differential, while a one-unit change in the average female wage would be a comparatively small change. Thus, we compute the marginal effects (see Greene, 1990), and convert the marginal effects to elasticities for ease of comparison. To conserve space, only the elasticities from the specification without controls for minority treatment are provided in Table 3. We focus the discussion on sev-

eral effects that are statistically significant in the probit results.

Women’s perceptions of treatment are strongly influenced by monetary considerations. A one-percent reduction in the relative wage would increase the likelihood of a woman strongly agreeing that female faculty are treated fairly by 0.41 percent, while a one-percent increase in the monthly wage increases the likelihood of strongly agreeing by 0.46 percent.

While the difference in men’s perceptions of female treatment at liberal arts and research institutions is statistically significant, the effect is relatively minor. The proportion of faculty strongly agreeing that women are treated fairly would increase by only 0.03 percent with a one-percent change in the proportion of faculty at liberal arts institutions. An increase in the proportion of faculty at comprehensive institutions would have a similarly small impact on women’s perceptions of female treatment.

The faculty at unionized institutions has different perceptions of female faculty treatment than the faculty at nonunion schools. Again, despite being statistically significant the magnitude is very small as a one-percent increase in the proportion of faculty at unionized schools would decrease women’s likelihood of strongly agreeing by 0.05 percent and men’s by 0.02 percent. A one-percent increase in the institution’s percentage of female faculty increases the likelihood of a woman strongly

Table 3
Elasticities^a

	Females				Males			
	Agree		Disagree		Agree		Disagree	
	Strongly	Somewhat	Somewhat	Strongly	Strongly	Somewhat	Somewhat	Strongly
<i>Institutional characteristics</i>								
Public institution	0.0248	0.0061	-0.0117	-0.0274	0.0096	-0.0035	-0.0132	-0.0211
Avg. female wage	0.4610	0.1141	-0.2182	-0.5088	0.1091	-0.0399	-0.1496	-0.2395
Relative wage	-0.4105	-0.1016	0.1943	0.4531	-0.0690	0.0253	0.0947	0.1516
Faculty–student ratio	-0.0047	-0.0012	0.0022	0.0051	0.0014	-0.0005	-0.0019	-0.0031
Doctoral institution	-0.0121	-0.0030	0.0057	0.0133	0.0148	-0.0054	-0.0203	-0.0325
Comprehensive institution	-0.0194	-0.0048	0.0092	0.0214	0.0123	-0.0045	-0.0169	-0.0270
Liberal arts institution	0.0013	0.0003	-0.0006	-0.0014	0.0266	-0.0097	-0.0365	-0.0584
Pct. institutional expenditures	0.3401	0.0842	-0.1609	-0.3753	0.1503	-0.0550	-0.2063	-0.3301
Pct. research expenditures	-0.1007	-0.0249	0.0476	0.1111	0.0170	-0.0062	-0.0233	-0.0373
Pct. instructional expenditures	-0.4328	-0.1071	0.2048	0.4776	-0.0847	0.0310	0.1162	0.1860
<i>Employer characteristics</i>								
Unionized	-0.0493	-0.0122	0.0233	0.0544	-0.0196	0.0072	0.0268	0.0429
Percent female faculty	0.6219	0.1539	-0.2943	-0.6863	-0.0019	0.0007	0.0026	0.0042
Percent male full professors	-0.2363	-0.0585	0.1118	0.2607	-0.2249	0.0823	0.3085	0.4938
Percent female full professors	0.2515	0.0622	-0.1190	-0.2775	0.1467	-0.0537	-0.2012	-0.3221
Actual proportion	0.2017	0.3678	0.2894	0.1412	0.4181	0.4131	0.1260	0.0428

^a The elasticities are computed as the marginal effects multiplied by the ratio of the means. For details on computing marginal effects from ordered probit regressions, see Greene (1990).

agreeing by 0.62 percent, while a one-percent increase in the proportion of women who are full professors reduces the likelihood by 0.25 percent. A one-percent increase in male full professors decreases the likelihood of strongly agreeing by 0.24 percent for women and 0.22 percent for men.

Overall, monetary considerations and the gender composition of faculty have the largest effect on perceived female faculty treatment. Women's perceptions can be influenced to a greater extent than men's as the magnitude of the elasticities are consistently larger for women than for men. Such a result indicates that male and female faculty perceive similar situations differently.

4.2. Endogeneity

One problem with these results is the potential endogeneity of some independent variables. For example, gender composition, the rank distribution, and average female and relative wages depend on the actual treatment of female faculty. Although it is worth noting that it is less clear these independent variables depend on perceptions of treatment, or gender differences in treatment perceptions. To test for endogeneity would require a very complex instrumental variables model and suitable instruments for each of the endogenous variables. However, since the dependent variable represents perceptions and not necessarily actual treatment, it is difficult to be confident that potential instruments would not influence an individual's perception of a situation. Indeed, we were not able to find suitable instruments that exhibited a significant correlation with an endogenous variable, without being correlated with treatment perceptions.

5. Conclusion

This study analyzed first, how male and female faculty differ in how they perceive female faculty are treated, and second how faculty composition and institutional characteristics influence this perceived treatment of female faculty. Almost three-quarters of faculty perceive the treatment of female faculty to be fair. However, approximately one-quarter of faculty allege gender discrimination. We analyzed what institutional characteristics are related to the perceived fair treatment of female faculty. Both men and women perceive better female treatment at institutions with higher female wages. Women report better treatment at institutions with lower male–female wage ratios, and a higher proportion of female faculty. Controlling for the proportion of female faculty, both men and women perceive better treatment as the percentage of women who are full professors increases and the percentage of men who are full professors falls.

The policy implications of these results are clear.

Higher education administrators that want female faculty to feel they are treated fairly need to hire and promote women at the same rate as their male counterparts, and remove wage differences between similar men and women.

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