

The Prevalence of Women in Academic Leadership Positions, and Potential Impact on Prevalence of Women in the Professorial Ranks

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Abstract

The focus of this study is on women in senior academic leadership positions, exploring the proposition that a higher proportion of women in such strategic positions can facilitate institutional change and improve recruitment, retention, and advancement of women within the professorial ranks. This proposition is consistent with existing literature explaining women's stalled momentum in terms of the gendered institutional environment which creates an unequal playing field through organizational work policies, interpersonal networks, and embedded attitudes favoring the advancement of men. More women in strategic leadership positions provides greater understanding of pragmatic work policy obstacles, enhanced networking possibilities, and demonstration of a shifting organizational culture—all which can facilitate more equal participation of women within the academy. The study examines data on the proportion of women in senior academic leadership positions in doctoral granting institutions in the US. The findings provide useful descriptive statistics reporting the prevalence of women in such strategic leadership positions and the associated impact on prevalence of women in the various professorial ranks. Variation in findings due to organizational size, land-grant status, ADVANCE funding, and public/private ownership are also reported. Results suggest potentially promising levers for change to speed the progress of women faculty in our academic institutions.

Introduction

A recent study by the American Association of University Professors (AAUP) piques interest in the current role of women in higher education. The examination of 1,445 colleges and universities reveals that while women earn more than half of all Ph.D. degrees granted to American citizens today, they still comprise only about 45% of tenure-track faculty, 31% of tenured faculty, and just 24% of full professorships in 2005-2006 (West and Curtis 2006). More women than men are in part-time or non-tenure track positions, and the increasing scarcity of women as you look at higher academic ranks is clearly shown. Participation of women is lowest in the doctoral-granting institutions, where women constitute just 34% of full-time faculty, 26% of tenured faculty, and 19% of full professors. This is a particular problem, according to West & Curtis (2006), given the status and prestige of doctoral universities as well as the fact that 47% of all full-time faculty teach in these institutions. Certainly the low representation of women at

advanced professional ranks is not new or unique to higher education. However, the slow progress of women in light of their prevalence in academe's primary labor pool remains a puzzle.

Research surrounding women's less than full participation in higher education has been ongoing for several decades, primarily focusing on women as graduate students or within the professorial ranks. Early investigations describe the "chilly" academic climate experienced by women faculty, administrators, and graduate students. A range of behaviors, from overt to subtle—including assignment to more and/or more time intensive but less powerful committees, support rather than leadership roles, resource inequities, stereotyping, and unclear professional etiquette creating male discomfort which exacerbates social isolation—combine to discount, discourage, and disadvantage women at all levels in academe (Sandler 1986).

Later empirical tests demonstrate gender bias favoring men in the evaluation of candidates for faculty positions—identical curriculum vitae produced higher evaluations and greater preference to hire if the candidate was portrayed as male rather than female; both male and female evaluators exhibited this bias (Steinpreis, Anders, and Ritzke 1999). Gender bias was also documented in post-doctoral fellowship application reviews where women received undeservedly lower scores on all three evaluation parameters, resulting in 80% of the fellowships being awarded to men (54% of the applicants were men). Looked at another way, 8% of the women who applied received a fellowship, compared to 29% of the male applicants (Wenneras and Wold 1997).

More recent research reveals increasing prevalence of women throughout the various academic ranks, yet concern that progress is due mainly to greater numbers of women applicants rather than diminishing gender bias. Such disquiet is reinforced by lingering disparities in salary and especially rank, along with deteriorating working conditions as more women are hired into the growing number of part-time and non-tenure track positions (Dugger 2001a and b). Continuing barriers for women seem especially pronounced in departments of science and engineering (Etzkowitz, Kumelgor, and Uzzi 2000; Nelson and Rogers 2004), where only 19% of full professors are women in four-year colleges and universities overall, with even lower representation in research institutions (NSF Science and Engineering Indicators 2008).

An underlying problem is that of the gendered organization, whereby work policies, interpersonal networks, and embedded attitudes have evolved from the life experience of the traditional male bread-winner, creating an unequal playing field favoring the advancement of men. Women, with a different life experience including career interruptions for child birth and rearing, domestic responsibilities, and socialization to be supportive rather than dominant, are systematically disadvantaged in this male-normed institutional environment (Acker 1992; Bailyn 2003; Hochschild 1994; Kanter 1977; Martin 1994). Stereotypes of male and female roles unconsciously pervade attitudes of both men and women, leading to a persistent pattern of overrating of men and underrating of women when work-related behavior is compared to entrenched expectations (Valian 1998).

The gendered organization concept helps us understand women's stalled momentum and the complexity of making significant and enduring change. Familiar straightforward initiatives including mentoring for women, equal-opportunity policies, and targeted faculty recruiting have not been adequate to over-ride the prevailing prejudicial undercurrent. Accomplishing

meaningful change when obstacles are individually unintended but ingrained in protection of the social status quo calls for deeper and more ambitious organizational actions.

The primary focus of this study is to explore a fresh approach to more effective improvement regarding women's advancement through the academic ranks. Specifically, the study empirically examines whether a greater prevalence of women in academic leadership positions facilitates progress for women in the professorial ranks. In the following sections we develop a rationale for this inquiry, describe methodology and results, and conclude with discussion of implications for both future research and institutional agendas.

Women in Academic Leadership Positions

While representation of women at higher professorial ranks is disappointing, women are even more scarce on the administrative career ladder. Relatively few women advance to top academic leadership positions such as dean, provost, president or chancellor. An exception is in traditionally female fields such as nursing and education (Dugger 2001a), yet many social science and professional fields have shown substantial gender desegregation and an increasing supply of women for these positions. Where women are in top positions, it is typically in smaller, less prestigious schools. With women over-represented at instructor/lecturer ranks and less likely (controlling for experience, publications, and educational attainment) and taking longer to reach the associate and full professor ranks (Dugger 2001b) which generally are tapped for leadership positions, the small number of women administrators is yet another piece of the problem.

A multitude of practices impact women's advancement through either the professorial or administrative ranks. Many barriers are embedded in the gendered organization, including the so-called "second shift" (Martin 1994, 409), where women juggle home and professional responsibilities, compounded by "the coincidence of the biological clock and the tenure clock" (Martin 1994, 409) and the "invisible job" (Martin 1994, 410) of greater academic service roles. There also is the "hidden curriculum" (Thomas, Bierema, and Landau 2004, 63), where women learn to assimilate into the male culture by downplaying their attributes, and the Catch-22 of less prevalent but apparently more necessary (women are required to prove themselves more extensively than men in order to advance) developmental experiences and informal networks to draw upon (Oakley 2000). Adding the previously described gender bias in selection, evaluation, and promotion processes, it is indeed an arduous trek to the advanced positions.

Then, the chilly climate becomes even "colder at the top" (Sandler 1986, 13) as the few women do not neatly fit into male styles and cliques, and become more isolated yet increasingly visible for scrutiny. Solo status—being the only representative of a social category in an otherwise homogenous group—exacerbates effects of stereotyping and isolation, with negative impacts on evaluation and performance (Thompson and Sekaquaptewa 2002). Often accompanying solo status, perceptions of tokenism (advancement based on social category rather than competence) diminish respect and increase pressure for women in top positions (Craig and Feasel 1998).

A critical mass of 35-40% of non-dominant group members in leadership positions is thought necessary to overcome the stigma associated with tokenism (Karsten 1994). Research has also found that workplaces with at least 35% women are better working environments for women (Collins 1998; Tolbert, Simmons, Andrews, and Rhee 1995) as the detrimental effects of solo

status are removed. This is quite opposite the common practice of advancing mainly the “star” women who demonstrate achievement far surpassing both female and male colleagues. Attaining a critical mass of women in the leadership structure is especially important to position an institution for change. The observation that “few women want to go to places where few women are” (Steffen-Fluhr 2006, 1) describes a self-reinforcing cycle requiring bold organizational actions to interrupt.

It is logical to presume that greater numbers of women in the administrative hierarchy can jump start an organization’s change process by facilitating advancement of women through the ranks. Their personal experience with pragmatic work policy obstacles and inherent understanding of subterranean barriers faced by women provide insight which, combined with levers of authority in their positions, can be instrumental to improve recruitment, retention, and promotion of female faculty. Ultimately necessary but immensely time consuming efforts to shift institutional culture away from that of the gendered organization need not fully play out (for decades!) before meaningful change can begin. In fact, having more women in formal leadership positions actually models the desired culture change in a conspicuous and powerful way, while opening valuable networking opportunities for both women and men to experience a new outlook. Rather than relying on familiar tactics adding more women at the front end of the academic process and encouraging them through the career maze, we believe a demonstrated commitment and proactive approach that increases women in academic leadership positions will speed progress of women toward fuller participation in the professorial ranks.

Methodology

This study explores whether a positive relationship can be empirically demonstrated between prevalence of women in academic leadership positions and prevalence of women in the professorial ranks. The population selected for study is the 221 doctoral-granting institutions in the United States as categorized in the 2006 AAUP Faculty Gender Equity Indicators report (West and Curtis 2006). Data on the percentage of women in the professorial ranks—specifically, the percentage women in tenure-track, tenured, and full professor positions—were also obtained from the AAUP report. Data on women in the senior academic leadership positions of President/Chancellor, VPAA/Provost¹, and Dean were collected from the website of each institution in the study.

Two different methods of analysis are used. First, basic descriptive statistics are calculated to show the percentage of women in academic leadership positions and representation of women in professorial ranks. Variation in findings due to university type (public, land-grant, private-independent, religious) and whether or not the school as received an NSF ADVANCE grant to help improve its representation of women is also examined. Prevalence of women in the professorial ranks is also analyzed for correlations with organizational size (state population, location population, student population, female student percentage). Second, multiple regression

¹ Initial plans to include data on Associate and Assistant Provost/Vice President of Academic Affairs positions were abandoned in view of the wide variety of titles, types of positions, and mix of line and staff duties encountered, and the subsequent lack of clarity in that particular variable.

is performed to analyze the simultaneous effects of a number of independent variables on the dependent variable, prevalence of women faculty in professorial ranks.

Results

Descriptive Findings.

Representation of women in top administrative positions is summarized in Table 1. At the highest administrative levels, the number of women does not significantly decline. About 27 research institutions (13.5 percent) are lead by women presidents and about forty-seven institutions (23.5 percent) have women provosts. In fifty-seven institutions there is exactly one woman in the top two administrative positions. However, only in eight research institutions women fill the top two administrative positions and 135 institutions have neither a woman president nor a woman provost.

A higher fraction of public research institutions have women filling top two administrative positions. In fact almost one third of public research institutions have female provosts. However, among public institutions, the percentage of land-grants with female presidents is less than half of the percentage of non land-grants that have woman at the top administrative position.

Despite a higher percentage of women are full professors at religious institutions, only about six percent of such institutions have women presidents. Furthermore, compared to public institutions a significantly lower percentage of private-independent and religious institutions have female provosts.

	PRESIDENT		PROVOST	
	Number	Percent Women	Number	Percent Women
Total, All Institutions	200	13.5	200	23.5
Public, All	129	14.1	129	29.5
Public, Land-Grant	38	8.1	38	29.0
Public, Non Land-Grant	91	16.5	91	30.0
Private-Independent	48	12.5	48	10.6
Religious	17	5.9	17	11.8

Table 1. Distribution of women in top two administrative positions in research institutions

The representation of women faculty in the three types of research institutions are displayed in Table 2. Women are a larger fraction of faculty in public research institutions. Their overall representation is lowest in religious research institutions. However, women are more likely to be tenured and full professors in religious research institutions. Regardless of institution type, women faculty are concentrated in the assistant and associate professor ranks. Women faculty make up 26.5 percent of tenured faculty and only 19.7 percent of full professors in research institutions. Examination of public research institutions reveals an even lower representation of women faculty in land-grant institutions. Although, percentage of women in tenure-track positions is comparable, the percentage of women who are tenured is almost five percentage

points lower for land grant institutions. Similarly, a lower percentage of women are full professors in land-grant institutions.

Since 2001 National Science Foundation’s ADVANCE program has awarded a number of research institutions very large grants for institutional transformation. The goal of these awards is to increase the participation of science and engineering women faculty at all levels. Table 3 compares representation of women faculty in ADVANCE funded institutions.

	Number of Institutions	Percent Full Prof.	Percent Tenured	Percent Tenure-Track
Total, All Institutions	149	19.7	26.5	41.1
Public, All	129	19.1	27.1	41.1
Public, Land-Grant	38	16.7	23.7	39.3
Public, Non Land-Grant	91	20.1	28.6	41.8
Private-Independent	48	20.0	23.6	39.4
Religious	17	23.5	30.3	30.3

Table 2. Distribution of women faculty in research institutions

	Number of Institutions	Percent Full Prof.	Percent Tenured	Percent Tenure-Track
ADVANCE Funded	22	17.3	23.9	39.9
Not ADVANCE Funded	178	20.0	26.9	41.2

Table 3. NSF ADVANCE funding and distribution of women faculty in research institutions

Table 4 compares the representation of women faculty in research institutions that are administered by women presidents. Women president or not, women faculty are significantly less likely than men to be tenured, but the discrepancy is smaller in institutions, with the exception of private-independent, that have a woman at the very top. The impact of women presidents is especially visible in representation of women faculty in tenure-track appointments. Although only three land-grant institutions have female presidents, never the less in these institutions higher percentages of full professors and tenured faculty are women.

	Percent Full Prof.		Percent Tenured		Percent Tenure-Track	
	Yes	No	Yes	No	Yes	No
Women President:						
Total, All Institutions	20.1	19.6	27.2	26.5	41.7	41.0
Public, All	20.9	18.9	28.5	27.0	44.2	40.6
Land-Grant	19.3	16.6	26.0	23.7	41.7	39.2
Non Land-Grant	21.2	19.9	29.0	28.5	44.7	41.2
Private-Independent	17.5	20.4	22.0	20.4	33.8	40.0
Religious	36.0	22.3	39.0	29.9	45.0	45.8

Table 4. Women presidents and distribution of women faculty at research institutions

In research institutions, the percentage of dean positions that are held by women is about 28 percent. There is no difference between public and private research institutions with respect to percentage of women deans. Representation of women in dean positions increases about five percentage points when both top administrative positions are held by women.

The impact of women deans on the distribution of women faculty is most visible in religious research institutions. About 28 percent of the deans are women in religious institutions where women make up 23.5 percent of the full professors. Religious institutions that have at least 35 percent women deans, a higher percentage (25.0) of full professors are women. Almost a third (29.3 percent) of full professors are women in religious institutions where 40 percent of the deans are women.

	Percent Full Prof.			Percent Tenured			Percent Tenure-Track		
	= 28	= 35	=40	= 28	= 35	= 40	= 28	= 35	= 40
Total, All Institutions	19.7	20.6	21.2	26.5	28.0	28.1	41.1	41.7	41.4
Public, All	19.1	20.2	20.7	27.1	28.2	28.4	41.1	42.1	42.0
Land-Grant	16.7	18.2	18.3	23.7	25.0	24.9	39.3	41.7	41.1
Non Land-Grant	20.1	20.7	21.4	28.6	28.9	29.4	41.8	42.2	42.3
Private-Independent	20.0	20.3	19.5	23.6	24.8	24.0	39.4	38.4	37.6
Religious	23.5	25.0	29.3	30.3	34.0	35.8	30.3	45.3	45.8

Table 5. Impact of critical mass of women in dean positions on distribution of women faculty in research institutions

Clearly, university type, land grant status, and prevalence of women in top administrative positions, do not entirely explain the variability in the representation of women faculty in research institutions. Analysis of the relationship between representation of women faculty and organizational size is necessary. Table 6 summarizes the Pearson’s product-moment correlation coefficients to evaluate the strength of any association found.

Although there are a number of correlations different than zero, there are only a few strong associations. The correlations between organizational size attributes, state population, campus location population, and overall number of students, and the representation of women faculty are weak. The correlations between female student percentage and women faculty representation are moderate to moderately strong. The positive direction of the correlations suggests that women faculty representation is higher for institutions that have a higher percentage of female students. Additionally, female dean percentage is positively correlated with percentages of female full professors, tenured faculty, and tenure-track faculty.

	Percentage of Female Deans	State Population	Location Population	Number of Students	Percentage of Female Students
Full Professor	0.219	0.214	0.117	-0.092	0.431
Tenured	0.249	0.127	-0.042	-0.077	0.653
Tenure-track	0.204	-0.079	-0.074	0.005	0.674

Table 6. Pearson correlation coefficients

Multiple Regression Analysis.

In addition to the simple inferences typical of descriptive findings, a multiple regression analysis is conducted to assess the strength of an association between a set of independent variables and the representation of women faculty (dependent variables). A stepwise multiple regression procedure is used to select the set of statistically significant independent variables that explain the most variance in the dependent variable(s).

The percentage of women full professors can be predicted using the independent variables of percentage of women tenured faculty and percentage of female students controlled for university type. The coefficient of determination for this model is 0.72; that is, percentage of women tenured faculty and percentage of female students account for 72 percent of the variation in representation of women in full professorial ranks (Table 7).

	Coefficient of Determination, R^2	Final Model Coefficient
University Type	1.7%	3.410
Tenured (%)	40.3%	0.856
Female Students (%)	18.6%	0.106

Table 7. Multiple regression of independent variables and percentage of women full professors

The percentage of tenured women professors can be predicted using the independent variables of percentage of women full professors, location population, percentage of women deans and percentage of female students controlled for university type. The coefficient of determination for this model is 0.82; that is, the independent variables account for 82 percent of the variation in representation of women in full professor ranks (Table 8).

	Coefficient of Determination, R^2	Final Model Coefficient
University Type	1.1%	-1.89
Full Professor (%)	40.4%	0.72
Female Students (%)	42.6%	0.27
Location Population	0.2%	-0.00000030
Deans (%)	6.2%	4.11

Table 8. Multiple regression of independent variables and percentage of tenured women professors

Discussion and Conclusions

Overall, the basic descriptive statistics showing prevalence of women in academic leadership positions in U.S. doctoral-granting institutions can be viewed as encouraging. For this important (both in terms of organizational size and prestige) population of universities, while the representation of women in the top administrative ranks may not be even close to parity with men, it is very comparable to the percentage of women in the professorial ranks. Although only 14% of the schools have a female president, the more than 25% representation in provost and dean's roles is approaching critical mass. Recalling that doctoral institutions have the worst statistical profile for female faculty among the various categories of degree-granting schools, that top administrative positions are not even more dominated by men is a positive sign. One can imply that substantial additional barriers to the administrative track are not overwhelmingly constraining, and there is opportunity for women to advance to these influential positions.

Variations in prevalence of women in the top administrative ranks between types of doctoral institutions are interesting and sometimes puzzling. For example, while the lower incidence of female presidents in land-grants is almost predictable considering the prominence of male-dominated fields of agriculture and engineering in those schools, the fewer women presidents and provosts in the non-public universities is more unexpected. Possibly, equal employment opportunity requirements are more stringently monitored within the public setting. The somewhat greater incidence of female provosts within the land grant is intriguing, but may represent mere random rather than any systematic variation. It is noteworthy that female deans are about equally plentiful (or scarce, depending on viewing the glass half-full or half-empty) across all types of schools examined.

Statistics relative to women in the professorial ranks have been examined in detail in the AAUP report (West and Curtis 2006). In addition to reiterating the generally modest presence of women, our study isolates several variations of interest between types of doctoral institutions. Again we see the relatively lower representation of women throughout all tenure-track faculty ranks in the land-grants, which can be at least plausibly explained by historic academic program selection at these schools. Other differences noted do not reveal a clear pattern of variation. For example, public universities display a lower percentage of female full professors, notably behind religious schools, yet private-independent schools have fewer tenured and tenure-track women. That schools receiving NSF ADVANCE grants exhibit lower participation of women throughout the professorial ranks validates their need targeted initiatives; one would hope that representation would demonstrably improve over time.

Our preliminary findings are not strongly supportive of initial expectations that a higher prevalence of women in academic leadership positions will facilitate greater representation of women in advanced professorial ranks. While the percentage of women in the various faculty ranks is only slightly different when the president and/or provost is female, differences are in the expected direction, with potentially greater impact in tenure-track positions in public institutions. With only one president and provost per institution, the women holding these positions might very well be operating with solo status within the school's top leadership—note that only 8 schools have both top positions held by women—limiting their prospective influence. Our data is not detailed enough at this time to more comprehensively examine overall top leadership team composition. Evidence to support the supposition that female deans can facilitate progress of

women through the professorial ranks is disappointing thus far, especially in view of their numbers approaching that of critical mass. While female deans are found to have a significant role in predicting percentage women in tenure-track positions, and percentage of female deans is positively correlated with percentages of female faculty throughout each rank examined, the magnitude of the differences found is minor.

The regression models intimate both the complexity and partial intractability underlying prevalence of women within the academic ranks. Many interacting factors are at play, some of which are connected to enduring programmatic or mission-related attributes of the institution. In any case, sorting precursors from results (more women administrators leading to more tenured women, or vice versa?) is clearly difficult both in theory and practice. Additional research on this particular project is ongoing to sharpen our focus as we more deeply explore potential relationships and explanations between prevalence of women in academic leadership positions and the professorial ranks.

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