ASSESSING ACCOUNTING DOCTORAL PROGRAMS BY THEIR GRADUATES' RESEARCH PRODUCTIVITY

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ABSTRACT

Researchers have used various methods to assess the quality of accounting doctoral programs, including measuring their graduates' research productivity (e.g., using citation analysis or "counting" articles written) and surveying faculty members or administrators about the quality of these programs. However, no study has yet "accounted" for all graduates of such programs, systematically considered the quality of a wide range of journals that have published their graduates' articles, or considered the size of these programs. This study considers these variables, focusing on the quantity and quality of articles that all 2,708 1978-1992 graduates from 73 major U.S. accounting doctoral programs wrote in 41 journals during this time. Faculty members, students, administrators, and alumni can use these results as a measure of the research records of these institutions.

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INTRODUCTION

Researchers have used three major methods to assess the quality of accounting doctoral programs: citation analysis, "counting" articles written, and surveying faculty members or administrators. But, little research has ranked doctoral programs according to the scholarly productivity of their graduates, which forms the basis for this study.

Reasons for Analyzing Research Productivity

Hexer (1969) and others have advocated that published research forms the best available criterion for evaluating the academic quality of individual faculty members and of their departments and institutions. According to Henry and Burch (1974), most decision makers continue to use published research as the primary indicator of academic quality. Similar to corporations who measure "success" by bottom line profits, earning per share, or market share, academic institutions use research productivity as the index to their overall reputation and as a means to strengthen their national stature.

Cargile and Bublitz (1986) found that faculty members perceive research to be twice as important as teaching and five times more important than service in promotion and tenure decisions. Their respondents also believe that research dominates salary increase decisions. Organizations making research grants often analyze the applicant's and institution's research productivity as a critical component of any funding decisions. Ostrowsky (1986) found that the research reputation of an institution was the central factor in preliminary screening and final choice by faculty candidates.

Rationale for the Study

While no single study can definitively establish the quality of accounting programs, this study can provide preliminary evidence of the caliber of accounting doctoral programs. Faculty considering job offers can use the results of this study to gain a better understanding of the effectiveness of particular research programs. Further, administrators can use these results to make more informed selections of faculty hires and to help establish reasonable standards for promotion and tenure decisions.

Potential employers of the institution's graduates can use these results to help assess the quality of these doctoral programs. Prospective doctoral students can use the results of this study to help in the selection of the program they wish to enter. Stronger accounting departments (i.e., with highly productive graduates) arguably are providing their graduates with solid research skills, enabling them to succeed in the critical research portions of their academic careers.

Administrators at doctoral granting institutions should also be interested in the results of the study in comparing their graduates' productivity to that of their peer institutions. According to Williams (1987), findings such as ours can help administrators more effectively recruit faculty, allocate resources, and direct program emphases.

PRIOR STUDIES

Researchers have used three methods to assess faculty research productivity: citation analysis, faculty/administration surveys, and counting the number of articles. Citation analysis (e.g., Rouse and Shockley 1984; Brown and Gardner 1985a, 1985b; Smith and Krogstad 1991; Beattie and Ryan 1991; Bricker 1988) seeks to assess the impact of scholarly research by determining how frequently others make reference to a given article. As MacRoberts and MacRoberts (1989) and others have noted, this method has three general weaknesses: it gives credit to articles which others criticize frequently, it often relies on the *Social Science Citation Index* which considers only the first-named author in coauthored pieces, and it fails to differentiate between different types or classes of journals. Citation analysis is basically *quantitative*; any qualitative judgments must be inferential (e.g., that only a "good" article would be cited), considering only certain types of journals and certain research methodologies (e.g., those involving accounting experiments on human judgments) and, similar to other methods of assessing scholarly research, usually not differentiating between different types or classes of journals.

Survey methods that "rank" accounting programs (e.g., Carpenter, Crumbley, and Strawser 1974) rely on the inputs of practitioners, faculty, or administrators rather than on measuring their graduates' research accomplishments. Morton (1975) and Zeff and Rhode (1975) stress more than the obvious biases in this methodology, including sampling bias and failing to use appropriate anchors to produce consistent responses.

Researchers generally use survey techniques to develop qualitative measures. Survey methods establish a scale of values by asking faculty and/or administrators to rank journals relative to an "anchor; for example, Howard and Nikolai (1983) used a main article in the *Journal of Accountancy* (JOA) as a 100-point "anchor" for respondents wishing, for instance, to rate *The Accounting Review* (TAR) articles twice as good as JOA articles would assign the AR articles 200 points. The scale is then used as a compiling guide (e.g., Benjamin and Brenner 1974; Howard and Nikolai 1983; Hull and Wright 1990; Schroeder, Payne, and Harris 1988; Brown and Huefner 1993). The survey method has potential flaws also; for example, faculty who publish frequently in top journals tend to exhibit significant bias in rating journals. Morris, Cudd, and Crain (1990), and Jolly, Schroeder, and Spear (1993) found important

differences in quality ratings in the nearly 1,000 respondents at American Assembly of Collegiate Schools of Business-accredited institutions they surveyed. Survey researchers are clearly most interested in establishing the *quality* of journals, and therefore, by extension, of articles and ultimately programs.

The most common method, counting articles, has up to now aimed at measuring the quantity of publication (e.g., Jacobs, Hartgraves, and Beard 1986; Windal 1981; Bublitz and Kee 1984; Koch, Merino, and Berman 1983; Bazley and Nikolai 1975; Andrews and McKenzie 1978; Urbanic 1986; Wright 1992; Porter and Mouck 1993). McRae (1974), Rouse and Shockley (1984), Dyckman and Zeff (1984), Brown and Gardner (1985a, 1985b), Snowball (1986), Smith and Krogstad (1991), Beattie and Ryan (1991), Bricker (1988), and others assess the "impact" of scholarly research by measuring how frequently others make reference to the cited article.

Many researchers have counted journal articles to help evaluate scholarly productivity and to rank doctoral programs. The issues that emerge immediately are these:

1. The journals and types of articles to include.
2. Weighing the different classes of journals.
3. The number of institutions to include.
4. The number of scholars to include.
5. The impact of coauthored articles.
6. The size of the doctoral program.
7. The time elapsed between completion of doctoral studies and publication of articles.

Brief Discussion of Variables Used in Prior Studies

Methodologies Based Primarily on "Counting" Journal Articles

Most studies analyzing prestigious academic journals (e.g., *The Accounting Review* [TAR] or *Journal of Accounting Research* [JAR]) consider main articles, notes, and commentaries. On the other hand, studies based upon databases, (e.g., Heck, Jensen, and Cooley 1990, 1991), usually only give credit to articles appearing in journals that list their authors' names in their tables of contents. This process usually results in giving no credit for notes, section articles, and letters to the editor appearing in most practitioner journals, such as *The CPA Journal* (CPAJ), *Management Accounting* (MA), and JOA. However, articles based upon a review of the *Accountant's Index* (AI) (e.g., Campbell and Morgan 1987) or of faculty curricula vitae (e.g., Jensen, Willits, and Cheney 1989) give full credit for all classes of articles.

Most studies give all coauthors full credit for their published works; several give each coauthor only fractional credit for coauthored articles (e.g., each author of a dual-authored work would receive credit for one-half of an article). Only Jacobs, Hartgraves, and Beard (1986) and Urbanic (1986) disclose separately full and partial credit for coauthored articles. In addition, while Estes (1970), Carpenter, Crumbley, and Strawser (1974), Schroeder, Payne, and Harris (1988), Hull and Wright (1990) and others have used surveys to measure the quality of academic and professional journals, none has yet used these results to help "weigh" the counts of scholarly productivity.

All articles which measure the research productivity of promoted faculty members credited their works only at the institutions where they achieved their promotions (e.g., Campbell and Morgan 1987; Milne and Vent 1988, 1989; Hagerman and Hagerman 1989). Similarly, all studies based upon counts of articles written consider only the authors' institutions when they wrote the articles (e.g., Bazley and Nikolai 1975; Urbanic 1986)--rather than considering their present institutions.

Furthermore, several articles based upon a "counting" methodology also considered where the authors earned their doctoral degrees (e.g., Bublitz and Kee 1984; Jacobs, Hartgraves, and Beard 1986). Koch, Merino, and Berman (1983) used this methodology to analyze the quality of doctoral programs by measuring the proportion of such graduates who published articles in their set of examined journals. Only a few studies (e.g., Bublitz and Kee 1984; Jacobs, Hartgraves, and Beard 1986) analyzed the productivity of both the institutions where the faculty members wrote the article and where they earned their doctoral degrees.

Using Survey Methodologies to Rank Journals

Several studies have used survey techniques to ascertain the "quality" of accounting publications. This methodology has evolved from Benjamin and Brenner's (1974) survey of the perceived quality of 24 journals to Hull and Wright's (H&W) (1990) survey of 79 publication outlets. H&W and Howard and Nikolai's (1983) accumulated their results by the respondents' specialty area (e.g., auditing, financial, or taxation). Jolly, Schroeder, and Spear (1993) and Brown and Huefner (1993) also developed more recent journal quality ratings. Some differences in using this methodology begin with Weber and Stevenson (1981) relying on ordinal data for their results, with virtually all others (e.g., Hull and Wright 1990; Howard and Nikolai 1983; Hall and Ross 1991; Schroeder, Payne, and Harris 1988) using the more valid ratio methodology.

In order to ascertain if respondents over-value journals where they publish their own articles, Morris, Cudd, and Crain (MCC) (1990) developed eight clusters of Howard and Nikolai's (1983) results. MCC then correlated their

respondents rankings with how frequently they published articles in these eight classes of journals. While Benjamin and Brenner (1974) surveyed 200 accounting faculty and 163 accounting department chairs, Howard and Nikolai (1983) surveyed 528 accounting educators with earned doctoral degrees. MCC (1990) surveyed 700 accounting faculty members nationwide, and H&W (1990) surveyed 783 accounting academicians. These results indicate that accounting academicians form an appropriate sample base for this type of methodology.

Studies Examining Accounting Research

Background

Chung, Pak, and Cox (1992) found that a bibliometric regularity exists in the publication pattern among accounting researchers. After analyzing 14 journals between 1968-1988, they found that the number of authors publishing n papers is approximately $1/n^c$ of those publishing one paper. They also found that nearly one-third of the most prolific scholars graduated from only seven doctoral programs, indicating a strong institutional dominance of these researchers.

The scholarly productivity studies in accounting generally use a "counting" method to measure the quantity of articles written and a survey to measure their quality. However, Fogarty and Saftner (1993) view academic prestige from a different perspective. Rather than relying on faculty publications, citations, or general perceptions, the authors analyzed accounting faculty placements from 67 U.S. doctoral accounting programs. They measured the percent of graduates going to doctoral granting institutions and the average "distance" to such doctoral granting programs. The higher the percent of their graduates going to doctoral institutions, the higher the assumed prestige of the doctoral granting institution. As shown in the Appendix, many studies have "counted" journal articles, otherwise measured the quantity of articles written, or rated the quality of journals that contain these articles.

SOME IMPLICATIONS OF THE ABOVE FINDINGS

Characteristics Common to Most of the Above Studies

Extensions of the above methodologies to help rank accounting doctoral programs should incorporate some of the following characteristics:

1. Both the quantity and quality of accounting articles published should be considered.

2. When determining the quantity of articles written the methodology should consider giving both full and partial credit for coauthorship.
3. Journal quality should be estimated using a ratio scaling method to rank a large array of journals.
4. The number of doctoral graduates should be considered in ranking programs.
5. Disclosure should be made of how many faculty members have achieved at least "some" publications, in order to assess the "breadth" of accounting research.

In our review of approximately 70 articles that either assessed faculty productivity or critiqued such attempts, or ranked doctoral programs, we found no study ranking accounting doctoral programs that used both qualitative and quantitative factors or considered the research records of all of their graduates over an extended period of time.

CURRENT METHODOLOGY

The current study ranks doctoral programs by considering the quality and quantity of accounting research of their graduates and the number of their graduates. To gather the information disclosed in Table 1, we first ascertained the number of accounting doctoral graduates from all 73 U.S. institutions that had programs from 1978-1992, based upon a review of Hasselback's (1993) *Directory*. Programs with fewer than five graduates (e.g., Central Florida) or programs that ceased offering accounting doctoral degrees (e.g., Santa Clara) were not included in these calculations. We used this time period so as not to give credit to articles written "long ago" (e.g., before many accounting journals raised their acceptance standards). As shown in Column 1, a total of 2,708 degrees were earned during this 15-year period.

We determined, again using Hasselback's *Directory*, the number of doctorate-years of graduates that 73 accounting doctoral programs graduated from 1978-1992. Doctorate-years were measured from the time that each accounting doctoral graduate completed his or her degree. For example, a program graduating one candidate in 1990 and another in 1992 would have a total of three (i.e., two plus one) doctorate-years of graduates in 1992. As shown in Column 1, the 2,708 accounting graduates amassed a total of 20,856 doctorate-years of service.

We determined the total articles in our sample space by using two computerized databases: Heck, Derstine, and Huefner's (HD&H) (1992) *Accounting Literature Index*, which contained a listing of all articles published in 33 accounting publications, and Pacific Research Company's (PRC) (1992) *Database of Accounting Research*, which contained the listings of 40

Table 1. Research Productivity of Graduates of Accounting Doctoral Programs' Research Productivity

	1	2	3	4	5	6	7	8
	# of Doctorates	Doctorate Years	# of Articles	Weighted By Coauthor	Weights to Journals	Col 3/ Col 2	Col 4/ Col 2	Col 5/ Col 2
University of Alabama	37	276	100	59.92	59.07	0.36	0.22	0.21
University of Arizona	33	234	53	29.17	41.88	0.23	0.12	0.18
Arizona State University	53	377	114	61.88	80.60	0.30	0.16	0.21
University of Arkansas	83	758	91	49.37	55.63	0.12	0.07	0.07
Boston University	18	67	11	5.75	6.40	0.16	0.09	0.10
U of California-Berkeley	33	241	80	53.25	94.21	0.33	0.22	0.39
Univ of Calif, Los Angeles	26	228	58	35.33	44.45	0.25	0.15	0.19
Carnegie Mellon University	11	102	37	23.67	48.33	0.36	0.23	0.47
Case Western Reserve Univ	9	45	20	15.17	16.68	0.44	0.34	0.37
University of Chicago	26	210	84	55.67	111.03	0.40	0.27	0.53
University of Cincinnati	23	191	27	14.75	17.99	0.14	0.08	0.09
CUNY-Baruch College	26	183	16	8.67	12.98	0.09	0.05	0.07
Univ of Colorado at Boulder	24	239	79	43.58	46.82	0.33	0.18	0.20
Columbia University	24	203	44	27.92	40.88	0.22	0.14	0.20
Cornell University	25	195	51	26.25	52.44	0.26	0.13	0.27
Drexel University	11	40	5	4.00	3.82	0.12	0.10	0.10
University of Florida	54	426	155	94.50	137.79	0.36	0.22	0.32
Florida State University	35	267	87	40.23	53.33	0.33	0.15	0.20
George Washington Univ	24	203	38	22.50	23.14	0.19	0.11	0.11
University of Georgia	69	518	52	28.75	30.09	0.10	0.06	0.06
Georgia State University	49	392	77	44.00	47.33	0.20	0.11	0.12
Harvard University	16	131	47	26.32	35.08	0.36	0.20	0.27
University of Houston	58	474	82	46.03	49.29	0.17	0.10	0.10
University of Illinois	100	875	363	211.55	277.07	0.41	0.24	0.32
Indiana University	56	402	117	69.00	89.11	0.29	0.17	0.22
University of Iowa	29	249	69	41.08	70.06	0.28	0.16	0.28
University of Kansas	15	112	45	21.67	36.85	0.40	0.19	0.33
Kent State University	35	248	29	13.83	13.43	0.12	0.06	0.05
University of Kentucky	72	552	84	52.00	52.15	0.15	0.09	0.09
Louisiana State University	49	381	49	25.33	24.64	0.13	0.07	0.06
Louisiana Tech University	37	266	13	6.67	6.23	0.05	0.03	0.02
University of Maryland	22	155	42	23.92	31.55	0.27	0.15	0.20
University of Massachusetts	22	240	52	31.92	48.19	0.22	0.13	0.20
Memphis State University	20	92	38	16.83	16.12	0.41	0.18	0.18
University of Michigan	36	286	108	61.42	103.23	0.38	0.21	0.36
Michigan State University	53	409	90	49.53	65.00	0.22	0.12	0.16
University of Minnesota	33	227	68	35.27	51.27	0.30	0.16	0.23
University of Mississippi	45	280	63	32.92	32.66	0.23	0.12	0.12
Mississippi State Univ	43	287	30	15.67	14.28	0.10	0.05	0.05
U of Missouri-Columbia	72	669	95	50.28	57.61	0.14	0.08	0.09

(continued)

Table 1. (Continued)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
	# of Doctorates	*Doctorate Years*	*# of Articles*	*Weighted By Coauthor*	*Weights to Journals*	*Col 3/ Col 2*	*Col 4/ Col 2*	*Col 5/ Col 2*
University of Nebraska	86	657	43	26.83	28.13	0.07	0.04	0.04
New York University	25	148	25	16.83	21.17	0.17	0.11	0.14
University of North Carolina	41	382	87	52.08	70.72	0.23	0.14	0.19
University of North Texas	67	514	62	36.67	38.44	0.12	0.07	0.07
Northwestern University	20	172	36	19.83	35.27	0.21	0.12	0.21
Ohio State University	43	321	101	62.17	98.40	0.31	0.19	0.31
University of Oklahoma	22	180	47	28.83	36.10	0.26	0.16	0.20
Oklahoma State University	68	650	106	57.58	71.55	0.16	0.09	0.11
University of Oregon	19	141	54	31.67	46.41	0.38	0.22	0.33
University of Pennsylvania	11	60	12	6.83	11.47	0.20	0.11	0.19
Penn State University	62	530	159	88.42	109.38	0.30	0.17	0.21
University of Pittsburgh	26	165	72	36.90	46.44	0.44	0.22	0.28
Purdue University	14	92	9	5.00	6.38	0.10	0.05	0.07
University of Rochester	17	111	40	24.33	42.68	0.36	0.22	0.38
Saint Louis University	22	153	15	7.50	8.21	0.10	0.05	0.05
Univ of South Carolina	57	432	45	21.92	29.61	0.10	0.05	0.07
Univ of Southern California	39	307	65	41.50	55.56	0.21	0.14	0.18
Southern Illinois Univ	9	27	1	0.33	0.29	0.04	0.01	0.01
Stanford University	30	252	118	66.00	129.44	0.47	0.26	0.51
SUNY at Buffalo	15	107	19	10.67	19.15	0.18	0.10	0.18
Syracuse University	21	183	27	13.33	18.58	0.15	0.07	0.10
Temple University	25	146	25	15.67	16.24	0.17	0.11	0.11
University of Tennessee	40	311	128	65.25	76.07	0.41	0.21	0.24
U of Texas at Arlington	5	38	2	0.67	0.60	0.05	0.02	0.02
Univ of Texas at Austin	88	747	143	86.12	131.52	0.19	0.12	0.18
Texas A&M University	80	600	125	61.83	64.90	0.21	0.10	0.11
Texas Tech University	36	250	54	27.17	29.15	0.22	0.11	0.12
University of Utah	17	99	21	12.45	13.87	0.21	0.13	0.14
Virginia Commonwealth Univ	9	24	4	1.50	1.46	0.17	0.06	0.06
Virginia Poly Inst & St Un	55	359	89	52.42	58.95	0.25	0.15	0.16
University of Washington	55	437	100	66.28	109.77	0.23	0.15	0.25
Washington University	9	66	23	13.83	22.00	0.35	0.21	0.33
Univ of Wisconsin-Madison	69	465	94	57.67	86.62	0.20	0.12	0.19
	2,708	20,856	4,714					

accounting publications. Thirty-two of 33 journals from HD&H's list also appeared in the PRC's database, allowing us to cross-check our results. The full list of journals used appears in Table 2. We considered all articles written from 1978 through 1992. These databases gave no credit for notes, letters to the editor, departmental articles, or other instances where the author's name did not appear in the table of contents (e.g., JOA, MA, and CPA), a problem

Table 2. Journals Included in the Study and Their Ranking

Journal of Accounting Research	2.26
The Accounting Review	2.26
Journal of Accounting and Economics	1.66
Accounting, Organizations and Society	1.54
*Contemporary Accounting Research***	1.51
*Behavioral Research in Accounting***	1.49
Journal of the American Taxation Association	1.48
Journal of Accounting, Auditing and Finance	1.41
National Tax Journal	1.35
Journal of Business, Finance and Accounting	1.34
*Journal of Management Accounting Research***	1.34
Auditing: A Journal of Practice and Theory	1.23
Journal of Accounting and Public Policy	1.23
Journal of Accounting Literature	1.17
Accounting and Business Research	1.16
*Research in Governmental and Nonprofit Accounting***	1.14
Abacus	1.11
Journal of Corporate Taxation	1.08
*Advances in Accounting Information Systems***	1.08
Accounting Horizons	1.02
Journal of Accountancy	1.00
International Journal of Accounting Education and Research	0.98
Journal of Accounting Education	0.97
Advances in Accounting	0.96
Issues in Accounting Education	0.91
The Journal of Information Systems	0.90
Management Accounting	0.89
*Advances in Taxation***	0.89
*Research in Accounting Regulation***	0.89
*Journal of Cost Management**	0.88
*Advances in International Accounting***	0.88
Advances in Public Interest Accounting**	0.87
*Accounting, Auditing and Accountability**	0.87
*Advances in Quantitative Analysis of Finance and Accounting**	0.87
*Corporate Accounting/Financial Manager**	0.87
*Georgia Journal of Accounting**	0.87
*Journal of Cost Analysis**	0.87
Accounting Historians Journal	0.86
*Accounting Educators' Journal***	0.84
*Information Systems in Accounting, Finance and Management***	0.82
The CPA Journal	0.78

Notes: * Journals ranked using cluster analysis.
** Journals ranked using Jolly, Schroeder, and Spear's (1993) study

found in many other publications. We checked minor problems such as author misspellings, use of initials rather than full first names, and instances where more than one author shared one name (e.g., John Smith), by comparing the actual articles in our universities' libraries to resolve any differences. Giving

full credit for coauthored works, Column 3 of Table 1 allocates the 4,714 articles to the institutions where the authors earned their doctoral degrees.

In order to consider the impact of coauthors, we next reduced the values from Column 3 to consider the effects of coauthorship. For example, we gave credit for 0.5 articles to each author of a two-person coauthored piece and 0.333 credit for each author of an article that three persons wrote. Column 4 provides this information.

To show the quality of the written articles, in Column 5 we assigned "weights" to the articles in our database. We first used Hull and Wright's (H&W) (1990) weighing schema to assign "quality" points for 24 of the 41 journals in our database. We next used Jolly, Schroeder, and Spear's (JS&S) (1993) study to develop weighings for another 11 journals, by focusing on the relative rankings of journals that failed to appear H&W's list. For example, H&W did not rank *Contemporary Accounting Research* (CAR), but JS&S ranked it between AOS and JATA. We thus assigned articles in CAR a value (1.51) midway between those of AOS (1.54) and JATA (1.48). For the other six journal weighings we adapted Morris, Cudd, and Crain's (1990) methodology to cluster the 35 assigned journals into six groups. We then reviewed other journal rankings (e.g., Hall and Ross 1991) and books outlining acceptance rates and the qualities of accounting journals (e.g., Vargo and Agudelo 1992; Cabell 1990) as well as independently assigning these six journals to the appropriate class. After agreeing on the proper placing of these missing journals, we assigned values to them equal to that of the average of other journals in their class. Since most of these six journals were newer than the other 35, they were generally given lower weighings than the more established ones. A summary of the results of these procedures appears in Table 2.

Column 6 represents the quotient of articles written without "condensing" them for coauthorship divided by the doctorate-years of graduates after 1977 (taken from Column 2). Column 7 contains the quotient of articles written after condensing them for coauthorship divided by the doctorate-years of graduates after 1977. Column 8 includes the quotient of articles written after "condensing" them for coauthorship and factoring in the journal quality divided by the doctorate-years of graduates after 1977. Columns 6, 7, and 8 form a measure of the quality of accounting doctoral programs from 1978-1992.

Analysis

Three summary exhibits help rank accounting doctoral programs. Table 3 ranks the 73 programs based upon the total number of articles that their 1978-1992 graduates wrote in 41 major accounting journals, with the results adjusted for coauthorship -- but not for the number of doctoral graduates or journal

Table 3. Total Number of Articles Weighted by Coauthorship

University of Illinois	211.55
University of Florida	94.50
Univ of Texas at Austin	86.12
Penn State University	88.42
Indiana University	69.00
Stanford University	66.00
University of Washington	66.28
University of Tennessee	65.25
Ohio State University	62.17
University of Michigan	61.42
Arizona State University	61.88
Texas A&M University	61.83
Oklahoma State University	57.58
University of Alabama	59.92
University of Chicago	55.67
Univ of Wisconsin-Madison	57.67
U of California-Berkeley	53.25
Virginia Poly Inst & St Un	52.42
University of North Carolina	52.08
University of Kentucky	52.00
Michigan State University	49.53
U of Missouri-Columbia	50.28
University of Arkansas	49.37
University of Houston	46.03
Georgia State University	44.00
Univ of Colorado at Boulder	43.58
University of Iowa	41.08
Univ of Southern California	41.50
Florida State University	40.23
University of Pittsburgh	36.90
University of North Texas	36.67
Univ of Calif. Los Angeles	35.33
University of Minnesota	35.27
University of Mississippi	32.92
University of Oregon	31.67
University of Massachusetts	31.92
University of Oklahoma	28.83
University of Arizona	29.17
Cornell University	26.25
Columbia University	27.92
University of Georgia	28.75
Texas Tech University	27.17
University of Nebraska	26.83
Harvard University	26.32
Louisiana State University	25.33
University of Rochester	24.33

(continued)

Table 3. (Continued)

Carnegie Mellon University	23.67
University of Maryland	23.92
George Washington Univ	22.50
Univ of South Carolina	21.92
Northwestern University	19.83
University of Kansas	21.67
Memphis State University	16.83
New York University	16.83
Mississippi State Univ	15.67
Temple University	15.67
Washington University	13.83
University of Cincinnati	14.75
Case Western Reserve Univ	15.17
Kent State University	13.83
Syracuse University	13.33
University of Utah	12.45
SUNY at Buffalo	10.67
CUNY-Baruch College	8.67
Saint Louis University	7.50
University of Pennsylvania	6.83
Louisiana Tech University	6.67
Purdue University	5.00
Boston University	5.75
Drexel University	4.00
Virginia Commonwealth Univ	1.50
U of Texas at Arlington	0.67
Southern Illinois Univ	0.33

quality (i.e., taken from Column 4 of Table 1). The data shows that large, public institutions dominate the list. The top 25 schools contained only two private institutions, Stanford and Chicago, and the University of Illinois placed first, with a score more than twice its nearest competitor, Florida.

Table 4 considers coauthorship and journal quality (taken from Column 5 of Table 1). The results were similar to that of Table 3, placing the University of Illinois at the top of the list; a third private institution (Cornell) entering the ranks of the top 25 programs. Little movement in the ranks of the top 25 programs occurred between Tables 3 and 4. However, the University of Chicago moved from fifteenth to fifth place, indicating that their graduates publish in journals of relatively high quality.

Table 5 considered coauthorship, journal quality, and doctoral size (i.e., taken from Column 8 of Table 1) in its listing, showing that graduates from the 73 programs produced, on average, between 0.01 and 0.53 equivalent articles per year. These results show some large changes in rankings. The University of Illinois dropped to eleventh place (primarily because it produced the largest number of graduates in the sample set). Private institutions dominate

Table 4. Total Number of Articles Weighted by Coauthorship and Journal Ranking

University of Illinois	277.07
University of Florida	137.79
Univ of Texas at Austin	131.52
Stanford University	129.44
University of Chicago	111.03
University of Washington	109.77
Penn State University	109.38
University of Michigan	103.23
Ohio State University	98.40
U of California-Berkeley	94.21
Indiana University	89.11
Univ of Wisconsin-Madison	86.62
Arizona State University	80.60
University of Tennessee	76.07
Oklahoma State University	71.55
University of Iowa	70.06
University of North Carolina	70.72
Michigan State University	65.00
Texas A&M University	64.90
Virginia Poly Inst & St Un	58.95
University of Alabama	59.07
Cornell University	52.44
U of Missouri-Columbia	57.61
Univ of Southern California	55.56
University of Arkansas	55.63
University of Minnesota	51.27
Florida State University	53.33
University of Kentucky	52.15
Carnegie Mellon University	48.33
University of Houston	49.29
Georgia State University	47.33
University of Massachusetts	48.19
University of Pittsburgh	46.44
University of Oregon	46.41
Univ of Colorado at Boulder	46.82
Univ of Calif, Los Angeles	44.45
University of Arizona	41.88
University of Rochester	42.68
Columbia University	40.88
University of Oklahoma	36.10
University of North Texas	38.44
Northwestern University	35.27
University of Kansas	36.85
Harvard University	35.08
University of Mississippi	32.66
University of Maryland	31.55

(*continued*)

Table 4. (Continued)

Univ of South Carolina	29.61
University of Georgia	30.09
Texas Tech University	29.15
University of Nebraska	28.13
Washington University	22.00
Louisiana State University	24.64
George Washington Univ	23.14
New York University	21.17
SUNY at Buffalo	19.15
University of Cincinnati	17.99
Syracuse University	18.58
Case Western Reserve Univ	16.68
Temple University	16.24
Memphis State University	16.12
Mississippi State Univ	14.28
University of Utah	13.87
Kent State University	13.43
CUNY-Baruch College	12.98
University of Pennsylvania	11.47
Saint Louis University	8.21
Purdue University	6.38
Boston University	6.40
Louisiana Tech University	6.23
Drexel University	3.82
Virginia Commonwealth Univ	1.46
U of Texas at Arlington	0.60
Southern Illinois Univ	0.29

this list, garnering the first three places on the list (Chicago, Stanford, and Carnegie Mellon), three other top 10 rankings (Rochester, Case Western Reserve, and Washington University), and another three spots in the top 25 list (Cornell, Harvard, and Northwestern). Thus, smaller, private institutions with few accounting doctoral graduates--most of whom have achieved excellent publication records--tend to dominate the top rankings of this table. The other top 10 public institutions that made this list include California-Berkeley, Michigan, Kansas, and Oregon.

Table 6 summarizes the above tables, by providing decile rankings. The results show that while much "distance" generally separates the rankings for Tables 3 and 4, little distance separates the rankings in Table 5. Only 0.08 equivalent articles per year separate the first two deciles; 0.02 articles per year separate the fourth and fifth deciles; and 0.03 articles per year separate the eighth and ninth deciles.

Table 5. Articles Per Graduate Weighted by Coauthorship and Journal Ranking

University of Chicago	0.53
Stanford University	0.51
Carnegie Mellon University	0.47
U of California-Berkeley	0.39
University of Rochester	0.38
Case Western Reserve Univ	0.37
University of Michigan	0.36
University of Kansas	0.33
University of Oregon	0.33
Washington University	0.33
University of Florida	0.32
University of Illinois	0.32
Ohio State University	0.31
University of Iowa	0.28
University of Pittsburgh	0.28
Cornell University	0.27
Harvard University	0.27
University of Washington	0.25
University of Tennessee	0.24
University of Minnesota	0.23
Indiana University	0.22
University of Alabama	0.21
Arizona State University	0.21
Northwestern University	0.21
Penn State University	0.21
Univ of Colorado at Boulder	0.20
Columbia University	0.20
Florida State University	0.20
University of Maryland	0.20
University of Massachusetts	0.20
University of Oklahoma	0.20
Univ of Calif, Los Angeles	0.19
University of North Carolina	0.19
University of Pennsylvania	0.19
Univ of Wisconsin-Madison	0.19
University of Arizona	0.18
Memphis State University	0.18
Univ of Southern California	0.18
SUNY at Buffalo	0.18
Univ of Texas at Austin	0.18
Michigan State University	0.16
Virginia Poly Inst & St Un	0.16
New York University	0.14
University of Utah	0.14
Georgia State University	0.12
University of Mississippi	0.12

(*continued*)

Table 5. (Continued)

Texas Tech University	0.12
George Washington Univ	0.11
Oklahoma State University	0.11
Temple University	0.11
Texas A&M University	0.11
Boston University	0.10
Drexel University	0.10
University of Houston	0.10
Syracuse University	0.10
University of Cincinnati	0.09
University of Kentucky	0.09
U of Missouri-Columbia	0.09
University of Arkansas	0.07
CUNY-Baruch College	0.07
University of North Texas	0.07
Purdue University	0.07
Univ of South Carolina	0.07
University of Georgia	0.06
Louisiana State University	0.06
Virginia Commonwealth Univ	0.06
Kent State University	0.05
Mississippi State Univ	0.05
Saint Louis University	0.05
University of Nebraska	0.04
Louisiana Tech University	0.02
U of Texas at Arlington	0.02
Southern Illinois Univ	0.01

Table 6. Decile Rankings for Articles Per Institution Weighted by Coauthorship and Journal Ranking

Decile	*Number of Articles Written Weighted by Coauthorship* (*Table 3*)	*Number of Articles Written Weighted by Coauthorship and Journal Ranking* (*Table 4*)	*Number of Articles Written Per Accounting Graduate Per Year (1978-1992)* (*Table 5*)
0.1	66.3	109.4	0.36
0.2	59.9	76.1	0.28
0.3	50.3	52.4	0.21
0.4	40.2	48.3	0.20
0.5	31.9	44.5	0.18
0.6	26.3	35.1	0.14
0.7	19.8	22.0	0.11
0.8	14.8	16.7	0.09
0.9	6.8	8.2	0.06

Limitations and Extensions

Similar to all studies measuring faculty research productivity or ranking doctoral programs, this study has several limitations. First, the study includes only 41 accounting journals and ignores certain works (e.g., notes) appearing in practitioner journals. Second, many accounting faculty publish research monographs, in other accounting journals, or in top journals (e.g., the *Journal of Finance* or *Management Science*) in other, related fields. Third, the study included only four practitioner journals.

CONCLUSION

This paper analyzed the publication records of 2,708 accounting doctorate holders from 73 institutions nationwide from 1978-1992 to help rank doctoral programs. The study found that while graduates of larger public institutions dominate the total number of articles published, graduates of private institutions do so when the results are weighted to consider the total number of graduates produced.

APPENDIX: STUDIES THAT MEASURE THE QUANTITY OR QUALITY OF ARTICLES WRITTEN

Studies That Count Articles or Measure Quantity

Many articles have used a counting methodology. A brief summary of their contents of some of the major ones follows:

1. Jacobs, Hartgraves, and Beard (1986) ranked doctoral programs based upon the research productivity of their graduates. They measured how frequently graduates from 25 doctoral programs published articles in eight journals: MA, TAR, JAR, JOA, *Financial Executive* (FE), *The Internal Auditor* (TIA), *Abacus* (A), and CPAJ. They gave full credit for joint publications. Their rankings considered the number of doctoral graduates from an institution.
2. Windal (1981) ranked accounting departments based upon the number of articles their faculty published in 12 journals: TAR, JAR, JOA, MA, *Managerial Planning* (MP), *Cost and Management*, TIA, *The Journal of American Taxation Association* (JATA), *Taxes* (T), and the *Tax Advisor* (TA). He gave full credit for coauthored articles and did not consider differences in the quality of the 12 journals analyzed.
3. Bublitz and Kee (1984) analyzed the frequencies with which accounting faculty members published articles in 69 journals from 1976-1980. They

classified their sample of publications into five areas: academic, academic-practitioner, practice-public, practitioner-private, and tax journals. After adjusting their results for coauthorship, faculty size, and number of accounting doctoral graduates, the authors ranked the top 15 programs in the areas of the authors' residence, where they earned their doctoral degrees, and the five classes of journal publications.

4. Koch, Merino, and Berman (1983) analyzed the publication patterns of the 520 accounting doctoral graduates from 1972-1974, by counting the articles in 15 academic, 16 practitioner, and four academic/professional journals these graduates published in the six years after graduation. They gave full credit for coauthored articles and presented their results both by total articles published and separately by academic and professional journals. Thus, they gave equal credit for all articles in their classes.
5. Bazley and Nikolai (B&N) (1975) counted the number of articles that accounting faculty members published in four journals (i.e., TAR, JAR, JOA, and MA) from January 1968 through July 1974. After giving partial credit for coauthorships and crediting publications to the institution where the faculty member wrote the article, they ranked programs based upon the number of articles published.
6. Andrews and McKenzie (1978) suggested some improvements to B&N's (1975) study. They used the results from Benjamin and Brenner's (1974) quality ranking to assign "points" to B&N's results and also considered the author's present institution rather than where they were when their articles were published. Using both quality and quantity rankings significantly altered B&N's original rankings.
7. Urbanic (1986) analyzed the research productivity of 306 of 1,650 faculty members whose schools achieved AACSB accreditation. Selecting his sample from Hasselback's *Accounting Faculty Directory*, he analyzed the selected faculty members' whose articles were cited between 1980 through 1983 in the *Accountants' Index*. This methodology considers journal main articles, subsection articles, books, monographs, conference proceedings, comment letters, rejoinders, and other relevant accounting publications. Since most other studies considered only main articles in such professional journals as MA, CPAJ, TIA, and JOA (because authors generally did not appear in the journals' tables of contents), Urbanic considered more publications than did most other authors and adjusted his results for coauthorship. He also disclosed his findings separately for doctoral and non- doctoral-granting institutions, by professorial rank (e,g., for assistant, associate, and full professor) and by publication class (i.e., for main articles, subsection articles, books and monographs, and other types of publications).

8. Porter and Mouck (1993) traced the institutional backgrounds of all U.S. authors whose articles appeared in the "top 11" accounting journals from 1985-1989. Giving coauthors "partial credit" for coauthored articles, P&M found that faculty at the "top 26" schools published 52.3 percent of all articles appearing in the 11 journals, and that most faculty at other schools experienced much difficulty in publishing in these quality journals. They concluded that these rigorous standards imply that many "non-national" institutions should reevaluate their promotion and tenure standards.
9. Chung, Pak, and Cox (1992) analyzed all articles that accounting faculty wrote in 14 academic journals from 1968-1990 (or later than 1968 if the journal commenced publication since then). They then presented their most prolific 102 authors both by actual articles written and adjusted for coauthorship and listed both of these findings by where the authors earned their degrees and their current employer. They also listed the most prolific authors for each of the 14 journals they analyzed.
10. Heck and Bremser (1986) identified and summarized the contributing authors, their academic affiliation when they wrote the articles, and where they earned their doctoral degrees for all articles written in TAR between 1925 and 1985. They presented their results separately for all articles and for main articles and notes, and full and "partial" (i.e., adjusted for coauthorship) credit for all articles written. However, they failed to adjust their results by the size of the institution, resulting in larger programs having higher overall scores.
11. Williams (1985) examined the authorship and doctoral affiliations of all articles written in TAR from July 1978 through April 1982. He also disclosed separately the findings by main articles and by notes and education articles, and gave full and partial credit for coauthorships. To account for the effect of a large program's "size effect," he used the faculty size as found in Hasselback's *Directory* to compare each doctoral program's percentage of equivalent articles written and percentage of doctoral degrees granted.
12. Dyckman and Zeff (1984) counted the authorships and doctoral affiliations of all articles written in the JAR from 1963-1982. They also gave both full and partial credit for coauthored articles and also presented the results weighted by the doctoral-granting institution's faculty size as found in Hasselback's *Directory* to account for a potential "size" effect.
14. Snowball (1986) ranked doctoral programs based upon their graduates' authorship of accounting articles using experiments on human judgment appearing in the JAR, TAR, and AOS from 1964-1984, basing his ranking upon the number of equivalent articles (i.e., adjusted

for coauthorship) that their graduates wrote. However, he did not differentiate between the quality of these three accounting journals and made no allowance for faculty size or the number of doctoral graduates produced.

Studies That Measure Journal Quality

Many studies have ranked the quality of academic programs or the journals that accounting faculty members publish their works. Estes (1970) surveyed business school deans, department heads, accounting and non-accounting faculty members, and "prominent" accountants to ascertain their opinions of the quality of several accounting programs which offered accounting doctoral degrees. Rhode and Zeff (1970) questioned the validity of Estes's methodology, stressing that respondents of larger programs often favor their "home" institutions and that the derived rankings of quality programs do not always imply a quality faculty.

Carpenter, Crumbley, and Strawser (CC&S) (1974) next surveyed 1,190 accounting faculty members to ascertain their opinions of "quality" programs. They presented their results both including and excluding individual respondents' current affiliation and institution which awarded them their doctoral degrees. Nikolai and Bazley's (1975) survey of all universities that offered doctoral degrees in accounting found that 86.4 percent of the faculty members at the "top 20" programs defined by CC&S earned their doctoral degrees at one of these top 20 programs. Nikolai and Bazley also measure the "quality" of a doctoral program by the proportion of its graduates that are placed in other "top 20" programs, a methodology upon which Fogarty and Saftner (1993) expanded.

Morton (1975) and Zeff and Rhode (1975) noted some problems with CC&S's methodology including (1) ignoring "emerging" programs, especially when asking many "old-timers" to rank programs when many new accounting doctoral graduates enter academe, (2) failing to use anchors to help ascertain that respondents produce consistent responses, (3) generating potential non-response bias, (4) having respondents mistake "graduate" for "doctoral" programs, (5) using ordinal or interval data rather than ratio scales, and (6) assuming that the faculty's perceptions of quality programs imply that these respondents have amassed strong research, teaching, or service performance.

Since then, accounting researchers generally have focused on measuring the objective criteria of scholarly productivity rather than the subjective attribute of a program's "reputation." Several studies have used survey instruments to measure the quality of accounting journals:

1. Benjamin and Brenner (1974) surveyed 200 accounting faculty members and 163 deans of AACSB accredited schools nationwide to ascertain

the perceived quality of 24 accounting publications. Based upon an approximately 40 percent response rate from both groups, they used interval data to compare both groups of respondents.

2. Weber and Stevenson (1981) asked 1,917 faculty members chosen again from Hasselback's *Directory* their extent of reading, familiarity, and evaluation of 32 accounting journals. Based upon 926 replies, Weber and Stevenson ranked the journals overall and by the respondents' specialty area (e.g., auditing or taxation). However, they did not generate ratio rankings of their ranked journals.
3. Howard and Nikolai (H&N) (1983) expanded upon the above methods by anchoring the participants' responses and using a ratio scales. Assuming that all participants were familiar with the JOA, they assigned main articles in that publication a weight of 100 points and asked their 551 respondents to rank another 50 journals using this anchor. Based upon a 58.9 percent response rate, the authors ranked the journals overall and by the respondents' areas of specialization.
4. Morris, Cudd, and Crain (1990) extended H&N's findings to ascertain if faculty members exhibit bias toward journals that published their own works. After collapsing H&N's into eight groups (by where the results clustered), they asked the respondents to indicate the number of points they would assign to journals in each of these groups given a 100-point anchor for one of the eight groups. Respondents were also asked how many articles they published in each of these groups over the last five years. Based upon a 22.3 percent response rate of 700 accounting faculty members, they found no general association between faculty ratings for a given journal group and the faculty publication records in that same journal group. However, they detected some negative bias between those faculty who were better-published in the top two accounting journal groups. They concluded that better-published faculty tended to exhibit significant bias when rendering journal ratings.
5. Hull and Wright (1990) updated H&N's (1983) rankings by surveying accounting faculty rankings for the 50 of 51 journals that H&N measured and adding another 29 journals to this list. They used main articles in the JOA as a 100-point anchor and selected 783 terminally qualified accounting faculty members nationwide selected from Hasselback's *Directory*. Based upon a 36 percent response rate, the authors disclosed the rankings of the 79 journals in their population, presented the results by specialty area, by doctoral and non-doctoral-granting degree programs, and by those at AACSB and non-AACSB accredited institutions.
6. Hall and Ross (1991) replicated much of Hull and Wright's (H&W) (1990) work to ascertain the validity of H&W's methodology. They adopted much of H&W's methodology, but changed the reference

journal used as an anchor point, the ordering of journals presented on the survey instrument, the group of journals included in the questionnaire, and the presence or absence of data regarding the journals' quality. After altering the above four variables and testing for any interaction effects, Hall and Ross surveyed 2,000 accounting faculty nationwide taken from Hasselback's *Directory*. Based upon a 48 percent response rate, the authors ranked 88 journals and transformed their responses so that a main article in JOA would receive 100 points. They then disclosed the respondents' point rankings for the other 87 journals in their list, including separate findings for faculty at doctoral-granting and non- doctoral-granting institutions and by the faculty members' specialty area.

7. Schroeder, Payne, and Harris (1988) surveyed 183 assistant, associate, and full professors from each of 21 "top" accounting programs nationwide, all other doctoral-granting institutions, and other AACSB accredited accounting programs. Based upon a 34.6 percent response rate, they ascertained "quality" and "familiarity" ratings of 80 accounting publications and compared how the three groups ranked the best 41 of these journals. They also reported the expected research productivity in their four classes of journals required to obtain tenure and promotion to full professor among the three classes of groups surveyed.
8. Brown and Huefner (1994) evaluated how 367 senior faculty at 40 "top" MBA programs perceived the familiarity and quality of 44 accounting journals, giving special consideration to newer (post 1980) journals. They achieved a 49.3 percent response rate and presented their results, using an interval scale, on an overall basis and by specialty area (e.g., auditing and financial accounting).
9. Jolly, Schroeder, and Spear (JS&S) (1993) ascertained how 235 accounting chairs and 705 other accounting faculty members at AACSB accredited institutions ranked 59 accounting journals. Assuming that academicians were more familiar with TAR than JOA, they used TAR as their 100-point anchor for assessing the other journals. They presented overall scores, results for the top 30 publishing schools, other doctoral-granting institutions, and other AACSB accredited institutions. While finding no significant differences in the responses between chairs and faculty members, they detected significant differences in quality ratings among the respondent groups.

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