

**Predicting Rank Attainment in Political Science:  
What Else Besides Publications Affects Promotion?**

by

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The research question that we address in this report is what differences exist across ranks in terms of teaching, research, and service – the standard criteria by which professors are promoted (or not). In delving more deeply into this question, we explore differences in characteristics of males and females at different ranks. An additional focus of this study is whether we can establish evidence of the “publish or perish” mantra, which encapsulates the importance of research productivity to academic careers.

Promotion decisions are among the most important choices that academic departments make. Higher rank yields better salaries and more influence within the department. Generally, promotion from assistant to associate professor also brings the decisive reward of tenure. Wise promotion decisions enhance a department’s prestige, while failure to promote a capable scholar means losing talent to another university or possibly an end to a promising academic career (Long et al. 1993, 703).

According to a normative theory developed in the last century, universalism, communism, disinterestedness, and organized skepticism should characterize science (Merton [1942] 1973, as described in Long and Fox 1995). Universalism requires that the scientific communities’ assessment of any contribution to scientific knowledge be based on “pre-established impersonal criteria” (Merton [1942] 1973, 270). “Particularism, in contrast, involves the use of functionally irrelevant characteristics, such as sex and race, as a basis for making claims and gaining rewards in science” (Long and Fox 1995, 46).

We know that women continue to be under-represented at the levels of full professor and associate professor among U.S. college and university faculty. The question is whether this inequality in career attainment is the result of universalistic or particularistic criteria. In the 1970s and 1980s, a reasonable argument could have been made that not enough Ph.D’s had yet been granted to women, thus the available pool of qualified female candidates was small, and the number of female tenured faculty simply reflected the smaller available pool. Such an argument is now less convincing given that the proportion of political science doctorate degrees awarded to females has increased over time from 23% during the 1981-85 period, to 27% between 1986 and 1990, to 30% between 1991 and 1995, to 35% between 1996 and 2000, and to 39% between 2001 and 2005 (See: [U.S. Doctorates in the 20th Century](#)). As of 2009,

19% of political science full professors were female. Arguably enough time has now passed for more females to have matriculated to full professor.

An extensive literature exists on the subject of academic promotion (see Figure 1 for a summary). This literature is based upon studies of several different disciplines, from medicine and economics to the social sciences and humanities. In the paragraphs below, we report findings from these literatures without putting emphasis on the discipline studied – though we know that different disciplines have distinct normative and procedural practices in the promotion and tenure process (Braxton and Hargens 1996), and that the average time to promotion varies by discipline (Ornstein 2007, 9). Our own analyses of the factors affecting promotion, presented in the second part of this article, are based solely on the discipline of political science. For these analyses, we rely on a 2009 APSA-sponsored survey of all faculty employed in political science departments (including departments of government and public affairs) throughout the United States (Appendix A provides a description of the survey methodology). Analyses of the APSA survey suggest that women are less likely than men to move from assistant professor to associate professor rank, but that when a female does achieve associate professor rank, she is as likely as her male colleagues to move on to the rank of full professor. Though age (or years of experience) is the best predictor of rank, productivity in terms of publications is a consistently reliable predictor of promotion, *except* when comparing *female* assistant to associate professors.

### **Literature Review**

According to nearly 40-year old interviews of chairpersons and heads of departments, the criteria used to judge individuals at promotion time are “teaching, research, and public service to the university” (Katz 1973, 470). Such criteria are now enshrined in faculty handbooks and operations manuals for all colleges and universities. Departmental administrators in Katz’s survey, however, admitted that they knew little about the teaching abilities of the professors in their departments (1973, 470). Rather, “research

ability, publication record, and national reputation” were determined to be “the most important factors influencing salary and promotion decisions” (470).<sup>1</sup>

Other findings confirmed “that most institutions of higher education ‘continue to promote or retain faculty members largely on the basis of publications’” (Paul Woodring 1964, 45 as quoted in Doering 1972, 11). Some, however, have argued that since the “publication record of most academicians is pretty skimpy” (Lewis 1967, 87), the publish-or-perish doctrine is basically a myth (88). Doering (1972) explores the idea that seniority, years of experience, or simply age is the best predictor of promotion – as one generally cannot advance through the ranks without spending a certain amount of time in each rank.

More recent research has established that the number of books authored has a positive effect on promotion (Ginther and Hayes 1999, 400) as do the number of journal articles published (Ginther and Kahn 2004, 201; Long et al. 1993, 718). Ginther and Hayes (2003, 50) determine that publications have become even more important for promotion than they were in the past. They argue that the “increasing importance of productivity is most likely the result of increased competition for permanent academic positions” (62). Several other studies have linked publications to academic career advancement (Lewis 1998; Tien 2007).

Publications, however, are only one part of faculty productivity. The receipt of grants and award funds is also linked to promotion (Lee 2002, 703; Fang et al 2000, 1090). Whether one’s primary work activity is teaching or research influences the duration of promotion to tenure (Ginther and Hayes 1999, 400; Ginther and Kahn 2004, 206). Primarily working as a teacher increases the probability of promotion (Ginther and Hayes 2003, 50).

The type of institution where the faculty member is employed may also affect promotion (Lee 2002, 704). In general, “promotion is a bureaucratically organized activity based on collected judgments of colleagues, committees and university officials. Differences among universities must reflect features of the process” (Ornstein et al. 2007, 5). Indeed, Ornstein et al (2007, 19) find that “institutional differences

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<sup>1</sup> Katz (1973, 476) also found that committee service was an important variable in explaining rank.

in [median time to promotion] are greater than disciplinary differences and much greater than the effect of gender”.

Rothgeb and Burger (2009) compare U.S. political science departments and find differences in the general standards and procedures used when evaluating tenure. B.A. department chairs are more likely to identify teaching as the most important factor in evaluating tenure, while Ph.D. department chairs more frequently identify research as the most important factor (515). Expectations about the quantity and quality of publications also vary substantially from one category of department to another (516-517, 518). The probability that a candidate will be denied tenure is higher in Ph.D. departments as compared with M.A. and B.A. departments respectively (518).

Other work indicates that humanities professors working at private institutions are less likely to be promoted than those in public institutions (Ginther and Hayes 1999, 400; Ginther and Hayes 2003, 50), yet for economics professors, whether the institution is public or private and whether it is a Ph.D. department does not significantly determine tenure outcomes (Ginther and Kahn 2004, 202). In Taiwan, faculty employed in private institutions reach full professorship later than faculty in public institutions (Tien 2007).

Among economics faculty, it is more difficult to get tenure in one of the top-ranked departments than in lower-tier departments (Ginther and Kahn 2004, 202). Long et al. (1993) find that the more prestigious the department of current employment, the lower the odds of promotion from assistant to associate professor for biochemists. Employment in a more prestigious department decreases the chances of promotion to full professor for women but not for men (p. 719). Employment at a more prestigious institution increases the time to tenure for women (Morrison et al. 2011, 545).

Ginther and Kahn (2004, 201) also report that the tier (rank) of the Ph.D.-granting institution can influence the probability of promotion as does the field or area of study (see also Lee 2002, 307). According to Long et al. (1993), the prestige of a scientist’s Ph.D. department does not affect the odds of promotion to associate professor, but it does affect the odds of promotion to full professor (pp. 713-714, 719). Morrison et al. (2011, 545) also find that the prestige of the degree-granting institution does not

affect the likelihood of tenure. Long time-to-degree, however, does substantially extend women's time to tenure, but not men's (545).

Immobility (staying in the same position for several years versus moving from one institution to another) has also been linked to promotion (Ginther and Hayes 2003, 50; Farber 1977, 203). Another set of variables that may affect promotion prospects are "climate" issues. These relate to things like varying levels of job satisfaction, perceptions of collegiality (or the lack thereof) within the department, feelings of being integrated into the profession, and thoughts of invisibility or marginality within the department or institution (Roos and Gatta 2009, 198).

In addition to efforts to link productivity, institutional characteristics, and perceptual variables with academic rank, a body of research has focused on the question of whether faculty promotion reveals a gender dimension. Studies have also attempted to determine whether minority faculty face greater hurdles than their non-minority counterparts. Fueling these debates is evidence of larger numbers of women and racially diverse undergraduate and graduate student populations, yet the proportion of women and minorities among faculty in higher education has not caught up with these trends at the undergraduate and graduate levels.

As of 2009, 59% of the total post-baccalaureate fall enrollment in degree-granting institutions was female.<sup>2</sup> We compare this to faculty at the same point in time: In fall 2009, 47% of faculty were female.<sup>3</sup> Among the total 2009 fall enrollment in degree-granting institutions, 33% were of a non-white race or ethnicity.<sup>4</sup> For the same year, some 7 percent of college and university faculty were Black, 6 percent were Asian/Pacific Islander, 4 percent were Hispanic, and 1 percent were American Indian/Alaska Native (based on a faculty count that excludes persons whose race/ethnicity was unknown).<sup>5</sup> About 79 percent of all faculty were White.<sup>6</sup>

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<sup>2</sup> Table 214, National Center for Education Statistics ([http://nces.ed.gov/programs/digest/d10/tables/dt10\\_214.asp?referrer=report](http://nces.ed.gov/programs/digest/d10/tables/dt10_214.asp?referrer=report)).

<sup>3</sup> Table 256.

<sup>4</sup> Table 235 ([http://nces.ed.gov/programs/digest/d10/tables/dt10\\_235.asp?referrer=report](http://nces.ed.gov/programs/digest/d10/tables/dt10_235.asp?referrer=report)).

<sup>5</sup> [Table 256](#).

<sup>6</sup> Digest of Education Statistics: 2010, National Center for Education Statistics.

Looking specifically at political science (and government), 45% of Bachelor's degrees conferred by degree-granting institutions in 2008-09 were given to women, and 38.5% of doctoral degrees conferred by degree-granting institutions in 2008-09 were given to women.<sup>7</sup> According to the National Science Foundation Survey of Earned Doctorates, 40% of doctoral degrees earned in political science in 2009 went to females.<sup>8 9</sup> According to APSA data, the percentage of females among all political science faculty members in the United States in 2009 was 28%. The percentage of female political scientists by academic rank for 2009 within Ph.D.-granting departments was 39% for assistant professors, 32% for associate professors and 20% for full professors. For B.A.-granting departments within four-year colleges, the percent of the faculty who were female was 42% for assistant professors, 31% for associate professors and 17% for full professors. So it appears that at the entry level, females are receiving academic appointments at the same rate as males, but they are not moving up the academic ranks at the same rate as males.<sup>10</sup>

Numerous studies show that female academics are less likely to get promoted (or take longer to get promoted) than male academics (Allen and Castleman, 2001; Fang et al 2000; Ginther and Hayes 1999, 400; Ginther and Hayes 2003, 50; Ginther and Kahn 2004, 200; Kahn 1993 and 1995; Krefting 2003; Long, Allison, and McGinnis 1993; Long and Fox 1995; McDowell, Singell, and Ziliak 1999; Morrison et al. 2011; National Science Foundation 2004; Ornstein et al. 2007, 15; Perna 2001 and 2005; Roos and Gatta 2009; Rudd et al. 2008; Sax et al. 2002; Toutkoushian 1999).<sup>11</sup> Relatedly, a smaller share of women than men hold tenured positions (Perna 2005, 287). Some findings, however, are mixed. In a study of all full-time faculty members at Canadian universities, Stewart et al (2009, 60) conclude that Canadian women academics are tenured at essentially the same rate as their male colleagues (men have a small

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<sup>7</sup> Table 286 ([http://nces.ed.gov/programs/digest/d10/tables/dt10\\_286.asp](http://nces.ed.gov/programs/digest/d10/tables/dt10_286.asp)).

<sup>8</sup> <http://www.nsf.gov/statistics/nsf11306/appendix/excel/tab15.xls>

<sup>9</sup> Among U.S. citizens and permanent citizens, 26% of political science doctorate recipients were of a non-white race or ethnicity (<http://www.nsf.gov/statistics/nsf11306/appendix/excel/tab22.xls>).

<sup>10</sup> Based on the Survey of Doctorate Recipients (SDR), “in 2001, political science had a lower percentage female who are tenured (23 percent) than social science disciplines excluding political science (29 percent) and sociology and anthropology (35 percent)” (Ginther 2004, 4).

<sup>11</sup> Note that these studies generally include controls for productivity, demographics, and employer characteristics.

advantage in terms of time to first promotion), though “women associate professors are clearly less likely than male associate professors to be promoted to full professor and, where promoted, are promoted more slowly” (p. 81). In a thorough review of the social science literature, Jackson and O’Callaghan (2009, 472) conclude that “one-third of the studies found that while gender disparities do exist in relation to position attainment and promotion, these are attributable to differences other than gender (i.e. ‘cohort affect’ noted by Morgan 1998).”

Fewer studies have linked race or ethnicity to a lower probability of promotion, though some have (Toutkoushian 1999; Fang et al 2000, 1090; Ginther and Hayes 2003, 50; Ginther and Kahn 2004, 206). Data from the 1990s reveal that both women and minorities were less likely to be employed in prestigious research universities. Minorities and women were also underrepresented among tenured faculty (Long and Fox 1995, 51).

### **Theoretical Perspectives**

A variety of theoretical perspectives have attempted to account for the “glass ceiling” effect. Social capital theories argue that the resources needed to obtain tenure and promotion, such as “information and knowledge about institutional norms, expectations, and opportunities; access to and influence on key decision makers; certification and endorsement of an individual’s qualifications; and emotional support and recognition” are less available to women than to men because women lack access to the collegial and social networks that convey critical job-related knowledge (Lin 2001 as quoted in Perna 2005, 280. See also Yoder 1985; O’Leary and Mitchell 1990; Tierney and Bensimon 1996; Milem et al. 2001). Networks are important at tenure time because they can result in more adulatory outside reference letters.

Supporting evidence from economics, however, is weak as women coauthor as frequently as males (McDowell, Singell and State 2004) and also women have as many or more citations per publication as men (Ginther and Kahn 2004, 212).

Human capital models assume that differential career progress of one group as compared with another is determined by productivity, which is in turn determined by investments made in academic careers (Ornstein et al. 2007, 6). A human capital investment model is appealing as it can include

differential investments in formal school (such as having earned a degree from a higher-ranked department), as well as acknowledging the importance of accumulating years of work experience (Farber 1977; Mincer and Polachek (1974, 586). A women who is out of the labor force because of family responsibilities is not acquiring the needed human capital or resources (Zuckerman 1987; Becker 1993).

Related are the theories that explain gender disparity in earnings by focusing on life cycle differences in labor force participation between men and women. The argument is that “females reduce their fulltime labor force participation for childrearing and then re-enter the labor force as their children reach school age” (Johnson and Stafford 1974, as quoted in Farber 1977, 199). Noting additionally that females work fewer hours per year than males when they do work, the effect is that females accumulate fewer years of work experience (Johnson and Stafford 1974, 892). Family responsibilities may cause women to pursue different types of jobs (for example, part-time work) or less demanding work (Becker 1985), and the stress of childcare and household responsibilities may be greater for women than for men (Dey 1994). Women may also be less mobile than men (Rosenfeld and Jones 1987).

Included in a thorough review of the literature by Morrison et al (2011, 526) is the following conclusion: “Because of the need to earn tenure within a set time, academic careers may be exceptionally demanding during the family formation phase of life (Jacobs 2004; Jacobs and Winslow 2004a, 2004b).” Ginther and Hayes (2003, 63) find a differential effect of having children on the promotion likelihood of males as compared with females: for men, having children has a positive effect on promotion, while for women, children have a negative effect of promotion (see also Long et. al. 1993; Mason and Golden 2002 and 2004; Ward and Wolf-Wendel 2004; Perna 2005). Among economists, “young children increase men’s promotion chances...However, women’s tenure prospects are harmed by marriage and children” (Ginther and Kahn 2004, 206; see also Ginther and Hayes 2003, 65-66). Other studies do not find an independent effect of parenting on the likelihood of achieving tenure (Kulis and Sicotte 2002; Rudd et al. 2008; Morrison et al. 2011).

According to Long et al. (1993, 714) being married has a strong positive effect on the likelihood of being promoted from assistant to associate professor (Long 2001). Wolfinger, Mason and Goulden (2008)

report that after achieving the rank of associate professor, marriage increases a woman's chances of advancement to full professor. For men, marriage generally, though not always, has a positive effect on career advancement (Wolfinger, Mason and Goulden 2008; Ginther and Hayes 1999; Kulis and Sicotte 2002; Morrison et al. 2011). The repercussions of the effects of marriage and children are revealed in 2004 statistics from the National Study of Post-Secondary Faculty that show that female faculty members are less likely to be married and much less likely to be both married and have children than their male counterparts.<sup>12</sup> Such figures reveal continuing tension between work and family (Acker and Armenti, 2004).

Critics of human capital/life cycle theories argue that these do not adequately explain the lower returns on investment for women and minorities and the segregation of women into lower status occupations (England et al. 1988). Dual or split labor market theories advanced by Feagin and Feagin (1986) argue that institutional barriers that were constructed historically to exclude women and minorities from core or primary sector employment have persisted even after social changes have rendered these barriers illegal (Lee 2002, 697). Mechanisms that produce racial inequalities are “increasingly covert... [and] embedded in normal operations of institutions” (Bonilla-Silva 1997, 476).

Conflict theories assume that “dominant groups use their monopoly over resources to maintain their privileges” (Reskin 2003, 2), while more subtle cognitive processes may also operate to favor in-groups and disfavor out-groups (Tajfel & Turner 1986). Rather than experiencing overt discrimination in the workplace, out-groups encounter “consensual status hierarchies” that operate structurally to produce inequality (DiTomaso et al. 2007, 176). Such processes, which perpetuate inequalities, persist not because of conscious efforts, but because individual actions “are complicit with previous established norms” (Bird 2010, 18).

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<sup>12</sup> Using 2004 figures, 53% of female faculty and 47% of male faculty are single (without dependent children), 59% of female faculty and 41% of male faculty are single with dependent children, 41% of female faculty and 59% of male faculty are married without dependent children, and 37% of female faculty and 64% of male faculty are married with dependent children. *Source*: U.S. Department of Education, National Center for Education Statistics, 2004 National Study of Postsecondary Faculty (NSOPF:04).

Social psychologists assert that common stereotypes about gender differences in a larger society (a hierarchy of gender status beliefs) are reproduced within organizations such as universities – and important consequences follow, such as differential access to resources and decisions about competence (Roos and Gatta 2009, 179; for a review see Heilman 2001 ). Because academic judgments of the quality of a colleague’s work are inherently subjective, the tendency of evaluators is to fall back on existing schema, stereotypes, and personal biases (Evaline 2004). Sexism in peer-review may be a more overt manifestation of such processes (Wenneras and Wold 1997). Other examples of subtle or unconscious discrimination include encouragement of early promotion for men but not women, more impressive language used to describe the records of men than women, and promotion to senior professor largely on the basis of departmental administrative needs for men but not women (Roos and Gatta 2009, 188). Another argument “suggests that if affirmative action for women is applied in the admission process to Ph.D. programs and/or at the hiring stage, but *not* at the tenure stage, then this factor might help explain why fewer women pass the tenure hurdle” (Ginther and Kahn 2004, 212).

### **The Data, Analyses, and Findings**

Given that figures from the APSA, the National Science Foundation, and the U.S. Department of Education all reveal the underrepresentation of women in higher academic ranks of political science, the Committee on the Status of Women within the APSA felt a responsibility to check whether the norms of universalism or particularism were operating in the process of rank attainment within our discipline. We approached the Executive Council of the APSA, and they allocated funds for a survey of all faculty members of departments of political science (and departments of government, public affairs and international relations) in the United States. We base our analyses on the responses to this survey.

This report focuses on academic rank as the outcome of interest. Academic rank has three categories: assistant professor, associate professor, and full professor. We are excluding from these analyses faculty with another rank (e.g. lecturer, instructor). Across the entire set of 1,399 respondents to the 2009 APSA survey of political science faculty, 28.3% were assistant professors, 25.5% were associate professors and

37.2% were full professors.<sup>13</sup> Thirty-two percent of respondents were female. Among assistant professors, 45% were female; among associates, 28% were female and among full professors, 24% were female. The average age of an assistant professor in the survey was 38 years, for associates the average age was 47, and for full professors the average age was 57 years.

Table 1 reveals differences in publications by rank. Our measure of total productivity counts the number of articles, monographs, chapters, and edited books published to date in one's career. The average on the measure of total productivity for assistant professors is 4.9, for associates, 11.4, and for fulls, 28.5. Assistants had published an average of 3.4 articles, associates had published 6.9 articles, and fulls had published 16.2 articles. Assistants had published on average of 0.3 monographs, associates had published 0.73 and fulls had published 2.3.

Table 1 also reveals that women have a lower average number of article publications at every rank. Women also publish fewer monographs and book chapters than men at the associate and full professor levels. At the assistant professor rank, however, women publish more monographs and an equal number of book chapters. Average age differences between men and women in a particular rank can only account for some of the dramatic differences in total publications between men and women (see Hesli and Lee 2011 for more on this).

Table 2A again shows the mean for total publications for the different ranks with males and females listed separately. The asterisks in Table 2A reveal when the differences in means across ranks are statistically significant. In terms of research-related activities, among both men and women, those at higher ranks have more frequently reviewed book and article manuscripts, served on editorial boards, and received external grant awards. In contrast, those at higher ranks attend conferences less frequently than those at lower ranks. Teaching loads are similar across ranks: assistants on average teach 4.5 undergraduate courses per year, associates teach 4.4 and fulls teach 4.0 undergraduate courses per year.

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<sup>13</sup> Two percent were instructors, lecturers, post-docs or fellows; and we lack information on rank for 6.7% of respondents. The full professor group includes a few emeriti professors.

Table 2A also reveals that one's overall resources tend to increase significantly as one moves up the academic ranks.

In Table 2B we report percentage differences across ranks for the categorical variables used in our analyses. Noteworthy is that we do not see significant differences across ranks in the proportion whose work is primarily coauthored. An interesting difference between males and females revealed in Table 2B is that among men, assistant, associate, and full professors are all equally likely to be employed in a Ph.D.-granting department. In contrast, among women, a higher percentage of both assistant professors and full professors are found in Ph.D.-granting departments as compared with associate professors. Several other interesting contrasts are in Tables 2A and 2B, but none of these comparisons includes controls for other relevant factors; thus, we turn now to our multivariate analyses.

One method of assessing the existence of particularistic criteria in the determination of academic rank is referred to as "sophisticated residualism" (Cole 1979, 29, as quoted in Long and Fox 1995, 54). If sex and race differences remain significant after controlling for relevant variables, we have evidence of particularism. Cotter et al. (2001) use a similar approach in evaluating the "glass ceiling effect", which exists when gender or racial difference cannot be explained by other job-relevant characteristics of the employee. Of course, different specifications of a model can lead to different conclusions. Thus, we attempt to include all relevant variables as identified in the literature, and we consider these variables in stages.

For our multivariate analyses, we employ logistic regression models to examine the likelihood of being an associate professor as compared with an assistant professor and then to examine the likelihood of being a full professor as compared with an associate professor -- based on demographic, institutional, and professional attributes.<sup>14</sup> Because these dependent variables are dichotomous, binary logit regression is used. These models estimate the log-odds of the higher rank occurring relative to the lower rank for each of the independent variables after controlling for the other variables in the model. The odds-ratio

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<sup>14</sup> For a similar use of logistic regression models for the study of faculty promotion, see Fang et al (2000), Ward (2001), and Perna (2001 and 2005).

represents the change in the odds of holding the higher rank relative to the lower rank associated with a one-unit change in a particular independent variable. An odds-ratio greater than one represents an increase in the likelihood of being at the higher rank, while an odds-ratio less than one represents a decrease in the likelihood.

For the results reported herein, we selected only those respondents who were in a tenure-track position, which represents the lion's share of respondents (92%).<sup>15</sup> We tested the models with a reduced sample, where we exclude from the analyses respondents who missed an answer to a question (variable) in the model. We also tested the same models using imputed data and holding the number of cases in the analysis constant at 706 for the comparison between assistant and associate professors and at 823 for the comparison between associate and full professors. The purpose of using imputed estimates of missing responses is to increase the number of observations taken into consideration in the analysis. For example, out of 1399 survey respondents, 141 did not identify the institution from which they received their Ph.D. A more significant missing value problem arises with the question: "In what year did you obtain your Ph.D. degree?" Two-hundred and seventy-three people either did not answer or made a mistake when typing in a year. We did not feel comfortable simply dropping these 273 people (19.5% of all respondents) from all of our analyses. Therefore, we decided to use the multiple imputation Amelia II program to impute estimates of the missing responses on each of the independent variables used in the analysis (Honaker, King and Blackwell 2010).<sup>16</sup>

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<sup>15</sup> Results for the same analyses reported herein for all respondents (including those not in a tenure track position) are available from the authors.

<sup>16</sup> For multiple imputation work, we used Amelia II version 1.5-2 developed by Honaker, King, and Blackwell (2011). We used the standalone program of AmeliaView in the Windows environment, downloadable from the developers' website at <http://gking.harvard.edu/amelia/>. We did not impute any missing values in our dependent variable (i.e., academic promotion); we only imputed the set of explanatory variables. Our data set contains several ordinal and nominal variables and the Amelia II allows users to classify those variables as having non-continuous distributions according to their characteristics. In addition, we took a (natural) logarithm transformation to any heavily skewed variables or variables with outliers in order to normalize its distribution. Also, if any variable needed to be bounded by realistically possible numbers (e.g., year of getting Ph.D. degree), we assigned bounds (maximum and minimum values) to those variables using their observed summary statistics. Finally, once AmeliaView produced 5 multiply imputed data sets in a STATA format (.dta), we used Clarify (Tomz, Wittenberg, and King 2003) for data analysis to combine the results.

The results using multiple imputation are reported in the tables presented herein. The results for the same analysis based on the smaller number of cases (respondents with missing values excluded) are available from the authors. We also note that we omitted some variables from the models presented herein that we originally considered because repeated preliminary testing revealed that these variables were not statistically significant in the academic rank models (given the other controls in the model). Omitted variables include whether the undergraduate major was political science; the type of undergraduate school (four year private liberal arts college, private research university, flagship state university, or other state university); citizenship status; number of independent, honors, and senior projects supervised; frequency of committee membership; and whether one's work is generally sole-authored or co-authored. We excluded a few other variables because they were highly correlated with and/or represented a concept already included in the model with a different indicator. For example, we did not include the number of years in one's current position; rather we included responses to a question of whether one had been in his or her current position for more than 7 years. We did not include frequency of conference attendance nor the number of grants awarded as these are highly correlated with the number of publications. We did not include number of graduate courses taught, as this is directly tied to whether one works in a Ph.D.-granting, MA-granting, or bachelor-degree-only granting department. Each of the variables listed in this paragraph are included in Tables 2A and 2B so the reader can see what differences do exist across ranks on these measures.

In interpreting the multivariate analysis, we start with Table 3. Table 3 looks only at people in the rank of either assistant or associate professor, and models the likelihood of being an associate professor over an assistant professor. Because promotion to associate professor occurs usually after five to seven years at the assistant professor rank, we include age as a control variable in all of the models: the older

one is, the more likely he or she will be at a higher rank.<sup>17</sup> Related variables are entered into the logistic regression analysis in blocks to check the contributions of specific categories of predictors.

Model 3A includes demographic and family status variables, plus characteristics of one's graduate training. Noteworthy is the finding that women have a significantly lower likelihood of being an associate professor (compared with an assistant professor) than do men. Having an employed partner increases the likelihood of being an associate professor. Graduates from higher ranked Ph.D. programs<sup>18</sup> are more likely to be at the associate level, while more time spent in graduate school works against movement to a higher rank. Each additional year spent earning the doctoral degree reduces the likelihood of being an associate professor by 14%.

We look next at Model 3B in Table 3. We are still predicting the likelihood of being an associate professor compared with an assistant, but now we have included characteristics of the job as well as demographic characteristics and information about one's graduate school experience. We continue to consider males and females in the same model. Later we split the sample and look at males and females separately. In this model, the factors that are found to be unrelated to difference in rank are as interesting as those that are, so we report both. Among the factors that describe the job, considering male and female professors together, those factors that do NOT affect the likelihood of being an associate professor are teaching load<sup>19</sup>, whether one has a joint appointment, whether one works in a private versus a public institution, whether one works in a Ph.D., MA, or Bachelors degree-granting department, whether one works in a highly ranked department, or level of resources.<sup>20</sup> The factors that do increase the likelihood of being an associate professor over an assistant professor are: being more involved in student advising,

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<sup>17</sup> We could also have controlled for the year at which the doctoral degree was granted (as this more directly accounts for years of experience), but age and year of degree are highly correlated and we have fewer missing responses on the age variable.

<sup>18</sup> This variable has five categories: graduates of one of the top 25 departments (Tier I), compared with graduates from one of the departments ranked in the top 26-50 (Tier II), compared with Tier III, Tier IV, and unranked departments using the Schmidt and Chingos ranking (2007).

<sup>19</sup> We asked respondents to report their typical teaching load each year (during the past five years). We include in the analysis the number of undergraduate courses only, as graduate courses are only taught by those in Ph.D. or MA granting departments. Across all respondents, the average number of undergraduate courses taught is 4.3 per year.

<sup>20</sup> Bivariately, more resources is correlated with being an associate rather than an assistant professor.

chairing more committees, and being released from teaching duties. These findings about advising and committee service seem sensible as many departments attempt to protect assistant professors from too much advising and committee service so that they will have more time for their research. Indeed, associate professors advise more and chair more committees than do assistant professors.

For the last model in Table 3 (Model 3C), we add factors which we define as professional characteristics. We see that among men and women together, and with the other controls in the model, subfield specialization is unrelated to the likelihood of being at the associate professor rank, nor are perceptions of departmental influence or frequency of reviewing books, articles or serving on editorial boards. What is related to associate versus assistant professor rank is having stayed with the same institution for at least seven years and research productivity. Those at the higher rank have indeed published a total of more articles, chapters and books.<sup>21</sup> We might think of the total number of publications as an important control variable, as we expect people to be promoted based on their publications. Noteworthy is that with the control for total publications in the Model 1C, we still see significant differences between males and females in rank.

Table 4 looks only at people in the rank of either associate or full professor, and models the likelihood of being a full professor over an associate professor. A key finding here is that at this level, being a female does not affect the likelihood of being at one rank rather than another. Besides the control for age, the only variable from the first set (Model 4A) that influences the likelihood of being a full professor is the length of time that it took the candidate to complete his or her doctoral degree. Again, spending too much time in graduate school appears to hinder later promotion through the ranks.<sup>22</sup>

We look at Model 4B to see what characteristics of the job are significant when professional characteristics are not considered. We see that the likelihood of being at the rank of full professor is higher with more frequent committee service, less likely when working in an M.A. program, more likely

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<sup>21</sup> Looking at bivariate relationships (see Table 2A), associates compared to assistants have reviewed more books and have served on more editorial boards. These factors do not emerge as significant in Model 3C in part because they are correlated with current department rank and with total productivity.

<sup>22</sup> Bivariately, the ranking of one's graduate program does affect promotion from associate to full professor rank.

in more highly ranked departments, and more likely with more resources and release from teaching.<sup>23</sup> Each of these significant factors from the second set of variables in Model 4B, however, lose their significance when the professional variables are added to the equation (Model 4C).

According to Model 4C (Table 4), which includes all possible controls, the likelihood of being a full professor (over an associate professor) is lower in a Ph.D.-granting program (rather than a M.A. program or a bachelor's program). In addition, the greater one's perceived influence in department decision-making, the greater the likelihood that one is a full professor. Significantly, more publications lead to a greater likelihood of being in the full professor category. More frequent service on editorial boards also correlates with a greater likelihood of being a full professor.<sup>24</sup> We think of age and having been in the same place for at least seven years as controls – both increase the likelihood of being a full professor compared with an associate professor.

Given the importance of gender in Table 3, we divide the sample and test the models separately on tenure track females only and on tenure track males only. Using the information in Tables 5 and 6, we are able to explore whether the relationships between the predictors of promotion to associate professor or to full professor vary between men and women. Table 5 presents tests of a logit model of the probability of being in the associate professor category over the assistant professor category using a split sample. Let us begin by comparing Model 5A (for males) with Model 5B (for females). We remind the reader that these models include a control for age, which is the best predictor of academic rank. We find that the following variables are NOT predictive of rank for either males or females: being married or partnered, number of children, whether one's partner is employed, and the rank of the program where one received his or her

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<sup>23</sup> Bivariately, being at the full professor rank is more likely in Ph.D. programs (for females only). We note that current department rank and Ph.D. program are highly correlated.

<sup>24</sup> Bivariately, reviewing more books (for males and females) and more articles (for females only) are also associated with being a full professor.

doctoral degree.<sup>25</sup> In other words, when we consider males and females separately, the likelihood of being tenured does not improve based on whether one was trained by a top-ranked department.

Nonetheless, we do find some variables whose effects are different for females as compared to males.<sup>26</sup> For example, minority males are less likely than non-minority males to be in the associate professor rank compared with assistant professor. Among females, taking more time to complete the Ph.D. reduces the likelihood of being an associate professor over an assistant professor.

With regard to characteristics of the job, the following variables do NOT differentiate between the likelihood of being an assistant or an associate professor: teaching load, having a joint appointment, working at a private school, being in a Ph.D. or an M.A. program, and amount of resources.<sup>27</sup> Noteworthy is that higher levels of advising and more frequent committee service (as chair) are significantly associated with being in the associate professor category for both males and females. Again, we observe that many departments make a concerted effort to reduce the amount of advising and committee service among assistant professors, so we are not arguing that more of either one will help one to become an associate professor. What we are saying is that the job is different with regard to advising and committee service once one is no longer an assistant professor. Another finding that holds for both men and women concerns teaching release: the more courses from which one has been released, the more likely one is to be in the associate professor category. A difference that we see between men and women in this set is that among women only, a lower ranking of one's current department is associated with a greater likelihood of being an associate professor (rather than an assistant).

To finish our analysis of the factors related to the likelihood of being an associate professor over an assistant professor, we look at Models 5C (for males) and 5D (for females) in Table 5. These models include the professional characteristics of the faculty members. Once again, we may think of the variable

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<sup>25</sup> Bivariately, having more children is related to higher rank (assistant compared with associate) for both males and females. With the control for age, however, this factor is not significant. Among women only, associate professors are more likely than assistant professor to be married or partnered.

<sup>26</sup> Ginther and Hayes (1999; 2003) similarly found significantly different estimates when their models were estimated separately for men and women.

<sup>27</sup> Bivariately, the amount of resources is higher for associate than assistants professors, and among women, assistant professors are more likely than associate professors to be employed in a Ph.D.-granting department.

“more than seven years in the current position” as a control for time – which we know is related to the likelihood of promotion. We focus on the other variables in the model. The difference that we observe between men and women is that perceptions of departmental influence and frequency of reviewing a book are related to the associate professor rank of females, but not males.<sup>28</sup> This means that with the controls in Models 5C and 5D, it is only female associate professors who have reviewed more books and who report more influence over department decision-making than female assistant professors. Rather shockingly, the total number of publications is NOT related to rank (assistant to associate) for females, while the number of publications is significantly related to the rank of males! This is the only place where we find academic rank to be unrelated to publication productivity.<sup>29</sup> We remind the reader that differences in the likelihood ratios that are significant for women and men suggest that the predictors of rank are different for men than for women. We will return to this later in our discussion.

Now we turn to differences between the rank of associate and full professor based on separate analyses for men and women (Table 6). According to Model 6B, none of the demographic or graduate program variables are useful for differentiating between associate and full professor rank among women (except, of course, age). Among men (Model 6A), however, minorities are less well represented at the full professor rank, and taking longer to complete the doctoral degree negatively affects the likelihood of being in the full professor rank. In addition, among females, none of the characteristics of one’s current job (the second set of variables) are different for associate as compared with full professors. Among males, however, full professors are more likely to chair more committees, and less likely to be employed in a Ph.D. or M.A. department. Among males only, those with more resources and course releases are more likely to be full professors than associate professors.

Turning to the professional variables (Models 6C and 6D), subfield is again unrelated to being in a higher rank for both males and females. A larger number of total publications is related to full professor

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<sup>28</sup> Bivariately, the frequency of reviewing books is different for both men and women when associate professors are compared with assistant professors. We remind the reader that these are highly correlated with total publications.

<sup>29</sup> When female associate professors are compared with female assistant professors bivariately, associates do have significantly more publications than assistants.

rank for both males and females. Among males only, more frequent service on editorial boards is related to the higher rank. To summarize, among females, it appears that among the factors tested in our models, the only one that differentiates between associate and full professors is the total publications.<sup>30</sup> Thus, standard predictors of rank attainment, such as the type of institution where one is employed, appear to work better to explain promotion for males than for females. At this point it is important to remind the reader that many differences across ranks are apparent in a bivariate sense (see Tables 2A and 2B). Without controls for such important predictors as age and number of years in one's current position, we do know that both female and male full professors have reviewed more books and have served on more editorial boards than have female or male associate professors.

Given the lack of statistical significance for many predictors of higher academic rank among females in our multivariate models, we will, in a future article, delve more deeply into the "climate" evaluations provided by the survey respondents. The "micro" climate of each scholar's home department could affect promotion decisions. If "climate" is a factor and if females perceive or experience a climate different from the climate experienced by males, this could occur if white males resent what they perceive as special perks being given to women and minorities in the hiring process. A backlash may occur when these colleagues are called upon to vote in tenure decisions. Although we do not have space to address this idea directly in this paper, the reader may be interested to see differences across ranks in mean scores on the following scales: general satisfaction, departmental collegiality, departmental tolerance, departmental research climate, and perceptions of discrimination within the department (see Table 7). We see that for both males and females, general satisfaction is higher and evaluations of the research climate are better at the full professor rank. We also see that women across all ranks are more likely than men to perceive

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<sup>30</sup> Bivariately for women, reviewing articles and serving on editorial boards are also more frequent among full professors as compared with associate professors. Bivariately, female full professors are also more likely than female associate professors to be employed in a Ph.D.-granting department and also more likely to be employed in a higher ranked department. Female full professors teach fewer classes than female associate professors. Female full professors are also less likely to be married than female associate professors. Bivariately, for males, full professors are less likely than associate professors to specialize in IR. Also among males only, coming from a more highly ranked Ph.D. program is bivariately related to being a full professor.

discrimination within the department. Women are similarly less likely across all ranks to perceive the department as being tolerant of difference.

### **Discussion**

The analysis presented herein raises some serious issues. One such concern is the lower likelihood of females as compared to males of being at the associate professor rank as compared with the assistant professor rank. This means a significant advantage for males in promotion to associate professor, which usually includes tenure. Despite holding constant a variety of relevant factors such as age and number of publications, this difference between males and females in rank attainment cannot be explained away. Stated another way, despite detailed controls for personal attributes and institutional characteristics, females are underrepresented among the tenured members of the political science profession. This raises the possibility that women fall out of the profession at tenure time.

Interestingly, we find no significant difference between males and females in the likelihood of achieving full professor status after having become an associate professor. Those women who survive the tenure process are as likely as males (given relevant controls) to move up the academic ladder to full professor status. This finding fits comfortably with the notion that “upon entering the rank of associate professor, men and women are more similar than they were when entering the rank of assistant professor” (Long et al. 1993, 715).<sup>31</sup> Remarkably, our findings appear similar to those published over thirty years ago: Farber (1977, 203-4) found that among younger age cohorts, “females received significantly fewer rank promotions” – but that if a female can survive in academia beyond the younger cohort, through the middle and into the older age cohort, she will receive rank promotions on par with her male counterpart.

Contrary to expectations based on life-cycle theories, being married or partnered and/or the number of children does not generally affect promotion through the ranks.<sup>32</sup> The number of children is not significantly different when full professors are compared with associate professors. The number of

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<sup>31</sup> This “similarity” could include similarity in the type of research conducted. Earlier in their careers, women may be exploring somewhat different research questions; those who are tenured may have been socialized into a male-oriented research paradigm, or have already selected into this prior to tenure.

<sup>32</sup> The exception is among men only, being married increases the odds of being a full compared to an associate professor.

children is positively correlated with age, so we cannot fully separate the effects of these two variables on promotion to associate professor. We need to be careful in interpreting this finding, as it is possible that those with heavy family responsibilities have already left academia. Our panel study in progress will allow us to address the possibility of such a phenomenon directly. Nonetheless, we note that other recent research has revealed differential patterns for men and women: “neither parenting nor marriage significantly affects the rate of promotion to tenure for women. However, for men, being in a marriage to a spouse without a professional degree significantly improves the odds of transitioning to tenure” (Morrison et al. 2011, 545). Morrison et al. (2011, 550) mention the possibility of a selection effect: “only women who feel secure enough in their career choose to have children and therefore advance at a competitive rate.”

One of the more significant findings overall is that even with controls for age and other relevant factors included in the model, a consistently important predictor of the likelihood of being promoted from assistant to associate professor rank and from associate to full professor is the total number of publications. Thus, the mantra of “publish or perish” is indeed substantiated by this research. We must note the size of the effect of the number of publications on promotion to full professor is significantly larger for women than for men (Table 6), while the effect is larger for men than for women on promotion to associate professor (Table 5). Indeed, we note with some consternation that among women, the probability of being an associate professor over an assistant professor is *unrelated* (given other controls) to the total number of publications. This confirms again that the promotion process involves different dynamics for men as compared with women.

Some other findings that tie back to the existing literature include the lack of significant differences in rank attainment based on the quality of the graduate program (given other controls in the model). Generally, it is assumed that receipt of the doctoral degree from a higher-ranked department improves one’s career prospects. We do observe a positive correlation between Ph.D.-program rank and current employment in a Ph.D.-granting department. Also, the higher the ranking of the department where one

received his or her doctorate, the higher the ranking of the department where one is currently employed. We find that those who take longer to earn their Ph.D. are less likely to attain higher rank.

Rather surprisingly, we see very little difference in undergraduate teaching load across the ranks. We do have a bit of a problem with collinearity associated with this variable. The number of undergraduate courses taught tends to be lower the higher the rank of the department where one is currently employed. Similarly, the larger the number of undergraduate courses taught, the lower the count of overall resources. More teaching at the undergraduate level is also correlated with fewer total publications and a lower frequency of reviewing articles.

We do see significantly higher levels of advising at the associate and full professor levels as compared with assistant professors. Although we often think of teaching release as something offered to assistant professors so that they can concentrate on the research, this survey reveals that the higher one's rank attainment, the more likely one is to be released from teaching responsibilities. More resources are associated with higher ranked departments of current employment.

We also note that among males, being a minority decreases the odds of being a full professor over an associate professor. This finding remains significant even with all the controls included in our most comprehensive predictive model. A possible explanation for this finding comes from Tierney and Bensimon (1996) who conclude, "institutional structures, policies, and practices that are intended to be gender- and race-neutral may be creating a working environment that is unsupportive, patronizing and even hostile" (as quoted in Perna 2001, 563). A limitation of this study is that because the number of self-identified members of a minority ethnic or racial group is so small, we cannot reasonably study differences between, for example, African Americans, Asian Americans or Hispanic Americans. In fact, our aggregation may mask differences among these groups.

In addition, as Ginther and Hayes (2003, 68) argue, we cannot conclude that discrimination is the underlying cause of gender or identity differences in promotion unless we can be sure that we have controlled for all relevant factors -- and we surely cannot be sure of this. For example, we have not controlled for quality of teaching -- if indeed this can be reliably measured. The analyses presented herein

are also limited by the use of cross-sectional data to study a longitudinal promotion process. An implication of this is that the variables describe characteristics of respondents at one point in time. To remedy this, we have collected the data for the first stage of a panel study and will be in a position to report the results of longitudinal research after the second stage of the panel study is conducted in a few years. We also acknowledge the possibility of error in self-reports especially on retrospective measures in surveys. Our belief, however, is that the benefits of survey research far outweigh the problems.

Additional research is needed on questions that this report raises. If gender or race does factor into the promotion process, then development programs are still needed to overcome barriers to career advancement within the political science profession. We conclude with our two most perplexing questions: why are females less likely than males to be in the associate as compared to the assistant professor rank, and why is it that the number of publications for females appears to have no effect on their promotion to associate professor?

## **Appendix A: Survey Methodology and Questionnaire Design**

In 2005, the APSA Committee on the Status of Women in the Profession (CSWP) proposed to the president of APSA that the association conduct research associated with the recommendations that emerged from a March 2004 Workshop on Women's Advancement in Political Science organized by Michael Brintnall and Linda Lopez (American Political Science Association), Susan Clarke (University of Colorado, Boulder), and Leonie Huddy (Stony Brook University). Once the research proposal was approved, the CSWP used questionnaires that had been employed in research published by Hesli and Burrell (1995), Hesli, Fink and Duffy (2003) and Hesli, DeLaat, Youde, Mendez and Lee (2006) to develop a new survey instrument. Additional questions were added from questionnaires developed by the National Research Council and the University of Michigan's Fall 2001 Survey of Academic Climate and Activities, which was created for an NSF ADVANCE project. The following reports were also used to help generate questions:

Commission on Professionals in Science and Technology (CPST). *Professional Women & Minorities: A Total Human Resource Data Compendium, 13<sup>th</sup> edition*. Washington, DC: CPST, 2000.

Creamer, Elizabeth. *Assessing Faculty Publication Productivity: Issues of Equity*. ASHE-ERIC Higher Education Report, Volume 26, No. 2, Washington, D.C.: The George Washington University, 1998.

Fox, Mary Frank. "Women and Scientific Careers." In S. Jasanoff, J. Markle, J. Petersen, and T. Pinch, eds., *Handbook of Science and Technology Studies* (pp. 205-223). Newbury Park, California: Sage, 1995.

Fox, Mary Frank. "Women in Science and Engineering: Theory, Practice, and Policy in Programs." *Signs: Journal of Women in Culture and Society* 24 (Autumn 1998):201-223.

Blau, F. 2002. Report of the committee on the status of women in the economics profession. *American Economic Review* 92: 516-520.

Meredith Reid Sarkees, Nancy E. McGlen Confronting Barriers:: The Status of Women in Political Science, *Journal of Women, Politics & Policy*, Volume 12, Issue 4 1992 , pages 43 – 86.

A draft copy of the questionnaire was circulated to the members of the APSA status committees. The questionnaire was revised and expanded to address the concerns of the members of the status committees. The instrument was pilot-tested by distributing it to all political science faculty members at one research university and at one private 4-year college. The feedback from the pilot test was used to make further revisions in the questionnaire.

### **Sample Selection:**

We used as our target population the names contained within the APSA "faculty" file. We used this file of 11,559 names to create a sample population file of size 5,179 names. The original "faculty" file was stratified by department size. To ensure the adequate representation of faculty members from medium and small size schools we over-sampled from these. Names were selected randomly from the "faculty" file for the "sample" file.

### **Survey Procedure:**

Using email addresses, all persons in the sample file were sent a letter of invitation to participate in the study from the executive director and the president of the APSA. Bad email addresses (addresses that bounced back) were replaced with random selections from the "faculty" file. These persons were also mailed an invitation letter. The cleaned "survey" file was sent to the Survey Research Center at the Pennsylvania State University (SRC).

Individuals in the sample were sent an e-mail from SRC inviting them to participate in the survey. This invitation included a link to the web-based survey containing a unique identifier for each potential

participant. Only one completed survey was allowed for each identifier. The initial invitation was e-mailed to respondents on 08/27/2009. Follow-up reminders were sent to non-responders on 9/10/2009, 9/24/2009, 10/08 /2009 and 10/29/2009. From among the 5,179 original addresses, 1399 completed the survey (252 invalid addresses, 105 refusals and 3423 non-respondents).

Among the total set of respondents, 68% are males and 32% are females. With regard to faculty rank, 30% of respondents are assistant professors, 27% associate professors, 35% full professors, and the remaining fall into smaller categories such as instructors or administrators. Among assistant professor respondents, 44% are female; among associate professors, 29% are female; and among full professors, 24% are female. With regard to department type, 34% of respondents work in a Ph.D.-granting program, 20% in a M.A.-grating program, 41% in a department within a four-year college, with the rest employed in some other type of academic unit.

According to APSA data, the percent of females in the population from which we drew the sample (all political science faculty members in the United States) was 28% (in 2009). Breaking this down by rank and institution type, we get the following distributions:

Highest Degree Granted in the Home Department	Academic Rank	Percent Female among Survey Respondents	Percent Female in Profession (APSA data for 2009)
PhD-Granting Department	Assistant	50%	39%
	Associate	22%	32%
	Full	29%	20%
MA-Granting Department	Assistant	48%	40%
	Associate	25%	32%
	Full	24%	21%
BA-Granting Four Year College	Assistant	39%	42%
	Associate	36%	31%
	Full	16%	17%

## Appendix B: Variables Included

### *Dependent Variable:*

Faculty Rank: “Title of your primary current appointment”

We created an ordinal variable using the following coding: 1 (instructors, lecturers, post-docs and fellows), 2 (Assistant professors), 3 (associate professors) and 4 (full professors, emeritus, and administrative positions).

### *Independent Variables:*

Female: “What is your gender? a. Male, b. Female, c. Transgender” The dummy variable equals 1 if the response is b.

Minority: “Do you identify yourself as a member of an ethnic and racial minority group? a. Yes, b. no, c. Don’t know” The dummy variable equals 1 if the response is a.

Married: “What is your personal status? a. Never married, b. Married (first time), c. Married (second or third time), d. Member of an unmarried opposite or same-sex partnership, e. Separated/divorced, f. Widowed” The dummy variable equals 1 if the response is b, c, or d.

Number of Children: “Do you or a spouse/partner of yours have any children? a. Yes (*If yes, how many?*), b. No” An interaction variable between a dummy for having children (response a.) and the number of children specified.

Number of years to complete Ph.D: Two questions: “In what year did you begin work on your Ph.D?” and “In what year did you obtain your degree?” The reported variable is the Year of getting Ph.D degree minus the Year of beginning the degree program.

Ph. D. Program Rank: Question: “From which university did you obtain your degree?” The program is ranked based on Schmidt and Chingos (2007); Top 25 (1), Top 26-50 (2), Top 51-75 (3), Top 76-86 (4), and Unranked (5). Foreign degrees and degrees from majors other than political science were set as missing. Then the score is reversed so that higher numbers represent higher ranked programs.

Teaching Load: “During the past five years, what is your typical teaching load each year? (If in your current position for less than five years, base this on the period since your appointment.)  
\_\_\_\_\_ Number of undergraduate courses”

Number of Committees Chaired: “In a typical year during the past five years, how many committees do you chair?”

Amount of Student Advising: “For how many of each of the following types of individuals do you currently serve as official advisor? \_\_\_undergraduates, \_\_\_MA students, \_\_\_PhD students, \_\_\_post-docs”

The variable was generated by following steps. First, dummy variables were created to represent higher than average advising for each student group. For example, the respondent would receive a “1” on undergraduate advising if their reported number of undergraduate students advised was higher than the overall mean for that question. The same coding rule was applied to other student groups such as MA students, doctoral students and post-docs. Next we counted the overall number of 1’s from those four dummies.

Count of Overall Resources: “Have you received any of the following resources as a result of your own negotiations, the terms of an award, or as part of an offer by the university, since your initial contract at your current position? If so, *please check all that apply.*”

	<b>Asked/bargained for by me</b>	<b>Part of an external award</b>	<b>Offered by university</b>
Course release time			
Research assistant			
Discretionary funds			
Travel funds			
Summer salary			

Using the count command, we added up the total number of checks for all rows and all columns.

Ph.D. Program: “Type of department where you are employed: a. Ph.D. granting program, b. M.A. granting program, c. Department within a 4 year college, d. Department within a 2 year college, e. Other academic unit (*specify*)” The dummy variable equals 1 if the response is a.

MA Program: Same question as above, with the dummy variable equals to 1 if the response is b.

Private institution: “Is this a public or a private institution? a. Public, b. Private” The dummy variable equals to 1 if the response is b.

Subfield Dummies: “Which of the following best describes your current primary field of teaching and research? a. American, b. Comparative, c. International Relations, d. Theory, e. Methods, f. Other (*please specify*)”

American subfield equals 1 if the response is a.

Comparative Subfield equals 1 if the response is b.

IR Subfield equals 1 if the response is c.

Theory Subfield equals 1 if the response is d.

Current Program Ranking: A ranking of the department where the respondent is currently working. The program is ranked based on Schmidt and Chingos (2007); Top 25 (1), Top 26-50 (2), Top 51-75 (3), Top 76-86 (4), and Unranked (5). Then the score is reversed so that higher numbers represent higher ranked department.

Total Productivity: Question: “For your entire career, please give your best estimate of the number you have produced or have been awarded for each of the following.

\_\_\_\_\_ number of articles published in referred academic or professional journals

\_\_\_\_\_ number of monographs (books) published

\_\_\_\_\_ number of books edited

\_\_\_\_\_ number of book chapters published”

All missing values of articles, monographs, edited books and book chapters are set to zero, then we took a logarithmic transformation of the sum of these items plus one.

General satisfaction with department: “How satisfied are you with your current position? (Very satisfied, Somewhat satisfied, Neither satisfied nor dissatisfied, Somewhat dissatisfied, Very dissatisfied) Then the score is reversed so that higher numbers represent higher satisfaction.

Departmental collegiality: A scale composed of the mean of items 1, 4, 5, 7 and 8 from the question below.

Departmental tolerance: A scale composed of the mean of items 2, 3, 6 and 9 from the question below.

“Please rate the climate of your unit(s)/department(s) on the following continuum by selecting the appropriate number (*Check the appropriate box.*). For example, in the first row, the value 1 indicates hostile while the value 5 indicates friendly, and the numbers in between represent relative combinations of each.”

Rating Scale	1	2	3	4	5	Rating Scale
1. Hostile						Friendly
2. Racist						Non-racist
3. Homogeneous						Diverse
4. Disrespectful						Respectful
5. Contentious						Collegial
6. Sexist						Non-sexist
7. Individualistic						Collaborative
8. Competitive						Cooperative
9. Homophobic						Non-Homophobic

Research climate: A scale composed of the reversed mean of the following set of questions:

“How are you satisfied with the following dimensions of your professional development? (Very satisfied, Somewhat satisfied, Neither satisfied nor dissatisfied, Somewhat dissatisfied, Very dissatisfied)

1. Opportunity to collaborate with other colleagues in academia
2. Level of funding for my research
3. Sense of being valued as a teacher by members of my unit/ department
4. Level of intellectual stimulation in my day to day contacts with faculty colleague
5. Sense of contributing to theoretical developments in my discipline
6. Balance between professional and personal life”

Discrimination within department: A scale composed of the mean of the following three items:

“Please indicate your level of agreement with each of the following statements concerning conditions in your unit(s)/ department(s), and your relationships with your unit/department colleagues by *checking* the appropriate box. (Strongly agree, somewhat agree, neutral, somewhat disagree, strongly disagree)

1. Men are more likely than women to receive helpful career advice from colleagues.
2. Departmental leaders treat male and female faculty equally.
3. Racial majority faculty members in my department treat minority faculty with respect.”

Departmental influence: A count of responses b and c for the following questions:

“For each item, *please check the box* that best corresponds to how much influence you feel you have over the following matters in your department(s). (a. Less influence than I would like, b. About the right amount of influence, c. More influence than may be appropriate)

46. Department curriculum decisions
47. Size of salary increases I receive
48. Selecting new students (graduate or undergraduate)
49. Selecting new faculty members to be hired
50. Determining who gets tenure”
51. Selecting the next unit head

## References

- Acker, S. and Armenti, C. 2004. "Sleepless in Academe," *Gender and Education*, 16(1), 3-24.
- Allen, M. & Castleman, T. (2001) "Fighting the Pipeline Fallacy," in A. Brooks & A. Mackinnon (eds.) *Gender and the Restructured University: Changing Management and Culture in Higher Education*, The Society for Research into Higher Education and Open University Press, 151-165.
- Becker, G. S. (1985) "Human capital, effort and the sexual division of labor" *Journal of Labor Economics* 3: S33-S58
- Becker, G. S. (1993) *Human Capital*, University of Chicago Press, Chicago.
- Bird, Sharon R. 2010. "Unsettling the University's 'Incongruous, Gendered Bureaucratic Structures': A Case Study Approach." *Gender, Work and Organization* Volume 18, issue 2.
- Bonilla-Silva, E. 1997. Rethinking Racism: Toward a Structural Interpretation", *American Sociological Review* 62, 465-480.
- Braxton, John M. and Lowell L. Hargens. 1996. "Variation Among Academic Disciplines: Analytical Frameworks and Research." In John. C. Smart (ed.), *Higher Education: Handbook of Theory and Research*. Volume XI, 1-46.
- Cotter, D.A., Hermsen, J. M., Ovadia, S. and Vanneman, R. 2001. "The Glass Ceiling Effect," *Social Forces*, 80(2), 655-681.
- Dey, E. L. (1994) "Dimensions of faculty stress: A recent survey" *Review of Higher Education* 17: 305-322
- DiTomaso, Nancy, Corinne Post, D. Randall Smith, George F. Farris and Rene Cordero. 2007. "Effects of Structural Position on Allocation and Evaluation Decisions for Scientists and Engineers in Industrial R&D", *Administrative Science Quarterly* Vol. 52, No. 2, pp. 175-207.
- Doering, Richard. 1972. Publish or Perish: Book Productivity and Academic Rank at Twenty-Six Elite Universities, *The American Sociologist*, Vol. 7, No. 9 (Nov., 1972), pp. 11-13.
- England, P., Farkas, G., Kilbourne, B. S., Dou, T. (1988) "Explaining occupational sex segregation and wages: Findings from a model with fixed effects" *American Sociological Review* 53: 544-558
- Joan. Eveline. 2004. *Ivory basement leadership: power and invisibility in the changing university*, Crawley, WA: Univ of Western Australia Press.
- Fang D, Moy E, Colburn L, Hurley J. Racial and ethnic disparities in faculty promotion in academic medicine. *JAMA*. 2000 Sep 6;284(9):1085-92.
- Farber, Stephen. 1977. The Earnings and Promotion of Women Faculty: Comment *The American Economic Review* Vol. 67, No. 2, pp. 199-206
- Feagin, Joe R., and Clairece B. Feagin. 1986. *Discrimination American Style: Institutional Racism and Sexism*. Malabar, Fla.: R. E. Krieger.

- Ginther, Donna K. 2004, "Gender Differences in Salary and Promotion in Political Science," paper prepared for presentation at the American Political Science Association annual meetings
- Ginther, Donna K. and Kathy J. Hayes, 1999. Gender Differences in Salary and Promotion in the Humanities, *The American Economic Review*, Vol. 89, No 2, 397-402.
- Ginther, Donna K. and Kathy J. Hayes. 2003. Gender Differences in Salary and Promotion for Faculty in the Humanities 1977–95, *Journal of Human Resources*, vol. 38, issue 1: 34-73.
- Donna K. Ginther and Shulamit Kahn, 2004. Women in Economics: Moving up or Falling off the Academic Career Ladder? *The Journal of Economic Perspectives*, Vol. 18, No. 3, pp. 193-214.
- Heilman, Madeline E. 2001. "Description and Prescription: How Gender Stereotypes Prevent Women's Ascent Up the Organizational Ladder," *Journal of Social Issues*, 57(4), 657-674.
- Hesli, Vicki and Jae Mook Lee. 2011. "Faculty Research Productivity: Why Do Some of Our Colleagues Publish More than Others?" *PS: Political Science and Politics*, Vol. 44, Number 2.
- Honaker, J., Gary King, and M. Blackwell. 2011. Amelia II: A Program for Missing Data. <http://r.iq.harvard.edu/docs/amelia/amelia.pdf>. Accessed on July 18, 2011.
- Jackson, Jerlando F. L. and Elizabeth M. O'Callaghan. 2009. "What Do We Know About Glass Ceiling Effects? A Taxonomy and Critical Review to Inform Higher Education Research," *Res High Educ* 50, 460-482.
- Jacobs, J. A. 2004. "The Faculty Time Divide", *Sociological Forum*, 19(1), 3-27.
- Jacobs, J. A. and S.E. Winslow. 2004a. "The Academic Life Course, Time Pressures, and Gender Inequality," *Community Work and Family*, 7(2), 143-161.
- Jacobs, J. A. and S.E. Winslow. 2004b. "Overworked Faculty: Job Stresses and Family Demands", *Annals: American Academy of Political and Social Science*, 596, 104-129.
- Johnson, G. E. and F. P. Stafford, "The Earnings and Promotion of Women Faculty," *Amer. Econ. Rev.*, Dec. 1974, 64, 888-903.
- Kahn, Shulamit. 1993. "Gender Differences in Academic Career Paths of Economists." *American Economic Review Papers and Proceedings* 83(2):52–56.
- Kahn, Shulamit. 1995. "Women in the Economics Profession," *Journal of Economic Perspectives* 9(4):193–205.
- Katz, David A. 1973. "Faculty Salaries, Promotions, and Productivity at a Large University," *The American Economic Review*, Vol. 63, No. 3, pp. 469-477
- Krefting, Linda A. 2003. "Intertwined Discourses of Merit and Gender: Evidence from Academic Employment in the USA," *Gender, Work & Organization*, (10)2, 260-278.
- Kulis, S. and Sicotte, D. 2002. "Women Scientists in Academia: Geographically Constrained to Big Cities, College Clusters, or the Coasts?" *Research in Higher Education*, 43(1), 1-30.

- Lee, Sharon M. 2002. "Do Asian American Faculty Face a Glass Ceiling in Higher Education?", *American Educational Research Journal*, September 21, vol. 39 no. 3 695-724
- Lewis, L.S. 1998. *Scaling the Ivory Tower: Merit and its Limits in Academic Careers* (2<sup>nd</sup> ed.), New Brunswick, NJ: Transaction Publishers.
- Long, J. S. 2001. *From Scarcity to Visibility: Gender Differences in the Careers of Doctoral Scientists and Engineers*, Washington, DC: National Academy Press.
- Long, J. S., Scott, Paul D. Allison, and Robert McGinnis. 1993. "Rank Advancement in Academic Careers: Sex Differences and the Effects of Productivity." *American Sociological Review* 58:703–22.
- Long, J. S. and Fox, M.F. 1995. "Scientific Careers: Universalism and Particularism", *Annual Review of Sociology*, 21, 45-71.
- Mason, M. A. and M. Goulden. 2002. "Do Babies Matter: The Effect of Family Formation on the Lifelong Careers of Academic Men and Women," *Academe*, 88(6), 21-28.
- Mason, M. A. and M. Goulden. 2004. "Marriage and Baby Blues: Redefining Gender Equity in the Academy," *Annals: American Academy of Political and Social Science*, 596, 87-103.
- McDowell, John M., Larry D. Singell Jr., and Mark Stater 2004. "Two to Tango: Gender Differences in the Joint Decision to Publish and Co-Author." Mimeo, Arizona State University
- McDowell, John M., Larry D. Singell Jr., and James P. Ziliak. 1999a. "Cracks in the Glass Ceiling: Gender and Promotion in the Economics Profession." *American Economic Review Papers and Proceedings* 89(2):397–402.
- McDowell, John M., Larry D. Singell Jr., and James P. Ziliak. 1999b. "Gender and Promotion in the Economics Profession." *Industrial and Labor Relations Review* 54(2):224–44.
- Merton, Robert. [1942] 1973. "The Normative Structure of Science" in *The Sociology of Science*, Chicago: University of Chicago Press, 267-278.
- Milem, J. F., Sherlin, J., Irwin, L. (2001) "The importance of collegial networks to college and university faculty" In: Creamer, E. G. eds. , *Working Equal: Academic Couples as Collaborators*, Routledge Falmer, New York, pp 146-166
- Mincer, J. and S. Polachek, "Family Investments in Human Capital," *J. Polit. Econ.*, Mar./ Apr. 1974, Part II, 82, S76-S 108.
- Morgan, L. A. 1998. "Glass Ceiling Effect or Cohort Affect? A Longitudinal Study of Gender Earnings Gaps for Engineers, 1982-1989" *American Sociological Review*, 63(4), 479-493.
- Morrison, Emory, Elizabeth Rudd, and Maresi Nerad. 2011. "Onto, Up, Off the Academic Faculty Ladder: The Gendered Effects of Family on Career Transitions for a Cohort of Social Science Ph.D.s," *The Review of Higher Education*, 34(4), 525-553.

- National Science Foundation, Division of Science Resources Statistics. 2004. *Gender Differences in the Careers of Academic Scientists and Engineers*, NSF 04-323, Project Officer Alan I. Rapoport, Arlington, VA: National Science Foundation.
- O’Leary, V. E. and Mitchell, J. M. 1990. “Women Connecting with Women: Networks and Mentors” in S. Lie and V. E. O’Leary (eds.) *Storming the Tower: Women in the Academic World*, London: Kogan Page.
- Ornstein, Michael, Penni Stewart, Janice Drakich. 2007. “Promotion at Canadian Universities: The Intersection of Gender, Discipline, and Institution” *Canadian Journal of Higher Education*, Vol 37, No 3, 1-25.
- Perna, Laura W. 2001. “Sex and Race Differences in Faculty Tenure and Promotion”, *Research in Higher Education*, 42 (5), 541-567.
- Perna, Laura W.. 2005. “Sex Differences in Faculty Tenure and Promotion: The Contribution of Family Ties” *Research in Higher Education*, 46 (3), 277-307.
- Reskin, B.F. 2003. “Including Mechanisms in our Models of Ascriptive Inequality”, *American Sociological Review*, 68, 1-21.
- Roos, Patricia A. and Mary L. Gatta, 2009. “Gender (in)equity in the academy: Subtle mechanisms and the production of inequality,” *Research in Social Stratification and Mobility*, Volume 27, Issue 3, pp. 77-200.
- Rosenfeld, R. A., Jones, J. A. (1987) "Patterns and effects of geographic mobility for academic women and men" *Journal of Higher Education* 58: 493-515
- Rothgeb, John M. Jr. and Betsy Burger. 2009. “Tenure Standards in Political Science Departments: Results from a Survey of Department Chairs”, *PS: Political Science & Politics* 42(3): 513-519.
- Rudd, E. Morrison, E, Sadrozinski, R. Nerad, M. and Cerny, J. 2008. “Equality and Illusion: Gender and Tenure in Art History Careers,” *Journal of Marriage and Family*, 70, 228-23.
- Sax, Linda, J., Linda Serra Hagedorn, Marisol Arredondo, and Frank A. Dicrisi III. 2002. “Faculty Research Productivity: Exploring the Role of Gender and Family-Related Factors,” *Research in Higher Education*, 43(4), 423-445.
- Stewart, Penni, Michael Ornstein, and Janice Drakich, 2009. “Gender and Promotion at Canadian Universities” *CRS/RCS*, 46(1), 59-85.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behaviour. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Chicago, IL: Nelson-Hall.
- Tien, Flora F. 2007. “To What Degree Does the Promotion System Reward Faculty Research Productivity?” *British Journal of Sociology of Education*, 28 (1), 105-123.
- Tierney, W. G., Bensimon, E. M. (1996) *Promotion and Tenure: Community and Socialization in Academe*, State University of New York Press, Albany, NY

- Tomz, Michael, Jason Wittenberg, and Gary King. 2003. CLARIFY: Software for Interpreting and Presenting Statistical Results In *Journal of Statistical Software*. Vol. 8., 2003.
- Toutkoushian, R. 1999. "The Status of Academic Women in the 1990s. No Longer Outsiders, but not yet equals" *Quarterly Review of Economics and Finance*, 39, 679-698.
- Ward, K. and L. Wolf-Wendel. 2004. "Academic Motherhood: Managing Complex Roles in Research Universities," *The Review of Higher Education*, 27(2), 233-257.
- Ward, Melanie E. 2001. "Gender and Promotion in the Academic Profession" *Scottish Journal of Political Economy*, 48:1 283-302.
- Wenneras, C. and A. Wold. 1997. "Nepotism and Sexism in Peer-Review" *Nature*, 387, 341-343.
- Wolfinger, N. H., Mason, M.A. and Goulden, M. 2008. "Problems in the Pipeline: Gender, Marriage and Fertility in the Ivory Tower," *Journal of Higher Education*, 79(4), 389-405.
- Yoder, J.D. 1985. "An Academic Woman as Token: A Case Study," *Journal of Social Issues*, 41, 61-72.
- Zuckerman, H. 1987. "The Careers of Men and Women Scientists; A Review of Current Research" in L. S. Dix (ed.) *Women: Their Underrepresentation and Career Differentials in Science and Engineering*, Washington, D.C.: National Academy of Sciences.

**Figure 1: References for Explanatory Variables for Promotion**

Classification	Variable	References		
Demographics	Race and Ethnicity	Fang et al. (2000,1087)	Ginther and Hayes (1999, 400)	
	(Citizenship)	Ginther and Hayes (2003,51)	Perna (2005, 283)	Ginther and Kahn (2004,200)
		Palepu et al. (1998, 770)	Ward (2001, 286)	Perna (2001, 548)
	Sex	Fang et al. (2000,1087)	Perna (2005, 283)	Farber (1977,204)
		Ginther and Hayes (1999,400)	Ward (2001, 286)	Ginther and Hayes (2003, 51)
		Ginther and Kahn (2004, 200)	Perna (2001, 548)	Johnson and Stafford (1974, 892)
		Katz (1973, 471)	Stewart et al. (2009, 69)	McDowell and Smith (1993,78)
		Ornstein et al. (2007, 10)	Tien (2007,113)	
	Age	Ginther and Hayes (1999,400)	Farver (1977, 204)	Ginther and Hayes (2003, 51)
		Ward (2001, 286)	Tien (2007,113)	
	Age of getting Ph.D.	Farber (1977,204)	Over (1993,318)	
	Year of Ph.D.	Ginther and Kahn (2004, 200)	Johnson and Stafford (1974, 892)	
	Marital Status	Long et al. (1993, 709)	Ward (2001, 286)	Perna (2005, 285)
	Personality	Over (1993, 318)		
Family Ties	Years married	Ginther and Hayes (1999,400)	Ginther and Hayes (2003, 51)	Ginther and Kahn (2004, 200)
	Spouse/partner employment status	Perna (2005, 285)		
	Have Children	Ginther and Hayes (2003,51)	Long et al. (1993, 709)	Ginther and Kahn (2004, 200)
	No. of children and age of children	Ginther and Hayes (1999,400)	Perna (2005, 285)	Ward (2001, 286)
		Ginther and Hayes (2003,51)	Over (1993, 318)	Ginther and Kahn (2004,200)
Professional variables	Cohort by year of the rank attained, etc.	Fang et al. (2000,1087)	Tien (2007, 112)	Ginther and Hayes (1999,400)
	Years since degree, years in current position	Perna (2001, 547)	Johnson and Stafford (1974, 892)	Perna (2005, 283)
	Avg. years to promotion	Ginther and Kahn (2004, 200)	Long et al. (1993, 709)	Ward (2001, 286)
	Tenure Status (tenure or non-tenure track)	Fang et al. (2000,1087)		
	Part time/Full time	Farber (1977,204)		
	Research Productivity	Fang et al. (2000, 1087)	Ward (2001, 286)	Ginther and Kahn (2004, 200)
		Tien (2007, 113)		
	(Research) Experience (since getting a Ph.D.)	Ginther and Hayes (2003, 51)	Ward (2001, 286)	Ginther and Kahn (2004, 200)
		McDowell and Smith (1993, 76)	Perna (2005, 283)	
	Changing academic employers	Farber (1977,203)	Ginther and Kahn (2004, 200)	Perna (2005, 283)

	(No. of employers or positions)	Ginther and Hayes (2003, 51)	Long et al. (1993, 709)	
	No. of promotions received in current univ.	Ward (2001, 286)		
	Avg. No. of articles	Ginther and Hayes (1999,400)	Long et al. (1993, 709)	Ginther and Hayes (2003, 52)
		Katz (1973, 471)	Over (1993, 318)	
	Avg. No. of books	Ginther and Hayes (1999,400)	Katz (1973, 471)	Ginther and Hayes (2003, 52)
	Avg. No. of book chapters	Ginther and Hayes (1999,400)	Ginther and Hayes (2003, 52)	
	Avg. No. of reviews	Ginther and Hayes (1999,400)		Ginther and Hayes (2003, 52)
	Total number of publications	Perna (2001,547); Lee (200,2 703)		Perna (2005, 284)
	Proportion of years receiving gov't support	Ginther and Hayes (1999,400)	Ginther and Kahn (2004, 200)	Ginther and Hayes (2003, 51)
	Proportion of time spent as unemployed	Ginther and Hayes (2003, 52)	Ward (2001, 286)	
	Field of Study (or subfield or discipline)	Ginther and Hayes (2003,52)	Tien (2007, 113)	Ginther and Kahn (2004, 200)
		Katz (1973, 471); Lee (2002, 703)	Lee (2002, 703)	Ornstein et al. (2007, 10)
		Perna (2001, 548)	Ward (2001, 286)	
	No. of dissertation supervised	Katz (1974,471)	Over (1993, 318)	
	No. coauthored (No. single-authored)	McDowell and Smith (1993, 78)	Perna (2005, 284)	
	Social Networks	Over (1993, 318)		
	No. of conference presentations	Perna (2005, 284)		
	Grant applications and awards	Over (1993, 318)	Lee (2002, 703)	Fang et al 2000, 1090
		Perna (2005, 284)	Ward (2001, 286)	
Human capital	Ph.D. cohort (based on their entrance years)	Ward (2001, 286)		
	Years as Ph.D. candidate	Over (1993, 318)		
	Ph.D. Program Rank	Ginther and Kahn (2004, 200)	Katz(1973, 471)	Long et al. (1993, 709)
Working Environment	Current job department rank	Ginther and Kahn (2004, 200)	Long et al. (1993, 709)	McDowell and Smith (1993, 78)
	Private/Public	Fang et al. (2000, 1087)	Ginther and Hayes (2003, 50)	Perna (2001, 548)
		Perna (2005, 284)		
	Doctoral university	Perna (2001,547)		Perna (2005, 284)
	Research university	Perna (2001,547)		Perna (2005, 284)
	Proportion of time spent at non-academic job	Ginther and Hayes (2003, 52)		
Opportunity costs	Primarily working as a researcher	Ginther and Hayes (1999,400)	See Perna (2001, 548)	Farber (1977, 204)
	(Proportion research)	Ginther and Kahn (2004, 200)	See Perna (2005, 284)	Over (1993, 318)

	Primarily working for a teaching	Ginther and Hayes (1999,400)	See Perna (2001, 548)	Farber (1977, 204)
	(Proportion teaching)	Ginther and Hayes (2003, 51)	See Perna (2005, 284)	Ginther and Kahn (2004, 200)
		Over (1993, 318)		
	No. of hours per week to committee assignments	Katz (1974, 471): lee (2002, 703)		

**Tables for Factors Associated with Academic Rank**

**Table 1: Publications and Age by Rank and Gender (tenure track professors only)**

<b>Rank</b>	<b>Total Publications</b>		<b>Articles Published</b>		<b>Monographs Published</b>		<b>Book Chapters Published</b>		<b>Age</b>	
	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>
<b>Assistant</b>	5.7	4.4	4.1	2.7	.29	.32	1.3	1.3	38	37
<b>Associate</b>	13.6	9.8	8.3	5.8	.86	.76	4.0	2.8	47	45
<b>Full</b>	32.4	24.8	18.3	12.9	2.7	2.2	9.8	8.6	58	55
<b>Total</b>	19.9	11.9	11.6	6.5	1.5	1.0	5.9	3.9	49	44

**Table 2A: Descriptive Statistics for Differences in Means Across Ranks (among males only and among females only)**

	Males			Females		
	Assistant	Associate	Full	Assistant	Associate	Full
<b>RESEARCH</b>						
Total number of publications	5.72***	13.57	32.39***	4.35***	9.78	24.85***
Frequency of reviewing books	1.95***	3.42	4.73***	1.38***	2.91	4.18**
Frequency of reviewing articles	8.52***	12.44	14.11	7.11	9.55	14.22**
Frequency of serving on an editorial boards	0.18***	0.71	1.66***	0.22***	0.78	2.16***
Number of external grants awarded	0.95***	2.16	4.58***	1.96	2.07	4.28***
Frequency of conference attendance	5.58	4.84	3.83**	5.16**	4.28	4.06
<b>TEACHING</b>						
Number of undergraduate courses	4.70	4.37	4.13	4.38	4.69	3.71***
Number of graduate courses	0.89	1.13	0.94	1.13	0.94	1.18
Number of honors thesis supervised	0.60***	1.02	1.02	1.03	1.19	1.18
Number of independent study supervised	1.13***	2.09	2.61	1.43	1.53	1.89
Number of senior project supervised	1.35	1.27	1.94	1.64*	3.18	2.16
Count of overall student advising	0.56**	0.74	0.77	0.49***	0.78	0.88
<b>SERVICE</b>						
Frequency of chairing committees	0.38***	1.10	1.57**	0.49***	1.03	1.35**
Frequency of committee membership	2.78***	3.64	4.14*	2.82***	3.91	4.11
<b>RESOURCES</b>						
Count of overall resources	3.35**	3.89	4.93***	3.74**	4.46	4.68
Teaching release	1.34***	3.86	4.57	2.07***	5.16	4.23
Current Employment Department Rank	1.59	1.58	1.76	1.87	1.45**	2.01***
<b>BACKGROUND &amp; DEMOGRAPHICS</b>						
No. of years to complete Ph.D.	6.42	6.29	5.90*	6.92	6.31	5.80
Ph.D. Program Rank	3.59	3.79	4.00*	3.77	3.74	4.09*
Number of years in current position	3.30***	11.34	21.09***	3.33***	9.93	18.67***
Age	37.87***	47.18	57.57***	37.27***	44.78	55.16***
Number of children	0.99***	1.49	1.69	0.73***	1.19	1.39

Asterisks in the assistant professor column indicate a significant difference between mean for the assistant professors compared with the associate professors (within gender). Asterisks in the full professor column indicate a significant difference between mean for the full professors compared with the associate professors (within gender).

**Table 2B: Percentage Differences Across Ranks (among males and females separately)**

	Males			Females		
	Assistant	Associate	Full	Assistant	Associate	Full
<b>RESEARCH</b>						
Co-authorship	36.7%	34.5%	35.5%	35.8%	32.1%	32.6%
<b>CHARACTERISTICS OF CURRENT EMPLOYMENT</b>						
Joint appointment	4.7%	8.9%	14.7%*	13.7%	12.5%	18.5%
Currently employed in a PhD program	31.4%	34.3%	34.9%	38.8%**	25.0%	48.4%***
Currently employed in a MA program	19.2%	23.5%	16.9%	22.3%	18.8%	19.4%
Currently employed at a private institution	32.0%	38.7%	43.3%	40.3%	46.3%	34.4%
American subfield	37.2%	35.8%	42.5%	36.0%	35.0%	30.1%
Comparative subfield	12.2%	14.7%	16.6%	27.3%	30.0%	17.2%**
IR subfield	20.3%	20.1%	14.0%	12.2%	12.5%	16.1%
Theory subfield	9.9%	9.8%	8.6%	3.6%	6.3%	5.4%
More than 7 years in the current position	2.3%***	64.2%***	85%***	2.9%***	65.0%	92.5%***
<b>BACKGROUND &amp; DEMOGRAPHICS</b>						
Undergraduate PS major	72.7%	77.0%	69.3%	61.9%	65.0%	61.3%
Private undergraduate school	43.6%	48.0%	48.8%	47.5%***	72.5%	59.1%*
Minority	14.7	14.6	13.6	13.8%	17.9%	14.1%
Married or Partnered	77.9%	83.2%	92.6%***	73.9%*	83.8%	69.6%
Employed partner	43.0%	49.0%	52.5%	58.7%	77.5%	54.3%***
Citizenship status	94.2%	94.1%	96.7%	89.9%*	96.3%	100%*

**Table 3: Predicting Academic Rank: Factors Affecting the Likelihood of being an Associate Professor in contrast with an Assistant Professor** (binary logistic models via multiple imputation)

Independent variables	MODEL 3A		Model 3B		Model 3C	
	Coefficient (Std. Err.)	Odds Ratio	Coefficient (Std. Err.)	Odds Ratio	Coefficient (Std. Err.)	Odds Ratio
Female	-0.481 ** (0.199)	0.618	-0.899 *** (0.237)	0.407	-0.720 ** (0.282)	0.487
Minority	-0.051 (0.318)	0.951	-0.079 (0.330)	0.924	-0.080 (0.458)	0.923
Married or partnered	0.148 (0.306)	1.159	-0.143 (0.359)	0.867	0.166 (0.442)	1.181
Number of children	0.123 (0.090)	1.131	0.065 (0.102)	1.067	-0.023 (0.119)	0.977
Partner employed	0.429 * (0.224)	1.536	0.630 ** (0.255)	1.878	0.308 (0.287)	1.361
Ph.D. program rank	0.116 * (0.071)	1.123	0.078 (0.084)	1.081	0.030 (0.100)	1.031
Number of years to complete Ph.D.	-0.156 *** (0.056)	0.855	-0.165 *** (0.062)	0.848	-0.125 (0.077)	0.882
Age	0.165 *** (0.018)	1.179	0.165 *** (0.018)	1.180	0.115 *** (0.022)	1.122
Undergraduate teaching load			0.032 (0.057)	1.032	0.089 (0.065)	1.093
Count of overall student advising			0.590 *** (0.168)	1.804	0.553 *** (0.190)	1.738
Frequency of chairing committees			0.544 *** (0.136)	1.723	0.345 ** (0.141)	1.413
Joint appointment			0.301 (0.372)	1.352	0.524 (0.455)	1.689
Currently employed at a private institution			0.222 (0.241)	1.249	0.267 (0.276)	1.307
Currently employed in a PhD program			-0.294 (0.383)	0.746	-0.698 (0.507)	0.498
Currently employed in a MA program			-0.382 (0.321)	0.683	-0.164 (0.350)	0.849
Current program ranking			-0.189 (0.116)	0.828	-0.051 (0.153)	0.950
Count of overall resources			0.046 (0.048)	1.047	-0.044 (0.060)	0.957
Teaching release			0.335 *** (0.042)	1.398	0.275 *** (0.051)	1.317
American subfield					0.415 (0.382)	1.514
Comparative subfield					0.165 (0.428)	1.179
IR subfield					-0.069 (0.433)	0.933

Theory subfield					0.579 (0.534)	1.784
More than 7 years in the current position					2.502 *** (0.344)	12.207
Less departmental influence					-0.063 (0.073)	0.939
Total number of publications					0.545 *** (0.179)	1.724
Frequency of reviewing books					0.059 (0.056)	1.061
Frequency of reviewing articles					0.013 (0.013)	1.013
Frequency of serving on an editorial boards					0.228 (0.165)	1.257
Constant	-6.663 *** (0.867)	0.001	-7.796 *** (0.968)	0.0004	-7.645 *** (1.283)	0.0005
N	706		706		706	
N of simulations	1000		1000		1000	

Note. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 4: **Predicting Academic Rank: Associate Professors compared with Full Professors** (binary logistic models via multiple imputation)

Independent variables	MODEL 4A		Model 4B		Model 4C	
	Coefficient (Std. Err.)	Odds Ratio	Coefficient (Std. Err.)	Odds Ratio	Coefficient (Std. Err.)	Odds Ratio
Female	0.133 (0.215)	1.142	0.135 (0.225)	1.145	0.209 (0.237)	1.232
Minority	-0.220 (0.270)	0.803	-0.244 (0.270)	0.783	-0.287 (0.290)	0.751
Married or partnered	0.373 (0.321)	1.452	0.309 (0.333)	1.362	0.429 (0.355)	1.536
Number of children	0.004 (0.076)	1.004	-0.036 (0.078)	0.964	-0.047 (0.080)	0.954
Partner employed	-0.134 (0.229)	0.875	-0.175 (0.240)	0.840	-0.232 (0.253)	0.793
Ph.D. program rank	0.096 (0.067)	1.101	0.020 (0.073)	1.020	-0.012 (0.078)	0.989
Number of years to complete Ph.D.	-0.087 ** (0.040)	0.916	-0.082 ** (0.040)	0.921	-0.051 (0.041)	0.951
Age	0.132 *** (0.011)	1.141	0.139 *** (0.011)	1.149	0.136 *** (0.012)	1.146
Undergraduate teaching load			-0.040 (0.048)	0.961	-0.014 (0.050)	0.987
Amount of student advising			-0.044 (0.135)	0.957	-0.076 (0.142)	0.927
Frequency of chairing committees			0.151 ** (0.072)	1.163	0.115 (0.075)	1.122
Joint appointment			0.016 (0.273)	1.016	-0.050 (0.292)	0.951
Currently employed at a private institution			0.204 (0.207)	1.226	0.324 (0.220)	1.383
Currently employed in a PhD program			-0.386 (0.313)	0.680	-0.566 * (0.338)	0.568
Currently employed in a MA program			-0.478 * (0.263)	0.620	-0.427 (0.271)	0.653
Current program ranking			0.171 * (0.091)	1.187	0.122 (0.100)	1.130
Count of overall resources			0.073** (0.033)	1.075	0.015 (0.036)	1.015
Teaching release			0.037 * (0.020)	1.038	0.033 (0.021)	1.033
American subfield					0.203 (0.257)	1.225
Comparative subfield					-0.104 (0.309)	0.902
IR subfield					-0.381 (0.316)	0.684

Theory subfield					-0.094 (0.381)	0.910
More than 7 years in the current position					0.371 * (0.224)	1.448
Less departmental influence					-0.095 * (0.052)	0.910
Total number of publications					0.301 *** (0.111)	1.351
Frequency of reviewing books					0.031 (0.030)	1.031
Frequency of reviewing articles					0.005 (0.007)	1.005
Frequency of serving on an editorial boards					0.302 *** (0.090)	1.352
Constant	-6.524 *** (0.666)	0.002	-7.034 *** (0.828)	0.0009	-7.898 (0.910)	0.0004
N	823		823		823	
N of simulations	1000		1000		1000	

Note. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 5: **Predicting Academic Rank: Associate Professor compared with Assistant Professor** (spilt sample)

Independent variables	Model 5A		Model 5B		Model 5C		Model 5D	
	Males Only		Females Only		Males Only		Females Only	
	Coef. (Std. Err.)	Odds Ratio	Coef. (Std. Err.)	Odds Ratio	Coef. (Std. Err.)	Odds Ratio	Coef. (Std. Err.)	Odds Ratio
Minority	-0.701 * (0.401)	0.496	1.105 (0.651)	3.018	-0.602 (0.546)	0.548	0.632 (0.927)	1.880
Married or partnered	-0.224 (0.447)	0.800	-0.417 (0.975)	0.659	0.007 (0.509)	1.007	-0.025 (1.305)	0.976
Number of children	0.079 (0.124)	1.082	-0.069 (0.231)	0.934	0.038 (0.149)	1.039	-0.300 (0.338)	0.741
Partner employed	0.219 (0.372)	1.245	1.916 (1.046)	6.795	-0.082 (0.364)	0.921	1.946 ** (0.911)	7.000
Ph.D. program rank	0.077 (0.117)	1.080	0.030 (0.162)	1.030	0.055 (0.138)	1.057	-0.016 (0.276)	0.985
Number of years to complete Ph.D.	-0.139 (0.087)	0.870	-0.266 ** (0.119)	0.766	-0.088 (0.110)	0.915	-0.288 (0.216)	0.750
Age	0.170 *** (0.024)	1.185	0.207 *** (0.055)	1.229	0.110 *** (0.030)	1.117	0.162 *** (0.052)	1.176
Undergraduate teaching load	0.028 (0.078)	1.029	0.096 (0.120)	1.101	0.116 (0.102)	1.123	0.174 (0.166)	1.190
Count of overall student advising	0.515 ** (0.213)	1.674	1.017 ** (0.400)	2.764	0.507 ** (0.235)	1.660	1.086 * (0.558)	2.963
Frequency of chairing committees	0.818 *** (0.206)	2.265	0.288** (0.146)	1.334	0.755 *** (0.243)	2.127	0.187 (0.191)	1.206
Joint appointment	0.355 (0.561)	1.426	0.705 (0.714)	2.024	0.543 (0.640)	1.722	1.503 (1.068)	4.493
Currently employed at a private institution	0.310 (0.324)	1.363	-0.084 (0.456)	0.919	0.389 (0.386)	1.476	0.174 (0.651)	1.190
Currently employed in a PhD program	-0.132 (0.482)	0.876	-0.656 (0.724)	0.519	-0.746 (0.632)	0.474	-0.640 (0.966)	0.528
Currently employed in a MA program	-0.233 (0.406)	0.792	-0.723 (0.578)	0.485	-0.047 (0.465)	0.954	-0.553 (0.841)	0.575
Current program ranking	-0.025 (0.152)	0.975	-0.499* (0.263)	0.607	0.158 (0.204)	1.171	-0.608 (0.386)	0.544
Count of overall resources	0.061 (0.064)	1.062	0.063 (0.119)	1.065	-0.016 (0.083)	0.984	0.003 (0.139)	1.003
Teaching release	0.340 *** (0.060)	1.405	0.390 *** (0.078)	1.477	0.251 *** (0.070)	1.285	0.454 *** (0.104)	1.574
American subfield					0.155 (0.492)	1.168	1.170 (0.848)	3.223

Comparative subfield					-0.176 (0.601)	0.838	1.141 (1.042)	3.130
IR subfield					-0.212 (0.550)	0.809	0.919 (1.214)	2.507
Theory subfield					0.010 (0.701)	1.010	1.907 (1.412)	6.732
More than 7 years in the current position					2.581 *** (0.477)	13.214	3.188 *** (0.833)	23.239
Less departmental influence					0.030 (0.088)	1.030	-0.430 * (0.221)	0.651
Total number of publications					0.713 *** (0.230)	2.041	0.303 (0.453)	1.353
Frequency of reviewing books					0.038 (0.066)	1.038	0.211 * (0.117)	1.235
Frequency of reviewing articles					0.004 (0.017)	1.004	0.019 (0.046)	1.019
Frequency of serving on an editorial boards					0.356 (0.234)	1.427	-0.1289 (0.344)	0.880
Constant	-8.404*** (1.330)	0.0002	-10.103 ** (3.329)	0.0004	-8.665 *** (1.989)	0.0002	-9.719 * (4.434)	0.0006
N	442		264		442		264	
N of simulations	1000		1000		1000		1000	

Note. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6: **Predicting Academic Rank: Associate Professors compared with Full Professors** (Split sample)

Independent variables	Model 6A		Model 6B		Model 6C		Model 6D	
	Males Only		Females Only		Males Only		Females Only	
	Coef. (Std. Err.)	Odds Ratio	Coef. (Std. Err.)	Odds Ratio	Coef. (Std. Err.)	Odds Ratio	Coef. (Std. Err.)	Odds Ratio
Minority	-0.523* (0.310)	0.593	0.240 (0.495)	1.271	-0.660 * (0.348)	0.517	0.369 (0.552)	1.446
Married or partnered	0.549 (0.403)	1.732	0.139 (0.762)	1.149	0.766 * (0.437)	2.152	0.273 (0.887)	1.314
Number of children	-0.083 (0.094)	0.920	0.104 (0.190)	1.110	-0.083 (0.097)	0.921	-0.006 (0.224)	0.994
Employed partner	-0.063 (0.306)	0.939	-0.532 (0.640)	0.588	-0.173 (0.331)	0.841	-0.529 (0.780)	0.589
Ph.D. program rank	0.003 (0.105)	1.003	0.054 (0.158)	1.056	-0.038 (0.110)	0.963	0.012 (0.182)	1.013
Number of years to complete Ph.D.	-0.102 ** (0.049)	0.903	0.001 (0.089)	1.001	-0.075 (0.048)	0.928	0.063 (0.103)	1.065
Age	0.141 *** (0.013)	1.151	0.142 *** (0.026)	1.152	0.139 *** (0.014)	1.149	0.148 *** (0.033)	1.159
Undergraduate teaching load	-0.037 (0.059)	0.964	-0.096 (0.093)	0.909	-0.016 (0.062)	0.984	-0.024 (0.095)	0.976
Count of overall student advising	-0.033 (0.172)	0.968	0.114 (0.366)	1.120	-0.034 (0.181)	0.966	-0.077 (0.387)	0.926
Frequency of chairing committees	0.170 * (0.091)	1.186	0.091 (0.170)	1.096	0.117 (0.094)	1.124	0.094 (0.196)	1.099
Joint appointment	0.107 (0.357)	1.113	-0.213 (0.506)	0.809	-0.077 (0.380)	0.926	-0.150 (0.600)	0.860
Currently employed at a private institution	0.248 (0.245)	1.281	0.265 (0.448)	1.304	0.320 (0.262)	1.377	0.528 (0.517)	1.696
Currently employed in a PhD program	-0.757 * (0.391)	0.469	0.474 (0.606)	1.606	-0.982 ** (0.434)	0.375	0.682 (0.737)	1.978
Currently employed in a MA program	-0.753 * (0.332)	0.471	0.322 (0.581)	1.380	-0.745 ** (0.347)	0.475	0.578 (0.699)	1.783
Current program ranking	0.167 (0.111)	1.182	0.109 (0.194)	1.115	0.120 (0.120)	1.127	0.060 (0.232)	1.062
Count of overall resources	0.099 ** (0.041)	1.104	0.004 (0.082)	1.004	0.061 (0.044)	1.063	-0.163 (0.106)	0.850
Teaching release	0.044 * (0.024)	1.045	0.013 (0.047)	1.013	0.042 * (0.025)	1.043	0.016 (0.057)	1.017
American					0.340	1.405	-0.293	0.746

subfield					(0.328)		(0.591)	
Comparative subfield					0.056 (0.415)	1.058	-0.617 (0.619)	0.540
IR subfield					-0.413 (0.393)	0.661	-0.445 (0.673)	0.641
Theory subfield					0.027 (0.441)	1.027	-0.776 (1.005)	0.460
More than 7 years in the current position					0.181 (0.271)	1.199	0.974 * (0.557)	2.649
Less departmental influence					-0.113 (0.071)	0.893	-0.013 (0.123)	0.988
Total number of publications					0.269 * (0.139)	1.309	0.415 * (0.248)	1.514
Frequency of reviewing books					0.019 (0.039)	1.019	0.055 (0.064)	1.057
Frequency of reviewing articles					0.003 (0.009)	1.003	0.016 (0.018)	1.016
Frequency of serving on an editorial boards					0.359 *** (0.113)	1.432	0.235 (0.178)	1.265
Constant	-7.117 *** (0.958)	0.0008	-7.416 *** (1.723)	0.0006	-7.829 *** (1.082)	0.0004	-9.502 *** (2.132)	0.0007
N	595			228	595		228	
N of simulations	1000			1000	1000		1000	

Note. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7: Differences in Satisfaction Across Ranks (among males only and females only)

	Males			Females		
	Assistant	Associate	Full	Assistant	Associate	Full
General satisfaction with department	4.11	4.01	4.27***	4.04*	3.73	4.13**
Departmental collegiality	3.88	3.78	3.84	3.86**	3.52	3.65
Departmental tolerance	4.07**	4.23	4.25	3.80	3.67	3.87
Research climate	3.57	3.56	3.84***	3.41	3.34	3.63**
Discrimination within department	1.70	1.64	1.61	2.31	2.55	2.31
Departmental influence	4.18	4.24	4.40*	3.93	4.06	4.40

Asterisks in the assistant professor column indicate a significant difference between mean for the assistant professors compared with the associate professors (within gender). Asterisks in the full professor column indicate a significant difference between mean for the full professors compared with the associate professors (within gender).