

# New Evidence on the Relative Scholarly Productivity of Male versus Female Political Scientists

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## ABSTRACT


Considerable research finds that male political scientists publish more research on average than do female political scientists. Yet the reasons for this difference are not entirely clear. Those findings may also overestimate the relative productivity of men because they do not account for the longer time that more men have been in the profession and thus have been publishing longer than women. For a prominent survey dataset of political scientists, we demonstrate notable cohort differences in the research productivity of both men and women across time. Our results also indicate that the overall greater productivity of men results in part from senior women scholars not generally enjoying the same benefits of long tenure on their research output as men do.


**N**umerous analyses of many academic disciplines indicate that men publish more scholarly work on average than women. Yet we claim that some of the causes for this disparity are not well understood. We examine some of the reasons why and provide new evidence on how distinctive career challenges women, and especially senior women, can face may account for the differences in the long-term research productivity of men versus women.

Three principal ways of comparing men's and women's publications have been used in research on political scientists. First, Djupe and coauthors (2020) and Hesli and Lee (2011) compare the scholarly output of men and women scholars in single-time-point cross-sectional surveys of members of the profession. Second, work like that of Teele and Thelen (2017) compares the representation of male and female authors of papers in leading journals in the profession for select time periods. Third, Hill (2021) compares career publications for men and women in the same two-year cohort of new PhDs in the field.

Each method of comparison provides evidence that men publish more than women, although such evidence is mixed in Hill (2021). Each method also suggests valuable criteria for comparing women's general scholarly output to that of men. Teele and Thelen, as one example, profitably compare women's publication rates to their representation in the discipline or in subfields of the discipline. Each method also suggests ways to investigate the causes of male-female publication differences. Djupe, Smith, and Sokhey (2019), for example, build on Teele and Thelen's findings by exploring gender-specific article submission practices. In addition, the multivariate analytic models that use dummy predictor variables for gender in the studies by Djupe and coauthors (2020) and Hesli and Lee (2011) would support tests of hypotheses about factors that especially disadvantage women scholars and have not been systematically tested to date.

Kim and Grofman (2019b, 689), however, pose a caution about inferences from most of the preceding research. They argue that gender comparisons of research productivity should control for the year when individual scholars earned their PhDs. Otherwise, such measures may be biased against women because there are more men in the profession and more men who have been publishing over a longer period. One could, then, interpret time in the profession to have a gender-neutral effect. Thus, as more women enjoy longer careers, their research output would increase, just as has been the case with men.

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Yet, some of the research on career challenges women face casts doubt on whether this gender-neutral effect will occur, at least as a generalization about all women's careers.

Considerable research has explored various challenges for the professional success of female political scientists, ranging most notably from receiving less professional mentoring in graduate school, to the "leaky pipeline" problem, the dual burden of family and career demands, and often facing a "chilly climate" in their

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home departments (e.g., APSA 2005). Recent research documents how such challenges continue to impede the professional success of women scholars (e.g., Alter et al. 2020, esp. 1048–51; APSA 2022).

Yet a close reading of the relevant research indicates that many of these challenges continue or even worsen for senior women scholars over time. Senior women would, of course, continue to experience, just like their untenured colleagues, sexually challenging or "chilly" department climates where they are present. And Mitchell and Hesli (2013) and Monroe and coauthors (2008) demonstrate that senior female political scientists do more service than male ones, but not the type of service that would advance their research or careers generally. Indeed, in Monroe and coauthors' (2008, 219) study, female respondents observed that holding a significant leadership position in the university often "would devalue or minimize it somewhat, casting it into a service mode, not the power mode." Similarly, Alter and coauthors (2020) demonstrate that women political scientists in general take on more service and "caretaking" but not leadership roles in the profession at large in comparison to men.

We know of no direct evidence that connects these challenges for senior female scholars to their research productivity. Suggestive evidence, however, comes from Hill (2021), who found that male faculty in the two most highly productive categories of scholars from the 1998–99 cohort had notably more Web of Science reported publications and citations than women in those two categories. Further, although Kim and Grofman (2019b) did not investigate the time-in-rank and productivity linkage, they found that, controlling for time in the profession, male political scientists were more likely to earn the rank of professor than women. Using an event-history analysis, Fox and Gaughan (2021) demonstrate the same finding for several physical sciences and mathematics. And the 2022 APSA *Task Force Report on Systematic Inequality in the Profession* provides contemporary evidence that the time to promotion from associate professor to professor is "significantly longer" for women than men. The findings in these latter three publications could be a product of women having a more difficult time sustaining a research career that enables promotion to the rank of professor. Thus, time in the profession may not have a generally gender-neutral effect. The evidence for that conclusion, however, is not as strong as desirable. We provide the first systematic evidence for how time in the profession is related to the research productivity of male and female political scientists.

### **OUR DATA, RESEARCH DESIGN, AND THE STRENGTHS AND WEAKNESSES OF THE DESIGN**

We compare the numbers of self-reported publications of male and female political scientists who were respondents for a 2009 survey of APSA members that was implemented by the APSA Committee on the Status of Women with APSA support. Hesli and Lee (2011, 405–7) present the first published research based on these data; it describes key features of the sampling plan, survey

instrument, and resultant sample of respondents. Although this dataset is from 2009, original research from Alter and coauthors (2020) and from several other recent studies they cite indicates that the professional challenges many female political scientists face today are comparable to those at that earlier date. Thus, those challenges are generalizable across time—as should be the patterns we uncover in the 2009 data for time in the profession, research productivity, and related variables.

We consider only the publications of respondents who taught in a PhD-granting department because of the distinctive expectations for research *and* resources to support research in those departments—as do Masuoka, Grofman, and Feld (2007) and Kim and Grofman (2019a, 2019b). We verified that 435 respondents from the full survey dataset of 1,399 respondents were employed in PhD departments at the time of the survey. The key variables for our analyses are the gender of the respondents, the year they earned their doctoral degrees, and their reported publications. We also replaced a notable amount of missing data on the first two variables by using procedures comparable to those of Kim and Grofman (2019b) and Teele and Thelen (2017, 434), as explained in our online Methods Appendix. Following Masuoka, Grofman, and Feld (2007) and Kim and Grofman (2019a, 2019b) we divided our respondents into five-year cohorts by date of doctoral degree. These cohorts cover the time span from 1959 through 2010.

This research design and dataset have several strengths. Hesli and Lee (2011, 405–6) demonstrate that the survey has good representation by gender and academic rank compared to the membership of the APSA in PhD departments. Studies of publications in selected journals have not demonstrated how their samples of publishing scholars relate to the universe of all relevant scholars, nor have they distinguished temporal cohorts of those with such publications. Yet Kim and Grofman (2019a, 2019b) report valuable analyses for temporal cohorts in the "top 400" cited members of this profession, as well as follow-up analyses for all the faculty in PhD departments in 2002 and 2017.

We first report analyses for journal article publications, the most widely used measure of productivity: it can be operationally defined in various ways but is also commonly labeled as the most important single indicator of research output (e.g., Djupe et al. 2020, 2285; Djupe, Smith, and Sokhey 2019, 73; Teele and Thelen 2017, 433–34). The second dependent variable is the sum of published journal articles, book chapters, edited books, and research books. For most respondents, journal articles represent about 90% of the total published materials. Yet a sizable number of respondents have far more book and chapter publications than

**Table 1**  
Self-Reported Numbers of Publications by Men and Women

Cohort by Year of PhD	Average and range for all publications reported	Average and range for all journal article publications reported
All Men in the Dataset	31.1 (0, 300) <sup>a</sup>	18.9 (0, 150)
All Women in the Dataset	15.8 (0, 84)	8.6 (0, 59)
All Men Less the Highest Scorer	30.1 (0, 219)	18.4 (0, 120)
All Women Less the Highest Scorer	15.3 (0, 79)	8.3 (0, 50)
1959–65 PhDs		
All Men (no women), n = 8	97.5 (0, 300)	41.9 (0, 100)
Men Less the Highest Total Scorer	68.6 (0, 219)	22.5 (0, 65) <sup>b</sup>
1966–70 PhDs		
All Men, n = 15	36.8 (14, 66)	14.3 (0, 30)
All Women, n = 4	24.9 (0, 59)	11.3 (0, 35) <sup>c</sup>
Men Less the Highest Scorer	27.0 (14, 44)	9.0 (0, 25)
Women Less the Highest Scorer	27.0 (14, 44)	9.0 (0, 25)
1971–75 PhDs		
All Men, n = 36	63.1 (0, 208)	39.4 (0, 150)
All Women, n = 4	38.8 (0, 84)	16.5 (0, 40)
Men Less the Highest Scorer	59.0 (0, 177)	36.3 (0, 100)
Women Less the Highest Scorer	23.7 (0, 71)	8.3 (0, 26)
1976–80 PhDs		
All Men, n = 21	30.5 (0, 96)	19.0 (0, 70)
All Women, n = 15	28.4 (0, 73)	13.5 (0, 30)
Men Less the Highest Scorer	26.7 (0, 79)	16.5 (0, 60)
Women Less the Highest Scorer	25.2 (0, 55)	11.0 (0, 20) <sup>d</sup>
1981–85 PhDs		
All Men, n = 25	48.8 (0, 187)	32.9 (0, 120)
All Women, n = 5	25.4 (10, 56)	13.4 (2, 35)
Men Less the Highest Scorer	43.0 (0, 144)	25.1 (0, 100)
Women Less the Highest Scorer	17.8 (10, 30)	8.0 (2, 15)
1986–90 PhDs		
All Men, n = 22	36.5 (0, 142)	19.8 (0, 75)
All Women, n = 17	27.4 (0, 79)	14.8 (0, 50)
Men Less the Highest Scorer	31.4 (0, 136)	17.1 (0, 50)
Women Less the Highest Scorer	24.1 (0, 74)	12.6 (0, 27)
1991–95 PhDs		
All Men, n = 33	29.4 (0, 110)	18.2 (0, 90)
All Women, n = 19	26.2 (7, 78)	16.2 (3, 59)
Men Less the Highest Scorer	26.9 (0, 92)	15.9 (0, 47)
Women Less the Highest Scorer	23.3 (7, 50)	13.8 (3, 32)
1996–2000 PhDs		
All Men, n = 46	20.1 (0, 71)	13.1 (0, 35)
All Women, n = 21	10.4 (0, 21)	6.1 (0, 18)
Men Less the Highest Scorer	19.0 (0, 50)	12.6 (0, 12)
Women Less the Highest Scorer	9.9 (0, 20)	5.5 (0, 12)
2001–5 PhDs		
All Men, n = 40	11.8 (0, 32)	8.7 (0, 30)

Table 1 (Continued)

Cohort by Year of PhD	Average and range for all publications reported	Average and range for all journal article publications reported
All Women, n = 27	7.4 (0, 22)	5.3 (0, 16)
Men Less the Highest Scorer	11.2 (0, 25)	8.1 (0, 21)
Women Less the Highest Scorer	6.9 (0, 17)	4.9 (0, 15)
2006–10 PhDs		
All Men, n = 19	4.9 (0, 15)	3.1 (0, 8)
All Women, n = 22	2.7 (0, 6)	1.7 (0, 5)
Men Less the Highest Scorer	4.4 (0, 11)	2.4 (0, 7)
Women Less the Highest Scorer	2.2 (0, 5) <sup>e</sup>	1.5 (0, 4)

<sup>a</sup> Cell entries are means, minimum value, and maximum value.

<sup>b</sup> Two tied for the highest score.

<sup>c</sup> Two tied for the highest score.

<sup>d</sup> Two tied for the highest score.

<sup>e</sup> Three tied for the highest score.

journal articles. Thus, the second measure offers a more complete accounting of output, and because book and book chapter publications are of particular importance in some research subfields, it should provide a more equitable representation of research output across fields.

Existing theoretical expectations, which may not be widely appreciated, however, are that the numbers of published books and book chapters are gender neutral. Because of length limitations for this article, we explicate these expectations and provide empirical analyses that verify them in the online Methods Appendix. Only longer time in the profession and more departmental resources that support research activities are associated with a higher number of book and book chapter publications.

There are some limitations in our data. For many cohorts we have small samples of respondents, especially of women; that circumstance limits the multivariate analyses that we can conduct. The self-reported publication data here could also be subject to over- or underreporting that we cannot assess. We have not uncovered research on misrepresentation of “professionally desirable” information by gender, but Ansolabehere and Hersh (2012) demonstrate that male respondents in mass public election surveys are more like to overreport being registered voters and voting than do women. Thus, we indicate how self-reported publications might be affected by such overreporting if it followed the pattern for political behavior in the mass public.

#### RESEARCH PUBLICATIONS BY TEMPORAL COHORTS BY YEARS FOR EARNING DOCTORAL DEGREES AND GENDER

Table 1 presents average numbers of total publications and article publications by male and female political scientists separated into cohorts by the year in which they earned their PhDs. The numbers of women are small in the cohorts before 1986–90. That circumstance and the notable increase in women in the later cohorts comport with a sizable increase in doctoral degrees awarded in the discipline, especially for women, since the second half of the 1980s (APSA 2005, 3). Thus, the trends in the numbers of women, and of men too, across time in the table are further testimony to the representativeness of these data.

In the full dataset—as shown in the first row of table 1—there are notable gender gaps in the numbers of publications, with men reporting about twice the number of publications as women in all the comparisons there. Those data confirm Kim and Grofman’s concern (2019a, 2019b) about time in the profession by gender. We do not have much leverage over the possibility of over- or under-reporting of publications by gender because we know of no work directly comparable to that concern. Yet Ansolabehere and Hersh (2012, 457) show that women in the mass public were about 10% less likely than men to report having

cited earlier that senior women often face professional challenges that limit the possible beneficial effect of long tenure on their research output. All senior women are not evidently disadvantaged in this way, but most seem to be. There is also individual-level variation across cohorts for both men and women that is especially notable for highly productive individuals, most of whom are men. Finally, from 1986 on, women appear to be getting more competitive. Yet the latter circumstance does not indicate how the research careers of faculty in those cohorts will prosper over time.

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voted when they had been validated as not voting. It is difficult to extrapolate from that evidence to our data, but even if men’s publications were on average overreported by 10%, there would still be a notable male advantage in publications in the first row of table 1.

The patterns of relative publications by gender differ somewhat across the 10 cohorts.

In the first five cohorts (1959–65 through 1981–85), the number of women is notably small in all but one, with no women at all in the first cohort. In two of the four cohorts with women (1971–75 and 1981–85) there is a large gender gap in publication numbers, but both have a very small number of women. In the other two cohorts with women (1966–70 and 1976–80), there are only small gaps in the publication numbers. The 1966–70 cohort has a small number of women, one of whom was particularly productive, especially in the all-publications category. The 1976–80 cohort includes a much larger number of women than the others.

Overall, in the three early cohorts with women, the men are notably more productive by one or both measures. Even though there are only modest numbers of women in these early cohorts and there is some individual variation in the output of both men and women, men evidently benefit more from the effect of long tenure on research productivity. This circumstance suggests time in the profession does not have a gender-neutral effect on research productivity.

The later five cohorts include much larger numbers of women, ranging from 17 in the 1986–90 cohort to 27 in the 2001–5 group. In only one of these cohorts (1996–2000) does the gender gap in publications resemble the larger ones observed in the earlier cohorts, with men reporting about twice as many publications as women. There is some gap in the 1986–90 and 2001–5 groups and a small gap in the 1991–95 cohort. The gap widens for the youngest scholars (those in the 2006–10 cohort), but the numbers of publications for both men and women in this group are small, and their short time in the profession at the date of the survey suggests caution in reading too much into this result. Further, none of these later cohorts can inform us about how time in the profession will affect men or women over their careers.

In sum, table 1 reveals several kinds of variation in productivity. There is, first, a cohort effect of more publications associated with more time in the profession, but men especially benefit from this effect. That finding is compatible with the evidence

#### THE EFFECT OF TIME IN THE PROFESSION ON THE GENDER GAP IN PUBLICATIONS

It would be useful to know the independent effect of time in the profession on the differences in men’s and women’s productivity. There are not many women with long tenure in our data; yet if long tenure had any positive effect on women’s productivity, even one that did not generalize to all women, then we might uncover this effect in a multivariate analysis. We can estimate the magnitude of this effect with the use of a “conventional” multiple regression analysis of

Table 2

#### Effect of Female Gender on Research Productivity Controlling for Time in the Profession

Predictor variable	Log of total productivity	Log of total productivity	Log of articles published	Log of articles published
Female dummy variable	-.352* (.092)	-.279* (.095)	-.475* (.094)	-.382* (.097)
Count of overall dept. research resources	.040* (.014)	.044* (.014)	.042* (.014)	.047* (.014)
Typical number of undergrad. courses taught	-.071* (.028)	-.098* (.028)	-.044 (.028)	-.060* (.029)
Faculty rank	.828* (.049)	.621* (.077)	.690* (.050)	.555* (.079)
Perceived sexist climate	-.008 (.046)	-.028 (.046)	-.015 (.047)	-.057 (.047)
Perceived contentious climate	.057 (.041)	.104* (.042)	.041 (.041)	.093* (.043)
Years since earning the PhD		.015* (.005)		.009 (.006)
Constant	.223	.612	.200	.465
Number of cases	337	312	337	312
Adj. R <sup>2</sup>	.56	.55	.48	.47

\*p < 0.05 in a one-tailed test.

the determinants of productivity. The label “conventional” means it employs predictor variables common in existing research of this kind (e.g., Djupe et al. 2020; Hesli and Lee 2011).

Table 2 presents OLS regression analyses to assess whether time in the profession reduces the magnitude of the negative association of female gender with productivity. For each of the two dependent variables, we present a model without and with the measure of time in the profession: these four models generally replicate the major findings in Hesli and Lee (2011) and are the product of a series of preceding exploratory models. The modest differences from those in Hesli and Lee’s models likely arise because we are analyzing only faculty in PhD-

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granting departments, instead of all the respondents in the survey.

Compatible with the concern raised by Kim and Grofman (2019b, 689), the coefficients on the gender variable are reduced about 20% in the two models that include the measure of time in the profession compared to the same coefficients in the other two models. This is, at best, a modest reduction that could indicate that some women’s research programs benefit from long tenure. Yet because the coefficients for gender in the models that include time in the profession are within the 95% confidence intervals for the coefficients in the other two models, even this modest reduction may be in doubt. Thus, the bulk of the estimated negative effect of female gender must be the result of causal factors acting on individual women or subsets of women, or on individual men or subsets of men, that are not accounted for by time in the profession or this kind of conventional model.

## CONCLUSIONS

Our results in both tables 1 and 2, using important measures of research output, indicate that even after taking account of time in the profession, men remain generally more productive than women. Some female scholars evidently reap the benefits of long tenure for their research programs, yet those benefits are more common for men than women. Thus, the positive effects of long tenure are not gender neutral.

Our results also suggest that the divergence in productivity by gender exists especially among senior faculty, compatible with expectations based on evidence on the service and other distinctive career and family burdens that senior women can face. Thus, future research might most profitably investigate the specific causes of that divergence. What burdens and challenges most compromise the research programs of senior women, and how might they be reduced?

## DATA AVAILABILITY STATEMENT

Research documentation and data that support the findings of this study are openly available at the *PS: Political Science & Politics* Harvard Dataverse at <https://doi.org/10.7910/DVN/RL3GLH>.

## SUPPLEMENTARY MATERIALS

To view supplementary material for this article, please visit <http://doi.org/10.1017/S1049096522000683>.

## CONFLICTS OF INTEREST

The authors declare no ethical issues or conflicts of interest in this research. ■

## REFERENCES

- American Political Science Association. 2005. *Women’s Advancement in Political Science*. Washington, DC: APSA.
- American Political Science Association. 2022. *Task Force Report on Systematic Inequality in the Profession*. Washington, DC: APSA.
- Alter, Karen J., Jean Clipperton, Emily Schraudenbach, and Laura Rozier. 2020. “Gender and Status in American Political Science: Who Determines Whether a Scholar Is Noteworthy?” *Perspectives on Politics* 18 (December): 1048–67.
- Ansolabehere, Stephen, and Eitan Hersh. 2012. “What Big Data Reveal about Survey Misreporting and the Real Electorate.” *Political Analysis* 20 (Autumn): 437–59.
- Djupe, Paul A., Kim Quaille Hill, Amy Erica Smith, and Anand E. Sokhey. 2020. “Putting Personality in Context: Determinants of Research Productivity and Impact in Political Science.” *Scientometrics* 124 (September): 2279–2300.
- Djupe, Paul A., Amy Erica Smith, and Anand Edward Sokhey. 2019. “Explaining Gender in the Journals: How Submission Practices Affect Publication Patterns in Political Science.” *PS: Political Science & Politics* 52 (January): 71–77.
- Fox, Mary Frank, and Monica Gaughan. 2021. “Gender, Family, and Caregiving Leave, and Advancement in Academic Science: Effects across the Life Course.” *Sustainability* 13 (12): 1–19.
- Hesli, Vicki L., and Jae Mook Lee. 2011. “Faculty Research Productivity: Why Do Some of Our Colleagues Publish More than Others?” *PS: Political Science & Politics* 44 (April): 393–408.
- Hill, Kim Quaille Hill. 2021. “Research Career Paths among Political Scientists in Research Institutions.” *PS: Political Science and Politics* 54 (April): 271–75.
- Kim, Hannah June, and Bernard Grofman. 2019a. “The Political Science 400: With Citation Counts by Cohort, Gender, and Subfield.” *PS: Political Science & Politics* 52 (April): 296–311.
- Kim, Hannah June, and Bernard Grofman. 2019b. “Job Mobility, Tenure, and Promotions in Political Science PhD-Granting Departments, 2002–2017: Cohort, Gender, and Citation-Count Effects.” *PS: Political Science & Politics* 52 (October): 684–90.
- Masuoka, Natalie, Bernard Grofman, and Scott L. Feld. 2007. “The Political Science 400: A 20-Year Update.” *PS: Political Science & Politics* 40 (January): 133–45.
- Mitchell, Sara McLaughlin, and Vicki L. Hesli. 2013. “Women Don’t Ask? Women Don’t Say No? Bargaining and Service in the Political Science Profession.” *PS: Political Science & Politics* 46 (April): 355–69.
- Monroe, Kristen, Saba Ozyurt, Ted Wrigley, and Amy Alexander. 2008. “Gender Equality in Academia: Bad News from the Trenches, and Some Possible Solutions.” *Perspectives on Politics* 6 (June): 215–33.
- Teele, Dawn Langan, and Kathleen Thelen. 2017. “Gender in the Journals: Publication Patterns in Political Science.” *PS: Political Science & Politics* 50 (April): 433–47.