

Research Productivity and the Ranking of Junior Economics Faculty: An Appraisal of Alternative Metrics

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Abstract

This study addresses the void in the academic literature on the research productivity of junior faculty by appraising some alternative research productivity metrics for junior faculty in economics. These include the use of journal impact factors, which capture information on the quality of publishing outlets, and a quantitative measure of research output by the junior economics faculty in a given department.

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1 Introduction

The usual debate regarding the research productivity metrics chosen for evaluating all of a department's faculty, or of the top producers in a department, usually revolves around arguments for or against either quality- or quantity-based approaches. As Laband (1985) asserts, the latter of these two approaches is inferior to the former on a political basis, given that journal editors may favor in-house authors by allowing them to access more of a journal's scarce publication

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space. As a result, departments that are also home to an academic journal will rank higher than their counterparts where no such journal affiliation exists. Quality-based approaches to ranking academic departments are also not without flaws. As a contemporaneous study by Davis and Papanek (1985) points out, the work of applied economists is more likely to be evaluated heavily outside of the field, while that of theoreticians and mathematical economics will be evaluated more heavily within the profession. Thus, the source of the citations count is a critical feature in studies using quality-based metrics.

Much of the debate highlighted above fades away in the case of evaluating research productivity of junior economics faculty. Given their newness to the profession, selection of a solely quantity-based approach for ranking junior economics faculty results in the use of low variance data. At the same time, the future-oriented feature of citations counts also renders that type of quality-based approach of little value in the case of junior economics faculty.³ Instead, researchers are left to construct alternative metrics for evaluating faculty and department prestige, which likely explains why little research, outside of Oyer's (2006) analysis of the impact of initial job placement on the research prospects of junior economics faculty, exists with regard to the productivity of junior economists. This study addresses this particular issue, and the relative void in the academic literature on the research productivity of junior faculty, by examining some alternative metrics for junior faculty in economics. These include the use of journal impact factors, which capture information on the quality of publishing outlets, and a quantitative measure of research output. Both of these metrics are applied to the research output of junior faculty in economics departments affiliated with colleges and universities in the U.S. South, given the relatively long and continuing tradition of ranking studies involving institutions in this group (e.g., see Niemi, 1975; Gerrity and McKenzie, 1978; Berger and Scott, 1990; Mixon and Upadhyaya, 2001, 2016a and 2016b).

2 An Appraisal of Ranking Metrics for Junior Economics Faculty

The set of universities included in this study come from those national universities located in the U.S. South that are analyzed in Mixon and Upadhyaya (2001 and 2016a). The national university designation is provided by *America's Best Colleges 2018*, which is the current edition of the annual guide to colleges and universities in the U.S. that is published by *U.S. News & World Report*. To

³ With the existence of the John Bates Clark Medal and other awards of lesser prestige, the use of awards and honors to rank economics departments is possible in the case of junior economics faculty (Mixon and Upadhyaya, 2014). Such an approach, however, is generally limited to economics faculty at elite universities (Mixon and Upadhyaya, 2012; Faria, Mixon and Upadhyaya, 2016; Mixon, Torgler and Upadhyaya, 2017).

develop a sample of institutions for appraising the research productivity metrics presented in this study, we selected the top 40 universities from the recent study by Mixon and Upadhyaya (2016a) for junior economics faculty, which in this study are represented by assistant professors, published in at least one *EconLit*-indexed journal that also provides a journal impact factor on its webpage.⁴ Faculty names and rank are gathered from individual college and university webpages.

The universities included in the study are listed alphabetically in Table 1. Also included there is the number of junior faculty in each case who meet the requirements mentioned above for inclusion in the analysis. According to the data, the number of junior faculty in economics ranges from a low of two to a high of 11. Economics departments at George Mason University, Tulane University and the University of Central Florida account for the low end of this range, while the upper end is established by the economics department at the University of Texas. Lastly, the mean number of junior professors is 4.95, with a standard deviation of two, thus leading to a coefficient of variation equal to 40.4 percent.

Table 1: Number of Junior Faculty in Economics Departments in the U.S. South

Institution	Junior Faculty	Institution	Junior Faculty
Auburn University	6	University of Alabama	4
Baylor University	3	University of Arkansas	5
Clemson University	5	University of Central Florida	2
Duke University	8	University of Delaware	6
College of William & Mary	7	University of Florida	3
Emory University	7	University of Georgia	5
Florida State University	6	University of Houston	6
George Mason University	2	University of Kentucky	4
Georgia Institute of Technology	3	University of Maryland	4
Georgia State University	6	University of Miami	7
Johns Hopkins University	5	University of North Carolina	6
Louisiana State University	3	University of North Carolina – Greensboro	5
North Carolina State University	3	University of Oklahoma	6
Oklahoma State University	3	University of South Carolina	6
Old Dominion University	4	University of Texas	11
Rice University	3	University of Texas – Dallas	3
Southern Methodist University	4	University of Virginia	9
Texas A&M University	5	Vanderbilt University	8
Texas Tech University	5	Virginia Polytechnic Institute & State University	4
Tulane University	2	West Virginia University	4

Next, the publication count of each junior economics faculty member and the journal titles publishing his or her research are gathered from *EconLit*.⁵ For each

⁴ *EconLit* is an electronic database of all journals indexed by the American Economic Association (AEA). It is available through most college/university libraries, or through personal subscription from the AEA.

⁵ For ease of exposition, we use the phrase “junior economics faculty” instead of “assistant professor of economics.”

economics department, an average journal impact factor is calculated by dividing the journal impact factor totals across studies published by junior faculty in the department by the number of such studies. The journal impact factors capture, through citations to previously published work, information about the quality of the journals. As such, they provide information that is a precursor to the future-oriented citations data that will be used to rank the research productivity of these junior faculty as they become senior faculty in these academic departments. Table 2 provides a ranking of the top 40 economics departments in the U.S. South that is based on the means of journal impact factors.

Table 2: Top 40 Economics Departments in the U.S. South by Junior Faculty Productivity

Rank	Institution	<i>Journal IF per Publication</i>		
		All Faculty	Top 3 Faculty	Change
1	Duke University	5.537	9.906 [1]	—
2	University of Delaware	5.223	7.426 [2]	—
3	University of Florida	5.127	5.127 [4]	-1
4	Johns Hopkins University	3.273	3.673 [8]	-4
5	University of Maryland	3.259	3.433 [10]	-5
6	Virginia Polytechnic Institute & State University	3.255	3.790 [6]	—
7	Texas A&M University	3.038	3.693 [7]	—
8	Tulane University	2.883	2.883 [20]	-12
9	University of Kentucky	2.851	2.973 [16]	-7
10	Rice University	2.592	2.592 [21]	-11
11	Georgia Institute of Technology	2.433	2.433 [24]	-13
12	University of Georgia	2.334	3.525 [9]	+3
13	University of North Carolina – Greensboro	2.324	2.900 [18]	-5
14	Clemson University	2.308	3.310 [11]	+3
15	University of Miami	2.295	3.006 [15]	—
16	University of Oklahoma	2.239	2.897 [19]	-3
17	University of Texas	2.191	4.776 [5]	+12
18	University of Texas – Dallas	2.162	2.162 [26]	-8
19	Louisiana State University	2.078	2.078 [27]	-8
20	University of Arkansas	2.011	2.927 [17]	+3
21	University of Houston	2.002	3.234 [12]	+9
22	College of William & Mary	1.974	3.160 [14]	+8
23	Southern Methodist University	1.941	2.226 [25]	-2
24	University of South Carolina	1.918	3.230 [13]	+11
25	Vanderbilt University	1.898	6.343 [3]	+22
26	Emory University	1.858	2.520 [22]	+4
27	North Carolina State University	1.822	1.822 [30]	-3
28	George Mason University	1.788	1.788 [31]	-3
29	University of Alabama	1.701	1.884 [29]	—
30	University of North Carolina	1.696	1.932 [28]	+2
31	University of Virginia	1.677	2.491 [23]	+8
32	Old Dominion University	1.456	1.711 [35]	-3
33	Baylor University	1.443	1.443 [37]	-4
34	Georgia State University	1.428	1.785 [32]	+2
35	Auburn University	1.409	1.740 [34]	+1
36	Oklahoma State University	1.368	1.368 [38]	-2
37	Texas Tech University	1.285	1.752 [33]	+4
38	Florida State University	1.212	1.310 [39]	-1
39	University of Central Florida	1.202	1.202 [40]	-1
40	West Virginia University	1.000	1.486 [36]	+4

Notes: IF=Impact Factor. Numbers in brackets represent ranking based on top 3 junior faculty in each department.

At the top of the ranking in Table 2 is Duke University, whose junior economics faculty have published in a set of academic journals whose mean impact factor is 5.537. To provide some context, this impact factor mean lies in the middle of a range between the impact factor of the *Journal of Financial Economics* on the low end and that of the *Quarterly Journal of Economics* at the high end.⁶ These are two of the most prestigious journals in the field. Following close behind at number two is the University of Delaware, whose junior economics faculty produce a mean impact factor score of 5.223, which is just above that of the University of Florida, whose mean journal impact factor is 5.127. Moving beyond third, there is a bit of a gap, with Johns Hopkins University's junior economics faculty, which ranks fourth, producing a mean journal impact factor score of 3.273. For context, this is slightly below the reported impact factor of *Econometrica*, a very prestigious economics journal. Separating the top 10 impact factor means from those below is Rice University's impact factor mean of 2.592, which is roughly equivalent to the impact factor of *The Economic Journal*. Lastly, separating the top 20 impact factor means from those below is the University of Arkansas' impact factor mean of 2.011, which is roughly equivalent to the impact factor of the *Journal of the American Statistical Association*.

When this analysis is restricted to the top three (or fewer) junior faculty in each department, the means and rankings in column four of Table 2 are produced.⁷ Using this approach, Duke University and the University of Delaware remain in the top two spots, respectively, while Vanderbilt University climbs 22 places into a top three ranking. Duke University's impact factor mean of 9.906 is just below the impact factor of the *American Economic Review*. Also joining these three institutions in the top five is the University of Texas, which, with its impact factor mean of 4.776, moves up 12 spots and into fifth place when only the top three junior faculty are included. Separating the top 10 impact factor means from those below is the University Maryland's impact factor mean of 3.433, which is roughly equivalent to the impact factor of *Econometrica*. Lastly, separating the top 20 impact factor means from those below is Tulane University's impact factor mean of 2.883, which is roughly equivalent to the impact factor of the *Journal of Labor Economics*.

Next, a quantity-based publications metric is explored in ranking economics departments in the U.S. South. In this case, the mean number of publications by a department's junior faculty in journals listing an impact factor is used to rank institutions. This ranking appears in Table 3. At the top of the ranking is West Virginia University, whose junior economics faculty have published an average of 10.25 times in journals listing an impact factor. In a tie for second, at seven

⁶ These particular journal titles, and any others similarly listed, are used simply to provide context.

⁷ In this case, the average journal impact factor is calculated by dividing the journal impact factor totals across studies published by top three junior faculty in the department by the number of such studies.

publications, are Baylor University and Johns Hopkins University. The latter of these two institutions, Johns Hopkins University, ranks fourth and eighth using the journal quality approach discussed above and listed in Table 2. Rounding out the top five departments are the University of Texas – Dallas in fourth place, and Georgia State University and the University of Central Florida, which are tied for fifth place. Lastly, separating the top 10 departments from those below is the University of South Carolina with 5.5 publications per junior faculty, while separating the top 20 from those below is the University of North Carolina – Greensboro with 4.4 publications per junior faculty.

Table 3: Top 40 Economics Departments in the U.S. South by Junior Faculty Productivity

Rank	Institution	Mean Number of IF Publications		
		All Faculty	Top 3 Faculty	Change
1	West Virginia University	10.250	13.000 [1]	—
2	Baylor University	7.000	7.000 [10]	-8
	Johns Hopkins University	7.000	9.333 [4]	-2
4	University of Texas – Dallas	6.667	6.667 [11]	-7
5	Georgia State University	6.500	11.333 [2]	+3
	University of Central Florida	6.500	6.500 [13]	-8
7	University of Alabama	6.250	8.000 [6]	+1
8	Southern Methodist University	5.750	6.667 [11]	-3
9	Oklahoma State University	5.667	5.667 [19]	-10
10	University of South Carolina	5.500	8.000 [6]	+4
11	Clemson University	5.400	7.333 [8]	+3
12	Florida State University	5.167	8.333 [5]	+7
13	Auburn University	5.000	7.333 [8]	+5
	North Carolina State University	5.000	5.000 [26]	-13
	Old Dominion University	5.000	5.667 [19]	+4
	Rice University	5.000	5.000 [26]	-13
17	University of Texas	4.909	10.667 [3]	+14
18	Texas A&M University	4.800	6.000 [15]	+3
19	University of Kentucky	4.500	5.667 [19]	—
20	University of North Carolina – Greensboro	4.400	6.333 [14]	+6
21	Texas Tech University	4.200	5.667 [19]	+2
22	College of William & Mary	4.143	6.000 [15]	+7
23	University of Maryland	4.000	5.000 [26]	-3
24	University of Oklahoma	3.833	5.333 [24]	—
25	University of Arkansas	3.400	4.667 [29]	-4
26	University of Delaware	3.333	5.333 [24]	+2
	University of North Carolina	3.333	5.667 [19]	+7
28	Emory University	3.143	4.333 [30]	-2
29	University of Virginia	3.111	6.000 [15]	+14
30	Louisiana State University	3.000	3.000 [35]	-5
	Tulane University	3.000	3.000 [35]	-5
	Vanderbilt University	3.000	6.000 [15]	+15
33	University of Houston	2.833	4.333 [30]	+3
34	University of Georgia	2.800	4.333 [30]	+4
35	University of Miami	2.714	4.333 [30]	+5
36	Georgia Institute of Technology	2.667	2.667 [37]	-1
37	University of Florida	2.333	2.333 [38]	-1
38	Duke University	2.125	4.000 [34]	+4
39	George Mason University	2.000	2.000 [39]	—
40	Virginia Polytechnic Institute & State University	1.500	1.667 [40]	—

Notes: IF=Impact Factor. Numbers in brackets represent ranking based on top 3 junior faculty in each department.

When this analysis is restricted to the top three (or fewer) junior faculty in each department, the means and rankings in column four of Table 3 are produced. Using this approach, West Virginia University remains in the top spot, while Georgia State University climbs three spots into second place. With a mean score of 10.667, the University of Texas climbs from seventeenth to third, while Johns Hopkins University slips to a fourth place ranking. Rounding out the top five is Florida State University, which climbs from twelfth on the basis of its top 3 average of 8.333 publications. Lastly, separating the top 10 departments from those below is Baylor University with seven publications per top 3 junior faculty, while separating the top 20 from those below are Oklahoma State University, Old Dominion University, Texas Tech University, University of Kentucky and University of North Carolina, all with 5.667 publications per top 3 junior faculty.

Table 4: Spearman Rank Correlation Coefficients

	IF Mean (All)	IF Mean (Top 3)	Mean # IF Pubs (All)
IF Mean (Top 3)	+0.833*		
Mean # IF Pubs (All)	-0.458*	-0.491*	
Mean # IF Pubs (Top 3)	-0.458*	-0.279	+0.850*

Notes: IF=Impact Factor. * denotes .05 level of significance.

Finally, in order to assess the two ranking approaches discussed above, Spearman rank correlation coefficients are presented in Table 4. As indicated there, the Spearman rank correlation coefficient for the two ranking series in Table 2 above is +0.833, indicating that the information contained in the two ranking series is essentially the same. A similar result holds for the two ranking series in Table 3, as indicated by the Spearman rank correlation coefficient of +0.850 (see Table 4). When the series in Table 2 are compared to those in Table 3, a different picture emerges. For example, when the ranking of the impact factor means for all faculty in Table 2 is compared to the ranking of the mean number of publications with impact factors for all faculty in Table 3, a Spearman rank correlation coefficient of -0.458 is produced. The negatively-signed and significant coefficient in this case suggests, perhaps unsurprisingly, that quality-based research productivity metrics capture different information than their quantity-based counterparts. This conclusion is repeated when the ranking of the impact factor means for all faculty in Table 2 is compared to the ranking of the mean number of publications with impact factors for the top 3 faculty in Table 3, and it is repeated when the ranking of the impact factor means for the top 3 faculty in Table 2 is compared to the ranking of the mean number of publications with impact factors for all faculty in Table 3. On the other hand, no significant correlation is detected when the ranking of the impact factor means for the top 3 faculty in Table 2 is compared to the ranking of the mean number of publications with impact factors for the top 3 faculty in Table 3 are compared (see Table 4).

3 Concluding Remarks

The choice of metric to employ in an evaluation of the research productivity of junior faculty can be a vexing problem for investigators. Given the newness to the profession of most junior faculty, selection of a publications count-based approach for ranking junior faculty often results in the use of low variance data. At the same time, the future-oriented feature of citations counts renders that type of publications quality-based approach of little value in the case of junior faculty. This study addresses this problem by appraising two alternative metrics of research productivity – one that accounts for publications quantity and another metric that captures information related to the quality of a junior faculty's research output. The latter approach employs the mean of the journal impact factors of the research publications of the junior faculty in an academic department.

When these metrics are used to evaluate the research productivity of junior economics faculty at national universities in the U.S. South, two distinct narratives emerge. According to the quality-based metrics, Duke University, the University of Delaware, the University of Florida, Johns Hopkins University, the University of Maryland, Vanderbilt University and the University of Texas emerge as the top southern economics departments, based on junior faculty research. When the publication count or quantity-based approach is substituted, institutions such as West Virginia University, Baylor University, the University of Texas – Dallas, Georgia State University, the University of Central Florida and Florida State University rank among the top economics departments in the U.S. South. In fact, on Johns Hopkins University and the University of Texas rank among the best southern economics departments using either approach. Thus, and perhaps unsurprisingly, the two metrics examined in this study appear to capture different information about the research productivity of junior economics faculty.

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