

**Laundry and Lab Time:
Do Family-Friendly Policies Affect Academic Work Outcomes?**

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Abstract

Some scholars and policy makers argue that the dearth of women in academic science positions is related to the demands of family life. While the Family Medical Leave Act (FMLA) aims to help women and men balance work and family life, universities throughout the United States have adopted family-friendly policies as a means of enabling faculty to balance family life and career. Because universities are somewhat flat organizations, academic departments play a critical role in enabling work-life balance through both formal and informal policies about leave. While family-leave policies are designed to provide job protection for parents and also ensure that faculty can remain successful and productive scholars, it is unclear whether or not formal family-leave policies and informal department cultures have played a positive role on outcomes such as, productivity (e.g. publications), teaching responsibilities, and advancement to leadership positions. This research uses survey responses from 1598 faculty at 150 Carnegie Research Intensive I universities and data from university Status of Women reports and Faculty Handbooks to investigate the relationships between university policies, university level support for work-life balance, and outcomes among men and women faculty in six fields of science.

Laundry and Lab Time: Do Family-Friendly Policies Help Scientists Balance the Personal and Professional?

Introduction

As in many other fields, women are not well represented in high-level faculty positions in academia. The underrepresentation of women is most acute in science, technology, engineering, and mathematics (STEM) disciplines. While much of the academic world has adjusted to welcome women faculty members (albeit primarily in assistant and associate faculty positions), previous research indicates that STEM fields lag behind the rest, especially in terms of tenured women professors (Nelson, Brammer & Rhoads, 2007). At universities, tenure represents formal recognition of a faculty member's work, while also providing assurance of academic freedom (Honan & Teferra, 2001). Tenure is awarded based on performance over a set amount of time. Because tenure is time-based and often relies on maintaining research projects overtime, it is difficult for parents to exit the work force or take leave and successfully return at a later time and stay on track to tenure. Because the tenure process relies on heavy, continuous commitments to research, researchers who take leave are at a disadvantage as compared to their colleagues who do not take leave. The effects of leave on the attainment of tenure is often used as an explanation for why women academic scientists face more barriers to achieving tenure or fail to stay on the tenure track. In fact, some researchers argue that women in STEM fields who do achieve tenure typically do so by conforming to a "male" model of work that separates the personal and professional, not allowing time away from work to manage a household, care for a family member, or to bear and rear children (Etzkowitz, Kemelgor & Uzzi, 2000).

Research indicates that women face a number of barriers when pursuing academic science careers. For example, examining barriers to obtaining a doctoral degree, Etzkowitz and colleagues (1994) argue that early socialization causes women to lack the self-confidence necessary to compete in Ph.D. programs, especially in the fields of science and engineering. Jacobs and Simpkins (2005) make similar claims in their study of adolescent attitudes as a barrier to increased numbers of women in STEM fields. Alternatively, some researchers posit that women do not advance in these fields due to

systemic barriers rather than socialized behaviors or values. Based on a survey of graduate students, van Anders (2004) points to concerns about child rearing as a major barrier, supporting the idea that the system is not designed for women faculty. Researchers also argue that the tenure process creates considerable obstacles for women faculty members in all fields, but especially in the male-centric STEM fields which require junior faculty to dedicate extensive amounts of time to research, lab work, and publishing. As a result of this research, many federal funders have called for structural reforms and the development of policies to increase the representation of women in academic science (NSF, 2001; NSA, 2009).

In addition to federal efforts to remove barriers to the advancement of women academic scientists in a male-dominated work environment, many universities and academic departments have developed family-friendly policies to accommodate faculty with significant parenting responsibilities (Hollenshead et al., 2005). Although these policies are not necessarily outwardly directed at women, their target is often implicit. Unfortunately, it is unclear whether or not these policies are effective in terms of women's career progression and success. We do not know if family-friendly policies enable women scientists to better do their jobs or not. This research investigates the relationship between family-friendly policies and career outcomes among faculty in STEM fields at 150 Carnegie Research I universities. Specifically, we address the following research questions: (1) Are formal family-friendly policies related to work outcomes for academic scientists? (2) Do formal family-friendly policies differently affect outcomes for men and women academic scientists? We develop and test a model that examines the relationships between family-friendly policies and three career outcomes - teaching, publishing, and holding leadership positions - for men and women faculty members in six STEM fields.

Literature & Hypotheses

Underrepresentation of Women in Academic STEM Fields

In recent decades considerable strides have been made toward workplace equality, yet women still generally lag behind their male counterparts in terms of career advancement. Academia is no exception. While the proportion of women faculty at

universities has risen in the past decades, female faculty members remain a minority in many fields, and those women that do make it into the academy tend to hold lower ranking positions than their male counterparts (Burrelli 2008; Rosser, 2004). For example, when looking at all academic disciplines in 2006, women made up 42% of instructor and assistant professor positions, 34% of associate professor positions, and 19% of full professor positions. However, women make up only 5% of full professors in engineering, 8.6% in mathematics, and 8.3% in physical sciences (Burrelli 2008). Thus women are making up increasing numbers of academic faculty, but they are clustered in lower ranking positions and continue to represent a minority in STEM fields.

In addition to holding lower ranking positions, women faculty are often saddled with more teaching responsibilities than their male peers (Parks, 2000). Research also indicates that women, when compared to their male counterparts, take on more institutional responsibilities such as service to the university, which may contribute to women's lower research productivity (Olson, Maple & Stage, 1995). Bird, Lit and Yang (2004) note that women are often overburdened with "institutional housekeeping" tasks. Relegation of such tasks to women is a reflection of women's historically prominent role as the providers of "invisible and supportive labor" (p. 195) and serves to inequitably contribute to women's nonacademic or nonresearch workload. Though women have made considerable advancements in the workforce, the state of women academic scientists remains somewhat marginal.

Gender inequalities in academia are not uniform across areas of study. The inequalities are most pronounced in the fields of science, technology, engineering and mathematics (STEM). Not only are these disciplines dominated by men, but those women that enter science fields in general "are less successful than their male counterparts in traveling along the academic career path" (NSF, 2004). There are a number of reasons why women are under-represented in STEM fields. First, women are less likely to be students in these fields, even at the high school level (Fadigan & Hammrich, 2004). Second, women are less likely to enter into or complete undergraduate majors in these fields. Third, women are less likely to complete PhDs in STEM fields (Lott, Gardner & Powers, 2009), though there is a trend toward an increasing number of S&E doctorates being awarded to women (Burrelli 2008). For example, according to the NSF, in 2006

29.6% of mathematics, 21.3% of computer science, and 20.2% of engineering Ph.D. recipients were women (NSF, 2006). Fourth, when women do complete PhDs in these fields and enter into faculty positions, they are less likely to be retained in those positions (Preston, 2004). In sum, research indicates that women enter STEM fields at lower rates than men and depart these careers at higher rates than men, thus partially accounting for the dearth of women in academic science.

A myriad of explanations have been provided to account for the under-representation of women in academic science. These are generally understood as falling into two categories: socialization/behavior and systemic. Socialization/behavioral explanations view women's socialized values and behaviors as barriers to entry and advancement in STEM fields; women are not socialized to be assertive and confident in their abilities and thus do not compete well in STEM fields. Systemic barriers in the path to STEM faculty positions are external, including the practice of regularly looking to women to serve on committees or take on heavier teaching responsibilities, both of which are not valued as much as research and publishing for promotion (Bystydzienski & Bird, 2006; Kameron, 2007; Bain & Cummings, 2000). As Sonnert (1996) notes, these explanations (social and systemic) are also sometimes viewed as complimentary, with women facing systemic barriers and reacting with socialized behaviors that inhibit their ability to overcome systemic barriers. Both systemic and socialized/behavioral barriers are understood to result in women not choosing to pursue a career in these fields, or if they do choose a STEM career, not advancing at the same rate or in the same numbers as their male colleagues.

The literature that advances the socialization/behavior position includes varied interpretations ranging from the claim that women are socialized from a young age to have less confidence in their mathematical and scientific abilities to the assertion that women lack an aptitude for math and science as compared to men (Etzkowitz, Kemelgor, Neuschatz and Uzzi, 1994; Summers, 2005). Unfortunately, explanations relying on socialization/behavior-based barriers implicitly place the blame with the women themselves rather than accounting for external explanations and are often criticized as a result of this stance (Bystydzienski & Bird, 2006). Moreover, these views do not provide practical means for addressing the problem of a lack of women in science. For those who

view socialization and behavior as the primary barrier to women in science, the means for increasing women's presence in STEM fields are different types of socialization for young girls and increasing science and mathematics education for young girls and women. Even when socialization and behavior plays a strong role in keeping women out of science careers, it is not clear that taking a socialization/behavioral approach will be an effective means for addressing the many barriers that women face in the academic workplace.

In comparison, the systemic point of view does not blame women for their lack of advancement in STEM careers, but rather looks to the institutional and structural barriers that create obstacles to women's advancement. Scholars have identified multiple barriers to successful academic careers for women, with one of the most frequently mentioned being institutional barriers. The institutional barriers argument is, in its most basic form, that the structure and rules that construct avenues for advancement in academia are not conducive to women's participation.

Institutional barriers occur at all stages of the academic career including acquiring a tenure-track job and successfully working within the academic work structure. First, women face challenges in securing tenure-track positions. Bain and Cummins (1996) find that women are hired into adjunct or part-time positions more often than their male colleagues, hindering their ability to achieve promotion, tenure, and advancement in academia. Accepting a first position that is adjunct or part-time will put a woman scientist at an immediate disadvantage compared to male counterparts on the tenure track. Moreover, women in STEM fields who are married to other academics face additional barriers in securing a position that is geographically accommodating for both spouses, especially since many universities do not have formal spousal hiring policies (Mavriplis et al., 2010).

A second institutional barrier for women is the structure of academic work. Some posit that academic careers are not flexible enough to allow women to temporarily exit the workplace or divide their time to attend to family life. Bain and Cummins (2000) note that the production of research, a central requirement for tenure, demands a significant time commitment, and that while women may be just as capable as their male counterparts, their strong commitment to caring for their families results in less time

spent on academic work. This tension between work and personal responsibilities does not only make working in academia harder for women, it may also result in women departing academic positions, and those working in STEM fields in particular report perceiving re-entry as unrealistic (Etzkowitz, Kemelgor, and Uzzi, 2000). In sum, because women scientists spend more time on child-rearing and housework, they are disadvantaged by the nature of an academic career (Etzkowitz et al. 2000; Mason, et al. 2006).

Joan Acker's (1990) theory of the ideal worker provides one viable explanation for why careers in academic STEM fields as an institution are ill-suited for women. The imbalance in the representation of men and women in academia can be viewed as a reflection of how we understand what constitutes a good worker: women do not fit into the ideal of the model worker, one who can devote himself to work completely because he has a wife maintaining the children and home. Women who have both work and family responsibilities demanding their time do not fit into this ideal. For example, recent research indicates that women STEM faculty are responsible for about twice as much housework as their male counterparts (Schiebinger & Gilmartin, 2010). Thus the time that women spend away from their work inhibits career progression because academic science jobs do not permit flexibility for family life events such as child bearing, child care, and child rearing (American Council on Higher Education, 2005).

In order to succeed in STEM fields, some women have opted to adopt a "male" approach, similar to that described by Acker. Eskowitz and colleagues (2000) note that many successful women scientists, in particular older women, have conformed to what the authors characterize as a "male model", emphasizing competition and a certain level of impersonality (p. 152). By adopting the "male model", women scientists are able to compete in this male work environment. While adopting the male model for academic work may result in women advancing in science careers, this model may not be preferable to many women. Therefore, only women who adopt male work habits and approaches to science will succeed, while those who seek alternative approaches to work will withdraw from the work force.

A second outcome of the women adopting the "male model" of work is that when formal policies are created to accommodate alternative work, there will not be a culture

or norm of utilizing those policies and services. Thus, family-friendly policies may not advance work-life balance for men or women if academic scientists are not open to alternative forms of work structure. Clearly, formal policies cannot facilitate improved career outcomes or a healthy balance between work and home if they are not used. Women adhering to the male model, which as noted earlier is characterized by competition and impersonality, would most likely avoid use of family-friendly policies. Empirical research supports this assertion. For example Mason and Gouldon (2002) found that women in STEM fields are less likely than men to have a child during the probationary period (pre-tenure). Moreover, Mavriplis and colleagues (2010) note the existence of a general understanding that "to make it in this field a woman cannot be successful and raise a family at the same time" (p. 141). Thus, even when formal policies exist that aim to promote family-work balance, the culture and norms of STEM fields may prevent the advancement of such policies.

It comes as no surprise, then, that female scientists who are married or who have children are "less successful" than men with the same characteristics (NSF, 2004). In fact, according to Rosser's (2004) research on female academic scientists, the need to balance their career and home life is the biggest challenge these women face. For example, female scientists do almost twice the amount of housework as their male peers, making the claim that women are held back in their career because they cannot devote as much time to their work seem plausible (Schiebinger & Gilmartin, 2010). Preston (2004) found that women felt science and engineering required hours that are too long and that these fields are generally unfriendly to women.

Research also indicates that when women faculty make advances in STEM fields, it is often at the expense of marriage and children. For example, while there has been a steady increase in the percentage of women in STEM fields and the percentage of women in tenure-track positions and full professorships, research indicates that these increases are largely explained by women scientists who are single and childless. That is, among those women who are becoming full professors, a higher percentage are unmarried and without children in the home. Burelli (2008) notes that "numerical increases in the percentages of full-time full professors over time for unmarried women and women without children were greater than those for married women and women with children"

(page 8). In sum, men academic scientists are more able to succeed on their career path while being married and having children because they have partners at home who assume the bulk of childrearing responsibilities whereas women academic scientists do not, since marriage and having children increases their household duties, taking away from their ability to focus on their career. Clearly, the lack of work-life balance in academic science careers is keeping some women from starting or staying in these positions.

Many universities are actively working to alter structural barriers that may keep women out of the academic workforce or prevent them from advancing to higher ranks (Sturm, 2006). Universities do this in many ways, including the creation of internal policies to encourage diverse hiring practices, diversity statements and memberships in pro-diversity organizations such as the California Universities Consortium, which is solely dedicated to working toward increased diversity amongst faculty and graduate students (California Universities Consortium, 2006). The federal government is also actively trying to make university's personnel policies friendlier to women through programs like the National Science Foundation's ADVANCE grants (NSF, 2001). In the next section, we discuss university adoption of family-friendly policies.

Family-Friendly Policies in Academia

Over the last 30 years, many universities have instituted policies meant to correct the gender imbalance in career progression. In addition to actively recruiting women into faculty positions, universities are also adopting family-friendly or work-life policies. According to Raabe (1997), 74% of universities provide paid maternity leave, and approximately 56% provide job assistance for spouses of faculty. While there is a growth in family-friendly policies, there is less understanding of how these policies affect faculty productivity and outcomes. Research into the effects of family-friendly policies is sparse, especially in the context of public organizations and higher education. Regardless of setting, the family-friendly policies that organizations implement, though not overtly directed at one sex, are meant to be utilized by and tend to advantage women (Medjuck, et al. 1998, Whittock, 2002).

Unfortunately there is little research investigating whether or not family-friendly policies benefit employees and whether or not those benefits accrue disproportionately to men or women. For example, there is little agreement concerning the effectiveness of the

Family and Medical Leave Act (1993) (FMLA). FMLA guarantees 12 weeks unpaid maternity, paternity or family care leave for those employees that are eligible (USDOL, 2011). Unfortunately, because FMLA does not include provisions for paid leave, its use is often impractical for many workers (Moskowitz 2001). Additionally, Armenia and Gerstel (2005) posit that the unpaid leave guaranteed by the FMLA actually acts to maintain inequality because white women are more likely than men or African-American women to take leave, thus further disadvantaging these women. For those workers that do choose to make use of leave policies, the ramifications of their choice can be a serious concern. Judiesch and Lyness (1999) found that managers who took leave received fewer promotions, smaller raises, and worse performance ratings subsequent to taking leave. Alternatively, some research has found that leave can have positive outcomes for women. For example, research indicates that women who took leave after the passage of the FMLA return more quickly and more often to the same job than women prior to passage of the FMLA (Hofferth & Curtin, 2003). Research indicates that the implications of the FMLA are neither uniformly positive nor negative.

In addition to researching outcomes of formal leave policies, it is important to understanding the ways in which organizations and workers perceive policies meant to advantage particular groups or alter organizational culture. Organizations in the United States have adopted a number of formal policies aimed at protecting minority populations and women. For example, an organization may adopt formal rules about hiring and firing in order to ensure protections for minority populations or to comply with regulations such as the American with Disabilities Act (1990) or FMLA. There are mixed views on whether or not these policies effectively serve the populations they aim to protect. Some researchers argue that the primary result of federal regulations such as EEO and FMLA is the proliferation of formalized rules and regulations, rather than the advancement of women and minority groups. Still, it is possible that the proliferation of formalized rules at the organizational level does serve the advancement of women and minority groups. Thus, researchers have become more interested in formalized human resource management (HRM) structures and their affects on outcomes for employees (Braddock & McPartland, 1987; Cockman et al. 1990; Edelman, 1990, 1992; Goodstein, 1994; Jackson et al.1989; Johns & Moser, 1989; Scott & Meyer, 1991; Tanner, 1986).

Some argue that formalized HRM structures are symbolic (Edelman, 1992) and do little to advance women or minorities. Previous research into the efficacy of family-friendly policies for women manager's career in state government has not found statistically significant effects (D'Agostino & Levine, 2009). Others (Glazer 1988a, 1988b) argue that formalized rules help to initiate organizational change. For example, research has found that formalized human resources management structures that promote the goals of equal employment opportunity or affirmative action not only symbolize good faith, but can be associated with positive indicators of the employment status of groups to which they aim to advance (Konrad & Linnehan 1995). Additionally, researchers argue that formalized rules can result in changed behavior and ultimately, over time, the adoption of a new set of values.

There is little agreement as to whether family-friendly policies are an appropriate avenue for addressing inequalities in STEM fields or academia in general. Recently researchers have posited that efforts to increase gender equality in science (such as family-friendly policies) will find the culture of departments and science difficult to overcome. Eskowitz and colleagues (2000) explain that "a broader recognition of the need to change and requisite actions are required to reconstruct male-gendered science and engineering departments" (p. 236). Ward and Wolf-Wendel (2005) emphasize the necessity of change at the department level, saying that department chairs and senior faculty must learn about and support these policies in order to accomplish cultural change. Others view these formal policies as aimed not on equality but at improving workplace productivity for all organizational members (Kjedal et al. 2005; Medjuck et al. 1998).

Some research indicates that family-friendly policies have potential benefits, such as increased commitment to the organization for those employees that have access, an important concern for universities hoping to hire and retain female faculty to increase diversity (Grover & Cooker, 2006). Still others note that while availability of formal policies are important, it is increasingly clear that awareness and usage of such policies may be related to larger issues. Like spousal hiring and tenure probationary period extension, women faculty are reluctant to make use of family leave policies. Wolf-Wendel and Ward (2005) found that women faculty are not always aware of family-

friendly policies, and those that are aware are not necessarily willing to use these policies. Finkle and colleagues (1994) found only a small percentage of faculty eligible for leave actually made use of the policy in a university survey while a majority of the faculty expressed concerns that making use of leave policies would hurt their career.

Additionally, in the context of universities, decisions about leave are often made at the department or unit level. Because leave involves the department having to make adjustments such as covering the teaching load and advising duties of the person on leave, even when a formal policy exists, there is a great deal of discretion available to department chairs. Ward and Wolf-Wendel (2005) note that although less progressive department chairs in their study did not oppose leave, they were not necessarily helpful in terms of facilitating leave. Department chairs often left the faculty member to handle making sure their duties were taken care of in their absence. Thus, the presence of family leave policies does not guarantee that university management and culture will be supportive or that faculty will be comfortable using leave, especially considering the perception that it might have a negative impact on one's career.

While the research on family-friendly policies at universities is sparse, it is true that many universities are using formal policies as one mechanism for attracting and retaining women scientists. Whether or not women take advantage of those policies, we expect that the presence of family-friendly policies signals a women-friendly work environment, where the organization and its leadership values the promotion and advancement of women. Thus, women will be more likely to want to work at, stay, and develop successful careers in these more progressive institutions. We expect that the presence of more developed family-leave policies will be related to increased work outcomes for women.

H1: Women faculty working at universities with more advanced family-friendly policies will have increased outcomes.

In addition to general leave policies, because promotion in academia is done along the tenure-track, the timing of work and continued work performance is an important indicator of success. The tenure-track process at many Research I universities

requires faculty to have an initial review in the third year and a formal tenure review after six or seven years. Taking time off for family can often interfere with this traditional tracked promotion and tenure process. Thus, many universities have developed formal policies related to stopping the tenure clock or taking time off the tenure track.

The tenure track is often viewed as especially problematic for women faculty who may be starting families at the same time they are supposed to be making progress toward receiving tenure. Policies allowing an extension of the tenure probationary period are meant to allow women (and sometimes men) time off in order to give birth, adopt, or care for a child. Similar to other policies, there are two factors related to taking time off the tenure clock (1) awareness of the policy and (2) a willingness to ask for what some view as exceptional treatment (Bhattacharjee, 2004). For example, in a survey of University of California faculty, 66% of faculty knew about the tenure probationary period extension and only 30% of those eligible to use the policy actually took advantage of the policy. The researchers attributed this avoidance of the policy to fears that use of the policy "might result in negative repercussions" (Mason et al. 2006, p. 20). Though many schools offer the option of extending the probationary period, we know little about how the presence of these policies relates to work outcomes. That said, we expect that universities that have formal policies for taking time off the tenure clock will be more conducive work environments for women and result in increased outcomes.

H2: Women faculty working at universities that have a formal policy for stopping or delaying the tenure clock will have increased academic work outcomes, as compared to women at universities that do not have such policies.

Research indicates that formal HRM policies are important for shaping HR practices (Konrad & Linnehan 1995). We assume that familiarity with formal university personnel policies will be related to changes in informal policies and organizational culture. As noted by Scott (1991) organizations can be coerced by external government mandates, but these mandates through resulting in changes in laws, may not result in organizational change. In fact, normative pressure might be more influential in

determining change (DiMaggio and Powell 1983). For example, one university might comply with FMLA, setting formal leave policies for faculty whereas a second university might adopt additional policies expanding leave policies and take steps to ensure that all faculty and administrators are aware of these new policies and informed about their intended consequences. An organization that takes these additional steps to change the normative values in the organization might see more buy-in and support for formal policies. It follows that universities that make normative and cultural changes related to personnel policies (such as stop-clock, family leave, childcare, spousal assistance, workload adjustments) will see increased outcomes among faculty. Specifically, because research indicates that women who have families are less likely to pursue academic science careers, we expect that women scientists will be more likely to stay on the academic career track if they are offered formal family-friendly policies and work in an environment that makes the promotion and advancement of women a priority.

One important way that universities indicate that advancing the careers of women is a priority is through the creation of committees on the status of women. In particular, Status of Women reports signal a commitment on the part of the university towards understanding the status of women on campus, identifying challenges that face women, and making recommendation for removing barriers to women's promotion and tenure. Thus, the publication of a Status of Women report is an important symbolic, and at times practical indicator of the university's commitment to women faculty. Thus, we expect that the publication of a Status of Women report will be related to increased outcomes for women faculty.

H3: Women faculty working at universities that have a Status of Women report will have increased academic work outcomes, as compared to women at universities a Status of Women report.

In their study of faculty at nine research universities, Ward and Wolf-Wendel (2005) also found that on-site child care is the most requested family-friendly service. In looking at the state of academic women scientists in Denmark, Etzkowitz and colleagues (2000) found some women partially attributed their career success to being able to

arrange child care. It seems the importance of accessible child care cannot be underestimated. Raabe (1997) found that 47% of the research universities he sampled had on-site child care. Though faculty see value in the availability of child care facilities at universities, it is not clear how these policies are related to career outcomes. Since the provision of on-site daycare should enable women to spend more time at work, we expect that the provision of on-site daycare will increase outcomes for women.

H4: Women faculty working at universities with on-site daycare will have increased academic work outcomes, as compared to women at universities without on-site day care.

Spousal hiring is one policy increasingly employed by universities in order to attract highly regarded scholars to their faculty. These policies are also sometimes viewed as a path to increasing representation of women on university faculty through joint recruitment with their husbands. In her analysis of spousal hiring policies at the University of Illinois, Urbana Champaign Loeb (1997) finds that 69% of spousal hires are recruitment of wives as a result of their husbands being offered a position first. Philipsen and Bostic (2010) found that the decision of where a dual-career academic couple locates is often determined by the spouse that finds a position first. Interestingly, Mason and colleagues (2006) found that married women Ph.D.s were more likely to say their spouse's career limited their search for a position as a faculty member than married men Ph.D.s. They also found that, while a policy exists on paper, many university faculty members still may not be aware of the policy. Research concerning spousal hiring is almost exclusively focused on measuring who uses these policies, when, and how these policies affect universities and individual departments with little focus on outcomes for those who choose to make use of spousal hiring policies. We expect that women and married faculty will be attracted to universities that have formal spousal hiring policies and will be more likely to work at and be productive at these types of universities.

H5: Women faculty working at universities with formal spousal hiring policies will have increased academic work outcomes, as compared to women at universities without formal spousal hiring policies.

The perception that family-friendly policies are directed toward women may raise yet another barrier: these policies may be met with resistance in the male-dominated environment of academia (Rosser, 2004). In a recent survey of tenure-track faculty at over 130 universities and colleges, males rated family-friendly policies as less effective than did their female counterparts (COACHE, 2008). Research into the attitudes of male faculty and staff at American universities found that men appeared to perceive their careers as incredibly demanding on their personal life, but hesitant to support family-friendly policies (Anderson et al. 2002). Little research has looked at whether these policies benefit men, and though it is not the main focus of this article, the analysis includes men in order to provide a point of comparison for the women as well as to generate a more well-rounded picture of the effects of family-friendly policies on faculty members in particular, and therefore universities in general. Additionally, this analysis will give us a better understanding of the relationships between these policies and the career progression and productivity of men.

Although family-friendly policies at universities are often designed to enable work-life balance for women faculty, the policies are often gender neutral. While maternity leave pertains to women alone, 32.8% of universities in this sample also offer paternity leave beyond that required by FMLA, which targets men. Additionally, other family friendly policies such as sick leave, stopping the tenure clock, spousal hiring, and on-site day care are available to both men and women faculty. Thus, we expect that similar to women, men faculty will benefit from family-friendly policies.

H6: Men faculty working at universities with more advanced family-friendly policies will have increased outcomes, as compared to men at universities with fewer family-friendly policies.

In addition to family leave policies, we expect that men will benefit from the presence of spousal hiring policies and on-site day care, both of which will enable them to provide additional resources to their families.

H7: Men faculty working at universities with on-site daycare will have increased outcomes, as compared to men at universities without on-site day care.

H8: Men faculty working at universities with formal spousal hiring policies will be increased outcomes, as compared to men at universities without formal spousal hiring policies.

Data and Methodology

Ordinary least squares and logistic regression analysis is used to investigate the relationships between family-friendly policies, sex, and outcomes among academic scientists. We use two data sources: (1) the 2006 NETWISE survey of scientists and engineers working in Research 1 universities in the United States (2) data coded from faculty handbooks and Status of Women Reports. The survey sample was composed of 3,677 randomly chosen scientists and engineers in six disciplines at Carnegie-designated Research 1 universities.¹ Items included in the Netwise survey covered topics such as personal background, education, networks and relationships, attitudes about the work environment, research and demographics. The main focus of the NETWISE survey was not the experiences of women scientists, but many items proved useful for research on this topic. The response rate was 48 % (or 1,764 returned surveys). Only 1,598 (or 44% of the total sample) of these returned surveys were usable. Prior to analysis, the data were weighted based on stratification of the sample by gender, rank and field.² Faculty

¹ The employed in our analysis came from a survey that was part of NETWISE 1, a project funded by NSF Grant# REC-0529642 titled: Women in Science and Engineering: Network Access, Participation, and Career Outcomes. The co-PI's are Julia Melkers, Associate Professor of Public Policy at Georgia Tech and Eric Welch, Associate Professor of Public Administration at the University of Illinois, Chicago Grant

² The bulk of the handbook –based data used in our analysis comes from a Monica Gaughan's project examining university-based antecedents of women's success in academic positions, which is funded by NSF Career Award 0710836. We would like to thank her for her support.

handbooks were coded for the presence of eight family-friendly policies in order to provide a dependent variable.

Dependent Variables: Faculty outcomes and productivity are measured using three dependent variables: Leadership Positions, Productivity, and Teaching. Each of these dependent variables is drawn from responses to the NETWISE survey. Leadership Position is a dichotomous variable, with one indicating holding or having held one or more of the following positions: department chair/department head, dean, director of a research institute, and chaired professorship. Productivity is a categorical variable based on the following survey question: Please indicate how many peer reviewed journal articles (accepted or published) you had in the past two academic years. The seven response categories include: 0, 1-2, 3-4, 5-6, 7-9, 10-14, and 15 or more. Teaching is a measure of the number of courses taught in the previous year. Responses range from one to 5 or more. We model Leadership Positions using a logistic regression model. We model Productivity and Teaching using OLS regression.

Independent Variables: In order to operationalize university family leave policies, we collected Faculty Handbooks³ and Status of Women reports from the 150 universities included in this study. In total, we were able to collect 115 handbooks. Among the 150 universities in this study, 99 have Status of Women reports. We include one variable related to Status of Women reports. The variable, **SOW**, is coded one if the university has a Status of Women report and zero if not.

We coded eight variables from the Faculty Handbooks. The variable, **Spousal Hire**, is coded one if the university has a specific policy related to spousal hiring. **TenureClock** is coded one if the university has an official policy detailing rules and regulations related to time off and tenure clock stops and delays. In order to capture the level of leave policies offered at a university, we coded four variables for the types of leave offered at each institution. First, we coded a variable for Maternity **Leave**, which is

³ Ninety-four of the handbooks were collected in 2007 as part of an earlier attempt to code handbooks for the universities involved in the NETWISE survey. When 2007 handbooks were not available we collected 2011 handbooks. We collected a total of 115 handbooks (21 from 2011). Of all the documents collected, 100 are titled "faculty handbook" while the rest, though similar in content to handbooks, have other titles such as "policies and procedures guide" or "academic affairs manual".

a categorical variable indicating if the university has an official policy for paid maternity leave (=2), unpaid maternity leave (=1), or no official policy beyond FMLA (=0). We also coded two variables for Paternity Leave and Adoption Leave, which are also categorical variables coded as paid leave (=2), unpaid leave (=1), or no official policy beyond FMLA (=0). Finally, Parental Leave is coded one if the university has a policy, paid or unpaid, which provides leave or reduction in workload expressly to care for a child (not including leave to care for a sick child, which is provided under FMLA). The four leave-oriented variables (maternity, paternity, adoption and parental) were summed to create an additive index representing a score for the level of leave support provided by the policies at that university. The **Family Leave** scale ranges from zero to seven, with seven being the most generous leave policy. **Childcare** is coded one if the university has on-site childcare facilities for use by faculty. Finally, although we coded a variable for whether or not lactation facilities are available, this variable was not included in the final analysis because too few universities (n=2) included provisions for lactation facilities in their handbooks. Table 1 summarizes the frequencies of family-friendly policies among universities in this study.

[Insert table 1 about here]

Control Variables. We include a number of control variables in the models. **Age** is a continuous variable. **Married** is coded one if the respondent is married, zero if not. **Children** is coded one if the respondent has dependent children. **Married w/Children** is an interaction variable (this interaction variable was not included in the logistic regression model predicting supervisory positions for men due to the high correlation between the **Children** variable and the **Married w/Children** variable). We also include a control variable for if the respondent is married to an academic, since previous research indicates that academic work outcomes for women vary by marital status, and in particular if the woman is married to an academic (Frank Fox, 2008). Finally, we include five dummy variables for the following fields of science: Biology, Chemistry, Computer Science, Earth and Atmospheric Sciences (EAS), Electrical Engineering, and Physics.

Descriptive statistics for all study variables are listed in table 2.

[Insert table 2 about here]

Results

The results for the logistic regression analysis predicting Leadership Position are presented in Table 3. The results for the OLS models predicting Productivity and Teaching are presented in Table 4 and Table 5 respectively. For each model, we first predict outcomes for all individuals (men and women) in a full model. Since this research is interested in predicting outcomes by sex, we first discuss the results for the combined models. In the logit model predicting leadership positions we see that sex is not significantly related to holding a leadership position. Table 4 indicates that women produce fewer journal articles than men. Finally, the third model indicates that women academic scientists report significantly lower teaching loads than their male counterparts, holding the other variables in the model constant (see table 5). This runs contrary to findings in prior research about the nature of women faculty's responsibilities (Parks, 2000).

[Insert tables 3, 4, and 5 about here]

While the results from the full models are interesting, capturing sex in a single independent variable does not enable us to understand the ways in which the relationships in the model vary by sex. Since we are particularly interested in the ways in which family-friendly policies produce different outcomes for men and women, we split the models by sex. Rather than using sex as a single variable in the model, which results in an overall understanding of how these policies affect all faculty, the split models enable us to investigate the separate and possibly different relationships between the independent and dependent variables for men and for women. Below, we discuss the results for all of the models in the order of the hypotheses.

We find support for the first hypothesis that the presence of more generous family leave policies are related to increased career outcomes for women academic scientists. Specifically, increased leave policies (e.g. increased types of leave offered and more generous leave) are positively related to the production of journal articles. Additionally, women who work at universities with increased levels of leave policies are more likely to hold leadership positions, as compared to those at universities with fewer leave policies (see table 3). Finally, as noted in table 5, women who work at universities with generous

leave policies teach significantly fewer courses than women at universities without generous leave policies, implying that these policies are related to reduced teaching loads.

The models predicting outcomes for all faculty in the study (e.g. men and women together) indicate a significant relationship between a policy for stopping the tenure clock and the outcomes of leadership positions, teaching, and publishing. However, when we look at women scientists alone, we do not find these significant relationships. We find no support for our second hypothesis: *Women faculty working at universities that have a formal policy for stopping or delaying the tenure clock will have increased academic work outcomes, as compared to women at universities that do not have such policies.*

We find partial support for our third hypothesis that universities with a Status of Women report will see increased outcomes for women scientists. First, as noted in Table 3, we find that women working at universities with a Status of Women (SOW) report are significantly more likely to report holding at least one leadership position such as department chair or head director of a research institute, or a chaired professorship, as compared to women working at universities that do not have an SOW. There is no significant relationship between having an SOW and teaching loads for women faculty. Finally, there appears to be a significant relationship between the presence of an SOW and journal publication (see table 4). However, when we split the model by sex, we see that the presence of an SOW is significantly, negatively related to journal production for men scientists, but is not significantly related to journal production for women.

We do not find support for the fourth hypothesis that on-site childcare will increase work outcomes for women faculty. On-site childcare does not increase journal publication rates for women faculty and is not sufficiently related to the likelihood of holding a leadership position. In fact, we find the opposite. The presence of on-site childcare is significantly related to increased teaching loads for women faculty.

Our models do not indicate support for the fifth hypothesis. While we find that the presence of a formal spousal hiring policy is related to increased journal publications and decreased teaching loads for all faculty, when we split the models by gender, we see that for women, the presence of a spousal hiring policy is not significantly related to teaching or publishing outcomes. Additionally there is no significant relationship between

presence of a spousal hiring policy and increased likelihood of attaining leadership positions for women.

Now we turn to the hypotheses about the relationships between family-friendly policies and work outcomes for men faculty. First, we find that the level of family-friendly policies at the university is significantly related to work outcomes. Men who work at universities with more generous family-friendly policies report increased journal article publications, decreased teaching loads, and an increased likelihood of holding leadership positions, as compared to those at universities with fewer leave policies.

We also find support for the seventh hypothesis: *Men faculty working at universities with on-site daycare will have increased outcomes, as compared to men at universities without on-site day care.* Men who work at universities with on-site daycare report publishing more journal articles than men at universities without on-site daycare. Additionally, on-site daycare is positively, significantly related to holding a leadership position. While on-site day care increases the likelihood that man will hold a leadership position and the number of journals they report publishing, it is also significantly related to an increased teaching load. Thus, on-site daycare increases men's ability to produce increased work outcomes of all types.

We find some support for the final hypothesis about the relationships between formal spousal hiring policies and career outcomes for men faculty. First, we find that men who work at universities with formal spousal hiring policies have significantly lower teaching loads than those working at universities without formal spousal hiring policies. Second, we find that men working at universities with formal spousal hiring policies produce more journal articles than those at universities without formal spousal hiring policies. We find no significant relationships between spousal hiring policies and the likelihood of holding a leadership position.

We also find some notable relationships between the control variables and outcome variables: leadership positions, teaching, and publishing. For men, stopping the tenure clock is related to a higher teaching load, while no significant relationship was found between stopping the tenure clock and work outcomes for women. In some aspects, marriage appears to disadvantage women, as married women are less likely to hold a leadership position while also having heavier teaching loads (the opposite was

found for married men, who have lower teaching loads). Marriage is also significantly related to fewer journal publications for men, though married men with children reported more journal publications. Caring for children is related to higher teaching loads for the sample as a whole. Having a partner who is also a faculty member benefits both men and women, as women with faculty partners have lower teaching loads and men with faculty partners are more likely to hold leadership positions. Lastly, there is a significant relationship between caring for a parent and fewer publications for women.

Discussion

This research focuses on understanding the ways in which formal family-friendly policies at universities affect work outcomes for faculty in six fields of science. Specifically, we investigate whether these relationships vary for men and women faculty. Before discussing the implications of this research, it is important to note the limitations. First, there may be errors in the ways in which we collected and coded data for each university. Though repeated attempts were made, we were unable to collect handbooks for every university involved in the NETWISE survey. Overall, we were successfully able to code only 115 handbooks, resulting in missing data for 34 universities. Moreover, university faculty handbooks do not necessarily contain all university human resources policies available to faculty, so it is possible some universities with family-friendly policies were not coded as such. However, the faculty handbook generally acts as a central repository of information on university policies pertaining to faculty. As such, the choice of what policies to include in the faculty handbook is a judgment about what policies are important enough to require a high level of awareness among faculty.

Second, many universities may not have formal family-friendly policies, but do accommodate family leave, spousal hiring, and tenure clock stopping through informal relationships. While these informal arrangements undoubtedly occur at universities, this research is interested in the ways in which formal policies are related to productivity.

Third, there may be limitations related to the dependent variables used in this study, which are self-reported data from a survey. As self-reported survey data, we must

rely on the respondents to accurately report information about publication rates, teaching loads and many other topics, so the data collected is subject to their ability to correctly recall and honestly report this information. Two of dependent variables, courses taught and journal publications, only measured these outcomes for the past year and two years, respectively, which may or may not be representative of larger pattern of productivity or teaching responsibilities. Finally, there are undoubtedly important variables not included in these models such as children's age, departmental culture, and actual use of all family-friendly policies we examined. Unfortunately, data limitations prevent us from modeling these variables.

Despite the data limitations discussed above, the results from the analysis point to important relationships between family-friendly policies at Research I universities and how they are related to work outcomes for men and women scientists. First, we look at the ways in which having a Status of Women report is related to outcomes for faculty. We see that the presence of an SOW is significantly and positively related to the likelihood that women faculty will hold a leadership position. At the same time, having an SOW is negatively related to men holding leadership positions. Thus, we see that SOW reports, which signal a concern for and commitment to improving the status of women on campus are related to increased leadership positions for women. Bird, Litt, and Wang (2004) say that creation of SOWs works to remind university administrators of inequality and push for change. Thus, the positive relationship between having an SOW and leadership positions for women may reflect this change in action. Of course, it is possible that universities that are more likely to promote women to leadership positions are also the same types of places that will invest time and money into publishing SOWs. Whether this relationship is causal or not, it is clear that the presence of an SOW is an indicator of leadership possibilities for women. An alternative interpretation of the results is that SOWs, by promoting women, result in fewer leadership positions for men. This finding may speak to why initiatives and policies meant to facilitate women faculty have been met with some resistance in the male-dominated environment of academia (Rosser, 2004).

Second, we look at the ways in which generous family leave policies are related to outcomes. Universities with the most generous family leave policies offer paid

maternity, paternity, and adoption leave and paternal leave. We find that generous family leave policies are related to increased publishing, decreased teaching, and an increased likelihood that faculty will serve in leadership positions. Most important, we find that the direction and significance of the relationships between family leave policies and the three outcome variables are the same for both men and women. We also see that the relationships between family leave policies and publications and leadership positions are slightly stronger for women than for men. This finding is important because it points to the fact that (1) family leave policies do not necessarily reduce research outcomes among faculty and (2) family leave policies have similar outcomes for men and women. Considering that universities are least willing to adopt policies that require financial support (e.g. paid leave), this finding suggests the cost may actually be a worthwhile investment (Ward & Wolf-Wendel, 2005).

Third, we find significant relationships between tenure clock stopping policies and the three outcome variables. However, we only find significant relationships for men, not for women. We find that men who work at universities that have formal policies that allow for tenure clock stops or breaks produce fewer publications and teach less than men at universities without these policies. Additionally, men working at universities with formal tenure clock stopping policies are more likely to report working in leadership positions. It is possible that universities that do not have formal tenure clock stopping policies are the types of institutions that have faculty who are publishing and teaching at lower rates than the types of universities that do have these policies. It is also possible that men are taking advantage of these policies and women are not. Given the lack of a relationship between leave policies and women's outcomes, and positive outcomes for men, we suspect that men are more comfortable taking advantage of tenure stopping policies. This possibility is supported by Mason and colleagues (2006) finding that nearly twice as many women than men in their study expressed reluctance to use these policies for fear that it might negatively impact their career. However, it is also possible that universities that do not have formal tenure clock stopping policies are the types of institutions that have faculty who are publishing and teaching at lower rates than the types of universities that do have these policies.

Fourth, we investigated the relationship between organizational provision of childcare services and work outcomes. Not surprisingly, we find that faculty who work at universities that have on-site childcare report increased teaching loads. It makes sense that on-site childcare would make it possible for faculty to be on campus and teach. A more interesting finding is the ways in which on-site childcare is differently associated with publishing and leadership positions for men and women. For women, on-site childcare is not related to journal publishing or having a leadership position. However, for men, on-site childcare is positively related to these outcomes. We suspect that this finding points to the ways in which household duties and childcare in particular, are divided by sex with women academic scientists taking on considerably more of the child-rearing responsibility than their male counterparts (Schiebinger & Gilmartin, 2010). It is possible that on-site childcare does not alleviate women's childcare obligations in the same ways that it does for men, freeing them to publish more and hold leadership positions.

Finally, we find that having formal policies for spousal hiring affect outcomes for men faculty, but are not significantly related to work outcomes for women. Specifically, men who work at universities with formal spousal hiring policies produce significantly more publications and teach less than those at universities without formal spousal hiring policies. This finding might indicate that formal spousal hiring policies, which aim to provide employment for academic spouses, may disproportionately benefit men over women. Aisenberg and Harrington (1988) found that women academics who are in dual career couples are more likely to put their spouses career before their own than men in the same situation, so women may be taking less desirable positions. This may be related to negative career outcomes. Of course, given the data limitations discussed earlier, we cannot conclude that these relationships are causal. However, our findings do point to an important need for further investigation into the ways in which spousal hiring policies may help or hinder work outcomes for men and women.

Certain control variables also present notable findings, such as stopping the tenure clock. Use of this policy is related to a higher teaching load for men. Perhaps men who take leave are viewed negatively and given heavier teaching loads as a result. Scholars have found that faculty express a fear of repercussions for stopping the tenure clock,

perhaps for men this fear is well founded (Mason et al. 2006). Alternatively, marriage appears to have a negative impact on women's career outcomes, as married women are less likely to have held a leadership position while also having heavier teaching loads. This may reflect a level of institutional marginalization for women who are dividing their attention between work and home (Schiebinger & Gilmartin, 2010). Marriage has mixed results for men, as married men have smaller teaching loads but fewer journal publications. Interestingly, for men, marriage with children is related to increased journal publications. It is possible that men who are married without having children divide household responsibilities more evenly than those with children, or that men who are married and have children are also more likely to have a stay-at-home partner who does the majority of domestic work. This finds limited support in a study by Schiebinger and Gilmartin (2010), who found that men scientists are more likely than their counterparts who are women to have a stay-at-home partner, and that their stay-at-home partners take on 76% of household tasks. Schiebinger and Gilmartin also found that the division of housework is more equal between spouses who are both faculty members, which correspond well with our finding that women with faculty partners have lighter teaching responsibilities. However, men with faculty partners are also more likely to hold leadership positions, even though they are doing more housework than their counterparts without faculty partners, a finding that requires further investigation

This research contributes to the literature aimed at understanding the ways in which family-friendly policies are related to work outcomes for both men and women. The findings have practical implications for policy and practice. On a practical level, providing evidence that family-friendly policies are effective or ineffective in the STEM context could help universities make informed decisions about where to focus their efforts in terms of creating an environment conducive to the advancement of women faculty. Our finding that family-leave policies are positively related to faculty outcomes supports the understanding that the family-leave policies have value for both men and women faculty.

Unfortunately, based on our analysis, some family-friendly policies and efforts including on-site childcare, tenure clock stop policies, and spousal hiring policies benefit men more than women. Previous research has established that women remain somewhat

marginalized in STEM fields, making the results of our analysis (which found that these policies benefit men more than women) somewhat troubling. It is possible that efforts to enact formal policies at the university level are not having the intended effect of providing support for women. Further research is needed to understand exactly how these efforts help or harm men and women, perhaps focusing on other career outcomes such as professional reputation.

Future research might also examine the role of departmental culture in the efficacy of these policies. As others have noted, use of these formal university policies may hinge on the culture of the academic department or unit, with less supportive departments experiencing a lower rate of use of family-friendly policies (Ward & Wolf-Wendel, 2005). Scholars note that STEM departments often have male-centric cultures, making it critical to understand how specific fields might develop cultures that are more welcoming to women faculty (Etzkowitz et al. 1994). If culture is a determinant of family-friendly policy use, universities would need to rethink their approach to administering family-friendly policies - listing formal policies in a handbook may not be enough.

In sum this research takes a small step in advancing the literature on women faculty in STEM fields. The results provide information about the effectiveness of these policies in terms of facilitating better career outcomes, an issue previous research had not examined in the context of higher education. Our results also highlight the inadequacy of family-friendly policies for fully addressing women faculty members' marginal positions in STEM fields. Family-friendly policies appear to be a step in the right direction. But there is still a long way to go.

Table 1: Frequency of Family-Friendly Policies among Research I Universities

Type of Leave	Percent	N=
Spousal Hiring	12%	14
Time Off Tenure Clock	59%	68
Maternity Leave*	39%	45
Parental Leave	20%	23
Adoption Leave*	72%	83
Paternity Leave*	30%	34
On Site Child Care	14%	16
Lactation Facilities	2%	2

*Leave beyond FMLA

Table 2: Descriptive statistics for study variables

Variable Name	Mean	Min.	Max.	Std. Dev	N
Dependent Variables					
Leadership Position	0.28	0	1	0.45	10046
Journal Publications	3.90	1	7	1.77	9978
Teaching Load	3.45	1	6	0.45	9963
Independent Variables					
Female	0.14	0	1	0.35	10046
Status of Women Report	0.66	0	1	0.47	10046
LeavePolicies	1.50	0	7	2.02	7808
Spousal Hiring Policy	0.16	0	1	0.37	7968
Time Off Tenure Clock Policy	0.63	0	1	0.48	7968
On-Site Childcare	0.16	0	1	0.37	7968
Took Time Off Tenure Clock	0.05	0	1	0.22	9842
Married	0.88	0	1	0.32	9869
Partner Faculty	0.21	0	1	0.40	8837
Married w/Children	0.53	0	1	0.50	9797
Has or Cares for Children	0.56	0	1	0.50	9802
Has or Cares for Parent	0.20	0	1	0.40	9684
Age	49.88	28	82	10.46	9916
Physics	0.22	0	1	0.41	10046
Chemistry	0.16	0	1	0.37	10046
Earth & Atmospheric Sciences	0.15	0	1	0.35	10046
Biology	0.12	0	1	0.33	10046

Computer Science	0.13	0	1	0.34	10046
Electrical Engineering	0.21	0	1	0.41	10046

Table 3: Logit Model Predicting Leadership Positions for Women, Men, and Full Sample

Supervisory Positions	Women							Full Sample				
	Beta	Std. Error	Exp(B)	Beta	Std. Error	Exp(B)	Beta	Std. Error	Exp(B)			
(Constant)	-6.470	0.976	0.002	-8.386	0.342	0.000	-7.335	0.531	0.001			
Female							-0.171	0.119	0.843			
Status of Women Report	0.521	0.253	1.683	**	-0.494	0.074	0.610	***	-0.386	0.070	0.679	***
Leave Policies	0.312	0.054	1.366	***	0.065	0.018	1.067	***	0.091	0.017	1.095	***
Spousal Hiring Policy	0.063	0.324	1.065		0.078	0.092	1.081		0.065	0.088	1.067	
Time Off Tenure Clock Policy	-0.216	0.247	0.806		0.633	0.079	1.884	***	0.520	0.074	1.683	***
On-Site Childcare	0.216	0.308	1.242		0.668	0.095	1.950	***	0.606	0.089	1.833	***
Controls												
Took Time Off Tenure Clock	-0.378	0.369	0.685		-0.159	0.193	0.853		-0.207	0.166	0.813	
Married	-1.634	0.595	0.195	***	0.154	0.213	1.167		-0.686	0.481	0.503	
Partner is Faculty	-0.095	0.229	0.910		0.474	0.089	1.607	***	0.371	0.082	1.450	***
Married with Children	1.369	1.367	3.933						0.693	0.528	2.001	
Has or Cares for Children	-1.756	1.354	0.173		-0.104	0.071	0.901		-0.817	0.523	0.442	
Has or Cares for Parent	0.057	0.253	1.059		-0.086	0.084	0.917		-0.067	0.079	0.935	
Age	0.133	0.015	1.142	***	0.129	0.004	1.138	***	0.125	0.004	1.134	***
Chemistry	-0.704	0.424	0.495	*	0.286	0.111	1.331	***	0.209	0.106	1.232	**
EAS	-0.148	0.411	0.862		0.561	0.118	1.753	***	0.497	0.111	1.644	***
Biology	0.078	0.383	1.081		0.393	0.119	1.482	***	0.407	0.112	1.503	***
Computer Science	1.029	0.470	2.798	**	0.620	0.112	1.859	***	0.633	0.109	1.883	***
Physics	-0.952	0.373	0.386	**	-0.068	0.106	0.934		-0.094	0.100	0.910	
*** p < .01; ** p < .05; * p < .10												
Discipline Reference category: Electrical Engineering												
	X ²	185.18		1619.39				1770.29				
	-2 log likelihood	539.72		5559.90				6172.80				
	Nagelkerke R ²	0.353		0.341				0.335				
	Cox and Snell R ²	0.219		0.240				0.234				

Table 4: OLS Model Predicting Journal Publications for Women, Men, and Full Sample

Journal Publications	Women		Men		Full Sample	
	B	SE	B	SE	B	SE
(Constant)	1.824	0.486	7.027	0.465	5.383	0.309
Female					-0.452	0.069 ***
Status of Women Report	0.108	0.122	0.085	0.048 *	0.085	0.045 *
Leave Policies	0.074	0.029 **	0.04	0.012 ***	0.043	0.011 ***
Spousal Hiring Policy	0.167	0.16	0.723	0.06 ***	0.681	0.056 ***
Tenure Stop Policy	-0.060	0.123	-0.145	0.051 ***	-0.142	0.047 ***
On-Site Childcare	0.140	0.151	0.410	0.065 ***	0.349	0.060 ***
Controls						
Took Time Off Tenure	-0.238	0.163	0.154	0.115	-0.007	0.095
Married	0.593	0.345 *	-2.335	0.448 ***	-0.852	0.285 ***
Partner is Faculty	0.171	0.114	-0.033	0.059	0.020	0.053
Married with Children	0.425	0.899	3.233	0.478 ***	1.763	0.327 ***
Cares for Children	-0.477	0.893	-3.133	0.475 ***	-1.658	0.324 ***
Cares for Parent	-0.344	0.145 **	-0.042	0.059	-0.059	0.055
Age	0.020	0.007 ***	-0.024	0.002 ***	-0.021	0.002 ***
Chemistry	0.355	0.167 **	0.615	0.075 ***	0.607	0.069 ***
EAS	-0.602	0.188 ***	-0.616	0.079 ***	-0.592	0.073 ***
Biology	0.029	0.169	0.218	0.082 ***	0.179	0.075 **
Computer Science	0.322	0.232	0.245	0.078 ***	0.234	0.073 ***
Electrical Engineering	0.956	0.180 ***	0.688	0.071 ***	0.686	0.065 ***
R ²	0.100		0.109		0.101	
Adjusted R ²	0.079		0.106		0.099	
Std. Error of the Estimate	1.489		1.675		1.633	

*** p < .01; ** p < .05; * p < .10

Discipline Reference Category: Physics

Table 5: OLS Model Predicting Teaching Loads for Women, Men, and Full Sample

Courses Taught	Women		Men		Full Sample	
	B	SE	B	SE	B	SE
(Constant)	2.018	0.333	3.781	0.283	2.858	0.190
Female					-0.163	0.043 ***
Status of Women						
Report	-0.111	0.084	-0.021	0.029	-0.029	0.028
Leave Policies	-0.045	0.020 **	-0.078	0.007 ***	-0.074	0.007 ***
Spousal Hiring Policy	-0.091	0.109	-0.128	0.036 ***	-0.118	0.035 ***
Tenure Clock Policy	-0.063	0.084	-0.100	0.031 ***	-0.095	0.029 ***
On-Site Childcare	0.629	0.103 ***	0.168	0.039 ***	0.231	0.037 ***
Controls						
Took Time Off Tenure	0.110	0.112	0.214	0.070 ***	0.194	0.058 ***
Married	0.479	0.237 **	-1.042	0.273 ***	-0.112	0.175
Partner is Faculty	-0.157	0.078 **	-0.045	0.036	-0.068	0.033 **
Married with Children	-0.852	0.616	0.412	0.291	-0.514	0.201 **
Cares for Children	0.970	0.612	-0.318	0.290	0.598	0.199 ***
Cares for Parent	0.010	0.099	0.081	0.036 **	0.081	0.034 **
Age	0.013	0.005 ***	0.010	0.001 ***	0.010	0.001 ***
Chemistry	0.205	0.114	0.038	0.046	0.068	0.042
EAS	0.264	0.129 **	0.309	0.048 ***	0.307	0.045 ***
Biology	0.462	0.116 ***	0.590	0.050 ***	0.573	0.046 ***
Computer Science	0.674	0.159 ***	0.764	0.047 ***	0.754	0.045 ***
Electrical Engineering	-0.085	0.123	0.196	0.043 ***	0.166	0.040 ***
R ²	0.148		0.117		0.118	
Adjusted R ²	0.128		0.114		0.116	
Std. Error of the Estimate	1.020		1.021		1.024	

*** p < .01; ** p < .05; * p < .10

Discipline Reference category: Physics

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