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Women and Pre-Tenure Scholarly Productivity in International Studies: An Investigation into the Leaky Career Pipeline

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Why are women still relatively scarce in the international studies profession? Although women have entered careers in international studies in increasing numbers, they represent increasingly smaller percentages as they move from PhD student to full professor. Our survey investigates why this is so, focusing on the assistant professor years, which are crucial to succeeding in the profession. We found that there are significant differences in publication rates, as well as differences in research focus (traditional subjects vs. newer subfields) and methodologies (quantitative vs. qualitative). Further, women and men have different perceptions of official and unwritten expectations for research, and policies regarding faculty with children may affect how successful women are in moving up the ladder. Taken together, these findings suggest reasons for the continued "leakiness" of the career pipeline for women and some potential solutions.

Keywords: tenure, women, international studies, publication, STEM, productivity, academic

There continues to be substantial debate about the reasons *why* women are scarce at the higher ranks within the academy. Numerous studies document that within a wide range of disciplines, the "pipeline" of career advancement is far more "leaky" for women than for men. Our research on scholars of international studies supports this finding. Some argue that women choose to leave academia due to an inhospitable or "chilly" environment (Sandler and Hall 1986; Sarkees 2006; Golich 2010; McAleese and Northcutt 2010; Sarkees and Breuning 2010; Cowden, McLaren, Plumb and Sawer 2012; Sandler n.d.), while others argue that women are forced out (Stout, Staiger and Jennings 2007; McAleese and Northcutt 2010). Either way, the leaky pipeline is at least partially a testament to the demands associated with advancement in academic careers. For many early-career-stage academics, the intense pressures that often accompany the quest for tenure and promotion coincide with becoming a parent. These dual pressures tend to affect women's chances for tenure more than men's (Mason and Goul-

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den 2000; Wolfinger, Mason and Goulden 2008; Goulden, Mason and Frasch 2011; Cowden et al. 2012; Slaughter 2012; Williams and Ceci 2012).

In this study, we investigate the differences in the scholarly productivity of women and men, as tenure and promotion increasingly depend on research and publications.[1] Although a wide variety of standards are used across different (types of) institutions, "peer-reviewed journal articles … are *the coin of the realm* when it comes to tenure and promotion" (Maliniak, Oakes, Peterson, and Tierney 2008; 131, emphasis added; see also Breuning 2010).

Previous studies investigating women and publishing in international studies have largely focused on the representation of women authors in academic journals (Young 1995; Tétreault, Johnstone, Ling, and Hornung 1997; Breuning, Bredehoft, and Walton 2005; Maliniak et al. 2008; Breuning 2010; however, see Hesli, Lee, and Mitchell 2012; and Sharman and True 2011 for exceptions). Here, we turn our attention to the factors that facilitate or impede the productivity of women scholars.

To assess whether women in international studies publish at different rates than men—and what factors might affect those publication rates—we conducted a survey of the members of the International Studies Association (ISA). Although the ISA may not include all scholars in international studies, it does include a very broad representation of scholars in this field. We specifically focus our analysis on scholarly productivity in the early career stage, because success at this stage enables women to remain in the academic career pipeline (Cowden et al. 2012; Hesli et al. 2012).

Women, Scholarly Productivity, and Tenure

Women increasingly are earning PhDs. In 2009, in the United States, women earned almost 47% of all doctoral degrees and just over 58% of the doctoral degrees awarded in the social sciences (Bertrand, Goldin, and Katz 2010; National Science Foundation 2010). The proportion of all doctorates earned by women in the United States is close to the average for members of the Organisation for Economic Co-Operation and Development (OECD), which was 44% in 2007 (OECD 2010). Although a number of OECD countries cluster around the mean, the proportion of PhDs earned by women ranges from a low of 27% (Japan) to a high of 61% (Portugal) (OECD 2010).[2] Despite womens' educational attainment, they are far more likely than men to leave academic careers. Numerous studies have noted that women comprise declining percentages of the professoriate in the United States when comparing their proportions of assistant, associate, and full professors (Ginther 2004; Wolfinger et al. 2008; Golich 2010; McAleese and Northcutt 2010; National Science Foundation 2010; Sarkees and Henehan 2010; Goulden et al. 2011; see Cowden et al. 2012 for comparable data for Australia).

The problem is especially acute for international studies. This interdisciplinary field includes scholars with training in various social sciences, but the political science subfields of international relations and, to a lesser extent, comparative politics dominate the field and, as our survey results show, the ISA membership (Golich 2010). The experiences of women in political science, discussed in the next few paragraphs, are therefore especially relevant. In the disciplines that dominate international studies, women "continue to work in highly male-domi-

[1]That is not to deny the value or relevance of teaching and service, the other two important pillars of a professor's work life. Nor is it meant to imply that this standard for advancement is the only—or best—way to measure success (for a critique, see Golich 2010). We simply recognize that this is often the most important component by which many universities will judge professors for promotion and tenure.

[2]The comparative data were not available for the social sciences, and neither were we able to locate average data for countries beyond the members of the OECD.

nated and masculinized fields that can be inhospitable to women scholars" (McAleese and Northcutt 2010; see also Cowden et al. 2012).

While women make up a larger proportion of doctoral degree recipients in the social sciences in the United States than of doctoral degree recipients generally, they do less well in political science where women earn just 40% of the doctoral degrees awarded (data from 2009, reported in Bertrand et al. 2010; National Science Foundation 2010). In fact, in the United States, political science and economics are the only social science fields in which women earn proportionally fewer PhDs than men.[3] That said, women have made significant strides. A 1992 report stated that women accounted for 25% of PhDs in political science (Sarkees and McGlen 1992). By 2002, this number increased to 42% (National Science Foundation, Division of Science Resources Statistics 2003), although more recent data show a small decline to 40% (Bertrand et al. 2010; National Science Foundation 2010), as noted above. In comparison, an Australian survey found that women accounted for 47% of the PhD candidates (Cowden et al. 2012).

Despite the inroads women have made in earning PhDs, the APSA (2005) found that political science departments in the United States have made relatively little progress in increasing the percentage of female tenure-line faculty—particularly at the associate and full professor levels, but also at the assistant professor level. In a report on the advancement of women in the discipline, the American Political Science Association (APSA) (2005) noted that women made up 24% of all full-time faculty in 2001, an increase of only 6% since 1996. In addition, the percentage of female assistant professors remained at about 35% over the same period (APSA 2005:iii.). As of 2011, data provided by APSA indicate that women comprise 28% of all full-time faculty in political science.[4] Cowden et al. (2012) report comparable figures for Australia: they found that 34% of the entry-level academic positions were held by women, but that women held 28% to 29% of the faculty positions in political science departments overall.

The leaky pipeline has often been associated first and foremost with the loss of women in science, technology, engineering, and mathematics—the so-called STEM fields (Goulden, Frasch, and Mason 2009). That the leaky pipeline also characterizes the social sciences in general, and international studies in particular is less widely known. As in STEM, the percentages of women in the social sciences decline across the career stages (Hesli et al. 2012). This is particularly true at the most prestigious, research-oriented universities in the United States. One report stated that despite the increasing proportion of PhD's awarded to women, "at the top research institutions, only 15.4% of the full professors in the social and behavioral sciences are women" (National Research Council 2007). In political science, APSA's data for 2011 show that women accounted for just 19% of full professors. Further, a preliminary analysis by the ISA's Committee on the Status of Women in the Profession (2009, 2011) reported a statistically significant difference in the proportions of women and men who are full professors, with only 12.3% of women having attained this rank vs. 23.5% of men. Hesli et al. (2012) add to this that women in political science in the United States tend to face the greatest professional barriers in the early (pre-tenure) stage of their career, but that those who do achieve tenure are just as likely as their male colleagues to attain the rank of full professor. Although the US tenure system

[3]Data for 2009 show that in the US women earn 71.2% of the PhDs in psychology, 61.2% of PhDs in anthropology, and 60.4% of PhDs in sociology. In history, which is reported under the humanities, women earn 41.9% of the PhDs awarded, a figure comparable to that for political science (see also APSA 2005; Bertrand et al. 2010; National Science Foundation 2010).

[4]This is not to say there has not been any progress. In the 1960s, women accounted for a mere 5.5% of political science academic positions (Sarkees and McGlen 1992:54).

does not necessarily translate to academic careers in other countries, the problems women face as they work to establish their careers are comparable (Sharman and True 2011; Cowden et al. 2012).

Scholars have proposed a variety of factors that may contribute to the lack of progress women have made in academia in general and international studies in particular. Such factors are most often divided into three categories: an institutional climate that is inhospitable to women; a restrictive research culture that discounts gendered topics; and the dual pressures of starting a family while trying to achieve tenure (APSA 2005; Erickson and Prügl 2010; McAleese and Northcutt 2010; Sarkees and Henehan 2010; see also Cowden et al. 2012; Williams and Ceci 2012). Each of these affects women's scholarly productivity, an important, often critical, factor for staying in the academic career pipeline.

Publishing may be the Achilles heel of many women scholars. Although a wide variety of standards are used across different (types of) institutions, scholarly productivity is generally the key to career advancement in academia. Numerous studies, using a variety of research strategies (including statistical analyses and in-depth interviews), find that scholarly productivity tends to be the decisive factor not only regarding tenure and promotion, but also regarding salary increases (Lewis 1980; Kasten 1984; Boyer 1986, 1990; Carnegie Foundation 1989; Gabbin, Cairns and Benke 1990; Daly 1994; Daly and Townsend 1994; Verrier 1994; Park 1996).

This finding also holds in political science. Research publications are heavily tied to tenure and promotion at all levels, in both graduate and undergraduate political science departments in the United States (Young 1995; Park 1996), and "excellent research will counterbalance almost all other deficiencies" (Park 1996:48). It is certainly possible to question whether this is a good standard for the evaluation of success in academia (Golich 2010), especially since it leaves pre-tenure faculty members with little choice but to abide by existing professional and institutional norms if they wish to advance their careers and move up the academic career ladder.

Scholarly productivity can be measured in terms of both quantity and quality. The latter is exceedingly difficult to measure, especially since different departments and institutions may value different outlets, or different types of outlets, more highly. However, virtually all institutions value peer-reviewed publications over non-peer-reviewed publications, and more over fewer. Some also rank academic journals in terms of their desirability as publishing outlets.

This suggests that one of the chief causes behind women's underrepresentation at the associate and full professor levels in international studies could be research productivity and the ranking of the journals in which they publish. Numerous studies have found that women publish fewer articles and books than their male colleagues. Kyvik (1990) reports that "virtually all studies that have examined scientific publishing among men and women scientists have found that men are more productive than women" (see also Cole and Zuckerman 1984; Fish and Gibbons 1989; Bellas and Toutkoushian 1999; Sax, Hagedorn, Arredondo, and Dicrisi 2002; Taylor, Fender, and Burke 2006; Evans and Bucy 2010). While recent research suggests that women may be catching up and, in some disciplines, may have similar publication rates as their male colleagues, many reports continue to show that women have lower productivity in most academic fields (Abramo, D'Angelo, and Caprasecca 2009; Hesli and Lee 2011). There is also some evidence that women tend to favor qualitative research (Young 1995; Breuning et al. 2005; Maliniak et al. 2008; Breuning 2010), including a greater preference for post- and non-positivist work (Ackerly and True 2008; Sharman and True 2011).

We investigate whether this also holds for women in international studies and, if so, what factors may contribute to this disparity. After all, if women are publishing less than their male counterparts, this may account for their higher propensity to "leak" out of the academic career pipeline.

New Survey Data on International Studies Faculty

While this study is not the first to turn its attention to the differential publication rates of women and men in academia, there has been relatively little research focused on scholarly productivity in international studies, and most of the studies that have investigated this have analyzed journal content. To better understand the factors that influence scholarly productivity, we conducted a survey of the ISA membership. In addition to evaluating scholarly productivity, we collected demographic data and asked questions aimed to identify the factors that might account for variation in publication rates during the early career (pre-tenure) years. Further details on the questions will be provided below, together with our findings.

We administered the survey by emailing a link to all members of the ISA (approximately 5,300 individuals). Although the ISA is a US-based professional organization, it includes members in 80 countries. It is, according to its Web site, "the most respected and widely known scholarly association in this field" (http://isanet.org). Although ISA membership may not be fully representative of scholars in international studies, it is the closest possible proxy. Hence, we use data derived from responses to the survey to analyze scholarly productivity and the factors that influence it in international studies.

We start with a discussion of the demographic characteristics of our respondents and compare this to the available data to evaluate the representativeness of our sample. In subsequent sections, we discuss our findings regarding the scholarly productivity of women and men in international studies. We conclude with a discussion of the implications of our findings.

The survey netted 1,475 responses, a response rate of approximately 28%, a very good rate for an emailed survey (Sheehan 2001; Kaplowitz, Hadlock, and Levine 2004; SurveyMonkey 2009). Of the total respondents, 359 indicated that they are students and another 223 indicated they had never been assistant professors. Since we are specifically interested in evaluating the scholarly productivity of pre-tenure faculty, we excluded both these groups from our analysis. This left 893 respondents. Because some individuals did not complete some of the questions, most of the analyses about the pre-tenure experience that are reported here are based on slightly fewer observations.[5]

To determine how representative our sample is of the ISA membership and of the larger international relations professorate, we reviewed data collected by ISA when members pay their annual dues and by the 2008 TRIP (Teaching, Research, and International Politics) survey in which the authors attempted to survey all faculty members in 4-year colleges and universities in 10 countries who do research in the subfield of international relations or who teach courses on international relations. As shown in Table 1, the percentage of respondents in each tenure-line category is close to those in the ISA and TRIP data, demonstrating that our sample, and the ISA membership, is representative of the larger international studies professorate.

About 40% of our respondents were women, matching the proportion of female members of the ISA in the past few years (Committee on the Status of Women in the Profession 2009, 2011). This is substantially higher than the figure reported a few years earlier, when Breuning et al. (2005) reported that women accounted for 32% of the ISA membership. However, these overall percentages are deceiving. As shown in Figure 1, when broken down by position, we see the usual leaky pipeline, with percentages of women decreasing as they move up the career ladder. At the student level, women account for nearly half the

[5]On the basis of feedback we received via email, the non-completers of the survey were disproportionally affiliated with universities outside of the US. Although this possibly limits our ability to generalize our findings internationally, it does not prevent conclusions regarding academic careers within the US.

Table 1. Tenure-Line Positions

	Authors (n = 893)		*International Studies Association (ISA)-collected (n = 3,888)*		*TRIP (n = 1,112)*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*
Assistant Professor	50	34	50	37	48	32
Associate Professor	28	28	30	29	27	27
Full Professor	22	38	20	34	25	41

Sources: Email communications with the ISA (December 2010) and Daniel Maliniak, the lead author of the 2008 Teaching, Research, and International Politics (TRIP) study (http://irtheoryandpractice.wm.edu/projects/trip/).

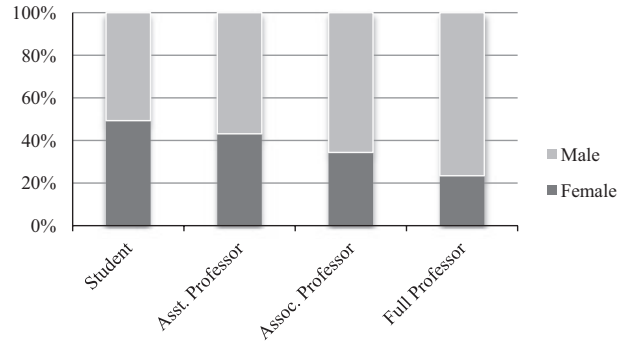

Fig. 1. Current Position, Percentage of Females and Males at Each Position

population (49%). This number falls to 43% at the assistant professor level, 34% for associate professors, and 23% for full professors.

Among female respondents who are tenure-line, 50% indicated they are assistant professors; 28%, associate professors; and 22%, full professors. This differed significantly from the male respondents, who were more evenly spread among the three levels: 34% reported they are assistant professors; 28%, associates, and 38%, full professors. (Gender differences for students are significant at $p < .001$; assistant professor, $p < .05$; associate professors, $p < .05$; and full professor, $p < .001$.)

Further, among our respondents, female faculty were significantly younger than their male counterparts: 67% of women were 40 or under, compared to 53% for men; only 14% of women identified as over 50 compared to 24% of men. This finding is consistent with the larger percentages of men in the higher ranks of associate and full professor. (Overall, men were significantly older than women at $p < .001$; under age 40, significant at $p < .001$; age 40–50, insignificant; and over age 50, significant at $p < .001$.) Interestingly, few studies examine age differences. One major European study that did examine age found no significant differences in age profiles across the various ranks for women and men (Kyvik 1990:154).

For all respondents, 90% reported earning a PhD in political science, government, or international relations; the next two highest percentages were sociology and economics, with 2% each. This reflects previous assessments that international studies is dominated by those with degrees in political science (Golich 2010).[6]

[6]Respondents who indicate that their degree is in international relations may have earned their degree through a political science department, as very few departments grant PhDs in international studies or international relations.

As would be expected for a US-based organization, the majority of respondents (61%) indicated they have worked primarily in the United States since completing their PhDs. The second largest proportion of respondents reported that they have worked primarily in Western Europe (18%). Smaller proportions of respondents worked primarily in Asia (4%); Eastern Europe or Russia, Latin America, and the Middle East, (2% each); and Africa (1%). On this question, there was no significant difference between female and male respondents.

In sum, through our survey of ISA members, the majority of whom have worked mostly in the United States, have PhDs in political science and related fields, and are representative of the larger international studies discipline, we found that—like the STEM disciplines—the international studies field has a leaky pipeline, with percentages of women declining as they climb the career ladder from student to full professor. In addition, and consistent with the leaky pipeline, we found that women in the field tend to be younger than their male colleagues.

Gender Differences in Research Productivity

The following sections examine respondents' experiences as Assistant Professors.[7] We were particularly interested in this group, as this is when professors must learn to conduct research and publish, to teach, and to balance service requirements all at the same time. Their success in doing so will determine not only whether they receive tenure, but at what type of institution they will be tenured with top ranking research universities requiring more significant publication records. We asked a variety of questions to measure research productivity, including the number of books and peer-reviewed articles respondents published during their early career years and whether those publications were solo-authored or coauthored. We also asked about book chapters, review essays, non-peer reviewed articles, and book reviews. We recognize that different types of institutions require different types and levels of publications and that our measures are quantitative (how many articles and books respondents published) rather than qualitative (the quality of the scholarship). While this limits what we can say about the link between our findings and tenure, we argue that it is still important to analyze gender differences in types and numbers of publications during the early tenure-line years.

For research universities, peer-reviewed articles and books published by university or academic presses are the most significant publications for tenure-track faculty (Figures 2 and 3). According to our survey results, even at universities that identify strongly with teaching, tenure-line professors publish at least one article in a peer-reviewed journal. Over 90% of respondents reported authoring at least one peer-reviewed article, with around 35% publishing three to five articles in peer-reviewed journals. Importantly, in this mid-range, there was no significant difference between women and men. However, at the lower and higher ends of the spectrum–one to two, six to nine, and ten or more articles–we found significant differences between women and men, with men tending to publish more (One or two articles significant at $p < .001$; six to nine articles, $p < .001$; and 10 or more, $p < .01$.)

While some social science disciplines, such as economics, focus almost exclusively on journal articles, our survey found that the majority of international relations scholars published at least one solo-authored book while on the tenure track. Respondents were much more divided on whether they published any single-authored books, with slightly more women than men reporting they did not single-author even one book: 47% of women and 42% of men selected this

[7]For scholars working outside the US, we asked them to consider these same questions substituting the first years of one's academic career comparable to those of an Assistant Professor.

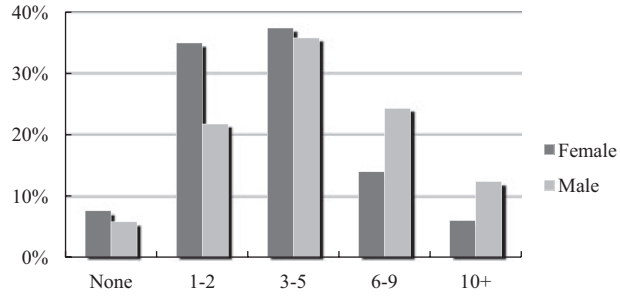

Fig. 2. Number of Peer-Reviewed Articles

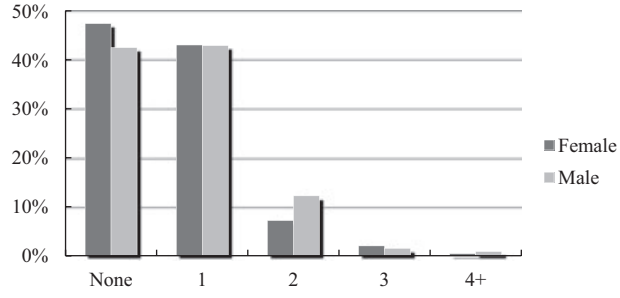

Fig. 3. Number of Single-Authored Books

option ($p < .10$). However, there was no significant difference in the percentage of women and men who single-authored one book: 43% for both genders. While few respondents reported single-authoring more than one book, of those who did, a significantly higher percentage of men than women single-authored two books (7% of women and 12% of men, significant at $p < .05$). Only 3% reported single-authoring three or more books; there was no significant difference between women and men at this highest level. We also asked about coauthored books. Only about 20% of both men and women reported publishing one or more coauthored books.

For international studies scholars, book chapters can be important publications, in part because they enhance connections with other scholars. A large majority of respondents–75%—reported publishing at least one book chapter while in their early careers. However, the number of book chapters they reported publishing varied more widely than was the case for books and peer-reviewed articles, suggesting greater differences in expectations for these types of publications. In addition, unlike the previously discussed categories, there were no statistically significant differences between the genders. Overall, 25% did not publish any book chapters, 38% published one to two, 24% published three to five, and 13% published six or more.

We also asked respondents about non-peer-reviewed articles and book reviews. Depending on the university, non-peer-reviewed articles count toward tenure but carry less weight than peer-reviewed articles, books, and book chapters. Overall, about 25% of our respondents reported that they did not publish any non-peer-reviewed articles, including a slightly higher percentage of women (31%) than men (27%); (difference nearing significance, at $p < .11$). Of those who did publish non-peer-reviewed articles, most published one or two (35%) or three to five (20%), with no significant difference between the genders. Half the percentage of women (6%) compared to men

(12%) reported publishing large numbers (six or more) of non-peer-reviewed articles ($p < .01$). This profile suggests that non-peer-reviewed articles might play an important role in tenure, perhaps due to the connections and visibility scholars gain from such publications.

At research-oriented universities, book reviews may be considered service rather than research and thus may not count for much when considering a candidate's record for tenure. Universities less focused on research may count book reviews toward publication records, although with less weight than articles. Like non-peer-reviewed articles, book reviews can help bring a scholar to the attention of others and thus advance the tenure-track faculty member's career in other ways. Among our respondents, before earning tenure, most professors published at least one book review, with about 40% of both men and women reporting they published one to two book reviews. Given that some research suggests that female faculty do more service than male faculty, it is perhaps surprising to find that men were significantly more likely than women to publish three to five ($p < .06$), and even six or more ($p < .10$) book reviews, whereas female respondents were significantly more likely (34%) than males (25%) to publish *no* book reviews ($p < .01$). While our survey cannot determine why this would be the case, one possibility is that female junior faculty are not as well connected to journal editors, who usually select the reviewers.

The data on the most significant publications for tenure at research-oriented universities–books and peer-reviewed articles–show that women and men often differ significantly on what and how much they publish during their assistant professor years. Interestingly, in the middle ranges–one book and three to five articles–we found no significant differences between women and men. However, at the extremes of the ranges, we found significant differences. Smaller percentages of women than men do *not* publish even one single-authored book (42% vs. 47%; $p < .10$), and women are less likely than men to publish two or more books (10% vs. 14%; $p < .05$). Similarly, women are more likely than men to publish only one or two articles (35% vs. 22%; $p < .001$) and less likely than men to publish six or more peer-reviewed articles (20% vs. 37%; $p < .001$ for six to nine articles and $p < .01$ for 10 or more). For book chapters, which are often less valued than books and peer-reviewed articles, there are no significant differences between women and men. Finally, for book reviews, we found the same pattern as for books and peer-reviewed articles, with differences at the extremes but not in the middle range (one to two book reviews).

The above differences could affect where and at what rates women earn tenure. To explore why women and men might publish differently, we turn to a number of possible explanations, including research focus, institutional climate, and family-related issues.

Research Focus

To examine whether women and men might publish different types of work, we asked respondents to identify the subject area of international relations in which they most frequently publish (Figure 4). The choices we offered mostly parallel the names of ISA sections, which ISA's Web site describes as "thematic sub-units of ISA, offering closer ties between ISA members who are interested in specific areas within the field of international studies" (http://www.isanet.org/groups/isa-sections.html). To allow for future comparative studies with the TRIPS survey, we made some adjustments to the list.[8]

[8]We added comparative politics, international health, methods, and the study of international relations (IR)/political discipline, including pedagogy. We did not include the following ISA sections: active learning in international affairs, English school, political demography and geography, post-communist states, and theory.

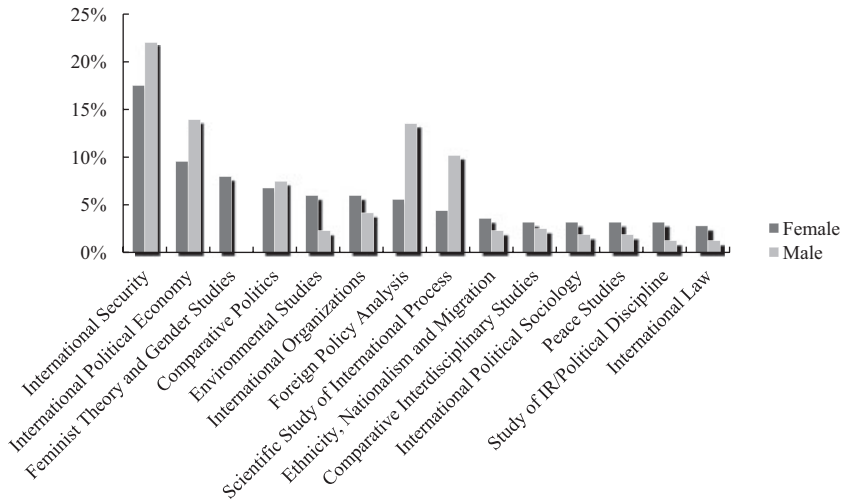

FIG. 4. Major Research Subject, in Order of Most Popular for Females.
(*Notes*: 2% or fewer respondents selected the following subjects: diplomatic studies, international health, international communications, global development studies, human rights, international education, intelligence studies, methods, and international ethics.)

Among female respondents, the two most popular research areas are the traditional subfields: international security (18%) and international political economy (10%). These were also the top two percentages for men: 22% selected international security and 14%, international political economy. The third largest areas, however, are different for women and men: for women, the third major subfield is feminist theory and gender studies (8%), a category that none of the men selected.[9] For men, the third major subfield was foreign policy analysis, which tied with international political economy at 14% ($p < .001$); only 6% of women selected foreign policy analysis. The areas in which women reported being significantly more likely than men to publish include environmental studies ($p < .01$); ethnicity, nationalism, and migration ($p < .01$); international political sociology ($p < .05$); and the study of international relations or political science as a discipline, including pedagogy ($p < .01$). A higher percentage of women than men selected international organizations, a difference that was nearly significant at $p < .07$.

Methodology is another critical way in which scholars differentiate themselves. Although we asked about several methodologies, nearly all respondents (88% overall) selected either qualitative or quantitative methods, with the vast majority of both women and men indicating their primary methodology was qualitative (Figure 5). This overall finding mirrors that of Maliniak, Oakes, Peterson, and Tierney (2011). However, we found significant differences between women and men, an area not explored by Maliniak et al. (2011). While most of our respondents reported that the methodology they primarily employed in their publications as tenure-track faculty was qualitative, women were significantly more likely than men to publishing using this method: 76% of women and 60% of men

[9]While the difference between men and women is substantively large for Feminist Theory and Gender Studies ($p < .15$), the gap is not quite statistically significant presumably due to the small number of respondents selecting this subfield. This is also true for Scientific Study of International Processes (10.2% for men vs. 4.4% for women), ($p < .13$).

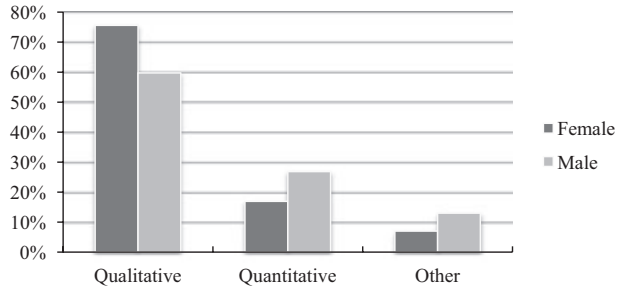

FIG. 5. Primary Methodology

selected qualitative, while 17% of women and 27% of men chose quantitative ($p < .001$.)[10] We gave respondents several other options (formal modeling, experimental analysis, counterfactual analysis, pure theory, legal analysis, and ethical analysis) but very few chose these others. Of the other options, 4% of men and *no* women selected formal modeling; 3% of men and 2% of women selected pure theory; all other categories received 0–2% of the responses. The differences were not statistically significant.

These findings show an interesting divide in the subject matter on which women and men publish and the methodologies they employ. In general, higher percentages of women than men studied the newer, less traditional areas of research. It may be the case that there is less competition in these areas and therefore more opportunities to create new networks. Another possibility is that women find these areas of study more interesting. Regardless, these differences raise questions about tenure and publication rates. If there are fewer journals publishing in areas of particular interest to women, or if tenured male faculty devalue these areas of research or the journals that specialize in these areas, women will have a harder time achieving tenure and promotion in the academy. Furthermore, women's stronger focus on qualitative research may result in fewer publications due to time-consuming research often associated with this methodology. In international studies, extensive field research in one or more countries may be required for studies using qualitative methods, which in turn results in fewer publications, particularly in the early years of one's career when professional networks are being formed and scholars are deepening their knowledge of a region or country. Additionally, it is possible that women's tendency toward qualitative work also results in publications in journals that are less highly valued by those making decisions regarding tenure (in the United States) and promotion (Ackerly and True 2008; Cowden et al. 2012).

Institutional Climate

In this section, we discuss a number of factors related to institutional climate, including the type of institution, workload, and research support. Consistent with the ISA's focus on presenting research, the majority of respondents were primarily employed at PhD-granting universities, which generally require significant research records, with somewhat higher percentages of men (67%) than women (60%) at these institutions ($p < .05$). A higher percentage of female

[10]The difference between men and women is more pronounced than the Breuning et al. (2005) finding showing only a slightly higher percentage of women published in the more qualitative-focused *World Politics* journal (22% of authors were women) than in the more quantitative-focused *International Studies Quarterly* (19% of authors were women). ISA members publish in a large number of journals beyond these two, presumably many of which are even more predisposed to publishing research using qualitative methods.

(17%) than male (13%) respondents worked at institutions where a Masters degree is the highest degree granted, as well as in liberal arts colleges, where 18% of female and 12% of male respondents worked while on the tenure track ($p < .01$).[11] The different types of institutions may well affect publication rates, as the institutions where women are more likely to work tend to require fewer publications than PhD-granting universities.

To assess whether women and men carried different workloads in the early years of their careers, we asked respondents about four workload issues: total hours worked per week, number of courses taught in a year, and percentage of time departments *officially* and *actually* (as perceived by the respondent) expected faculty to dedicate to research.

Research productivity may be affected simply by how many hours a professor commits to his or her job. As in every profession, the number of hours an individual works can vary widely with commitment to and interest in the job, efficiency, personal responsibilities, etc. There might well be more variation with research faculty than in some other professions, even within the same university, given that faculty can conduct research and write during almost any hour of the day; they do not need to be in the office. Of course, hours worked does not necessarily translate into more publications, or better teaching, both of which can depend on a number of other factors, such as efficiency and talent.

We asked respondents about total hours worked, on average, including research, teaching, and service, during their assistant professor years (Figure 6). The options were <40 hours, 40–50 hours, 51–60 hours, 61–70 hours, and more than 70 hours. About 75% of all respondents reported working at least 51 hours a week during their assistant professor years. For most choices, there was no significant difference between the genders. However, there was a significant difference for the midrange of 51–60 hours: 43% of women compared to 37% of men ($p < .05$) reported working 51–60 hours in an average week. In a profession where many work significant hours at home, respondents could be under- or over-reporting hours worked. Further research on actual work hours would be required to determine whether this could be a factor in publication rates.

While the previous question addressed overall workload, the next question asked respondents to indicate how many courses they taught, on average, per year. Faculty who teach more courses will presumably have less time to dedicate to research and will thus have lower productivity rates. About half of respondents reported teaching four or five courses a year during their assistant professor years. Significant percentages—40% of women and 37% of men—reported

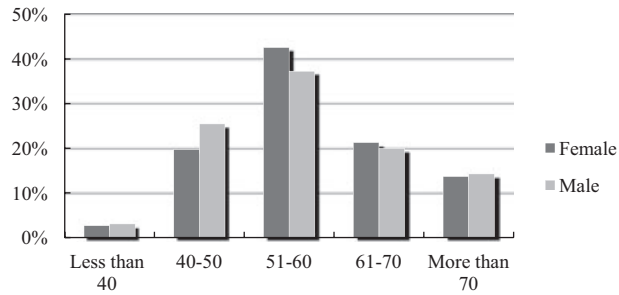

Fig. 6. Total Hours Worked Per Week

[11]The survey did not include the option of a two-year Associates of Art (AA) degree-granting college. Since only a handful of respondents did not answer this question, either very few respondents were assistant professors at these institutions, or if they were, they opted to choose one of the other selections. Future surveys will include this option.

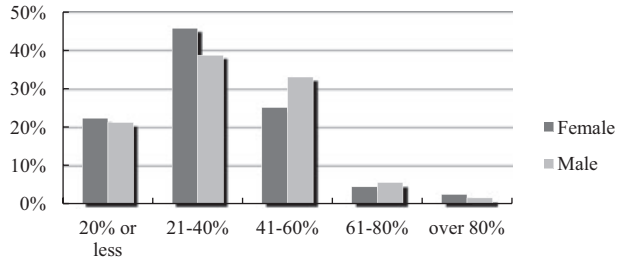

FIG. 7. Percentage of Time Department *Officially* Expected Faculty to Dedicate to Research

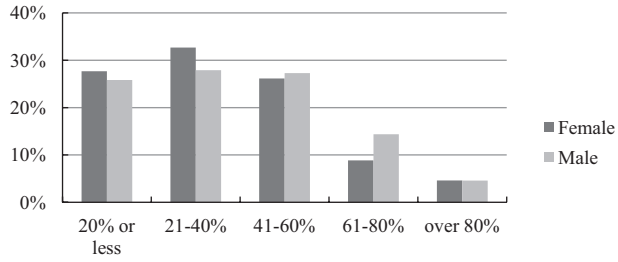

FIG. 8. Percentage of Time Department *Actually* Expected Faculty to Dedicate to Research

teaching six or more courses a year while assistant professors. Only about 10% of respondents taught three or fewer courses a year. Importantly, none of the gender differences were statistically significant. This suggests that although there are some differences in the types of institutions where women and men work, there are no significant differences in their teaching workloads.

We next asked what percentage of time the respondent's department expected faculty to dedicate to research as opposed to other responsibilities, chiefly service and teaching. We asked about both official policy and (perceived) actual expectations, with the following options: 20% or less, 21–40%, 41–60%, 61–80%, and over 80% (Figures 7 and 8). The difference between policy and actual percentages serves as a proxy for what institutions tell faculty about the importance of research and what faculty perceive to be the real requirements. While we acknowledge that hours worked on research do not translate into quantity and quality of publications—the final measurements of research productivity—faculty may misperceive the amount of time required to achieve publication success and thus misallocate their time, spending too much time on teaching and service and not enough on research.

We found some significant differences in how women and men answered these questions. A significantly higher percentage of women than men (46% vs. 39%) indicated their departments' *official* policy was that professors should dedicate 21–40% of their time to research ($p < .05$), whereas higher percentages of men than women (33% vs. 25%) ($p < .01$) indicated that this figure was 40–61% of one's time. In other words, significantly higher percentages of men than women worked for departments where *official* policy was that research should occupy more than 40% of one's working time. While it might at first seem that this difference can be explained by higher percentages of men than women working for PhD-granting universities, the numbers suggest otherwise. As noted, 60% of women and 67% of men reported working at PhD-granting universities, yet 31% of women and 40% of men reported that their university's policy was for

research to comprise over 41% or more of their time. Thus, at least at some PhD-granting institutions, faculty understood their department's *official* policy to be that research comprised 40% or less of their time.

We found that in all categories, the percentages of respondents selecting the various options differed between *actual* expectations and *official* policy. For women and men, actual expectations were more evenly divided around the three lowest percentages (20% or less, 21–40%, and 41–60%). This suggests that, in the view of faculty, some department's *official* policy for the percentage of time dedicated to research hours is lower than the *actual* expectations. These different understandings suggest that departmental policies are not in line with (perceived) actual expectations, perhaps because departments require more time dedicated to service or teaching than their policies would suggest. A significantly higher percentage of women (33%) than men (28%) reported that their departments *actually* required 21–40% of their time be dedicated to research ($p < .10$). On the other end of the spectrum, a significantly higher percentage of men (14%) than women (9%) reported that their departments *actually* required 61–80% of their time be dedicated to research ($p < .01$). We cannot tell from the survey why this would be the case, but one possibility is that women perceive that their departments actually expect them to spend more time on service and teaching than they anticipated, and a lower percentage of time on research than the official policy, whereas men perceive a stronger demand for research than official policy suggests. If this is the case, men may be dedicating a higher percentage of their time to research than women, accounting for the latter's lower publication rates. For both women and men, our findings suggest that actual expectations are often not aligned with official policy. Mentoring may thus be critical to helping scholars understand expectations. Additional surveys or focus groups would help get at the difference between actual and official expectations and how women and men differently perceive these.

Scholars can receive research support from a variety of sources and in different forms. This support can significantly help assistant professors meet their publishing goals by providing funding to hire research assistants, giving the new professor time to develop grant writing skills, and by "buying-out" a course release, thus freeing up more time for research. The three areas we examined were (i) leave time provided through outside sources, such as fellowships and grants; (ii) leave or sabbatical time offered by the employing university; and (iii) research funding provided by the university.

The majority of our respondents (64% of women and 66% of men) did not get any leave time from outside sources while they were assistant professors. Of those who did, a higher percentage of men (6%) than women (3%) received long leave times (13–24 months), whereas more women (18%) than men (13%) received <six months ($p < .05$). Overall, 13% of respondents reported receiving six–12 months and 3% received more than two years (no significant difference between the genders). This is unlikely to be a major factor in publication rate differences for men and women, given that about two-thirds of respondents did not receive any leave time and of those who did, there are few differences between the genders.

A slightly higher percentage of assistant professors received some leave or sabbatical time from their universities than those who received leave time from outside sources; 40% of women and 39% of men reported receiving some leave time. Overall, 20% received <six months; 17%, six–12 months; 2%, 13–24 months; and 1%, more than 24 months. Differences between the genders were insignificant.

In the final area of research assistance–average research funding per year provided by the university (as opposed to external funding)–we found that 63% of our respondents while assistant professors received some funding. A higher

percentage of women (37%) than men (29%) received between $1,000 and $4,999 per year, while a lower percentage of women (19%) than men (27%) received the smallest allotment (<$1,000 per year). It is not clear why a higher percentage of women than men would receive the higher levels of funding, particularly since we found that women and men were similarly likely to teach at PhD-granting universities. A possible explanation is that since women are more likely than men to use qualitative methods rather than quantitative methods (discussed above, under "research focus"), they require greater financial support to perform this time-consuming methodology which, for many international relations scholars, requires research abroad. This would suggest that their universities grant research funding based on methodology and travel requirements, rather than a standard allocation for all faculty. We recommend this as an area for future research. Very few scholars of either gender received more than $5,000 per year, and differences between the genders were insignificant at this highest level (Gender differences for <$1,000 were significant at $p < .01$ and for $1,000–$4,999, at $p < .05$).

Overall, some, but not all, aspects of institutional climate may account for differences in publication rates between women and men. In all but one range of hours worked per week, there were no differences between women and men, with 75% of both genders reporting working at least 51 hours a week. In addition, more women than men reported that their departments officially required a smaller percentage of time dedicated to research than men reported; and women were more apt to view actual expectations for research as lower than official policy, whereas more men than women had the opposite view that actual demand for research was higher than the official policies. These differences could well account for women allocating their time in a manner that results in fewer publications. There were no significant differences in course loads or in leave time.

Family Life: The Impact of Children

Research has long established that women are more likely than men to interrupt their careers to have children; this finding holds for a variety of fields and disciplines (McElrath 1992; Coish and Hale 1995; Dozier, Sha, and Okura 2007; Mathews and Hamilton 2009; Bertrand et al. 2010). Recognizing these potential career interruptions and the possible consequences on tenure due to time taken away from research, women more than men may choose not to have children while assistant professors (Long 1990; McElrath 1992; Schneider 1998; Dinauer and Ondeck 1999).

Furthermore, in OECD countries, women are delaying when they have children. In the early 1970s, fertility rates were much higher around age 20–25. Today, women often delay their first childbirths until they are in their late twenties. In 2009, the average age for a first child was 27.8 years. In the United Kingdom and Germany, at the highest end of the scale, the average age for a first child is 30.0 years; in the United States, the average was a relatively low 25.0. Fertility rates in the OECD are also decreasing drastically (OECD 2011). In addition, compared to earlier years, more American women are not having children at all. A US study based on the 2006 census report found that 20% of women between the ages of 40 and 44 have no children, twice as many as in 1976. In the OECD, the percentage of women who are childless at age 40 has increased in most countries (OECD 2011). This figure is higher for women with advanced degrees. Of American women 40–44 with a graduate or professional degree, 21.5% are childless, compared with 14.5% of women with only a high school degree, and 22.8% for those with Bachelor's degrees (Dye 2010). While this number is historically high, the percentage of women in ISA who have no

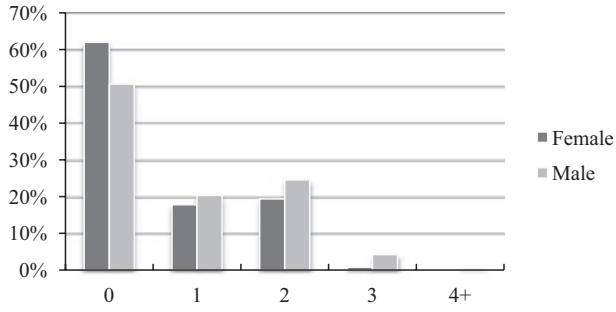

FIG. 9. Number of Children under 5-Years Old

children is much higher at 62%. The numbers are not exactly comparable, as we asked women only about the number of children under age 5 and while they were assistant professors. Nevertheless, if we assume that the average professor enters his or her PhD program within five years of graduating from an undergraduate program at the age of 21, finishes the PhD program in six to eight years, and is an assistant professor for six to seven years immediately thereafter, we would expect the respondents to be assistant professors when they are 27–41 years old, a period during which many women would be having children.

In our survey, we found that the percentages of assistant professors without children under age 5 are nearly 10% points higher for women than men, with 62% of women reporting they had no children under age 5, and 51% of men reporting the same (Figure 9). This is consistent with the earlier findings, noted above. Men and women were nearly equally likely to have one child (20% and 18%, respectively), whereas more men than women reported larger families, with 29% having two or more children under age 5, compared to 20% for women. This finding is consistent with Scott Long's (1990) research in which he found that American men in the sciences have more children than women in similar disciplines. The differences in gender are significant for no children ($p < .01$), two children ($p < .06$), and three children ($p < .01$).

While this finding suggests that children are not the cause of women having lower publications rates, it does not take into account the possibility that women with children may be spending more hours on family than their male counterparts. To get at this issue, we asked respondents to indicate how many hours a week their children were in the care of someone other than themselves or their partner/spouse (Figure 10). Women indicated much more than men that their children spent significant hours in daycare, with nannies, with other family members, or otherwise not with them. We found that 60% of women, compared to 32% of men, said their children were in someone else's care for 30 or more

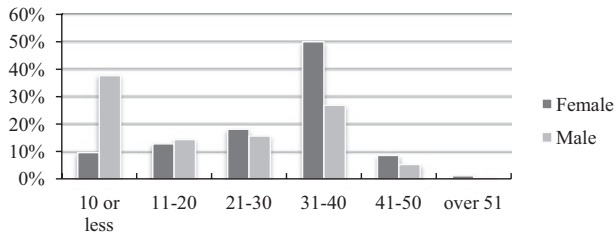

FIG. 10. Hours a Week Children Were in the Care of Someone Other Than You or Your Spouse/Partner

hours a week. Significantly more men than women relied on childcare for only 10 hours or less: 38% of men reported 10 hours or less compared to only 10% of women. Other options did not show a significant difference between men and women. (Gender differences were significant overall, at 10 or less hours, and at 31–40 hours, at $p < .001$.)

While these numbers could mean that the men were taking care of their own children more than women were, given societal differences it is much more likely that men were able to rely on their spouses for childcare, whereas women relied on other caregivers, such as daycare and nannies. This further supports the conclusion that female faculty with children face more family-work balancing challenges than their male counterparts. It also reinforces what previous studies have found (Schiebinger and Gilmartin 2010).

Conclusions

This study set out to investigate differences in the scholarly productivity of women and men in international studies and to investigate some of the potential causes for these differences. We started from the assumption that scholarly productivity is an important component of evaluations for tenure and promotion. Indeed, scholarly productivity is a necessary condition for remaining in the academic career pipeline.

Our survey mirrors others in finding a striking "leaky pipeline" for female scholars. Among our participants, the proportion of women relative to men steadily declines as we move from assistant to associate to full professors. We sought to move beyond this basic finding to investigate potential factors contributing to this pattern. We examined issues in three areas: research focus, institutional climate, and family life. In each area, we found several noteworthy differences between the genders which may help account for differences in productivity and thus promotion rates.

One of the most striking differences identified in this survey concerned research methodologies, with men being considerably more likely than women to use quantitative methods in their research, while women were more likely to use qualitative methods. This could benefit male assistant professors at tenure time in several ways. To begin with, it may simply reflect that quantitative work is more highly valued—and perceived as more "scientific"—by senior colleagues and tenure letter writers. However, the strong emphasis of top journals on brevity in their publications—most limit submissions to 25–35 pages total—also tends to bias them against qualitative work, which often requires lengthier exposition. Such work is thus frequently relegated to second-tier journals, which offer less benefit to tenure candidates. While most scholars of both genders published books, men tended to publish more peer-reviewed articles than their female counterparts. In international studies, qualitative research also often entails extensive field research in other countries, as well as translating documents, thus taking significantly more time to produce the research and analysis required for publication than those using off-the-shelf databases and regression analysis.

Second, while the highest percentages of women and men concentrated their research in international security and international political economy, the two traditional subfields, significant differences emerged in other areas. Women were more likely than men to publish in new areas of research, such as feminist theory and gender studies; environmental studies; ethnicity, nationalism, and migration; and pedagogy. We cannot determine why women publish more in these areas, but likely explanations include a greater interest in these subjects and the challenge of entering the traditional networks that are dominated by men.

Third, women were somewhat less likely than men to publish single-authored books and somewhat more likely to publish coauthored books. Women were also

less likely to publish six or more peer-reviewed articles. Given that some universities may discount coauthored books in tenure reviews because of the difficulty of discerning the relative contributions of multiple authors, these patterns appear to advantage men with respect to promotion and tenure. On the other hand, as women gain tenure and then serve on promotion and tenure committees, they may be able to persuade their peers that a variety of contributions—qualitative and quantitative methodologies, traditional (international political economy and security) and more recent issue areas (human rights and feminist issues, e.g.), and books and peer-reviewed articles—all enrich the discipline and thus should be more strongly counted toward tenure than has previously been the case. As long as women remain a small proportion of faculty at the more senior ranks, this limits their ability to influence promotion decision in a direction that would value a more eclectic array of scholarship.

A fourth noteworthy difference between men and women concerned assumptions regarding the expectations of employers, with men being considerably more likely than women to believe that their university expected them to devote as much as 80% of their time to research and women being more likely to believe their university demanded that 40% or less of their time be so devoted. Women also indicated that they spent more time on service-related activities than men. It is unclear whether the former pattern either accounts for or is a rationalization for the latter. But either way, men's assumptions regarding the expectations of their employers seem conducive to devoting more time to research and less to service, relative to women, who believe their employers expect relatively less time devoted to research. This difference in understandings may lead to women misallocating their time, resulting in fewer publications and thus threatening their tenure prospects. This may indicate the importance of mentoring and improved communication regarding the expectations for advancement. Alternatively, it may necessitate some introspection by university administrators regarding the comparative value attached to various activities. Finally, while women were more likely than men to not have any children or to have only one child, women with children indicated that they needed to rely on childcare outside the home or with extended family more than men did. This is consistent with societal patterns of women spending more time than men with children and could obviously account for women publishing fewer articles. Indeed, Slaughter (2012) recently argued that women still cannot have it all, but also suggested that a re-evaluation of the balance between life and work by both men and women is overdue.

There are, of course, other potentially important differences between male and female assistant professors, many of which are far more difficult to measure or relate directly to promotion outcomes. Nonetheless, our findings in this survey clearly highlight the persistence of the leaky pipeline, as well as pointing out a variety of potential causal factors and avenues for future research on this question. Our findings suggest that promotion and tenure committees, faculty who write letters for promotion and tenure, and university administrators need to think carefully about how research fields, methodologies, official and unwritten expectations for research, and policies regarding faculty with children affect their analysis of whether a candidate deserves promotion and tenure. Biases, conscious or not, that favor men and the type of work they perform could be significant factors preventing greater gender equality at the higher ranks of academia.

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