Online Appendix – Text:

Data and methodology

To determine the top 50 departments, we rely on the rankings of Conroy et al. (1995). Table 1a reports the schools, listed in alphabetical order.

We use a department ranking created before the sample period so as to minimize any bias due to a department growing or falling in prestige during the period of study.

To determine the current faculty at the departments in the sample, we visit each school's website and collect all tenure-track names listed on the website. For each faculty member, we download his or her most recent *curriculum vitae* (CV) as a record of current and past academic positions, and level of the position (Assistant, Associate, Full, Visiting, Emeritus).

Next, we look at department websites from past years. We can see previous versions of department websites using waybackmachine.org, a website dedicated to archiving all content on the internet. Waybackmachine.org collects data periodically back to 1996. Most schools in the sample have websites going back to 1996, although several start in later years. This allows us to construct a sample of nearly all faculty employed at these schools in any year from 1996 through 2014. For each faculty member, we use an internet search to find her most recent CV, so that we have data for appointments even if she left the top 50 prior to 2014. In total, we collect 2,763 names, 2,092 of whom are eventually granted tenure at some point prior to 2014. In our work below, we require a researcher to be in academia for at least 5 years prior to tenure, and 5 or 10 years after tenure. This reduces our sample to 1,331 researchers who are in academia for at least 5 years after being granted tenure, and 980 who are in the sample for at least 10 years post-tenure.

Typically, schools grant tenure at the same time that a faculty member is promoted to Associate Professor, though there are exceptions at each school. Some regularly grant tenure only a few years after promotion to Associate and some grant tenure only upon promotion to Full Professor. To determine when a faculty member was granted tenure, we employ a multi-step process.

First, we determine the prevailing policy for when tenure is granted at each school. This requires finding faculty who disclosed the year that they were granted tenure on their CVs. If all disclosing faculty from a single school received tenure at the same position (for example, immediately upon appointment to Associate professor), then we determine that this is the standard for the school. This accounts for the vast majority of schools in the sample. Next, we contact department representatives, most often faculty, to inquire about the standard at each school. The standards resulting from this process match the standards determined from CVs.

Second, for schools with ambiguous standards (most notably Carnegie Mellon, which changed its tenure timing midway through the sample period), determining tenure dates requires contacting department faculty who would know the tenure status of the faculty member in question. For schools that grant tenure several years after an appointment to Associate Professor, we contact department faculty who are aware of the professor's date of tenure.

Third, for a random sample of faculty, we contact either them or their colleagues to confirm the assigned tenure year. This process is surprisingly consistent, with few examples where our tenure time assignment is incorrect. Data error typically occurs when (i) a faculty member moves to a new school and is simultaneously promoted from Assistant to Associate Professor, (ii) the new school tenures internal candidates at the Associate level, and (iii) the new faculty member receives tenure after only 1 or 2 years at the new school. It is not possible to fully correct for this potential error in the data, but the number of observations subject to this potential problem is well under 1/10 of the sample, and the fraction of those observations that are likely to be in error is small. Furthermore, this error can only serve to weaken our results.

After collecting the set of faculty and their tenure years, we match this database to a database of publications and citations for 51 leading economics and finance journals. The collection and composition of this database adds another 21 journals to the 30 journals in Brogaard et al. (2014). Merging the datasets requires standardizing school and faculty names. The former is straightforward but, because we cannot systematically distinguish publications among faculty members with common names (e.g., Beth Allen, Belinda Allen, Brandon Allen, Bryant Allen and Bryon Allen all share the Web of Science name Allen, B), we remove those faculty with identical name listings.

Readers or researchers who access the data underlying our work online should note that missing faculty likely share Web of Science names with other important faculty, leading to their exclusion. Also note that there is some discretion here: William J Adams of University of Michigan shares a Web of Science name with Walter Adams, but William has many publications and Walter has one, in 1951. In cases like this, the error from assigning the name to William is less than the loss to data from excluding him from the sample, so we keep his observations.

The data collection process introduces some errors, but that number is likely to be small, and any errors in the tenure date are likely to be one year or two at most. These errors, when present, will weaken our results, not strengthen them.

Adjusting for the number of co-authors on a paper

In our analysis, we credit an academic who publishes an N-authored paper with 1/N of a publication. We believe that this most accurately represents the productivity of that professor. It is reasonable, however, to use other weights. One natural weight is to credit an author with one publication, regardless of the number of co-authors.

In Figure 1a, we reproduce Figure 1, but without any adjustment for the number of authors on a paper. The pattern clearly persists, with a drop in the publication (homerun) rate of 29% (33%) in the two years post-tenure. From years two to 10 post-tenure, per-capita publications drift down, and the per-capita homerun rate falls an additional 24%. The likelihood that a publication is a homerun falls 24% from year two to year 10 post-tenure. This compares with a 26% fall from year two to year 10 post-tenure with the adjusted numbers. Author-adjustment does not substantially affect the overarching story.

Separating faculty by years-to-tenure

In order to separate the effect of tenure from the effect of time, we split our sample from Figure 1 into several sub-samples based on how long it took a researcher to get tenure. Specifically, we split the sample by whether a researcher was granted tenure in her fifth year, sixth year, etc. The sample in each case is substantially smaller than for the full sample, adding noise to our plots, so we make two adjustments to improve the sample. First, we adjust our sample to include faculty who are in the sample for at least

5 years after tenure, as opposed to 10. This increases the sample size by nearly 40%, to 1,331 members, relative to requiring that faculty must be in the sample for 10 years post-tenure. Second, the number of faculty receiving tenure more than a decade after a PhD is too low to meaningfully display in a plot, so we group together all faculty who receive tenure after 10-15 years. Note that the number of faculty differs by tenure year, so the fact that faculty tenured in 6 years publish more papers than those tenured in 5 should not suggest that they are more productive on a per-researcher basis. Figure 2a displays the results.

For those tenured in 5 years (Panel A), the year of peak production of both papers and homeruns is the tenure year. For those tenured in 6 years, the publication rate is highest in the year before tenure and the tenure year; the homerun publication rate peaks in the tenure year and the year after. For those tenured in 7 years, both publications and homeruns peak in the year the candidate is up for tenure. As the data become noisier (fewer people are tenured each year after seven), the peaks are less clear but the general shape persists: people publish more and better papers in the run-up to tenure and fewer after.

These facts suggest that it is not simply aging that is causing the patterns observed in Figures 1 to 3. The year of tenure itself is special, not simply the number of years since graduate school.

Public versus private schools

State-affiliated universities in the United States are often subject to labor laws that apply to all state employees. Rules determining raises, promotions, work assignments, etc., may not be particularly well suited to an academic setting. Private universities, which are able to design rules to cater to their unique situations, might be better able to solve the problem of post-tenure productivity declines.

In Figure 3a, we split the sample into 564 faculty who are tenured at US public schools (Panel A), and 365 faculty who are tenured at US private schools (Panel B). Note that $564 + 365 < 980$, because some faculty in our sample are tenured at non-US schools. We do not account for moves that take place after tenure because moving after tenure generates substantial selection issues that we wish to avoid.

The basic pattern is clear in both figures. Publication rates drop substantially in the two years following tenure, and steadily decline for the subsequent eight years. In both cases, homerun rates fall faster than publication rates, so the likelihood of a publication becoming a homerun falls.

How good must a paper be to be a homerun?

In our sample, approximately 1/7 of all publications are defined as homeruns. It is possible that we are not capturing true risk-taking, because we define many papers as homeruns even though they are merely above average. As we increase the threshold defining a homerun, the number of papers that meet the threshold falls. While these papers are certainly, on average, more impactful, there is also more noise in measuring rates when numerators are small. Nonetheless, we consider an additional variable here, which we call a grand slam. A grand slam is a paper that is in the top 5% of all papers published in its year, ranked by citations as of 2014.

In Figure 4a, we reproduce Figure 1, with all 980 faculty, but plot grand slams instead of homeruns. Grand slams are produced approximately half as often as homeruns, which should not be surprising since they comprise the top 5% rather than the top 10% of publications in a given year.

The pattern is the same. Grand slam publication rates fall by 29% in the two years following tenure, and a fall a subsequent 32% in the eight years following that. These patterns are quantitatively similar and qualitatively identical to the results concerning homeruns.

Online Appendix – Tables and Figures:

Figure 1a: Publications and Homeruns around Tenure

This figure plots the number of publications and the number of those publications that were "homeruns" in event time, where the event is tenure. A publication in an economics or finance journal is defined as a homerun if it has more citations than 90% of all economics and finance publications appearing in the same year. The sample consists of 980 faculty whose publication activity we observe for at least 5 years before tenure and 10 years following tenure. Per-capita publications is the sum of the cohort's publications, divided by 980. Per-capita homeruns is the sum of the cohort's homeruns, divided by 980. The height of each curve therefore represents the average number of publications (left axis) and homerun publications (right axis) for a member of our sample in each year of her career, measured from her year of tenure.

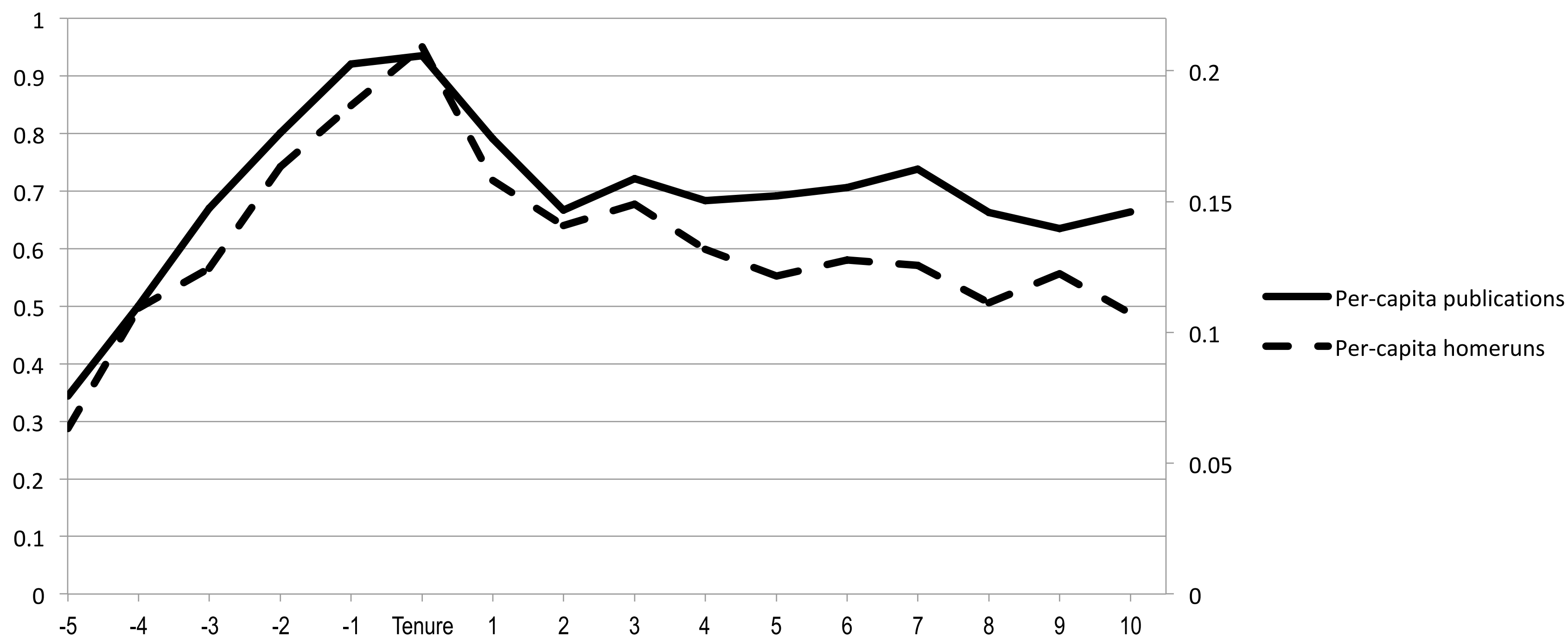
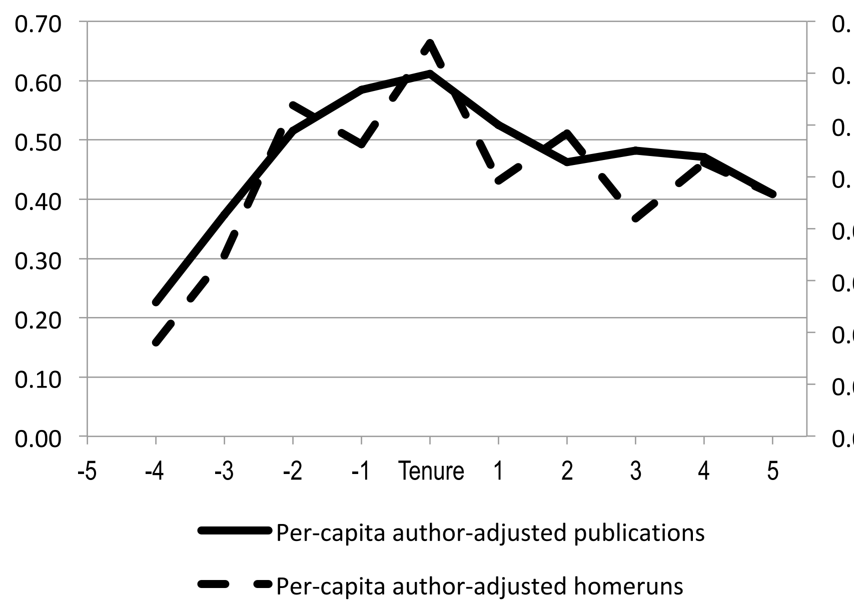


Figure 2a: Publications and Homeruns by Year of Tenure

Each figure plots both the number of per-capita author-adjusted publications and homeruns in event time, where the event is tenure. A publication in an economics or finance journal is defined as a homerun if it has more citations than 90% of all economics and finance publications appearing in the same year. Each panel considers a different time to tenure: 5, 6, 7, 8, and 9 years. The final panel considers all faculty tenured in 10-15 years. The sample includes 1,331 faculty who were tenured before 2009.

PANEL A: Tenured in 5 Years



PANEL B: Tenured in 6 Years

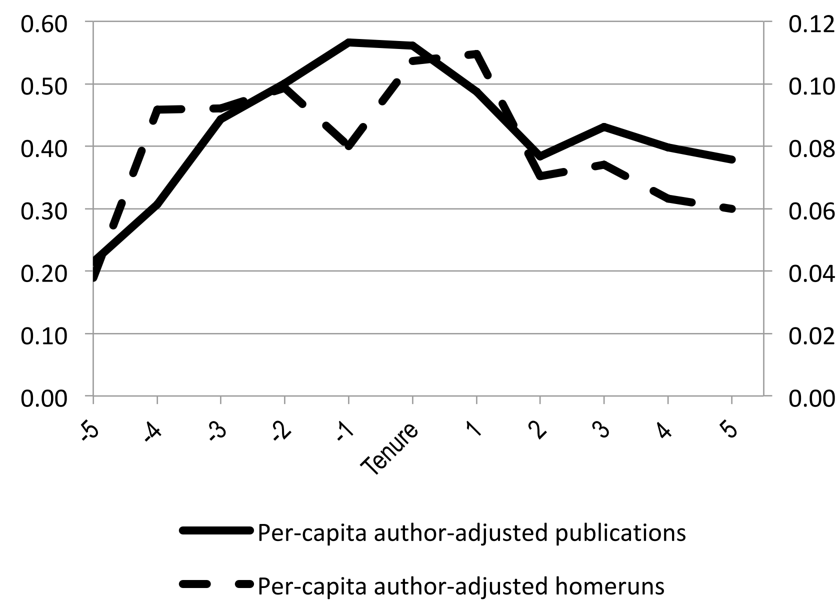
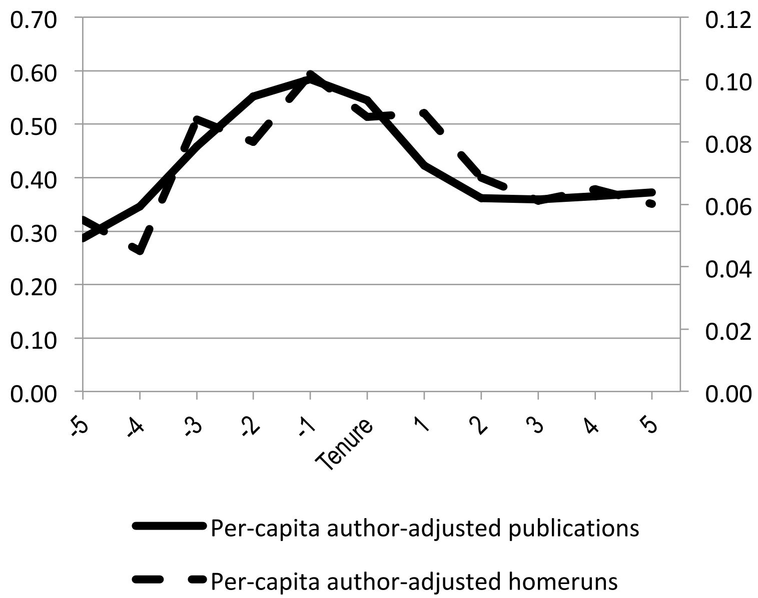


Figure 2a Continued

PANEL C: Tenured in 7 Years



PANEL D: Tenured in 8 Years

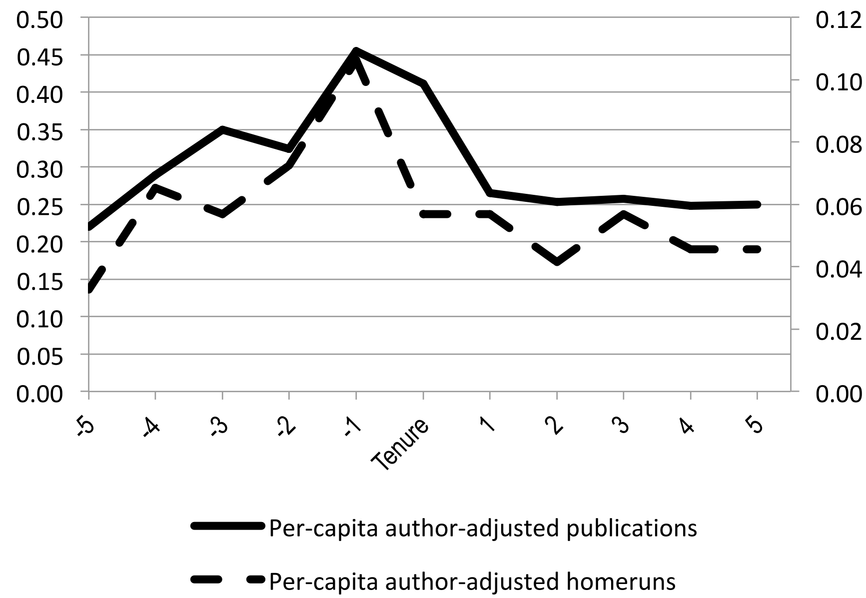
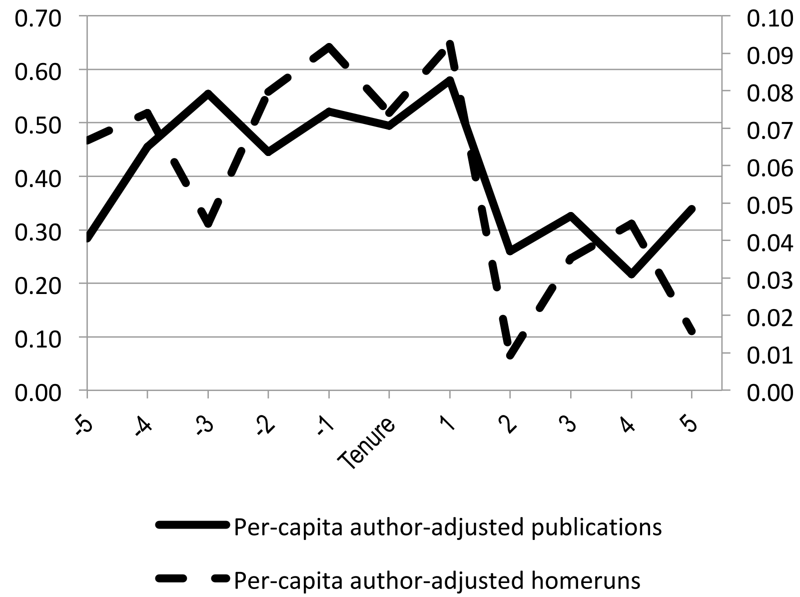


Figure 2a Continued

PANEL E: Tenured in 9 Years



PANEL F: Tenured in 10-15 Years

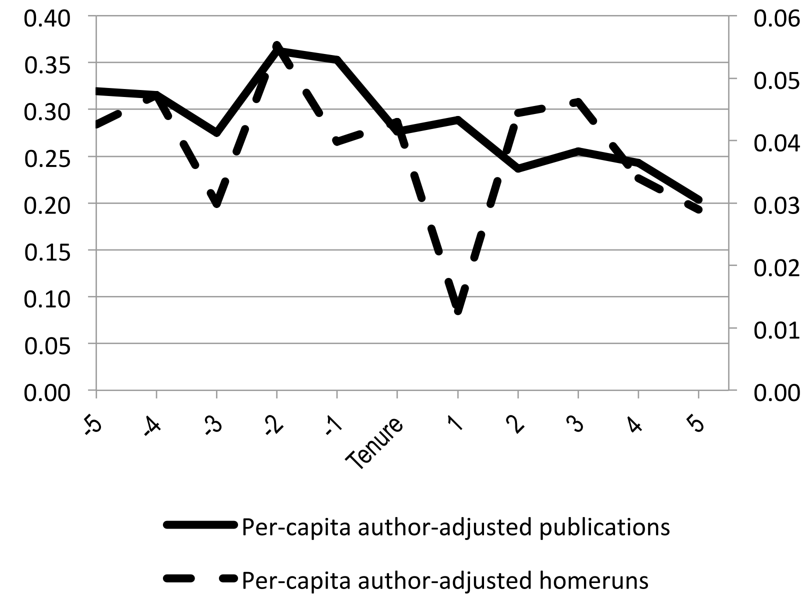
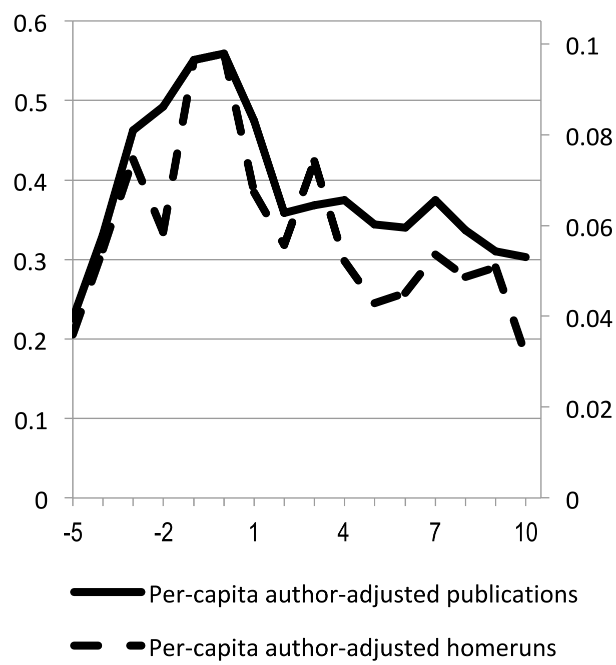


Figure 3a: Publications and Homeruns for Private and Public US Schools

Each figure plots the number of publications and the number of those publication were “homeruns” in event time, where the event is tenure. A publication i economics or finance journal is defined as a homerun if it has more citations than of all economics and finance publications appearing in the same year. The sa consists of US faculty whose publication activity we observe for at least 5 years b tenure and 10 years following tenure. Each author on a publication is credited wi inverse of the number of authors on the publication (e.g., an article with four au counts as .25 of a publication for each author). Panel A plots the data for 524 f tenured at US public universities. Panel B plots the data for 365 faculty tenures private universities. Per-capita author-adjusted publications (homeruns) is the su the cohort’s publications (homeruns), divided by 524 in Panel A, and 365 in Pa The height of each curve therefore represents the average number of publication axis) and homerun publications (right axis) for a member of our sample in each y her career, measured from her year of tenure, where she only receives 1/N credit N authored paper.

PANEL A: US Public Universities



PANEL B: US Private Universities

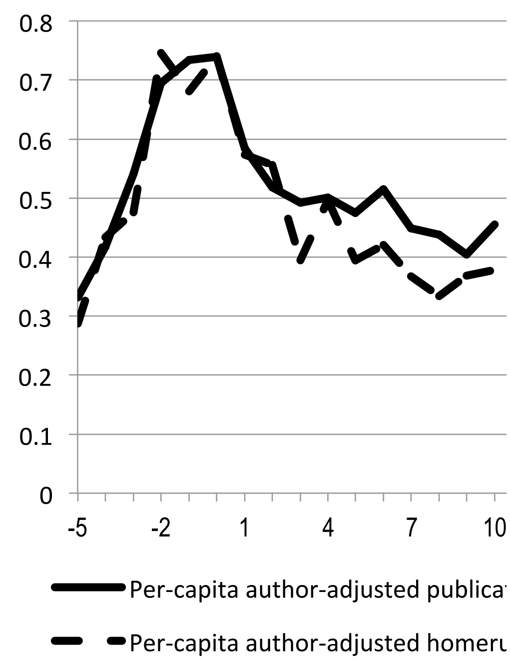


Figure 4a: Publications and Grand Slams around Tenure

This figure plots the number of publications and the number of those publications that were "grand slams" in event time, where the event is tenure. A publication in an economics or finance journal is defined as a grand slam if it has more citations than 95% of all economics and finance publications appearing in the same year. The sample consists of 980 faculty whose publication activity we observe for at least 5 years before tenure and 10 years following tenure. Each author on a publication is credited with the inverse of the number of authors on the publication (e.g., an article with four authors counts as .25 of a publication for each author). Per-capita author-adjusted publications is the sum of the cohort's publications, divided by 980. Per-capita author-adjusted grand slams is the sum of the cohort's grand slams, divided by 980. The height of each curve therefore represents the average number of publications (left axis) and grand slam publications (right axis) for a member of our sample in each year of her career, measured from her year of tenure, where she only receives 1/N credit on an N authored paper.

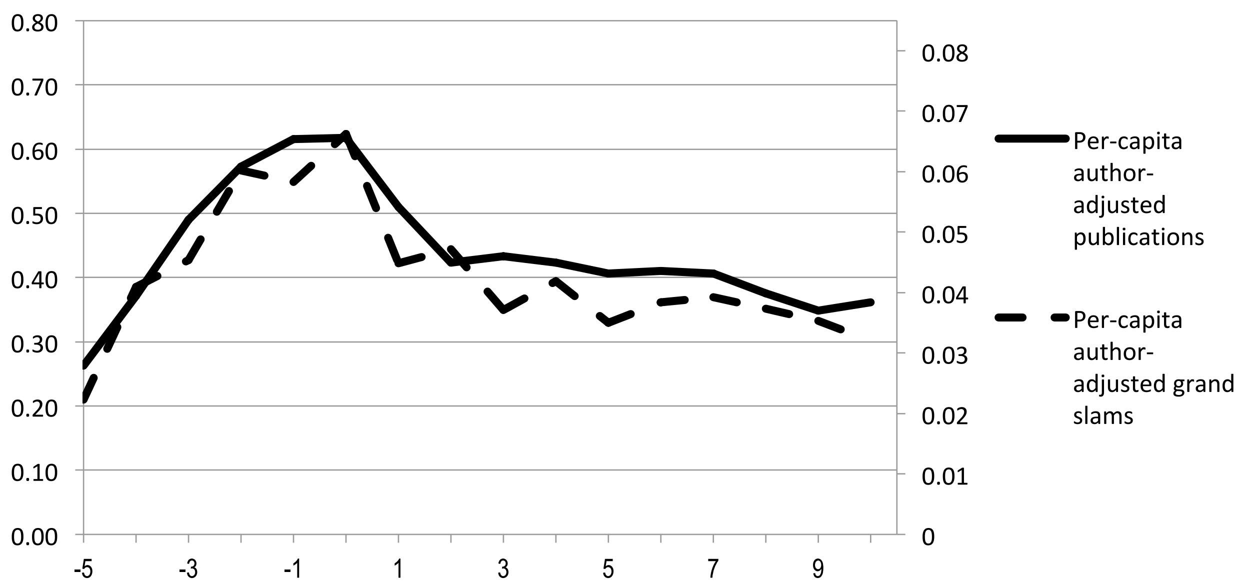


Table 1a: Schools

Table 1 lists the schools used in this research. To determine the top 50 departments, we rely on the rankings of Conroy et al. (1995). The schools are listed in in alphabetical order.

Boston College	SUNY-Stony Brook
Boston U.	Texas A&M
Brown U.	U. of Arizona
Cal Tech	U. of California-Berkeley
Carnegie Mellon	U. of California-Davis
Columbia U.	U. of California-Los Angeles
Cornell U.	U. of California-San Diego
Duke U.	U. of California-Santa Barbara
Harvard U.	U. of Chicago
Houston U.	U. of Colorado-Boulder
Iowa State U.	U. of Florida
Johns Hopkins U.	U. of Illinois-Urbana
Michigan State U.	U. of Indiana-Bloomington
MIT	U. of Iowa
New York U.	U. of Maryland
North Carolina State U.	U. of Michigan
Northwestern U.	U. of Minnesota
Ohio State U.	U. of North Carolina-Chapel Hill
Penn State U.	U. of Pennsylvania
Pittsburgh U.	U. of Rochester
Princeton U.	U. of Texas, Austin
Rice U.	U. of Virginia
Rutgers U.	U. of Washington
Southern Methodist U.	U. of Wisconsin-Madison
Stanford U.	Yale U.

Table 2a: Categories of Journals

A list of journal categories, the number of journals in each category, and the journals in each area

Journal Category	Number in Category	Web of Science Journal Abbreviations
Accounting	3	ACCOUNT REV J ACCOUNT ECON J ACCOUNTING RES
Econometrics	3	J APPL ECONOMET J ECONOMETRICS J FINANC ECONOMET
Finance	13	FINANC ANAL J FINANC MANAGE J BANK FINANC J CORP FINANC J FINANC J FINANC ECON J FINANC INTERMED J FINANC MARK J FINANC QUANT ANAL J FINANC RES MATH FINANC REV FINANC REV FINANC STUD
General Interest	16	AM ECON J-APPL ECON AM ECON J-ECON POLIC AM ECON REV ECON J ECONOMETRICA INT ECON REV J APPL ECONOM J BUS J BUS ECON STAT J ECON LIT J ECON PERSPECT J POLIT ECON MANAGE SCI Q J ECON REV ECON STAT REV ECON STUD
Industrial Organization	2	J IND ECON RAND J ECON
International	1	J INT ECON
Labor	2	J HUM RESOUR J LABOR ECON
Law and Economics	1	J LAW ECON
Macroeconomics	3	AM ECON J-MACROECON J ECON GROWTH REV ECON DYNAM
Micro Theory	4	AM ECON J-MICROECON ECON THEORY GAME ECON BEHAV J ECON THEORY
Monetary	2	J MONETARY ECON J MONEY CREDIT BANK
Public Economics	1	J PUBLIC ECON

References

Brogaard, Jonathan, Joseph Engelberg, and Christopher A. Parsons. 2014. "Networks and Productivity: Causal Evidence from Editor Rotations." *Journal of Financial Economics* 111(1): 251–70;

Conroy, Michael E., Richard Dusansky, David Drukker, and Arne Kildegaard. 1995. "The Productivity of Economics Departments in the US: Publications in the Core Journals." *Journal of Economic Literature* 33(4): 1966–71.