

An Analysis of Faculty Turnover at UW-Madison

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I. Introduction

This paper examines the rate of faculty turnover at the University of Wisconsin – Madison. Overall faculty retention rates and the rate of turnover at different points in a faculty members career are described. The paper also focuses on the differences in turnover rates for men and women faculty.

A certain amount of turnover is necessary and healthy for an institution. Retirements and other terminations can create opportunities for a change in focus of academic programs or development or expansion of new curricular areas. However, too much staff turnover can lead to excessive costs. In addition to the costs of the actual search, there are often costs associated with hiring temporary replacements until a faculty position can be filled. Particularly at a research institution, the costs of hiring a new faculty member can include thousands of dollars for laboratory equipment, space, and funding for graduate assistants as part of a start-up package. Higher turnover rates for women or minority faculty can signal problems within the university, including issues of overall climate, equity in salaries, or problems within the tenure process.

II. How much is "normal" turnover?

If all faculty retired after 30 years of service, we would expect an equilibrium retirement rate of about one-third of the faculty every ten years or 3.3 percent per year. An alternative hypothetical university, which hired all its faculty on probation and which denied tenure to all of them in their seventh year, would have an equilibrium turnover rate of 1/7 or 14.3 percent per year. Thus, we would expect the "normal" turnover rate to fall somewhere between these two extremes.

The University of Wisconsin – Madison currently has about 2200 faculty members, down from a high of over 2400 from 1985 to 1990. In the past few years, the number of retirements and deaths has increased to about 75 per year. In addition, about 50 faculty per year leave for reasons other than retirement or death. About 60-90 new faculty have been hired in each of the past five years. Based on a simple year-over-year comparison for recent years, it appears that UW-Madison's turnover rate is about 5-7 percent per year.

A brief literature search yielded some information on turnover rates at other universities. Most analyses reported only the retention rate after one year. These ranged from about 90-98 percent for all ranks combined (University of Alaska 1997; South Dakota Board of Regents 1997; Florida 1994; Brown and Woodbury 1995) to 90-92 percent for full and associate professors and 84-86 percent for assistant professors (Ehrenberg et al. 1991). ([Table I](#)) In addition, the University of Alaska also reported five-year retention rates – about 75 percent of the faculty were still employed after five years.

III. Faculty Retention After Ten Years

If the size of the faculty at an institution is significantly expanding or contracting over time, a simple year-over-year comparison is misleading. At UW-Madison, the number of faculty fell about 10 percent in the past decade. A more informative approach to analyzing faculty turnover takes a single group of faculty at one point in time and follows them for a specified period. Therefore, I grouped the faculty into several cohorts to analyze turnover trends. For each group, a fixed number of faculty are analyzed for a ten-year period. For example, I examined all faculty who were employed in 1978-79 to determine whether they were still employed ten years later. I repeated this process for all faculty who were employed in 1979-80 and each year for which I had ten years of data (through 1987-88). (Note that an individual who was hired prior to 1978 and retained for more than ten years will be included in each of the cohorts shown.) [Table II](#) shows the results of this analysis. For faculty of all ranks, the average retention rate after ten years for the period analyzed is about 55 percent.

A comparison of the percent of men and women faculty who were retained for ten or more years is also shown in [Chart I](#). The retention rate of male faculty has declined slightly in the period studied, from 59 percent in the 1978-79 cohort to 54 percent in the 1987-88 cohort. The proportion of women faculty who were still here after ten years improved over the analysis period, from about 43 percent in the earliest cohort studied to 57 percent in the latest. For faculty who were here in the 1985-86 and later cohorts, there is essentially no difference in retention rates for men and women.

However, this analysis masks several differences between men and women faculty. [Chart II](#) compares the proportion of faculty leaving due to death or retirement. In the early cohorts, men and women death/retirement rates were very similar. Male faculty here in 1985-86 and later cohorts report retirement rates about 10 percent higher than women. This is likely due to in part to changing age distributions of the faculty. Over the time period shown in [Table II](#), the number of women faculty increased by about 13 percent, to 367 in 1987, while the number of male faculty fell by 1 percent. The women faculty, a higher percentage of which are new hires, are more likely to be younger and less likely to have tenure than men faculty.

The proportion of faculty who resigned for reasons other than death or retirement is graphed in [Chart III](#). For both men and women, the percent who left for other reasons declined over the analysis period. The decrease is most dramatic for women faculty - from 37.2 percent in 1978-79 to 22.9 percent in 1987-88.

IV. Cohort Analysis

Faculty members leave university employment for one of three general reasons: involuntary (did not earn tenure, dismissed for cause); voluntary (dissatisfied with position, found better career opportunity, higher salary elsewhere); or end of career (retirement or death). The likelihood of each reason varies depending on the stage of one's career. Therefore, I have divided the faculty into three basic times when faculty members may leave their position at the university: 1) before receiving tenure; 2) in mid-career, after receiving tenure but before retirement age; and 3) at the end of their career. The following sections of the paper analyze the first two career points for UW-Madison men and women faculty.

The University of Wisconsin – Madison established a database in 1978 to track the appointments of tenured and probationary faculty. It includes the date of hire, status (tenured or probationary), department(s) where the faculty member holds tenure or tenure-track status, date probation began, date tenure granted, date of promotion to full professor, date appointment ended for those who left, and other faculty characteristics. This database allowed me to follow the employment status of 1703 faculty hired between July 1978 and June

1991. Of these, about 79 percent were hired as probationary appointments.

The database I used includes a code for the reason an individual left employment, including categories such as resignation, non-renewal, retirement, dismissal, and death. However, an individual who is reasonably certain he will not get tenure will often resign before the formal tenure process takes place. This individual will therefore be coded as a resignation rather than non-renewal. For this reason, I have not distinguished between voluntary and involuntary leaving. Additionally, I have found a number of individuals in the data base who are classified as resigned although they worked at the university for over 30 years and were over 70 years old when they left. I have therefore treated all individuals who were 62 years of age or older when they left the university as if they retired, regardless of how they are actually coded on the database.

A. *Probationary faculty*

1. UW-Madison

UW-Madison is particularly interested in the retention rate of its probationary faculty since about 80 percent of faculty are hired as assistant professors. In addition, an earlier UW study found a large gap in the retention rates of men and women assistant professors (Reed et al 1988). At UW-Madison, 1530 probationary faculty (including 430 women) were hired between July 1978 and June 1991. Of these, about 60 percent received tenure by August 1997. Women were somewhat less likely to receive tenure than men were - 52.6 percent of women faculty and 64.3 percent of men faculty were promoted in the analysis period. It is unknown how many left because they would not have been granted tenure. However, the UW-Madison study of faculty hired between 1977-80 indicated that about 60 percent of men and 50 percent of women who left without tenure believed that they would be denied tenure (Reed et al 1988).

Although the proportion of men who earned tenure was fairly stable across the period studied, the proportion of women who earned tenure varied considerably from year to year. Only 30 percent of women hired in 1978 were promoted; over 80 percent of those who started in 1986 earned tenure. In five of the cohorts studied (all before 1985), less than half of the women were promoted.

Because of the relatively small number of women hired in each year, it makes sense to collapse the cohorts into four- or five-year groupings in order to look at the change in promotion rate over time. [Table III](#) displays the promotion rates for men and women faculty in three groups: those hired from July 1978 - June 1982, July 1982 - June 1987, and July 1987- June 1991. In the earliest group, only 41 percent of the women achieved the rank of associate professor. Men were 50 percent more likely to earn tenure - 62 percent of the men hired between 1978 and 1982 were promoted. Nearly 60 percent of the women hired from 1987-91 were promoted however. A Chi-square test of significance comparing the proportion who received tenure or left indicates a significant difference between men and women for those hired from 1978-82 and 1982-87. No significant difference is found for those hired between 1987 and 1991.

2. Analysis by Discipline Area

At UW-Madison, faculty are divided into four broad discipline areas for the purposes of tenure review: humanities, social studies, physical sciences, and biological sciences. In addition to departmental executive committees, divisional committees made up of faculty across several colleges must vote on each tenure case. The following section examines the tenure rate of faculty by discipline area.

Women faculty at UW are predominantly in the humanities and social studies fields. In contrast, over 60 percent of the men are in the physical and biological science areas. If the tenure rate is higher for faculty in the natural sciences than in the social studies and humanities, the difference in promotion rates could be due to discipline field rather than gender.

[Table IV](#) presents data on the tenure rate of men and women by the four disciplinary areas. Men and women faculty in the social studies area are equally likely to receive tenure. Similarly, there is little difference between the promotion rates of men and women in the physical sciences. However, an individual hired in a physical sciences department is much more likely to earn tenure than one in social studies -- about 70 percent of the former and half of the latter were promoted. In the biological sciences, women are less likely than men to be promoted. About 45 percent of women and 69 percent of men in biological sciences were granted tenure in the period analyzed. If women were in the same discipline areas as men, the overall tenure rate for women would only increase by about two percent. Thus, most of the gap in tenure rates between men and women is not explained by differences in discipline.

In three of the discipline areas (humanities, physical sciences, and biological sciences), the tenure rate of women increased over time. The most dramatic improvement was in the physical sciences -- 17 percent of women hired between 1978 and 1982 earned tenure, compared to 88 percent of women hired between 1987 and 1991. However, the number of women hired in the physical sciences is very small. Women in the humanities increased their promotion rate from about half to two-thirds over the analysis period. The promotion rate for women in the biological sciences improved from 35 percent for those hired in 1978-82 to 55 percent for those hired in the latest period studied.

3. Other Universities

A few other universities have published data on the turnover rate of probationary faculty. Miami University of Ohio (Coalition 1997) analyzed faculty hired from 1982 to 1990 and reported an overall successful tenure rate of 56 percent for women and 70 percent for men. At the University of Missouri, tenure-track faculty hired between 1982 and 1986 were analyzed (Eimers 1995). About 45 percent earned tenure by the end of the seventh year (three percent were still in their probationary appointment). No significant difference in tenure rates was found between men and women. A study at the University of Minnesota examined the promotion rate of probationary faculty in 13 hard science departments hired between 1975 and 1985 (Kingsbury Jones et al 1994). Of the 104 faculty (of whom 20 were women), 72 percent earned tenure. Women were slightly more likely to earn tenure than men (85 percent and 69 percent, respectively), but the difference was not significant.

B. *Mid-career*

UW-Madison has not previously done a study on the retention rate of mid-career faculty and I found no similar analysis in my review of the literature. For this analysis, I defined mid-career as starting in the year when the individual was tenured. I examined all faculty who were granted tenure at UW from 1978-1987. Thirty-five women and 216 men were hired with tenure during the period; 447 men and 121 women were promoted to tenure. [Table V](#) shows the proportion of men and women who were still on the faculty ten years after tenure. Because the number of women granted tenure in any one year is relatively small, I have again collapsed the cohorts into two groups: 1978-82 and 1982-87. The retention rates for men and women in mid-career are essentially equal in this analysis - 81.6 percent of men and 80.8 percent of women were still at

UW ten years after tenure was granted. Of those who left, women were somewhat more likely to resign than to retire.

When the analysis period is divided into two groups, other differences emerge. Faculty granted tenure in the earlier period were more likely to be retained than faculty in the later period. Over 87 percent of the faculty tenured between 1978-82 were still here ten years later. However, only about three-fourths of the faculty granted tenure 1982-87 were still employed a decade later. The increase in retirements is due in part to an event in 1985. At that time, UW-Madison added about 70 tenured faculty to its roster who were transferred from UW Extension. These individuals typically had been tenured at Extension for a number of years and were more likely to retire than someone who had just earned tenure at UW.

[Table VI](#) divides the mid-career group into those who were hired with tenure and those who were promoted to tenure at UW. Men and women had similarly high rates of retention if they were hired on probation and subsequently granted tenure at UW - 86 percent of the men and 88 percent of the women were retained after ten years. However, men and women who were hired with tenure were less likely to stay ten years. Only 57 percent of women and 72 percent of the men faculty who were hired with tenure were retained. In general, these faculty had tenure at another university prior to coming to UW and are likely closer to retirement age than faculty who were just promoted. As the table shows, 20 percent of the men and 26 percent of the women retired within ten years. In comparison, retirement rates of 6 percent and 3 percent, respectively, are observed for men and women who were promoted to tenure at UW. Because the number of women faculty hired with tenure is so small, the gap in retention rates between men and women hired with tenure, although large, is not statistically significant.

V. Policies to reduce turnover

A number of new policies aimed at improving the retention rate for women faculty have been adopted in recent years. Some are designed to help men faculty as well. Because of the typical length of the tenure process, any changes in hiring policies, mentoring programs, etc. intended to effect the number of promotions will necessarily have a lag before any impacts can be measured. Nonetheless, below are several programs adopted which may influence faculty turnover.

It is often argued that a key to retaining underrepresented employees is to have enough for a "critical mass" to be able to create a sense of community. In 1988, the Madison Plan was established to increase the representation of women in science and minority faculty in all disciplines. Central funds were available to assist departments wishing to hire qualified individuals. As noted earlier in this paper, the number of women faculty at UW has significantly increased in the past twenty years – from 323 in 1978 to 468 in 1996.

The university has an active spousal hire program, which attempts to find employment for partners of new faculty members. Central funds are available to provide salary support for up to three years to encourage departments to hire an individual even if an opening is not immediately available. The funds may be used for faculty or staff positions on campus.

A formalized training program for department chairs and particularly new department chairs was adopted. Among topics covered are hiring, recruitment, mentoring, and guidance in the tenure process. Additional training on racial and sexual harassment issues is also provided to department heads. New faculty members are invited to attend an orientation on the tenure process at UW.

About ten years ago, the university conducted a study of 215 probationary faculty hired 8-10 years earlier

(Reed et al 1988). The analysis probed at what rate faculty left before tenure, why they left, whether they found the tenure process fair and whether there were differences in responses for men and women.

The 1988 study reported that only one-fourth of probationary faculty had a formal mentor within their department. As a result, in 1992 the Faculty Senate adopted changes to the official Faculty Policies and Procedures to establish a formal mentoring program for all probationary faculty. Each department is required to have written guidelines for tenure and to establish a mentor or mentor committee for each probationary faculty. The mentor committee meets with the mentee on an annual or more frequent basis.

In addition, the study noted that many individuals had established informal mentors. About half of the women who found informal mentors chose other women as mentors. A Women Faculty Mentoring Program was established in 1989. Under the program, all tenure-track women faculty were given the opportunity to be matched with a woman tenured faculty member from a different department but in the same broad discipline area. In 1993 the program was formalized and given some central funds. Between 55 and 80 percent of women assistant professors have had mentors assigned through the program in recent years.

Faculty members in the 1988 study gave many different reasons for leaving. As noted above, about 60 percent of the men and half of the women left because they believed they would not get tenure. Of those who left voluntarily, the most common reasons cited by both men and women were better career opportunities and higher pay. This university is committed to paying competitive salaries. However, as a state-funded institution, the university is limited in its ability to respond to competitive pressures. Nonetheless, in 1989-91 the state legislature granted additional funds to help UW "catch-up" to the average salary levels of peer institutions. In addition, internal reallocations through the Quality Reinvestment Plan were used to help maintain competitive faculty salaries.

Several policies aimed at improving the overall climate for women were introduced in the past decade. Faculty members may now request an automatic extension of the tenure clock after the birth or adoption of a child. In 1990, an associate vice chancellor position was created with special responsibility for gender issues. A faculty and staff committee on women in the university was re-appointed after being dormant for several years. The committee surveyed women faculty and staff about what gender-related issues they would like to see addressed on campus. A 1992 faculty pay equity study concluded that women's salaries were 3.8 percent lower than those of comparable men (Hyde and Jones 1992). About \$860,000 in permanent salary adjustments were paid to women faculty as a result of the study.

VI. Conclusions

Based on this study, one can conclude that UW-Madison has made significant progress in increasing the tenure rate for women faculty. The proportion of tenure-track women who have been granted tenure has increased from 41 percent in 1978-82 to 59 percent in 1987-91.

Tenure rates vary by discipline area. Only about half of the men and women in the social studies area achieve tenure, compared to about 70 percent in the physical sciences and over 60 percent in the humanities. Women in the biological sciences are less likely than men to be promoted.

Once promoted to associate professor, women and men faculty are equally likely to remain on the faculty for ten or more years. Women faculty hired with tenure are somewhat less likely to be retained than their male counterparts, however.

The number of new faculty hired has not kept pace with the number of faculty leaving in recent years. The total faculty has decreased by 10 percent since its peak in the late 1980s. As a result, the mix of tenured and

tenure-track faculty and of young and older faculty is changing. This will have implications for future turnover patterns. The retirement rate is expected to creep up slowly, from about 28 percent in the past ten years to 30 percent in the next decade.

Numerous additional studies could further inform us about faculty turnover. This approach could be used to study whether there are differences in the retention of minority and non-minority faculty. Other breakdowns of the data, such as comparing turnover rates by college, may be illuminating. The Women Faculty Mentoring Program is planning an update of the 1988 study to collect information on the reasons why faculty members leave. Survival analysis techniques could be used to allow more recent data (where not all of the faculty have been promoted or left) to be analyzed. An examination of promotion rates to full professor could also be undertaken. Finally, the current study looked only at whether an individual was promoted to tenure. Additional study would be needed to compare whether the amount of time to promotion is the same for women and men.

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