Research Productivity, Gender, Family, and Tenure in Organization Science Careers

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In a sample of 162 associate professors of organization science, women in more research-oriented departments had published significantly more during their assistant professor periods than did those in less research-oriented departments, whereas this effect was not observed for men. In more research-oriented departments, men were more likely to have had families (partners and/or dependents) in their assistant professor periods than were women. Patterns in the data suggest that women published more than men in more research-oriented departments but less than men in less research-oriented departments. Findings are discussed in light of person-organization fit theories, gender theories, academic productivity, and gender differences research.

KEY WORDS: productivity; promotion; gender; tenure; family; academic careers; self-selection.

In 1995, the proportion of male faculty employed in US public higher education institutions who were full professors was double that of female faculty. In contrast, 27% of male faculty and 48% of female faculty were assistant professors (Marchezy, 1997). Overall, between 1975 and 1998, the proportion of male faculty members who are tenured stayed steady at between 60 and 70%, and the proportion of female faculty members who are tenured stayed steady at between 40 and 50% (Mason & Goulden, 2002). In 2003, only 23.5% of full-time business faculty members were women (Doctoral Faculty Commission to AACSB International’s Board of Directors, 2003). In the executive suite, a similar pattern appears. Women occupy 42% of all managerial and professional jobs but only 5% of executive positions (Ragins, Townsend, & Mattis, 1998). More than 25 years ago, institutions were legally compelled to correct sex discrimination; these statistics suggest that change is slow. Why is this so? Are there not enough qualified women available for promotion (i.e., the pipeline argument), or is there a glass ceiling that stops many of the women in the pipeline from making it to the top (Federal Glass Ceiling Commission, 1997; see also Estrada, Kacmar, & Hasselback, 1997)?

Despite the importance of introducing a diversity of perspectives into social science research, only 28 of 1,803 articles in three influential social science journals (Academy of Management Journal, Journal of Applied Psychology, and Personnel Psychology) in the 1980s critically examined who had influence in social science (Newman & Cooper, 1993). In the 1990s, a review of the literature indicated that only two such influence studies had been conducted in the management or organizational sciences: Long, Bowers, Barnett, and Whité (1998) and Park and Gordon (1996), but only the latter had specifically examined gender. Park and Gordon (1996) found that, although women had higher research productivity, they were less likely to receive tenure than their male colleagues among a group of 96 researchers who received their doctorates with a strategic management dissertation between 1980 and 1987. It is surprising that, although Long et al. (1998) examined

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productivity and success for academic faculty across more management disciplines than did Park and Gordon (1996), they did not include the sex of the researchers in their analysis.

That research, as well as previous research (e.g., Long, Allison, & McGinnis, 1993) suggests that experiences before receiving the Ph.D. (e.g., the amount of research productivity during graduate school, the status of the doctoral university) combined with the type of department in which faculty work (e.g., the degree of research orientation of the department, the prestige or status of the department) predict the quantity and quality of faculty publication records, which are critical to tenure and promotion. Some previous research also suggests that the sex of scholar is a predictor of the quantity and quality of faculty publication records, which in turn affect the probability of joining the group of tenured associate professors. In addition, over and above this, some researchers have suggested that sex directly affects the probability of being a tenured associate professor (Park & Gordon, 1996; Raymond, Sasnowitz, & Williams, 1993; Szafran, 1984).

In the present study, we examine how sex and gender might influence who becomes successful in organization science. Our focus is on the early research productivity of a group of tenured faculty in organization science departments who have succeeded in the first major hurdle and are therefore still in the pipeline. Tenure makes it easier for faculty to develop a research program and to obtain research funding, both of which are necessary for future success and to remain in academia successfully (Long et al., 1993). We built on Park and Gordon's (1996) provocative results, which indicated that there was sex discrimination in tenure decisions in strategic management departments within academia. We used a larger, more expensive sample that included several management disciplines, rather than just strategic management faculty, and also collected primary survey data to supplement archival data. Therefore, we can examine empirically the possible reasons behind Park and Gordon's (1996) results.

Theoretical, empirical, and "conventional wisdom" arguments support at least three different predictions about how gender might impact the likelihood of tenure for men and women: due to various kinds of sex and gender discrimination, women have to work "twice as hard" for the same rewards; due to institutional pressure to hire and promote women faculty, women are held to lower productivity standards; and women self-select into jobs that are more flexible and less prestigious than those men select.

Standards Imposed by Institutions: Disparate Treatment Versus Affirmative Action

Gender theory and gender differences research support the notion that some people are threatened by women who step out of their expected gender roles and may punish them for doing so (Federal Glass Ceiling Commission, 1997; Rosenberg, Perlstadt, & Phillips, 1997). Thus, people likely treat women in masculine environments differently than men by, for example, sexually harassing them, discounting their work or not taking it as seriously as the same or similar work done by a man, or holding women to higher standards to make them "prove" that they are truly dedicated to their profession, whereas men do not have a similar burden of proof (Ragins et al., 1998; Rosenberg et al., 1997).

Some of our colleagues have told us anecdotes that they believe show that female faculty members need to work harder to get the same rewards and promotions as men for all of the above reasons. Previous researchers have concluded that women are expected to meet higher standards for promotion than men in academe in general (Long et al., 1993; Ragins et al., 1998; Szafran, 1984) and within at least one management discipline in particular (Park & Gordon, 1995).

If this is true in organization science, we would expect that female faculty who have been promoted to the rank of associate professor would have had greater quantity and quality of research productivity during the assistant professor period than male faculty who have been promoted to associate professor.

A second possibility is that, due to affirmative action (AA) and equal employment opportunity concerns, there is institutional pressure to hire and promote female faculty, so much so that women may not have to work as hard to be promoted; that is, there are "lower standards" for promoting women. Again, some of our colleagues have told us anecdotes about being pressured to search specifically for a tenured or "tenurable" woman; the implication was that they should lower research productivity standards if necessary in order to get a woman to fill the faculty position.

During the past 5 years, there has been debate about AA at the national level, and legal decisions in at least two states have banned the use of race in academic admissions. Many people believe that AA in employment in combination with preferences in
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college and university admissions is leading to lower standards for admitting, hiring, and promoting historically underrepresented groups (e.g., women) or, conversely, causing individuals with historically dominant characteristics (e.g., men) to be hired and promoted based on higher requirements (often called "reverse discrimination"; Moore & Hass, 1990). Some research evidence supports this point of view in some sectors (e.g., promotion in government jobs; Powell & Butterfield, 1994). If this perspective were true, we would expect that female faculty who have been promoted to associate professor would have had less quantity and quality of research productivity during the assistant professor period than male faculty who have been promoted to associate professor.

These two arguments result in competing hypotheses about the direction of any sex inequality in the research productivity of associate professors during their assistant professor periods: the twice as hard argument and the lower standard argument. However, both arguments suggest that sex inequality exists in the research productivity of women and men at similar levels of the profession; therefore, we expected to see a relationship between sex and productivity.

H1: Sex will be related to the quantity and quality of associate professors' research productivity during the assistant professor period.

Two Productivity Standards and Effects on Family Formation

Previous research has shown that research productivity varies by type of institution; higher standards for research productivity generally exist in more research-oriented departments with Ph.D. programs (Long et al., 1998). Person-organization fit theory may explain this pattern. In addition to the attraction and selection forces that result in person-organization fit at the onset of an employment relationship, attrition promotes even greater fit (Schneider, 1987). In this case, faculty who find that they do not fit in research-oriented departments because they are not publishing enough would be likely to leave, or be asked to leave, during the assistant professor period. Thus, we expected that associate professors who are working in more research-oriented departments would have had greater research productivity during their assistant professor period than would associate professors working in less research-oriented departments.

H2: Associate professors in more research-oriented departments will have had, on average, greater quantity and quality of research productivity during the assistant professor period than associate professors in less research-oriented departments.

Related to different performance standards for tenure and promotion by academic affiliation is the issue of self-selection. Gender theory, gender differences research, and work-family research offer further possible explanations of differing promotion outcomes for men and women. Key findings in work-family research are that heterosexual women typically sacrifice their careers more than their husbands or male partners do and that they also do the great majority of housework and child and dependent care, even in dual-career families (Friedman & Greenhaus, 2000; Hochschild, 1989; Kuilis & Sicotte, 2002; Williams, 2000). This general research finding includes academic women (Long et al., 1993). Women faculty members have reported greater academic and family stress and perceptions of less support for work and family balance in academia than men have (O’Laughlin & Bischoff, 2005). Bailyn (1993) argued that the design of academic work, research jobs, university and department policies, and procedures in more research-oriented departments, along with professional norms, may make it more difficult for women to produce as much research as men do.

Professional career advancement standards were created when most professionals were men with wives who managed the housework and childcare (Williams, 2000). In academia, more women than men faculty members are part of dual-career couples and therefore do not have a partner who is available to do more of the housework and childcare (Jacobs & Winslow, 2004). In addition, in dual-career heterosexual couples, women do more of housework and childcare yet face the same career standards that men do (Hochschild, 1989; Williams, 2000). Some women may self-select out of academia because of their perceptions that systemic barriers related to being a parent exist in this profession (van Anders, 2004). Those with more childcare responsibilities may select jobs that are more flexible (Rothausen, 1994). Because women do more dependent care and housework, they may self-select into jobs that are more flexible. Such jobs are often the jobs that are less prestigious (Kelly, 2000). This means that promising and talented young women may believe that they have to choose between a
prestigious professional career and having a family (i.e., being married or partnered and/or having dependents including children), whereas men generally do not (Aryee & Luk, 1996). Applied to those in academic careers, this pattern would suggest that heterosexual female faculty in more prestigious research university careers may be “choosing” a prestigious professional career over a more flexible department that might accommodate the family demands caused by their husbands or male partners or their dependents, including children, because the demands of a more research-oriented department are premised on a male-breadwinner model (Bailyn, 1993; Moen, 2003).

Alternatively, promising young women who do get hired in prestigious departments may delay marriage or childbearing due to the higher pressures for research productivity that they find there, whereas women who are hired by less research-oriented departments with more flexibility may feel freer to get married or to have children without sacrificing career success (Armenti, 2004). In general, people do respond to the work circumstances in which they find themselves (Bedelian, 1996). Perhaps women do so more than men because of the trade-off they face that men do not. In either case, whether women self-select into more research-oriented departments or end up there and respond to the expectations of their workplace, we expected that women who earned tenure in more research-oriented departments would be less likely than other faculty to have married, partnered, or had children during their time as assistant professors.

H3: Female associate professors in more research-oriented departments will be less likely than female associate professors in less research-oriented departments, and male associate professors, in general, to have married, partnered, or had children in their associate professor periods.

Interaction Between Institutional and Personal Factors

Consistent with our expectation that women may self-select the research status of their academic affiliation based on gender schema related to family formation or that they may respond to the differential expectations in more research-oriented versus less research-oriented departments, we also expected that there might be an interactive effect between individually and institutionally imposed performance expectations such that women trade-off between a successful career and other life interests (e.g., a partner, children), whereas men do not (Hewlett, 2002). This may be exacerbated and caused by pressures women face to conform to traditional feminine role expectations both at work and at home, which may result in an even greater difference in research productivity between women in more research-oriented and less research-oriented departments.

One example is that married women are more likely than married men to give career priority to their spouse (Friedman & Greenhaus, 2000; Long et al., 1993). Thus, a woman with a Ph.D. may limit the range of academic appointments she would be willing to consider in order to support her partner’s career (Kulis & Scicotte, 2002). A trailing partner is more likely to take a less prestigious position; in academe that may mean a less research-oriented department. A trailing partner may also tend to produce less in order to be able to support the primary career in the family.

Another example is that women may prefer teaching to research because they find interacting and mentoring students more meaningful than writing for an academic audience research has shown that women on average place higher value on opportunities to help other people and to work directly with others (Konrad, Ritchie, Lieb, & Corrigall, 2000). If women value these things, they may tend to choose departments with less research orientation. Finally, male faculty mentors may consciously or unconsciously suggest or reinforce different standards of career success for women and men doctoral students and assistant professors (e.g., Gallos, 1996). All these factors may result in women who place less emphasis on research productivity as a measure of success taking positions in less research-oriented departments.

Regardless of whether a woman ends up in a more research-oriented or a less research-oriented department, she will learn how to be a successful academic by imitating successful academics in her department. These are most likely to be highly prolific researchers in more research-oriented departments, whereas in less research-oriented departments, they are just as likely to be well-respected teachers. Because gender role conflict is inherent in professional women’s work environments, their
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choices and behavior regarding work may be more salient to them than is the case for men. As a result, based on social learning theory (Bandura, 1986), we expected that women would be more conscious than men would be of imitating those who are successful in their work domain. If this is true, we would expect to see greater disparity in productivity between women than between men across academic affiliations.

H4: There will be greater disparity in the research productivity between women in more research-oriented and less research-oriented departments than between men in more research-oriented and less research-oriented departments.

METHOD

Participants

Data were collected from archival and primary sources. First, a sample of individual academic researchers in organization science was selected from the Directory of Management Faculty (Hasselback, 1995). The criteria for inclusion were the rank of associate professor in a department with a graduate program, a post-1980 Ph.D. (15 years before the date of the directory, which is the average time spent as both an assistant and an associate professor), and stated research interests in organizational science, which in turn includes human resource management (HR; which in turn includes career management, training and development, labor/industrial relations, and women in management) and/or organizational behavior/organization theory (OB/OT; which, in turn, includes organizational behavior, organizational theory, stress management, and organization development). Examination of recent cohorts of faculty, as we did in the present study, is a conservative test of the existence of disparate treatment or effect because legislation against such outcomes has been in existence longer than the sample’s work history. This search yielded 225 associate professors with stated research interests in HR/OB/OT.

For each of the 225 professors, we searched both the PsycINFO and the SocioFile databases for all journal articles authored by each professor. The PsycINFO and SocioFile databases cover a broad range of journals, including all of the journals that typically publish research on HR/OB/OT topics.

For each associate professor, we recorded the year of the Ph.D. and the research status of the current academic affiliation as indicated in the Directory of Management Faculty; departments with Ph.D. programs were designated “more research-oriented.” In addition, we recorded the sex of the individual based on first name; individuals whose names were ambiguous (to us) were contacted to clarify their sex. Eight individuals were dropped from the analysis because of non-response or inability to classify the research status of their academic affiliations or their sexes, which left 215 individuals. Because we were interested in the most conservative test of gender and the development of knowledge in and primary influence on the field of organization science, we eliminated from the analysis those associate professors with no publications. Thus, we end up with a more conservative sample of 162 associate professors with publication records in organizational science. We did a comparison of the research status of academic affiliation and sex for the 53 associate professors who were dropped from the sample in the last step and those who were retained, and found that overall, as shown in Table I, female faculty were less likely than male faculty to have had no publications, particularly in more research-oriented departments.

Each article authored by the retained 162 associate professors was coded as either a premier publication or a non-premier publication based on Johnson and Podsakoff’s (1994) list of the most influential journals in the field of management.

Measures

Variable Coding

From these basic data, a number of variables were computed and coded for analysis. Research status of academic affiliation was coded 1 (more research-oriented) if the individual was employed in a department with a Ph.D. program, and was coded 0

<table>
<thead>
<tr>
<th>Table I. Female and Male Associate Professors in Dropped and Retained Samples</th>
<th>Dropped sample</th>
<th>Retained sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research status</td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>More research-oriented</td>
<td>18%</td>
<td>28%</td>
</tr>
<tr>
<td>Less research-oriented</td>
<td>15%</td>
<td>35%</td>
</tr>
</tbody>
</table>

*aResearch status of the current academic affiliation.
*bNumber dropped from the original sample was 53.
*cNumber in the retained sample was 162.
(less research-oriented) if otherwise. We tested the validity of this coding with our primary data, described later. Sex was coded 1 = female and 0 = male.

Research Productivity

To calculate relevant numbers of publications, we categorized each individual's publications into three groups: those published before or during the year the Ph.D. was earned, those published during the period between, and including, 1 and 7 years after the Ph.D. was earned, and those published after the seventh post-doctoral year. We assumed a 1-year lag between acceptance for publication and actual publication date (Park & Gordon, 1996), therefore, we assumed that articles published before or during the year the individuals earned their Ph.D.s were accepted for publication when the individuals were in their doctoral programs. We then counted the number of those publications as a doctoral student. Similarly, because most colleges and universities review individuals for tenure and promotion to associate professor in the sixth year, we assumed articles published between 1 and 7 years after the Ph.D. was earned were publications written during the assistant professor period. A period of 7 years is commonly used in this type of study (e.g., Estrada et al., 1997; Park & Gordon, 1996); however, we also tested the validity of the 7-year period using primary data. We counted the number of these total publications during the assistant professor period. Any publications after the seventh year were not included. In addition, we counted the subset of premier publications during the assistant professor period.

Questionnaire

A short questionnaire that assessed employment during the assistant professor period, time between earning the Ph.D. and earning tenure, the research status of the academic affiliation (more research-oriented or less research-oriented), the number, times, and employment settings of all applications for tenure, and some family status variables during the assistant professor period, was developed and distributed via e-mail to all 162 of the faculty selected from archival data. The main purpose of this questionnaire was to validate our archival data and also to supplement it with objective measures of family responsibilities. Seventy faculty (43%) returned surveys. No significant differences were found between respondents and non-respondents on sex, pre-Ph.D. publications, research status of the academic affiliation, total publications, or total premier publications. Useable data were available for 66 respondents.

Perception of research status of the academic affiliation was measured with items that asked respondents to rate each institution in which they had worked as a primarily teaching, research, or mixed institution. Change in employment during the assistant professor period was measured by asking respondents to list each institution in which they had worked as an untenured assistant professor and the years they worked there. Partnership status was measured with the following item: "Please list partnership/marriage events and the year in which they occurred. Partnership/marriage events include, but are not limited to, domestic partnership (heterosexual or homosexual), getting married or having a commitment ceremony, separating, divorcing, being widowed or losing a partner." We also asked respondents to indicate whether they partnered and/or married pre- or post-tenure. We measured the total number of non-partner dependents for each faculty in the first year of their assistant professor period as an indicator of other family responsibility levels. It should be noted that the latter indicator does not measure the differences among faculty in the extent and quality of the support system available to them in the care of their dependents; for example, men are more likely to have stay at home partners and some faculty may have extensive live-in support (Mason & Goulden, 2002). Nevertheless, it is a frequently used objective measure of family responsibilities (Rothausen, 1999).

Analysis

Key assumptions used to develop the archival data were tested with the survey data. The validity of using years 1–7 as the assistant professor period was tested by examining the length of the period of assistant professorship reported by survey respondents; the average was 6.3 years. With the 1-year publication lag, these results suggest that our assumption was reasonable. Further, logistic regression analyses showed that faculty in more research-oriented departments were no more likely to have moved during the assistant period than were faculty in less research-oriented departments, and the probability of changing institutions after earning the Ph.D.
Table II. Means, Standard Deviations, and Intercorrelations of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Publication as a doctoral student</td>
<td>.95</td>
<td>1.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Research status respectively</td>
<td>.45</td>
<td>.50</td>
<td>.20**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Sex respectively</td>
<td>.37</td>
<td>.48</td>
<td>-.05</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Number of dependents pre-tenure respectively</td>
<td>1.80</td>
<td>1.37</td>
<td>-.18</td>
<td>-.04</td>
<td>-.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Premier publications respectively</td>
<td>1.59</td>
<td>2.22</td>
<td>.20**</td>
<td>.25**</td>
<td>.02</td>
<td>-.08</td>
<td></td>
</tr>
<tr>
<td>6 Total publications respectively</td>
<td>3.87</td>
<td>3.92</td>
<td>.25**</td>
<td>.22**</td>
<td>.02</td>
<td>-.11</td>
<td>.82**</td>
</tr>
</tbody>
</table>

Note. N = 162.

**p < .01.

*For research status of academic affiliation, 1 = research-oriented, 0 = less research-oriented.

*For sex, 1 = female, 0 = male.

*For this variable N = 62.

*These variables are for premier and total publications during the assistant professor period.

but before earning tenure was unrelated to starting the assistant professor period in a more research-oriented department, the sex of the faculty, number of dependents, total publications, and total premier publications. Thus, our assumption of relative stability in employment during the assistant professor period does not appear to compromise the validity of our results from the archival data.

We also tested the validity of classifying departments with Ph.D. programs as "more research-oriented" and those without Ph.D. programs as "less research-oriented" by asking respondents to characterize their institutions as primarily research, teaching, or mixed. A Chi-square test indicated that the archival measure we developed was related to respondents' perceptions of the research versus teaching emphasis at their employing departments. \( x^2(6, \ N = 65) = 12.7, p \leq .01 \), that is, the archival measure is unlikely to be independent of respondents' perceptions. Ninety-two percent of those in departments without Ph.D. programs indicated that their department was not primarily research-oriented. We concluded, therefore, that the objective archival measure of research status of academic affiliation is an acceptable measure of research orientation and is strongly related to faculty's perceptions of research orientation.

Hypotheses 1, 2, and 4 were tested by moderated regression analyses on the validated archival data. We regressed number of publications and number of premier publications during the assistant professor period on number of publications as a doctoral student, research status of academic affiliation, sex, and the interaction between research status of academic affiliation and sex. Hypothesis 3 was tested using the survey data. We regressed the probability of being in a research-oriented department on sex, partnership status before tenure, total dependents before tenure, and the interaction of sex and pre-tenure total dependents.

RESULTS

Means, standard deviations, and correlations for all variables are presented in Table II. The average associate professor in this sample published 3.9 articles during the assistant professor period, and 41% of those appeared in premier journals. A little over one-third of the sample was female, and about one-half of the sample worked in more research-oriented departments. Overall, the academic institutions represented in the sample were diverse geographically and had diverse reputations. The total number of publications and number of premier publications were highly correlated. The other results are discussed further below.

The moderated regression analyses are presented in Table III. Regression analyses were conducted with key independent variables: sex, research status of academic affiliation, number of publications as a doctoral student, and a two-way interaction between research status of academic affiliation and sex predicted total number of publications and number of premier publications.

Hypothesis 1 was that there would be a relationship between sex and publication productivity. There was no significant support for this hypothesis. As shown in Table III, regression coefficients for sex on total publications and on premier publications were not significant. In addition, Table II indicates no correlation between research productivity and sex. The regression coefficient for the interaction between sex and research status of academic affiliation was also not significant.
affiliation was significant. This result indicates that there are gender differences in productivity across the two types of academic affiliation (more research-oriented and less research-oriented). An analysis of mean differences in number of publications between men and women in more research-oriented departments indicates that there was a difference between the publication productivity of men and women faculty. A t-test showed that men published significantly less \((M = 4.18, SD = 3.45)\) than women did \((M = 6.03, SD = 5.03)\) in more research-oriented departments, \(t(71) = -1.9, p < .05\). In less research-oriented departments, the opposite was true; men published more \((M = 3.56, SD = .52)\) than women did \((M = 2.10, SD = .37)\). A one-tailed t-test indicates that in less research-oriented departments, the probability that male faculty published more than female faculty was significant, \(t(80) = 1.9, p < .05\). These results suggest support for the "twice as hard" prediction in more research-oriented departments and the "lower standards" prediction in less research-oriented departments.

Hypothesis 2 was that both men and women in research-oriented departments would have more publications than those in less research-oriented departments. As also shown in Table III, this hypothesis was not supported for either total number of publications or for number of premier publications. Even after we controlled for number of pre-doctoral publications, there was no significant difference in publication records across the two types of academic affiliation. The results of our t-test analyses, discussed above, suggest that this lack of difference may be due to the results for men, who make up almost two-thirds of the sample.

Hypothesis 3 was that women in more research-oriented departments would be less likely to partner or get married and/or have children or other dependents than men in more research-oriented departments and women and men in less research-oriented departments. Table IV shows the results of regressing the probability of being tenured in a more research-oriented department on partnership status during the assistant professor period, sex, the number of dependents at the beginning of the assistant professor period, and the interaction between sex and number of dependents (female faculty with dependents during the assistant professor period). The results of this model indicate that women were more likely than men to be affiliated with less research-oriented departments, \(B = 2.76, p < .05\); the log odds that women with dependents would be in more research-oriented departments compared to men with dependents are .2; or, in other words, men who had dependents were five times more likely than women who had dependents during

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total publications (B)</th>
<th>(SE)</th>
<th>Premier publications (B)</th>
<th>(SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex(^a)</td>
<td>-1.22</td>
<td>.83</td>
<td>-.64</td>
<td>.48</td>
</tr>
<tr>
<td>Research status (RS)(^b)</td>
<td>.43</td>
<td>.74</td>
<td>.48</td>
<td>.43</td>
</tr>
<tr>
<td>Publications as a doctoral student</td>
<td>.64*</td>
<td>.24</td>
<td>.27</td>
<td>.14</td>
</tr>
<tr>
<td>RS (\times) sex</td>
<td>2.90*</td>
<td>1.21</td>
<td>4.48*</td>
<td>.70</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.01***</td>
<td>.59</td>
<td>1.12***</td>
<td>.31</td>
</tr>
<tr>
<td>(R^2) adjusted</td>
<td>.12</td>
<td>.10</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>(F)</td>
<td>6.24***</td>
<td>5.26***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. \(N = 162\).
\(^a\)For sex, 1 = female, 0 = male.
\(^b\)For research status of academic affiliation, 1 = more research-oriented, 0 = less research-oriented.

<table>
<thead>
<tr>
<th>Variable</th>
<th>(B)</th>
<th>(SE)</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnered(^a)</td>
<td>2.01*</td>
<td>.50</td>
<td>7.5</td>
</tr>
<tr>
<td>Sex(^b)</td>
<td>2.76*</td>
<td>1.35</td>
<td>15.7</td>
</tr>
<tr>
<td>Dependents before tenure</td>
<td>-1.11</td>
<td>.26</td>
<td>.9</td>
</tr>
<tr>
<td>Sex (\times) dependents before tenure</td>
<td>-1.88*</td>
<td>.77</td>
<td>2</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.68*</td>
<td>.85</td>
<td></td>
</tr>
</tbody>
</table>

Note. The log likelihood ratio = -36.01, \(\chi^2 = 10.36, p < .05\).
\(^a\)Married means married during the assistant professor period where 1 = married; 0 = not married.
\(^b\)For sex, 1 = female, 0 = male.
the assistant professor period to be in more research-oriented departments. These results provide support for Hypothesis 3. Taken together with the regression analyses in Table III, these results suggest that, although gender does not appear to explain differences in productivity directly, it operates through where women work and when they have a family, both of which appear to have a significant effect on women's academic productivity. We explore this further in Hypothesis 4, below.

Hypothesis 4 was that there would be more disparity in research productivity between women in more research-oriented and those in less research-oriented departments than between men across these different research status departments. We found significant support for this hypothesis, as shown in Table III. The regression coefficient for the interaction of the research status of the academic affiliation and sex is significant both for total publications, $B = 2.90, p < .05$, and premier publications, $B = 1.48, p < .05$. The $t$-test analyses showed that women in more research-oriented departments published significantly more than did women in less research-oriented departments, $t(58) = 4.0, p < .001$. In contrast, there was no significant difference in the research productivity of men across more research-oriented and less research-oriented departments, $t(99) = .8, p > .10$. Figure 1 illustrates this interaction; it shows that women in more research-oriented departments published significantly more ($M = 6.03, SD = 5.03$) than women in less research-oriented departments ($M = 2.16, SD = 1.98$), but for men there was no significant difference in productivity across these different academic affiliations.

**DISCUSSION**

We used three sets of theories to support predictions about how gender would be related to levels of research productivity of female and male associate professors during their assistant professor periods: theories of disparate treatment, AA, and person-organization fit and individual self-selection. Our results suggest that all may contribute to explaining differences in the research productivity of ultimately successful female and male faculty in organization science during their years as assistant professors.

Our most significant findings were that being employed in a more research-oriented department or a less research-oriented department was not predictive of research productivity during the assistant professor period overall or for men, but that it was predictive of research productivity during the assistant professor period for women.

Women in more research-oriented departments published significantly more than women in less research-oriented departments. This in itself is not remarkable because we would expect higher productivity in more research-oriented departments. What is noteworthy is that this same pattern is not evident for men; that is, there was no significant difference in research productivity between men in more research-oriented and those in less research-oriented departments. We found no direct evidence of differences in productivity between men and women. However, when we examined men and women within the same type of department in terms of department research status, we did find a pattern that suggested that women published more than men in more research-oriented departments and that the opposite was true at less research-oriented departments where men published more than women.

These results can be interpreted in at least two ways. The results suggest that more research-oriented departments may be treating women differently than men, that is, they may require a higher standard of research productivity, whereas less research-oriented departments hold women to a lower standard. In the latter case, men may also choose to publish more in less research-oriented

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*We use the term family to mean either being married or partnered and/or having children. Our analyses using partnership status or using number of dependents provide the same results. Married women even without children are more likely to give priority to their husband’s careers (Pixley & Moen, 2003).*
departments because they have time to do so due to less child care responsibility than women or because they may hope to move to a more research-oriented department. Holding women to higher or lower standards are plausible explanations given prior evidence of sex discrimination at universities and also given periods of institutional pressures to address this through AA (Committee on Women Faculty, 1999; Long et al., 1993; Szafran, 1984; Zuckerman, Cole, & Brue, 1991). Thus, these results provide evidence in support of both disparate treatment and AA as factors that affect tenure decisions, albeit differently at different levels of research orientation of departments.

However, our results also suggest that disparate treatment and AA are not the only possible explanations for differences in research productivity between male and female associate professors during their assistant professor periods. Women may impose productivity standards on themselves rather than, or in addition to, those posed by their academic departments. One consistent finding in gender differences research and in gender theory is that women take on much more of the societal burden of raising children and housekeeping, whether they work in paid employment or not (e.g., Kittay, 1995; Williams, 2000). Gender differences research also indicates women tend to place more value on job attributes such as relationship building, nurturing others, task enjoyment and identity, and growth and development (Konrad et al., 2000). It could be that, knowing this, women self-select into less research-oriented departments because they can engage in activities other than research, such as teaching and service, that are more valued by them and hold equal value to research productivity in these departments. It is also possible that these women published in journals on teaching, such as the Journal of Management Education. We realized after our study was completed that, although the databases we used (i.e., PsycINFO and SocioFile) include virtually all of the HR/OB/OT content-related empirical research journals, they do not include teaching journals, nor are these journals included on lists of the highest impact or most prestigious journals in our field (Johnson & Podskakoff, 1994). Perhaps being able to perform well in some of a variety of alternative valued activities, such as teaching and service or publishing in teaching journals, can result in greater job satisfaction for women, which in turn may spill over into family function-

Or, it may be that once selected by their employing department, women adjust their families based at least in part on the demands of the department in which they work. These forces also reinforce traditionally gendered tasks in less research-oriented departments; for example, women do more teaching and service in these departments, whereas men do more research. Such reinforcement of gender roles within institutions may account for the productivity differences between men and women in less research-oriented departments.

In contrast, there is more pressure in more research-oriented departments to do research and less flexibility about making a contribution in ways other than through research. In traditionally male-dominated research-oriented departments, women may feel pressured to work harder to prove that they are not AA hires. Consistent with this view, our data show that women associate professors in more research-oriented departments had forgone or delayed family formation (e.g., not partnered or married or not had children) more than had men. We found that male faculty in more research-oriented departments were 33 times more likely to have partnered or been married during their assistant professor years and five times more likely to have had children during their assistant professor years than were female faculty in more research-oriented departments. Ironically, even though self-selection or adjustment to the expectations of the department may explain the differences in productivity between women in more research-oriented and less research-oriented departments, this may be based in part on the institutionalized gendered valuation of different aspects of academic work.

Our data are derived mainly from archival sources, and, although we collected additional primary data, our objective in doing so was to validate our archival data. As a result, one of the limitations of this study is that we did not collect additional perceptual data, which could better illuminate the beliefs and rationales that underlie the patterns of outcomes in our data. Data on faculty's perceptions of barriers and choices, and data on their decision making throughout their careers might reveal, for example, whether female faculty imitate or choose different role models during their early career than do male faculty. Future research may also involve determining whether women have different

\footnote{Thank you to an anonymous reviewer for this point.}
understandings than men do of what it takes to earn tenure in their departments.

Our results suggest that competing pressures to conform to or ignore gender role expectations coalesce to create a pattern of multiple influences on career and family choices and outcomes that result in different research productivity levels for male and female faculty in organization science departments. It will take further research to understand this pattern of pressures and expectations. Pressures to conform to gender schema in the family domain interact with pressures at work to ignore gender schema, and institutional policies against discrimination complicate this even further. Does disparate treatment cause or reinforce self-selection based on gender schema? For example, do male faculty mentors of women treat them differently than they treat their male protégés? Do they hold women to lower standards of productivity or expect them to take more teaching-oriented academic posts? Is the professional socialization process different for men and women in academia? Or, is it different in academic institutions of different prestige? Perhaps the causal direction is reversed such that self-selection reinforces disparate treatment by reinforcing stereotypes of women. For example, do female faculty openly select less research-oriented departments because such departments better fit with plans to have a family or with their partners’ careers? What is the effect of the prestige of the doctoral institution? What is the effect of earlier research productivity within the assistant professor period versus later productivity? Some anecdotal evidence suggests that these factors, which we did not measure in our study, may also be important to long term career outcomes for men and women in organization sciences (Bedeian, 1996). These are avenues of future research that will help us to tease out competing explanations for our results.

One other important and fascinating research question is how culture affects the patterns of gender, family, work pressures, and choices that result in different outcomes for men and women. There is some evidence that in less individualistic, more egalitarian, and less masculine cultures, these patterns are different and, in some cases, even result in more support for women who pursue both family and career roles (Erez, 1996).

The recruitment and retention of women in academe is an important issue for a number of reasons, including meeting students' needs (Reingold, 2000) and incorporating more voices and broader views into our theories and body of knowledge. One important factor in attraction to the profession, and retention in it, is tenure; yet the gap between the percentages of all men faculty versus the percentage of all women faculty who are tenured has been fairly consistent over the past three decades (Mason & Goulden, 2002). We hope that the results of the present study offer a point of departure for future researchers to work toward understanding why, in 2003, only 23.5% of full-time business faculty members are women (Doctoral Faculty Commission to AACSB International’s Board of Directors, 2003) and what effect this has on the development of organization science and on the influence we as business faculty have on future generations of academics and practitioners.

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