

CHAPTER 8

Publication lags and the research output of young economists

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Ellison (2002) documents that, between 1970 and 2000, the typical time between submission of an economics paper to a journal and publication more than doubled from about eight months to about sixteen months. As Ellison notes, this has important implications:

“The change in the publication process affects the economics profession in a number of ways: it affects the timeliness of journals, the readability and completeness of papers, the evaluation of junior faculty, and so forth” (p. 948).

While all of this is true, the stakes are probably highest when it comes to the evaluation of junior faculty. Slower turnaround times for papers – added to lower acceptance rates at top journals and increases in average page counts of published manuscripts – would seem to make it a mathematical certainty that equally capable and hardworking junior faculty today will end up with shorter CVs at the end of six years than they would have in the past, under a quicker and more accepting publishing regime.

In Conley et al. (2013), we show the impact of this publication slowdown on the early lifecycle publication profile of academic economists using a simple model of research production with either one-period or two-period lags between submission and publication. We assume that individuals begin their professional life with a stock of three manuscripts and write one new manuscript every year. Each year, individuals submit all of their unpublished manuscripts not currently under consideration to a journal, which we assume has a 20% acceptance rate. We find that individuals can expect to have 4.52 accepted papers after six years if the delay is one period, but only 2.58 accepted papers if the delay is two periods (i.e. a 43% drop in the length of their CV). Clearly, the ‘Ellison effect’ has the potential to be quite significant.

If institutions fail to internalise this new reality, fewer junior faculty will receive tenure than in the past. Of course, at the individual level, the cost of not gaining tenure is large. The costs are large for the profession in general as well. Failure to promote qualified scholars leads to more frequent and costly searches for new junior faculty, the exit of

qualified scholars who would otherwise enrich the stock of economic research, and the discouragement of talented undergraduate and graduate students from attempting a research career in economics.

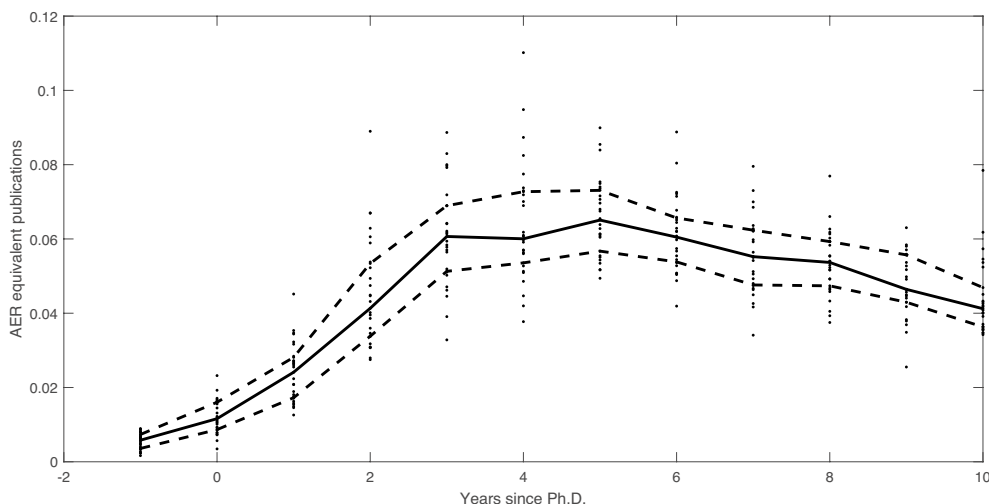
It is possible, of course, that young scholars might realise all this and compensate for the new, more difficult publishing environment by working harder. Although this might make academic economics a less attractive career, it might also make the CVs of new PhDs more comparable to those of earlier cohorts.

We therefore investigate the effect of these changes in the publishing environment on successive cohorts of new PhDs from an empirical standpoint. We combine data from various sources to reconstruct the JEL-listed journal publication records of the 23,886 graduates of US and Canadian PhD-granting economics departments from 1980 to 2006. Here, we focus on the approximately half of graduates who published at least one paper within six years of completing their PhD.

To begin, we document a consistent lifecycle pattern of scholarly productivity across cohorts. Figure 1 shows the average annual number of AER-equivalent publications published by graduates of the top 30 US and Canadian economics departments who are active in research.¹ All cohorts show a steep climb of annual productivity, peaking in the fifth year after graduation when they reach a median (across cohorts) publication rate of 0.065 AER-equivalent publications. In subsequent years, annual productivity starts its monotonic decline, which is gradual relative to the earlier rise and reaches 63% (median across cohorts) of peak productivity at the end of the first decade of an academic's career. Clearly, the tenure clock has a significant influence on scholarly productivity. The pattern is similar for graduates from non-top 30 economics departments.

For descriptive purposes, we group graduates into five cohorts, each pooling three consecutive years of PhD graduates (for example, the 1987 cohort consists of graduates of either 1986, 1987 or 1988). We find a consistent pattern of extreme skewness of productivity across graduates within each cohort. Table 1 shows part of an 'intellectual Lorenz curve' constructed from our data. We see that the most productive 1% of PhDs active in research produce between 12% and 14% of all quality-weighted publications regardless of cohort, while the top 10% produce between 56% and 59% and the top 20% produce between 76% and 80%.

¹ We use previously established quality weights (e.g. Kalaitzidakis et al. 2003) to convert a publication in a given journal into its AER equivalence.

FIGURE 1 LIFECYCLE OF PUBLICATIONS BY COHORT

Note: Each dot is the number of AER-equivalent publications produced by a particular cohort in the lifecycle year indicated on the horizontal axis; the solid line is the median, across cohorts, in each lifecycle year; and the dashed lines indicate the inter-quartile range across cohorts.

TABLE 1 INTELLECTUAL LORENZ CURVE

	1981	1984	1987	1990	1993	1996	1999	2002	2005
Top 1%	13.1%	11.9%	12.7%	13.4%	14.3%	12.9%	13.1%	13.3%	12.7%
Top 10%	55.7%	58.4%	58.4%	56.8%	56.2%	57.9%	58.3%	55.9%	59.4%
Top 20%	76.8%	79.2%	80.1%	78.0%	77.9%	79.3%	79.7%	76.4%	79.2%

Source: Calculations based on Conley et al. (2013) and Önder et al. (2019)

Our central question is the effect of the publication slowdown on the relative productivity of recent to past cohorts. To this end, we considered the number of AER-equivalent pages published at the end of the sixth year (the approximate time that tenure decisions are made). Among graduates of the top 30 programmes, the oldest cohort are on average more productive than the middle cohorts, and the middle cohorts are on average more productive than the youngest cohort. However, there is no such pattern of declining productivity for the departments outside of the top 30 using this productivity measure. Thus, there is only weak evidence of the Ellison effect.

When we look instead at the number of AER-equivalent *publications* rather than the *number of pages* published at the end of six years, a much clearer and more dramatic picture emerges. By this measure, among graduates of the top 30 programmes, the oldest cohort are 48% more productive than the middle cohorts and 68% more productive than the youngest. The middle cohorts, in turn, are 12% more productive than the youngest cohorts. For non-top 30 departments, the oldest cohort are 19% more productive than

the middle cohorts and 58% more productive than the youngest, while the middle cohorts are 33% more productive than the youngest cohort. These numbers are both large and statistically significant. Since tenure decisions are more likely to be made on the basis of the number of lines on a CV than the more abstract count of published pages, we think that this is the more relevant measure and the implications for the tenure process are important.

To give sense of the magnitude of the shift in the publication lifecycle, Table 2 shows the average number of AER-equivalent publications produced by the end of sixth year for PhDs ranked at the 99th, 90th, and 80th percentiles in their cohorts. This table shows both the extreme skewness of productivity and the significant drop-off of publication rates of younger generations of new economists – especially concerning the 90th and 80th percentiles.

TABLE 2 AER-EQUIVALENT PAPERS BY PRODUCTIVITY PERCENTILE AND COHORT

	1981	1984	1987	1990	1993	1996	1999	2002	2005
99th percentile	4.75	4.87	5.14	3.81	4.04	4.00	4.23	4.31	4.20
90th percentile	1.66	1.41	1.75	1.26	1.22	1.21	1.19	1.18	1.12
80th percentile	0.93	0.66	0.71	0.59	0.61	0.54	0.58	0.6	0.51

Source: Calculations based on Conley et al. (2011) and Önder et al. (2019)

We find that the institution from which students receive their PhDs has a significant impact on both the quality and quantity of their published research. Publishing graduates of top 30 departments produce more than three times as many AER-equivalent pages and papers than their counterparts from non-top 30 departments. In addition, the average quality of each published paper is about three times higher for graduates of the top programmes compared to the non-top programmes, and this holds for all cohorts. However, we do not see much change in the quality of the average publication over time for either top or non-top programmes.

Finally, these data allow us to investigate the relative performance of economics graduate programmes in terms of the research output of their PhDs. This in turn allows us to construct a new type of metric for ranking departments as an alternative to the more traditional methods, which focus on the publications of faculty members. We find that MIT, Princeton, Harvard, and Rochester do best by this quality measure, and more generally that the rankings of other departments do not entirely agree with more traditional measures that use faculty output.

These data show that the economics profession is extremely hierarchical, both in the sense that top scholars vastly out publish even average ones, and that top programmes produce graduates who are significantly better than non-top programmes. Our most important

conclusion, however, is that there has been a significant slowdown in the publication rates of junior faculty over recent years, and this is likely due to a more difficult publishing environment than to a drop in the quality of new PhDs. This suggests that our profession should be careful when evaluating people for tenure and promotion. The rules of the game have changed, and members of more recent cohorts – who may be just as talented and hard working as their predecessors – will almost certainly have shorter CVs in comparison.

REFERENCES

Conley, J P, M J Crucini, R A Driskill and A S Önder (2013), “The Effects of Publication Lags on Life Cycle Research Productivity in Economics”, *Economic Inquiry* 51(2): 1251-1276.

Conley, J P, M J Crucini, R A Driskill and A S Önder (2011), “Publication lags and young economists research output”, VoxEU.org, 24 October.

Ellison, G (2002), “The Slowdown of the Economics Publishing Process”, *Journal of Political Economy* 110 (5): 947-993.

Kalaitzidakis, P, T P Mamuneas and T Stengos (2003), “Rankings of Academic Journals and Institutions in Economics”, *Journal of the European Economic Association* 1(6): 1346-1366.

Önder, A S, S Schweitzer and H Yilmazkuday (2019), “Specialization, Distance, and Quality in Economists’ Collaborations: How Diverse is Research Really?”.

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