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A further inquiry into the scholarly productivity of academic accountants: Twenty years of evidence from classes of 1980–82

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ABSTRACT

Scholarly productivity is a key component of faculty evaluation at many universities. In fact, under current accreditation standards promulgated by the AACSB, faculty members must remain academically qualified in research. Here we provide evidence regarding faculty research productivity. The determinants of faculty productivity are estimated with data spanning a 20 year period for 487 accounting doctoral graduates during the years of 1980–82. Sample statistics reveal that a relatively small portion of researchers produce over half of the sample's articles. Also, our regression results suggest that top-tier institutions of first hire, larger department size of initial hire, and the experience within academic ranks are all positive determinants of scholarly productivity. Conversely, research output is reduced with increased time spent teaching and accepting an initial hire at a public rather than a private institution.

1. Introduction

Research productivity is central in the academia evaluation and reward system (Poe & Viator, 1990; Read, Rama, & Raghunaudan, 1998; Shultz, Meade, & Khurana, 1989; Street, Baril, & Benke, 1993). Numerous studies find that publication in academic journals is a critical benchmark in faculty evaluations and promotion decisions. In particular, for AACSB accredited accounting departments/schools, research productivity is the most important factor in promotion and tenure evaluations (Cargile & Bublitz, 1986; Shultz et al., 1989). Research oriented schools are not alone in this respect as teaching oriented schools have also increased output requirements for promotion in recent years (Hermanson, Hermanson, Ivancevich, & Ivancevich, 1995). Research productivity is an increasingly vital part of faculty work loads, and to stay academically qualified by AACSB standards, one must continue to stay current in research. From this, it is clear that understanding the determinants of research productivity are important to academic accountants.

The number of studies which focus on the determinants of scholarly productivity in accounting is limited. Even though these inquiries highlight the importance of understanding the determinants of scholarly productivity, their scarcity and age suggest that further research can enhance confidence in their findings and/or reveal new evidentiary insights.

The remainder of this paper is organized as follows. First, we discuss the limited, but directly related literature on the issue of accounting faculty research productivity. This is followed by an explanation of our data and sample issues. Next, the research design and hypotheses are depicted. The last section provides the analyses and results of the study. In the final section, our conclusions and limitations are presented.

2. Related literature review

We know of only four primary articles that specifically address the issue of accounting faculty research productivity and its determinants. Perhaps the most relevant work in this area is performed by Maranto and Streuly (1994) who consider the research productivity of faculty during the early years of their careers. The authors use a structural equations approach and conclude that several determinants play a key role in affecting the productivity of accounting faculty. They focus only on the first seven years of a faculty member's initial appointment, and consider all journal publications as a measure of productivity. The authors find factors such as the quality of a person's first faculty appointment, graduate program quality, and the receipt of external funding or faculty research fellowships, affect faculty research productivity. In a related article, Streuly and Maranto (1994) use matched pair *t*-tests to confirm that gender does not play a role in determining research accounting faculty productivity.

In another pertinent study, Dwyer (1994) investigates the determinants of scholarly productivity. The author uses data on 139 accounting faculty members who graduated with their doctorate in 1981 and considers all publications during the 1983–1988 period. Dwyer considers several measures of output productivity, taking into account whether publications are in academic or professional journals, as well as the extent

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to which any paper is coauthored. While the primary purpose of the study is to consider potential gender differences, the research method controls for other relevant factors. Specifically, Dwyer finds that women tend to have fewer publications than men, and that academics whose first employer is more research oriented are likely to be more productive. Further, her regression analysis suggests that the number of pre-doctoral publications achieved by a new graduate has a positive impact on scholarly productivity. The relevance of coauthors is also acknowledged, but the author did not directly test the impact of this variable.

The final study related to our work is Cargile and Bublitz (1986) who employ a survey instrument to examine which issues academic accountants believe to be important regarding scholarly productivity. They find that survey respondents consider access to computers, teaching/committee assignments, and quality of colleagues and graduate students, to be relevant.

3. Data collection

3.1. Sample of subjects

An important aspect by which our method differs from past research is that we are interested in the determinants of scholarly productivity through the progression of all academic ranks, rather than limiting our study to the years immediately following initial appointment. We, therefore, consider 20 years of data to adequately capture career publications. Subjects are accounting doctoral graduates from the comprehensive faculty database maintained by Hasselback (1980–83). Currently, the relevant data is available only through 2002. For this reason, comprehensive data for a twenty-year career span can only be obtained on classes graduating before 1983. Consequently, the subjects for our study are from the classes of 1980, 1981, and 1982. An individual enters the database upon initial hire for a faculty position at an academic institution. The scholarly productivity for our study is limited to output generated while holding a tenure-track position.

Of the 487 degree recipients, 369 subjects have academic careers with normal rank progressions of assistant, to associate, and to full professor. These promotion steps are designated as Class A. This designation includes those subjects who left academia for various opportunities and either returned later or never returned. Although Class A represents a normal academic progression, many faculty members did not attain the full professor rank, while several spent their twenty-year careers as assistant professors. Eighty-five members of the three classes have abnormal academic careers and are designated as Class B. Some members of this class have an initial hire at a rank above assistant professor.[1] Other members of this class are promoted from assistant to full professor, with no intervening years at the associate professor rank.[2] The thirty-three subjects designated as Class C have no academic careers and are not included in the study. Thus, this study incorporates 454 of the 487 graduates (i.e., 93.2%) for the years studied. While the majority of graduates remained in the United States for the duration of the twenty years investigated, less than 5% have either a full career in an academic setting outside the United States or have a move to/from a foreign institution. These subjects are included in this study (Table 1).

Table 1
Study classification of accounting doctoral graduates

	Class A[a]	Class B[b]	Class C[c]	
1980	97	28	11	136
1981	130	31	13	174
1982	142	26	9	177
	369	85	33	487

[a] Academic career, normal progression in ranks.
[b] Academic career, abnormal progression.
[c] Non-academic career.

3.2. Journal quality and quantity

This study is unique because we consider only publications in top accounting journals.[3] The 40 journals included in our database are denoted in Table 2. This list is comprised of those journals derived by Hasselback, Reinstein, and Schwan (2000) as representative of the top journals for accounting academics.[4] As a result, our inquiry measures only faculty research productivity in top journals. However, this list is considered to be of sufficient breadth to include journals in various areas of specialization. Though other, more recent, lists do exist, Hasselback's seems most appropriate for data spanning back as far as 20 years. Through 2002, the subject classes produced 2163 articles in the forty journals included in the database. Of those publications, 108 publications are deleted from the study. The deleted articles are written by graduates who did not pursue an academic career[5] or are published outside the twenty-year time frame of the study.[6] Of the remaining 2055 publications, 401 are sole authored and 1654 are collaborations with coauthors. Because notes and commentaries are not counted as articles, they are not included in this study.

3.3. Preferences and institutional orientation

It is intuitive that research motivation will differ among individuals. Personal characteristics such as aptitudes and interest in research are unique. Research requirements and resources vary among institutions as well. Together, these factors influence the preferences of individual faculty members in regard to research activity. Therefore, by assuming that those with more pronounced research interest and aptitude seek employment where resources and research output expectations are greater, variables designed to capture these related determinants of publication output can be constructed.

"The highest rated institution at which an academic economist will be employed is the institution of first employment" (Ault, Rutman, & Stevenson, 1979). With the assumption that the same holds true for accounting academics, the school of first employment is seen as an important contributor to a faculty member's research productivity. Accordingly, first hire data is captured in the institution variables FINST(1–3), which represent the initial position and are designed to provide information about the nature of preferences. The coding for the FINST(1–3) variables is based on the three-tier 1996 *BusinessWeek* Best Business School rankings (1996, October 21) of 73 schools as shown below in Table 3.[7] For example, an initial position at a tier-one institution is a dummy variable coded FINST1.[8] The reference group includes all unranked schools. The *BusinessWeek* rankings are utilized because they are recognized as a credible ranking system and have been used by prior researchers (e.g., Rindova, Williamson, Petkova, & Sever, 2005).

[1] Of the eighty-five subjects in Class B, forty-five were hired initially at the associate rank.
[2] Fourteen subjects were promoted from assistant professor to full professor.
[3] Other studies (Dwyer, 1994; Streuly & Maranto, 1994) have included all publications of the individual. Because those lists include notes, comments, replies, proceedings, book reviews, etc., they are not viewed as meeting the basic research thrust of the AACSB and research oriented schools.
[4] Ranking are developed from over 100 business journals using five prior journal ranking studies. The 40 highest ranking journals include 30 academic journals, 5 business journals, and 5 practitioner journals. Being sensitive to minor differences, the journals are ranked by clusters rather than ordinal values.
[5] Twenty-three articles were written by graduates not pursuing an academic career.
[6] Eighty-five articles were written either before receiving the degree or beyond the twenty-year career time frame.
[7] *BusinessWeek* began ranking the top business schools on a bi-annual basis in 1988; however, it only ranked 20 institutions until 1996. Therefore, we employ the 1996 rankings because its three-tier ranking system provides a greater level of explanatory power.
[8] A complete listing of the coding scheme for the initial position is reported in Table 3.

Table 2
Weighted journal quality rankings (Hasselback et al., 2000)

Journal of Accounting Research	2.25
The Accounting Review	2.25
Journal of Accounting and Economics	2.00
Journal of Finance	2.00
Accounting, Organizations, and Society	1.60
Contemporary Accounting Research	1.60
Journal of Accounting, Auditing, and Finance	1.60
Journal of the American Taxation Association	1.60
Journal of Business	1.60
Journal of Finance and Quantitative Analysis	1.60
Journal of Financial Economics	1.60
Management Science	1.60
Auditing: a Journal of Practice and Theory	1.35
Journal of Accounting and Public Policy	1.35
Journal of Business, Finance, and Accounting	1.35
Journal of Management Accounting Research	1.35
Journal of Taxation	1.35
National Tax Journal	1.35
Abacus	1.15
Accounting and Business Research	1.15
Behavioral Research in Accounting	1.15
Journal of Accounting Literature	1.15
Accounting, Auditing, and Accountability	1.00
Accounting Horizons	1.00
Financial Analysts Journal	1.00
Issues in Accounting Education	1.00
Journal of Accountancy	1.00
Advances in Accounting	0.95
International Journal of Accounting Education and Research	0.95
Journal of Accounting Education	0.95
Advances in International Accounting	0.90
Advances in Taxation	0.90
Critical Perspectives in Accounting	0.90
The Journal of Information Systems	0.90
Research in Accounting Regulation	0.90
Research in Governmental and Non-profit Accounting	0.90
Accounting Educators Journal	0.85
Accounting and Finance	0.85
The CPA Journal	0.85
Management Accounting	0.85

Cluster ranking for business and practitioner journals.

Table 3
Tier rankings for initial institutions (per 1996 BusinessWeek article)

The top 25	The runners up	The third-tier
Ranked	(A–Z)	(A–Z)
1 Univ. of Pennsylvania	■ Babson	■ Univ. of Alabama
2 Univ. of Michigan	■ Brigham Young	■ Univ. of Arizona
3 Northwestern	■ Case Western Reserve	■ Arizona State
4 Harvard	■ Emory	■ Baruch College
5 Univ. of Virginia	■ Univ. of Georgia	■ Boston College
6 Columbia	■ Georgia Tech	■ Boston University
7 Stanford	■ Georgetown	■ UC Davis
8 Univ. of Chicago	■ Univ. of Illinois at Urbana-Champaign	■ UC Irvine
9 MIT	■ Univ. of Iowa	■ Univ. of Cincinnati
10 Dartmouth	■ Univ. of Maryland	■ Univ. of Connecticut
11 Duke	■ Michigan State	■ Univ. of Florida
12 UCLA	■ Univ. of Minnesota	■ Univ. of Kentucky
13 Berkeley	■ Univ. of Notre Dame	■ Univ. of Miami
14 NYU	■ Ohio State	■ Univ. of Missouri-Columbia
15 Indiana University	■ Penn State	■ Univ. of Missouri at Kansas City
16 Washington Univ.	■ Univ. of Pittsburgh	■ Univ. of Nebraska at Lincoln
17 Carnegie Mellon	■ Purdue	■ Univ. of Oregon
18 Cornell	■ Rice	■ Pace
19 Univ. of North Carolina	■ Univ. of Tennessee at Knoxville	■ Rensselaer Polytechnic Institute
20 Univ. of Texas at Austin	■ Texas A&M	■ SUNY Buffalo
21 Univ. of Rochester	■ Tulane	■ Willamette University
22 Yale	■ Univ. of Southern California	■ William & Mary College
23 Southern Methodist	■ Univ. of Washington	
24 Vanderbilt	■ Wake Forest	
25 Thunderbird-AGSIM	■ Univ. of Wisconsin	

In the original 1996 BusinessWeek rankings, the third-tier consist of nineteen institutions with four additional schools listed as "Other B-Schools". We incorporate the "Other B-Schools" into the third-tier, thus making it more comparable in size to the first and second tier.

3.4. Quality of doctoral training

Naturally, an important determinant of a researcher's academic productivity should be the quality of their doctoral training. Therefore, we include the variables QDT(1–3) to test whether or not this assumption holds. The coding scheme for quality of doctoral training variables is similar to that of the FINST(1–3) variables as described in the preceding section. However, as reported in Table 4, the three-tier ranking system for the quality of doctoral training program is from Trieschmann, Dennis, Northcraft, and Niemi (2000). Although there are other rankings of accounting programs available (e.g., Bublitz & Kee, 1984), the Trieschmann et al. (2000) ranking is utilized for the following reasons. First, they provide a hierarchy of fifty-four accounting doctoral programs that were active at the beginning of our sample period.[9] Second, their accounting program rankings are based on publications in the *Accounting Review*, *Journal of Accounting Research*, and *Journal of Accounting & Economics*. These journals are very relevant to our study since they represent the highest level of accounting academic research. Consequently, they should be good indicators of the academic research environment that students were apart of during their doctoral studies. Accordingly, doctoral graduates from institutions with a greater emphasis on academic research are expected to be more prepared to perform research after graduation.

3.5. Time constraint control variables

With time being limited, any effort devoted to areas other than research will diminish time applicable to publication productivity.

Table 4
Tier rankings for quality of doctoral training in accounting (per Trieschmann et al., 2000)

First tier	Second tier	Third tier
■ Pennsylvania	■ New York University	■ Missouri–Columbia
■ Michigan	■ Illinois	■ Tulane
■ Chicago	■ Minnesota	■ Pittsburg
■ Stanford	■ California, Los Angeles	■ Oklahoma
■ Washington, Seattle	■ Colorado at Boulder	■ Texas A&M
■ Rochester	■ Carnegie Mellon	■ Oregon
■ Northwestern	■ Ohio State	■ Houston
■ UNC at Chapel Hill	■ Arizona State	■ Santa Clara University
■ Iowa	■ CUNY—Baruch College	■ Temple
■ Columbia	■ Pennsylvania State	■ Syracuse
■ California, Berkeley	■ Georgia	■ Alabama, Tuscaloosa
■ Cornell	■ Wisconsin-Madison	■ Massachusetts
■ Texas at Austin	■ Indiana	■ Louisiana State
■ Southern California	■ Michigan State	■ Maryland, College Park
■ Washington in St. Louis	■ MIT	■ Georgia State
■ Harvard	■ Florida State	■ Kansas
■ Florida	■ Purdue	■ Utah
■ Arizona	■ SUNY at Buffalo	■ South Carolina

[9] Trieschmann et al. (2000) provides rankings of the top fifty business schools and sub-discipline rankings including accounting. However, a ranking of the top one hundred accounting programs, as well as information on how the ranking methodology, is available at http://kelley.indiana.edu/ardennis/rankings/. From this list, we delineate the top fifty-four ranked doctoral accounting programs that were active in 1980.

While synergies between teaching and research may exist, in terms of research output, time spent teaching is certainly not equivalent to time devoted entirely to research. In turn, the more time spent in activities outside of research, the lower the overall expected research productivity. In the academic setting, teaching course loads and service activities are expectations that affect the ability to research. Also, a faculty member's time constraint is impacted by the degree of coauthoring attempted, and the quality of journals targeted. The following paragraphs discuss how these issues are incorporated into our model.

The choice of measures for time spent teaching and time spent in service is an important step in our analysis, as these are primary components of the time constraint. The classification scheme described in *A Classification of Institutions of Higher Education* (1987) is employed to measure time spent in service, T^S. This schematic, developed by Dr. Clark Kerr in 1973, classifies institutions into categories based on level of degrees conferred, educational mission, and federal support. Specifically, T^S is integrated by using the mean values, as provided via a survey of accounting department heads in the Street et al. (1993) study.[10] Therefore, means reported for service involvement are used as a proxy for time spent on those activities. The intention of this methodology is to represent the levels of expectation afforded to service between doctoral and non-doctoral institutions.

Time spent in teaching, T^T, is also expected to have a detrimental effect upon research productivity. As a result, we utilize the average annual teaching load information from the 2005–2006 AACSB Survey to capture the time constraint placed on each of the subjects at their first hire institutions.[11] Given that the AACSB average annual teaching load data is collected for 315 institutions, we are able to directly match 65% of our sample with their first hire institution's teaching requirements. For the remaining portion of the sample, the average annual teaching load requirements are imputed based on the tier ranking of their first hire institution.[12] To illustrate, if John Smith is initially hired at a tier-one university that did not provide their average annual teaching load to the AACSB, then his average annual teaching load is imputed to be the median of tier-one schools that did report. The imputed median values of teaching load hours are as follows: 9.56 for tier-one, 11.53 for tier-two, 11.60 for tier-three, and 15.00 for tier-four universities. Our imputed T^T values appear reasonable because they increase as the university ranking decrease.

Since coauthorship is accorded full credit in evaluations by 72% of the accounting department chairs surveyed (Nathan, Hermanson, & Hermanson, 1998), there are benefits, both pecuniary and non-pecuniary, to collaboration. We argue that it is less time consuming to coauthor an article than it is to sole author a comparable publication; thus, research production is enhanced by collaboration. To test the significance of this assertion, the variable *Percent Coauthored* (PRCNTCOA) is created which is the ratio of coauthored articles to total publications. Likewise, we assume that preparing a publication for a top ranking journal requires more time than is required for other journals. The variable *Percent Top12* (PRCNTTOP12) is constructed, and is equal to the ratio of articles in the top 12 journals relative to total articles published.[13] Of the 2055 publications in the study, 734, or 35.7%, are published in the top twelve journals.

Table 5
Variables

Variable	Explanation
GEN	Male = 1 Female = 0
T^T	Average annual teaching loads per 2006 AACSB Survey
T^S	Mean from Street et al. for Comprehensive (non-doctoral) or Doctoral I (doctoral) institution — represents institutional expectation for service First hire institution
FINST1	1 = tier-one; 0 = non-tier-one business school per 1996 *BusinessWeek* rankings
FINST2	1 = tier-two; 0 = non-tier-two business school per 1996 *BusinessWeek* rankings
FINST3	1 = tier-three; 0 = non-tier-three business school per 1996 *BusinessWeek* rankings
	Quality of doctoral training at
QDT1	1 = tier-one; 0 = non-tier-one accounting doctoral program per Trieschmann et al.
QDT2	1 = tier-two; 0 = non-tier-two accounting doctoral program per Trieschmann et al.
QDT3	1 = tier-three; 0 = non-tier-three accounting doctoral program per Trieschmann et al.
PUB1	Institution of first hire: 1 = public; 0 = private
PRCNTCOA	Percent of articles written with coauthors
PRCNTTOP12	Percent of articles published in top 12 accounting academic journals
DPTSZ	Number of terminal degree peers in institution of first hire greater than mean (11) = 1, otherwise = 0
YRNK1	Years spent as assistant professor
TOTART	Total articles written
COAU	Number of articles written with coauthors
SAU	Number of articles written as sole authors
EXP	Total years with academic rank

3.6. Other determinants

Public/private distinction may also be relevant in determining research productivity. It is recognized that research emphasis and resources may vary across institution type. The control variable PUB1 reflects this characteristic in the initial position. Thus, public institutions are coded as 1, and private institutions are coded as 0.

Gender (GEN) is included as a control variable. Findings on gender differences in academic accounting studies have mixed results (Dwyer, 1994; Collins, Parrish, & Collins, 1998; Saftner, 1988; Streuly & Maranto, 1994). We include this variable with no preconceptions.

Department size can be related to the ability to collaborate with peers on research activity. With this assumption, a large department represents an enhanced ability to collaborate on research. Departments comprised of more than the sample mean number of faculty members (11) are considered large and given the value of 1; conversely, small departments, with 11 or fewer faculty members are considered small, and given the value of 0 for the variable DPTSZ.

Experience should also influence overall faculty productivity. Accordingly, we construct the variable EXP to gauge the total number of years experience with academic rank possessed by the individual. Also, the

[10] Doctorate I is defined as institutions offering a full range of baccalaureate programs and the doctorate degree. Forty or more PhD degrees are awarded annually in at least five disciplines. The mean value for T^S at these Doctorate I institutions is 42. Comprehensive institutions offer baccalaureate programs and, with few exceptions, graduate education through the masters level. More than half of the baccalaureate degrees are awarded in two or more occupational or professional disciplines. These schools have an enrollment of 2500 or more. The mean value for T^S at these Comprehensive institutions is 45.

[11] Ideally, the average annual teaching load data would have been collected during the early 1980s. However, the AACSB did not begin gathering this information until after 2000. Furthermore, the 2005–2006 data is selected because it contains the largest number of schools reporting their teaching load information, i.e., 315. Having access to this large database is important because it increases the probability that we can use a reported T^T value for our observations rather than one which is imputed. Moreover, while the exact number of teaching hours may have changed over the years within the institutions, the variation in the number of teaching hours required between research and teaching intensive institutions seems to have remained fairly stable. In other words, universities that reported low or high teaching loads to the AACSB during 2005–2006 are likely to have required similar teaching loads in the early 1980s.

[12] In order to avoid perfect collinearity with the previously described FINST(1-3) variables, the tier structure for the imputed T^T values is based on the 2000 *Business-Week* Best Business School rankings (2000, October 2).

[13] The top twelve journals represent the top three clusters from the Hasselback et al. (2000) study. While all five business journals are included within the top three clusters, no practitioner journals met the criteria.

Table 6
Variable means (standard deviations)

		Sample size	Variable names							
			TOTART[A]	EXP[B]	SAU[C]	COAU[D]	DPTSZNO[E]	PRCNTCOA[F]	PRCNTTOP12[G]	YRNK1[H]
All academics		454	4.53	17.44	0.88	3.64	11.27	56.03	20.72	5.05
			(6.31)	(4.94)	(1.55)	(5.29)	(6.93)	(42.09)	(30.50)	(3.86)
Authors only		315	6.52	18.67	1.27	5.25	12.21	80.76	29.86	5.51
			(6.657)	(3.37)	(1.72)	(5.64)	(6.96)	(23.51)	(32.68)	(3.19)
Scholars in upper-level of publications:	10 or more publications	69	15.96	19.65	2.90	13.06	13.25	81.52	45.05	5.01
			(8.25)	(1.39)	(2.46)	(7.26)	(6.98)	(13.97)	(30.83)	(2.05)
Scholars not in upper- level of publications:	Less than 10 publications	385	2.48	17.04	0.52	1.96	10.91	51.47	16.36	5.06
			(2.68)	(5.23)	(0.95)	(2.20)	(6.87)	(43.79)	(28.34)	(4.10)

A) Total number of articles (dependent variable); B) years with academic rank; C) number of single authored articles; D) number of coauthored articles; E) department size (terminal degrees); F) percent of articles coauthored; G) percent of articles in top 12 journals; and H) years as assistant professor.

variable YRNK1 is created to capture the number of years spent as an assistant professor.

4. Hypotheses

This study's hypotheses, stated in their alternative form, are based on our discussion of the relevant theory and findings of past studies. First, recall that the variables FINST(1–3) are dummy variables regarding the tier ranking of the institution of first hire of the faculty member. We believe that this reveals information regarding the faculty member's preferences for research. It is expected that these variables have the following influences:

$H1_{a–c}$. The publication output in top accounting journals is significantly higher for faculty with a first hire at an FINST(1–3) than faculty with an initial hire at an unranked institution.

Quality of doctoral training is also expected to have a similar relationship with the researcher's production of scholarly works. Therefore, dummy variables for quality of doctoral training QDT(1–3) are included to test the following hypotheses:[14]

$H2_{a–c}$. The publication output in top accounting journals is significantly higher for faculty who receive doctoral training at an QDT(1–3) than faculty who receive doctoral training at an unranked institution.

The time constraint variables are relevant in our model as well. Time spent teaching (T^T) and time spent in service activities (T^S) constrain the individual's ability to conduct research. These variables are hypothesized to have the following impacts:

$H3_a$. Publication productivity in top accounting journals has a significantly negative relationship with the amount of time a faculty member dedicates to teaching (T^T).

$H3_b$. Publication productivity in top accounting journals has a significantly negative relationship with the amount of time a faculty member allocates to service activities (T^S).

Our a priori expectation is that, on average, resources dedicated to research may be more readily available at public institutions. Therefore, the influence of PUB1 should be as follows:

H4. Faculty members with a first hire at a PUB1 publish significantly more in top accounting journals.

It is also anticipated that a larger number of career publications can be expected from faculty in larger departments (DEPTSZ) and those with greater experience (EXP). Specifically, it is hypothesized that:

H5. Faculty members with a first hire at a DEPTSZ publish significantly more in top accounting journals.

H6. EXP is a significantly positive determinant of publishing within top accounting journals.

Additional control variables include PRCNTCOA, PRCNTTOP12, GEN and YRNK1. The coauthorship variable, PRCNTCOA, should increase scholarly productivity, due to associated synergies. Regarding the time constraint, the quality of journals that faculty members target is relevant as well. Given the time intensive nature of targeting top academic journals for publication, we expect that those individuals with a larger portion of their publications in top 12 journals (PRCNTTOP12) will have fewer overall publications. We have no prior expectations regarding the role of GEN.

Also, the impact of YRNK1 is not clear because two interpretations of the length of time as an assistant professor are possible. First, it is likely that assistant professors devote a larger share of time to research than do those at other ranks. This would imply that more time spent in this rank represents more time devoted to research. Second, a longer duration at the assistant professor level could indicate difficulty in attaining the rank of associate professor, which may be due to a lower rate of success in research. We include this variable to help mitigate the impact of differences in time constraints across individuals.

5. Empirical model

Implicit in our analysis is the assumption that academics seek to publish scholarly work for their personal benefit. Whether this benefit manifests itself in the form of increased pay, promotion/tenure, and/or professional growth, the quantity of articles produced has a direct bearing on the overall personal satisfaction of the academician. Effectively, academic accountants are viewed as individuals who, in an effort to maximize personal satisfaction, work to achieve a publication

Table 7
Regression results

Variable	Zero-inflated negative binomial model	
	Coefficient	*P*-value
Constant	0.71	0.33
GEN	−0.01	0.93
T^S	−0.07	0.11
T^T	**−0.05**	**0.01**
PUB1	**−0.19**	**0.08**
DEPTSZ	**0.24**	**0.03**
YRNK1	−0.01	0.30
EXP	**0.11**	**0.00**
QDT1	−0.01	0.92
QDT2	0.04	0.74
QDT3	0.18	0.14
FINST1	**0.59**	**0.00**
FINST2	**0.41**	**0.02**
FINST3	**0.65**	**0.00**
Vuong statistic	2.96	
Critical chi-square	[a]179.42	

[a] *P*-value < 0.01.

[14] $H1_{a–c}$ and $H2_{a–c}$ each represent three individual hypotheses because both the *FINST* and the *QDT* variables are coded with three dummy variables. However, the six individual hypotheses are not explicitly stated because each set ($H1_{a–c}$ $H1_{a–c}$ and $H2_{a–c}$ $H2_{a–c}$) is expected to significantly increase publishing productivity over their respective baseline alternatives.

record consistent with their preferences. Further, most academic accountants must use their time not only for the production of articles, but also for teaching, and for service to the university/profession. Our statistical model attempts to control for these and other factors affecting faculty research productivity.[15]

The dependent variable is the total number of publications written by a faculty member and is determined by a count of the number of articles written in the top 40 accounting journals either singly or with coauthors, during a twenty-year time frame. The time frame begins the year the individual enters the academic community upon receipt of the doctoral degree. Implicit in this analysis is the assumption that the determinants of faculty productivity are relatively stable over time. It is assumed that coauthored and single authored publications generate the same utility. This postulation is supported by the findings that promotion committees, on average, do not distinguish on this criterion (Nathan et al., 1998). Therefore, coauthored articles are counted in full for the dependent variable TOTART.

6. Results

Our findings are arranged in two basic formats. First, we offer descriptive statistics and an associated discussion of mean values. Then, we present regression results designed to control for the influence of all relevant variables and determine the significance of each.

Some of our results are reported under several conditions. Of the 454 members of the classes included in the study, 139 have no publications in the journals included in our database. Of the 139 academics with no publications in our database, 87 (62.59%) had an initial hire at non-doctoral institutions and 52 (37.41%) were first employed at doctoral granting institutions. Where appropriate, analyses are performed on a dataset including all members of the class who pursued an academic career, and a sub-dataset including only those members with publications in the included journals. To aid in the interpretation of our results, all variable names and definitions are consistent with those presented in Table 5. The mean values and standard deviations are presented in Table 6 for the overall sample of All Academics as well as two notable sub-samples. Specifically, the sub-samples consist of Authors Only and Top Level Researchers.

6.1. Profiles of highly productive scholars

One of the potentially more interesting, as well as important, sub-samples within our study is the most productive scholars. Unfortunately, there is subjectivity in quantifying the number of articles that defines a researcher as being highly productive. For this research inquiry, we define scholars as being highly productive if they have published ten or more articles during their twenty-year sample period. While there are other measures that could be chosen, we believe that ten publications in the top forty journals in the span of twenty years sufficiently satisfies the term of *highly productive scholars*. In fact, ten publications is compatible with the prior research benchmark of 9+ articles (Hasselback et al., 2000).

For comparison purposes, Table 6 reports the variable means and standard deviations for both the 69 researchers classified as highly productive scholars as well as the 385 academics whom have less than ten publications. As expected, the mean for TOTART is considerably larger for the highly productive scholars. In fact, highly productive scholars produce more than six times the number of articles than their cohorts. Also, more than half of the articles are produced by this select group of highly productive scholars.

[15] The work of Maske, Durden, and Gaynor (2003) serves as the theoretical basis for our empirical model. In this theoretical model, faculty members maximize utility by publishing articles, subject to a time constraint.

Table 8
Summary and comparison of studies assessing academic productivity

	Maranto and Streuly (1994)	Streuly and Maranto (1994)	Dwyer (1994)	Cargile and Bublitz (1986)	Englebrecht et al. (2008)
Period studied	First 7 years	First 7 years	First 6 years	Not applicable	First 20 years
Journals included	All journals	All journals	All journals	Not applicable	Top 40 journals
Method	Structural equations	Matched pair *t*-tests	Regression	Survey	Regression (zero-inflated negative binomial model)
Significant determinants	Nature of first appointment	Not applicable	Gender	Computer access	Nature of first appointment
	Graduate program quality		Nature of first appointment	Teaching/ committee work	Time spent teaching
	External funding and fellowships		Pre-doctoral publications	Quality of colleagues and graduate students	Department size
					Experience
					Public vs. private

6.2. Regression analysis

Three overriding data issues require that care be taken in choosing the appropriate regression model used for our analysis. First, we have a large number of zeros in the dependent variable. Naturally, this condition represents the fact that several faculty members do not publish in the requisite journals. Second, concern about our sample is that the dependent variable is count data.[16] Third, in our sample, a value of zero for the dependent variable has at least two interpretations.[17] A zero value may mean that a faculty member has simply chosen not to publish, or it may mean that the person has attempted to publish, but has been unsuccessful in publishing in one of the top 40 journals used in our analysis. These two outcomes are qualitatively different. That is, a faculty member first chooses whether or not to publish, then if the choice is made to publish, the number of articles that will be published must be determined. A statistical technique is needed that will first model the decision on whether a faculty member chooses to pursue academic research, and next, model the determinants of the number of publications once the choice to publish has been established. This makes the zero-inflated negative binomial model an ideal choice given the nature of our data, and its use avoids the loss of useful information due to truncation.[18] Consequently, this method is the focus of our regression analysis, and is an improvement over the method (i.e., OLS) chosen in past studies (see, for instance, Dwyer, 1994; Maske et al., 2003; Read et al., 1998). A detailed discussion of this methodology and its benefits may be found in Greene (2003).

The regression equation is as follows:

$$\begin{aligned}\text{TOTART} = {} & \beta_0 + \beta_1 \text{GEN} + \beta_2 T^S + \beta_3 T^T + \beta_4 \text{PUB1} + \beta_5 \text{DPTSZ} \\ & + \beta_6 \text{YRNK1} + \beta_7 \text{EXP} + \beta_8 \text{PRCNTCOA} + \beta_9 \text{PRCNTTOP12} \\ & + \beta_{10} \text{QDT1} + \beta_{11} \text{QDT2} + \beta_{12} \text{QDT3} + \beta_{13} \text{FINST1} \\ & + \beta_{14} \text{FINST2} + \beta_{15} \text{FINST3}\end{aligned}$$

[16] Consequently, neither the OLS nor the Tobit model is appropriate/optimal for count data. Specifically, the Poisson or negative binomial models are preferred (Greene, 2003). Of these two options, the negative binomial model is more appropriate for our sample due to its superior ability in handling the overdispersion present in our data.

[17] If zero values are not qualitatively different from positive integer values, a simple negative binomial model may suffice.

[18] The appropriateness of using a zero-inflated model is verified by the Vuong statistic, which is considerably larger than the critical value of 1.96.

The estimation results of the zero-inflated negative binomial model are presented in Table 7. The overall significance of our model is confirmed by the reported chi-square, which rejects the null that all coefficients are equal to zero. These results suggest that the zero-inflated negative binomial model is the appropriate specification for our analysis, and the estimation results for this model provide the basis for our discussion.

From Table 7, it is apparent that after controlling for other productive characteristics, our regression model strongly supports hypotheses $H1_{a-c}$. That is, publishing productivity is significantly higher for faculty who accept an initial hire at an institution within one of the top three tier schools rather than an unranked institution. Obtaining employment at highly rated schools is a significant determinant of future research success. On the other hand, there is surprisingly no support for hypotheses $H2_{a-c}$. Therefore, there is no statistical evidence that doctoral training within one of the top three tier schools significantly influences scholarly productivity.[19]

As our results indicate, there are other factors at work here. In fact, many variables in our model are significant. Hypothesis 3_a is strongly supported, which indicates that new faculty interested in developing a research agenda should focus on employment opportunities at schools with lower teaching loads. With a *P*-value of 0.11, the insignificance of time spent in service is somewhat surprising, and counter to Hypothesis 3_b. Although it seems that time spent in service should decrease research productivity, our results do not support this.

PUB1 is significant; however, Hypothesis 4 is not supported because its sign is negative. We anticipated that attaining employment at a public university would increase publishing productivity in top accounting journals. Instead, the regression model suggests that private institutions may be more viable research facilitators.

Hypotheses 5 and 6 are supported since DPTSZ and EXP are significantly positive, respectively. As such, it appears that faculty aiming to develop an active research agenda should focus on employment opportunities in large departments at highly rated schools and gain experience within academic ranks.

In regards to the control variables, our model does not support the notion that gender plays a role in determining the total number of publications achieved by an individual. This is also true of years spent as an assistant professor. Because both GEN and YRNK1 are introduced as a control, their lack of significance is not of concern.[20]

Table 8 provides a comparison of our results with findings of past scholarly productivity research. It is interesting to note that regardless of the research method, the nature of a faculty member's first appointment is significant in determining research productivity. A common theme closely associated with this result is that the characteristics of one's department and the associated teaching load appear to significantly impact the productivity of accounting faculty. Table 8 also depicts new information provided by our results. That is, initial hire at public vs. private institutions, department size, and experience are significant determinants of accounting faculty productivity.

7. Conclusions and limitations

It is generally accepted that scholarly productivity is a key component of faculty evaluation at many universities. To gain further insight into this productivity, we estimate its determinants through the use of data spanning a 20 year period for 487 accounting doctoral graduates who graduated during the 1980–82 period. Our results suggest that for the sample under consideration, scholarly productivity is increased when the school of first hire is a top-tier institution, the department size of the initial hire university is larger than eleven, and the faculty member accumulates experience within the academic ranks. On the other hand, academic accountants' ability to publish is reduced when they are subjected to higher teaching loads or they accept an initial position at a public institution. Naturally, these results should play an important role in selecting one's first job and staying academically qualified under AACSB standards. Choosing, for instance, an institution that is rated highly is quite important, as is negotiating the teaching load of an initial appointment.

We also provide analysis of the sub-sample of highly productive scholars who published ten or more articles during the sample period. While this exceptional group of scholars represents a small percentage of the overall sample, they published more than half of the total articles.

Despite the seemingly reasonable nature of our results, certain limitations must be considered. For instance, Englebrecht, Iyer, and Patterson (1994) find that there were differences in publication productivity of faculty across areas of primary research interest. Given our focus on career publication productivity, we did not analyze variations in publications according to an area of specialization. Further, the total research productivity of the subjects is not examined. Books, chapters, monographs, proceedings, presentations and other commissioned works are not considered. These types of publications, however, are considered somewhat helpful in evaluation and promotion decisions. This study considers only articles published in the top 40 journals ranked in Hasselback et al. (2000), and the results should be interpreted accordingly. Consequently, research output appearing in other journals, both in accounting and other disciplines, is not included in this study. Even though we believe that the determinants of faculty productivity are likely to be stable over time, there is no way to guarantee that these results may be generalized to all time periods.

[19] Admittedly, the quality of doctoral training and quality of the institution of first hire variables may be highly correlated. To test the impact of having both measures in the model, we also estimated a model excluding the measure of the quality of the institution of first hire, and even then, the QDT variables were not significant.

[20] We also hypothesized a relationship between PRCTNTCOA and PRCNTTOP12 and research productivity. These variables, however, are not well defined when observations of zero are included for the dependant variable. In order to test these, we ran a truncated negative binomial regression. Though not an ideal specification, our results find that neither variable is statistically significant.

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