METHODS APPENDIX FOR THE PAPER:

New Evidence on the Relative Scholarly Productivity of

Male versus Female Political Scientists

*Research Design Considerations for Accounting for Time in the Profession*

 Research that accounts for time in the profession by the year scholars earned their doctoral degrees can be conceived in optimal ways, but it is also subject to constraints on the availability of such data for some designs. Existing surveys of members of the profession may or may not have included this variable (the data used by Hesli and Lee and by Djupe, Hill, Smith, and Sokhey included it). The “meta-data” collected by scholars comparing men’s and women’s publications in leading journals (e.g., Teele and Thelen 2017, 434-435) do not include this variable, and efforts to collect it could prove demanding in time and with regard to information sources. This variable is likely readily acquired in studies like that of Hill (2021) because it employs a relatively small sample of scholars who are mostly still in the profession. Yet Kim and Grofman (2019, 2019b) demonstrate one can collect such data for relatively large data sets.

 Ideally, one would also assemble a large sample of cases with some generalizability to the profession at large, that included scholars who earned their doctoral degrees across a long time span, and with notable numbers of men and women in most temporal cohorts however they are defined. While some of the prior work on this topic has only assessed journal article publications, data that included other kinds of major publications would be preferred. These are demanding expectations that are not likely to be optimized in any single study. Thus we should continue – as past studies have done – to generate research based on various designs that somehow take account of time in the profession and whose collective value exceeds that of any single study.

The data set analyzed in this paper comes from a 2009 survey of members of the American Political Science Association (APSA) under APSA sponsorship, with implementation by the association’s Committee on the Status of Women directed by Vicki Hesli (now Vicki Hesli Claypool). The data set was provided to us by Professors Claypool and Sarah McLaughlin Mitchell.

Hesli and Lee (2011), the first paper published based on these data, presents information on how the survey instrument was constructed, the sample selected, and the survey implemented. Yet we note that respondents were chosen from the APSA’s faculty membership files with stratification by department size and over-sampling of faculty members from medium and small institutions.

 Following an email invitation to take the survey and four follow-up reminders, 1,399 members of the original sample of 5,179, or 27 percent, completed all or part of the survey. Hesli and Lee (2011, 405-406) present marginals from the final sample that compare favorably to similar distributions in the APSA faculty membership.

The title for the survey instrument indicated it was “for those who [are] currently employed in a political science department.” Yet many APSA faculty members work in other kinds of university departments or academic programs. For the analyses in this paper, as explained in the paper itself, we have selected for analysis only those respondents who were employed as faculty members in PhD granting departments, whether for political science *per se* or for another focus like public administration or public affairs.

These data were also analyzed to address various research questions in articles by Hesli and Lee (2011, 2013); Hesli, Lee, and Mitchell (2012); and Mitchell and Hesli (2013).

*The Character of the Survey and Data Set*

 The printed survey instrument lists 109 questions, and many of those questions contained multiple sub-questions. The printed version of the instrument with the survey questions as posed to the respondents also runs to 14 pages of mostly single-spaced text in a small font. Major categories of questions were for information on the respondents’ doctoral degrees, current employment, teaching responsibilities, service responsibilities, scholarly work, career satisfaction, institutional and department climate, job history, background information as for family and for employer benefits, and demographics.

 The data set constructed from the responses to the survey is large and complicated, especially because the survey itself as long and detailed. Many singularly listed questions in the survey instrument produced large number of discrete variables in the data set because of their sub-questions. In addition, many additional variables were constructed from the original questions in the instrument.

*Missing Data*

 There is a good deal of missing data here for a variety of reasons. As with every survey, some respondents did not answer some questions selectively. In many other cases data are missing on variables that do not pertain to all respondents. As one example, many respondents did not have an academic position before the one they held at the time of the survey, thus they have missing values on the many job history questions. In addition, many respondents evidently experienced “fatigue” and stopped answering questions near the end of the instrument. Finally, we uncovered notable cases of mis-codings on one variable necessary for our analyses. We discuss below the latter two kinds of missing data and how we dealt with them.

*Replacing or Re-Coding Missing Data in the Original Survey File*

Our research required only three kinds of questions from the survey: for the gender of the respondent, for the date at which she or he earned a doctoral degree, and a set of individual questions about how many research articles, books, book chapters, or edited books he or she had published at the time of the survey.

The questions on numbers of publications were early in the survey, and there are very few missing data on those questions. And we had no reliable way to replace any of those few missing values.

The question on the gender of the respondents came late in the survey where many respondents had stopped answering the last questions. The loss of data on the gender question was especially of concern for our research, with 19 percent of the sample from PhD departments failing to answer it. But the data set included email addresses and home institutions for all the respondents (personal identifiers now excluded from our HarvardDataverse replication data set to ensure the respondents are anonymous in accord with the replication data policy of *PS: Political Science and Politics*). We used this email information in a manner comparable to how Teele and Thelen (2017) and Kim and Grofman (2019) determined the gender of individuals in their data sets.

An email address, such as janedoe@stateu.edu or jdoe@stateu.edu or doe@stateu;.edu, contains a “local part” (like janedoe) and a “domain” (like stateu.edu) which will frequently support identification of a specific respondent at a specific institution. Even if the respondent had a cryptic local part email address or had moved to another institution, the local part name often helped identify the respondent’s identity and present affiliation. Extensive searching of specific departments’ faculty along with more diffuse web searches uncovered still more respondents.

Using the latter variables we were able to reduce the missing values on gender to 2 percent of the sample in PhD granting institutions.

We also discovered notable missing data in the measure for the year respondents earned their PhD. Nineteen percent of the cases had either literal no-response missing values or implausible ones such as the year 1900 on this variable. The latter cases likely arose because some respondents failed to navigate correctly a conventional drop-down menu where one scrolls from a default number (1900 here) to the correct year. Cursor control is at times difficult for carrying out the latter step, as is documented in research on the use of such drop-down menus in online commercial surveys (Baymard Institute 2021). Thus, while some respondents skipped this variable, others may have failed to record the correct number as they intended. Yet, using the same procedures as those to replace missing data on gender, we were able to reduce the missing values in this variable to eight percent of our respondents in Ph.D. granting departments.

Finally, we found 10 respondents who were coded as employed at the time of the survey in PhD granting departments when we discovered that was not the case upon checking the character of all the respondents’ home departments. These mis-coded cases may have arisen because of respondent error, perhaps because they were in institutions but not departments that granted PhDs. We eliminated these cases from our analyses.

*Gender and Publishing Research Monographs (Books) and Chapters in Edited Books*

 The primary motivations for the work in our full paper are that, first, male scholars are widely reported to publish more than women, second, there is no well accepted explanation for that circumstance, and, third, the effect of time in the profession on scholarly output by gender is not well understood. Our empirical analyses in the paper investigate this logical chain using the two most prominent or encompassing measures of research output: journal articles alone *and* a measure that includes books, book chapters, and edited books along with journal articles to better represent the records of those scholars who have especially large numbers of the former three kinds of works.

Yet a small and seemingly little appreciated body of hypotheses and empirical evidence suggests two kinds of scholarly output may not reflect gender bias in favor of males: publishing research monographs *and* chapters in edited books. First in temporal order, Mathews and Andersen (2001, 145) make a compelling argument that getting chapters selected for publication in edited books is driven most by “networks and personal connections among scholars.” That argument suggests that having a sizable network of peer scholars may be a more important determinant of such publications than gender. Second, Rice, McCormick and Bergmann (2002, 753) present book publication data by academic department that suggests departments differ in whether they encourage their faculty to emphasize journal articles or book manuscripts. Thus the kind of department in which one works may shape publication profiles more than gender. Finally, Djupe, Smith, and Sokhey (2019, 72) report survey data that indicates female political scientists report submitting approximately identical numbers of book manuscripts and book chapter manuscripts as the male survey respondents reported – but significantly fewer journal article manuscripts. Thus women may see the former two kinds of outlets as especially promising for their work.

The latter conclusion about what sorts of venues might be especially hospitable for research by women connects logically with some of the findings of Teele and Thelen (2017) on publications by gender in top journals in the profession. Teele and Thelen (2017, 439-442) offer evidence that women more frequently utilize research methodologies such as qualitative ones that can make their work less attractive for (or perceived to be less attractive for by the author) many of the most prestigious journals in contrast to the work of male scholars that is more commonly based on formal theory or quantitative statistical methods.

Expanding on the preceding findings from Teele and Thelen, book and book chapter publishing may both offer venues that comport better with the methodological and substantive concerns in many women scholars’ research. One can often target book manuscripts to book series that have a topical focus. Some presses can also be especially amenable to qualititative work because they publish heavily in fields where such work is conventional. In addition, when one is invited to submit a chapter to an edited book, the book likely has scholarly editors and a topical orientation that comport with the sort of work the invited scholar is known for. Thus books and book chapters can offer especially good publication opportunities for women faculty.

Informed by the preceding logical and empirical background, Table 1 below offers multiple regressions for logged versions of these two research output variables that emulate the regressions in Table 2 of the full manuscript. Thus for each dependent variable there is a model with, and one without, time in the profession.

[Table 1 About Here]

 The results in Table 1 comport well with the argument articulated above. The dummy variable for female gender is never significant in any of the models. The consistently significant predictors in all four models are faculty rank, time in the profession, and one or both of the two measures of the generosity of departmental resources intended to facilitate research (the number of undergraduate courses typically taught and the count of overall research resources in the department constructed by Hesli and Lee from answers to a series of related questions). Thus the numbers of these two kinds of publications are primarily driven by the seniority of faculty and how well placed they are in departments with generous research resources.

 More senior male and female faculty, and male and female faculty with longer tenure in the profession, can be expected to have especially wide interpersonal networks that would facilitate the publication of book chapters. Men and women of longer tenure and higher rank both likely benefit as well from the fact that editors for book presses prefer manuscripts from more senior scholars. It is also possible that many of the departments with very high resources for research and relatively low teaching demands are ones that encourage book publications. In sum, publishing these two kinds of research products is gender-neutral as the little noted line of expectations and evidence outlined above suggests should be the case.

Table 1. The Effect of Female Gender on the Publication of Research Monographs and

Edited Book Chapters Controlling for Time in the Profession

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| --- | --- | --- | --- | --- |
| Predictor Variable | Log of Number of Book Research Books Published (Plus 1) | Log of Number of Book Chapters Published (Plus 1) | Log of Number of Research Books Published (Plus 1) | Log of Number of Book Chapters Published (Plus 1) |
| Female Dummy Variable | -.008(.028) | -.047(.043) | .009(.029) | -.022(.045) |
| Count of Overall Dept. Research Resources | .001(.004) | .011\*(.006) | .002(.004) | .014\*(.006) |
| Typical Number of Undergrad. Courses Taught | -.013(.009) | -.028\*(.013) | -.023\*(.009) | -.043\*(.013) |
| Faculty Rank | .224\*(.015) | .337\*(.023) | .137\*(.024) | .227\*(.013) |
| Perceived Sexist Climate | .022(.014) | .009(.021) | .029\*(.014) | .011(.022) |
| Perceived Contentious Climate  | -.016(.012) | .025(.019) | -.014(.013) | .038\*(.020) |
| Years Since Earning the PhD | ---- | ---- | .008\*(.002) | .009\*(.003) |
| Constant | -.329 | -.392 | 15.675 | 18.617 |
| N of Cases | 338 | 338 | 313 | 313 |
| Adj. R2 | .43 | .46 | .45 | .47 |

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

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