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UNDERGRADUATE PREPARATION AND DISSERTATION METHODOLOGIES OF ACCOUNTING PHDS OVER THE PAST 40 YEARS

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ABSTRACT

There is a shortage of accounting faculty and this shortage is predicted to worsen in the future. The number of new PhDs in accounting has declined from approximately 200 per year in the late 1980's and early 1990's to just over 100 per year in recent years. Currently, we expect approximately 400 to 500 new accounting faculty positions to open up annually over the next five to ten years. We believe that there has been a narrowing of the number of PhD candidates coming from fields other than accounting and other business related fields. If this is true, we believe that the number of accounting PhDs could be increased and the shortage could be reduced by increasing the number of nonaccounting/nonbusiness bachelor degree holders in accounting PhD programs.

In this study, we examined patterns in the undergraduate majors of accounting doctorates over a forty-year time period to determine whether there was such a narrowing and how it related to the total number of accounting doctorates issued. We find that the percentage of non-accounting undergraduates was highest when the number of accounting PhDs granted annually was the highest. We also analyze the frequency of topics and research methods used in accounting dissertations to determine whether shifts in topics and research methods are related to changes in the total number of accounting doctorates. Results indicate that topics addressed and methodologies used in dissertations have become less diverse. Thus, we could

perhaps increase the supply of accounting PhDs by expanding the applicant pool to include undergraduates with nonaccounting/business degrees.

INTRODUCTION

The Association to Advance Collegiate Schools of Business (AACSB) has documented an existing shortage of PhDs in business disciplines and projected that future shortages will continue (AACSB 2003). In its report, the AACSB notes that the shortage is particularly acute in accounting. Similarly, in a report commissioned by the American Accounting Association, Kachelmeier et al. (2005) provide the results of a triangulated study and reaffirm the AACSB's concerns related to accounting PhDs.¹ Kachelmeier et al (2005) focused on current PhD students in their study. As the baby boom generation of accounting professors approaches retirement age, the shortfall is projected to become more critical and pronounced. Sharman (2007) stated, "... there are 50% fewer accounting PhD students in the United States today than there were just 10 years ago, and the number will likely be halved in another decade."²

While the profession of public accounting is facing increased demand for new staff professionals, in part due to Sarbanes Oxley, the number of people qualified to teach in accredited institutions and educate those new professionals is declining. In addition, business school deans face pressure for increased MBA rankings, which diverts resources from PhD programs. In fact, during periods of tight economic conditions, business school deans find it difficult to justify the high costs and low enrollments of PhD programs. The number of replacements for soon-to-be-retiring faculty in the form of newly graduated doctoral candidates will not suffice to maintain existing faculty numbers. Sharman (2007) views this as the "The Vicious Cycle."

During her term as President of the AAA, Judy Rayburn hypothesized that doctoral programs are drawing from a narrower group of undergraduates than they did formerly (Rayburn, 2006). The purpose of this paper is to empirically test Rayburn's hypothesis and to augment Kachelmeier et al. (2005) by studying the undergraduate preparation of accounting PhDs for major changes over a forty-year time period.

Additionally, we examine trends over time in the research methodology used by accounting PhDs in their dissertations. We do so because as the supply of accounting doctorates comes from a narrower group, researchers argue that there has been a simultaneous narrowing scope of many of the top accounting journals. Williams et al. (2006) focus on the behavioral stream of experimental and survey-based research and find that it appears significantly less frequently in U. S. top-tier journals and has, to a great extent, shifted to *Accounting, Organizations and Society*, a journal based in the United Kingdom. The *Journal of Accounting Research*, *Accounting Review* and *Journal of Accounting and Economics* publish primarily financial/economic-based research (Bonner et al. 2006). If the top-tier journals are focused on a relatively narrow scope of research, faculty at PhD

¹A shortened version of the full report is available at Plumlee et al. (2006).

²During this time, starting salaries for new PhDs have become very competitive. Plumlee et al. (2006) found that more than two-thirds of doctoral granting universities expected to pay at least \$135,000 base salary for new assistant professors. Meanwhile, Gary et al. (2009) found that an accounting PhD could earn a positive return on their investment over an academic career. Their analysis included an opportunity cost associated with a four to six year term as a PhD student.

granting institutions are more likely to do research on topics of interest to these journals.^{3,4} This would put downward pressure on committees admitting new PhD students to accept applicants who have strong business preparation and a strong quantitative background.

In the next section we provide background information and develop the research questions. We follow that with the methodology used to study these issues. The results are then presented, followed by discussion of the limitations, and our conclusions.

BACKGROUND AND RESEARCH QUESTIONS

Kachelmeier et al. (2005) surveyed department heads, doctoral program administrators and doctoral students. They provide demographics of the 231 doctoral candidate respondents, describing the modal accounting PhD student as “a 30-year-old male born in the United States, with an accounting degree, one to five years of public accounting experience, certification as a CPA, and an ability to self-finance the PhD program without incurring debt,” (2005, 21). Thus we have a recent benchmark and can look retrospectively at whether changes in undergraduate training have occurred. Over 80 percent of the doctoral students Kachelmeier et al. surveyed had earned an accounting degree at the undergraduate or graduate level. At the undergraduate level, the 231 respondents had earned 226 accounting or other business degrees and 35 non-business degrees. The number of degrees is greater than the number of respondents because some had earned double majors. At the graduate level, 165 respondents had earned either a Masters in Accounting or an MBA. We extend Kachelmeier et al (2005) by examining undergraduate preparation for accounting PhDs over a 40 year period. This longitudinal study illustrates that the undergraduate preparation of accounting PhDs was more diverse in the past.

In a study of doctorate credentials, Marshall, et al. (2006) surveyed 144 accounting faculty members, 96 of whom had accounting PhDs and 48 of whom had PhDs in fields other than accounting. Both groups were asked to rate their abilities in 20 broad areas. As the authors expected, nonaccounting PhDs rated that their PhD program and undergraduate program better prepared them to integrate nonaccounting topics in their teaching. Based on this study, it could be argued that one way of increasing the number of accounting faculty members would be to bring more nonaccounting PhDs into the profession, via a relatively short-term training program often called a “bridge” program.

Trends in academic accounting research may also affect patterns in entry to the academic profession. Once applicants have entered doctoral programs and completed substantial coursework, the most significant challenge is the dissertation. The US accounting academic community has been narrowing the range of methods and topics of research appearing in the top journals. Bonner et al. (2006) provide evidence that the articles appearing in the top three journals do not reflect the composition of faculty and their expressed research and teaching interests listed in the annual

³The dwindling resources for accounting PhD programs and the focus by current faculty on financial/economics-based research would suggest that new applicants would need a better grounding in quantitative skills such as statistics, calculus, econometrics, etc. This appears to favor international applicants for PhD programs and reduces the opportunities for domestic students from psychology, English, history, sociology, etc.

⁴In a recent discussion with a dean who served on an AACSB visitation team, he stated that his school only looked at three or four journals when an individual was being promoted.

Hasselback faculty directories. Williams et al. (2006) find that behavioral experimental and survey-based research appears significantly less frequently in U. S. top-tier journals and has, to a great extent, shifted to *Accounting, Organizations and Society*, a journal based in the United Kingdom. If applicants to doctoral programs consider their dissertation experience as they apply to programs, a narrowing or winnowing of the acceptable topics and approaches could be a deterrent to people whose interests lie beyond those confines.

Again, the purpose of this paper is to extend Kachelmeier et al. (2005) by studying the undergraduate preparation of accounting PhDs over a forty-year time period. We hypothesize that there would be a greater concentration of accounting/finance or other business backgrounds over time. We also hypothesize that the research methodology of accounting dissertations has become more financial/economics based in recent years. We study this issue by examining the research methodology used by accounting PhDs in their dissertations.

METHODOLOGY

We used an electronic survey to ask accounting faculty and administrators about their degrees earned from undergraduate through doctoral level, the years those degrees were earned and major fields of study. We also asked for dissertation titles and research methodology used in their dissertation. We triangulated the analysis of possible trends in dissertation research by use of Spiceland (1986) and Spiceland and Zekany (1996).

Hasselback (2006) was used as the starting point for our sample selection. From the more than 7,000 names listed we deleted 2,931 names if the person had no degree designated, did not have a PhD, did not have an email address, or an email was returned as nondeliverable. In total, we sent 4,190 e-mail surveys to faculty who met the criteria and had current valid e-mail addresses. The overall response rate was 43.0 percent or 1,803 good responses returned.

Undergraduate majors were classified as *accounting* if respondents listed accounting as one of their majors when they received their first undergraduate degree.⁵ The next degree category we list separately is *finance*, which we listed if respondents had finance as one of their majors and did not have an accounting degree.⁶ If respondents listed neither accounting nor finance as a major, but had a business degree, then they were classified as *other business* majors. The respondents who had degrees outside of business were classified in the broader category of nonbusiness majors. This grouping included majors in economics, biology, physics, chemistry, engineering, social sciences, humanities, education, mathematics and statistics, among others.

To explore possible trends in accounting dissertation topics and methods, we relied on Spiceland (1986) and Spiceland and Zekany (1996) for information pertaining to doctoral dissertations written from 1972 to 1994. Spiceland (1986) provides author, title, school, date, pages, methodology and topic of the dissertation on 1,752 dissertations from 1972 to 1985. Spiceland and Zekany (1996) provide similar data on 2,091 dissertations from 1985 to 1996. We deleted the forty-seven dissertations from 1985 that were included in both books, leaving 1,705 useable dissertations

⁵We looked only at the first undergraduate degree because we felt that this would be the respondents' true area of interest. In other words, a person who earns an undergraduate degree in accounting five years after earning their undergraduate degree in chemistry would be classified as a nonbusiness major.

⁶This process was needed if respondents had more than one major within their first undergraduate degree.

from Spiceland (1986). We had 1,982 useable observations from the later directory (Spiceland and Zekany, 1996) after deleting 109 dissertations that showed no methodology. Another 427 observations for individuals receiving their accounting PhD after 1994 were obtained through a short electronic survey. In total, we had 4,114 useable observations.

Spiceland (1986) categorized dissertations as (1) archival, (2) experimental, (3) field study, (4) financial statement data-based, (5) market-based, and (6) model-based. Spiceland and Zekany (1996) used five similar categories of (1) archival – primary, (2) archival – secondary, (3) experimental/simulation, (4) internal logic, and (5) surveys/cases in this study. We created one list by re-categorizing the original six categories (Spiceland 1986) into the five categories from Spiceland and Zekany (1996):

Field studies as Surveys/Cases

Financial statement data-based and market-based studies as Archival - Primary

Archival studies as Archival - Secondary

Model-based studies as Internal Logic

Experimental as Experimental/Simulation

The distribution of dissertation methodology is presented in five-year or half decade periods (from 1976 through 2006), according to when the accounting PhD was earned.

RESULTS

Table 1 provides the number of accounting PhD degrees earned from 1960 through 2008, partitioned into five-year time periods. All degrees earned before 1960 were grouped together because no respondents to our survey graduated before 1960. The average number of accounting PhD degrees earned per year was also provided for each five-year time period.⁷

Table 1 illustrates that the accounting PhD degree is fairly new. There were only 286 accounting PhD degrees awarded before 1960. The peak time periods for accounting PhD degrees earned were the half-decades of 1985-1989 and 1990-1994 when 196 and 195 accounting PhD degrees were earned on average per year, respectively. Meanwhile, the second half of the 1990s and the 2000s averaged only 155 and 128 accounting PhD degrees earned per year, respectively. After 1998, the numbers of accounting PhD degrees earned annually ranged from 105 to 148.

Table 2 presents a distribution of the first undergraduate major based on the time period when the accounting PhD degree was earned.⁸ We use four groups to capture the different majors such as accounting, finance, other business, and nonbusiness. Again, we use five-year or half decade time periods, except for the 1960s and the 2000s.⁹ We provide percentages of total majors for four groups. This table demonstrates the variation in undergraduate preparation of accounting PhD students over a 46-year period.

⁷Data for Table 1 were generously provided to the authors by Jim Hasselback.

⁸Data for Table 2 came from a survey. Therefore, the sample is a subset of Table 1.

⁹If an accounting PhD earned his/her PhD in 1998 and earned an undergraduate degree in chemistry in 1980, we would have classified this person as a nonbusiness/economic major in the 1995 to 1999 group

TABLE 1
Summary of Accounting PhD Degrees Earned by Half Decade

	1960 Before <u>1960</u>	1965 to <u>1964</u>	1970 to <u>1969</u>	1975 to <u>1974</u>	1980 to <u>1979</u>	1985 to <u>1984</u>	1990 to <u>1989</u>	1995 to <u>1994</u>	2000 to <u>1999</u>	2005 to <u>2004</u>	2005 to <u>2008*</u>	Total
Total # of PhD Degrees Earned	286	223	431	744	730	812	982	975	773	594	559	7,109
Average # of PhD Degrees Earned per Year		45	86	149	146	162	196	195	155	119	140	

* Data are for a four year period (2005-2008)

TABLE 2
Distribution of 1st Undergraduate Major Based on When the Accounting PhD Was Earned

Undergraduate Major	1960 to <u>1969*</u>	1970 to <u>1974</u>	1975 to <u>1979</u>	1980 to <u>1984</u>	1985 to <u>1989</u>	1990 to <u>1994</u>	1995 to <u>1999</u>	2000 to <u>2006**</u>
Accounting (A)	24	63	64	109	146	195	230	208
Finance (F)	0	3	2	2	7	6	16	9
Other Business (O)	4	9	19	17	22	25	31	20
Nonbusiness	<u>12</u>	<u>20</u>	<u>52</u>	<u>68</u>	128	<u>102</u>	<u>113</u>	<u>77</u>
Total	<u>40</u>	<u>95</u>	<u>137</u>	<u>196</u>	<u>303</u>	<u>328</u>	<u>390</u>	<u>314</u>
A (%) ^a	60.0%	66.3%	46.7%	55.6%	48.2%	59.5%	59.0%	66.2%
A & F (%) ^a	60.0%	69.5%	48.2%	56.6%	50.5%	61.3%	63.1%	69.1%
A, F, & O (%) ^a	70.0%	78.9%	62.0%	65.3%	57.8%	68.9%	71.0%	75.5%

^a Significant at .0001 level

* Data is for a 10-year period (1960-1969).

** Data is for a seven-year period (2000-2006).

Table 2 shows that the percentages of accounting faculty from our survey with accounting undergraduate majors were at 60 percent or above from 1960 through 1974 and during the 2000s. The lowest percentages occurred from 1975 through 1989. The 1990s were slightly higher than the period of time from 1975 through 1989. When we look at business undergraduate majors

(accounting, finance and other business), the lowest percentages occurred from 1975 through 1989 again. The 1990-1994 time period was just under 70 percent. All other time groups were at 70 percent or greater. From late 1985 to 1989, when the percentage of non-accounting undergraduates was highest (Table 2), the absolute numbers of accounting PhDs granted annually were also the highest (Table 1).

The growth in accounting doctorates issued from 1975 through 1994 came primarily from the influx of more students with non-business backgrounds. For example, nonbusiness backgrounds accounted for 38.0%, 34.7%, 42.2% and 31.1% respectively for the time periods 1975-1979, 1980-1984, 1986-1989, and 1990-1994. No other time period was above 30 percent. A simple Chi-Square test for differences in distributions was performed to test for a significant difference across the time period and was found to be significant. We looked at three business-related groupings, formed by beginning with only accounting and adding one more business major to each preceding group; we added majors in the following order: finance and other business. Each of these tests indicated that there was a significant difference in distributions at the .0001 level.

Spiceland and Zekany's (1996) descriptions for the dissertation methodology categories are given in Table 3. These categories were used to classify 4,114 accounting dissertations from the early 1970's through 2006.

Table 4 summarizes all accounting dissertations by broad research category (which subsumes the research approach as well). The results show that during the decade of the 1970's and the first half of the 1980s, the survey method and case studies were the modal approach to dissertation work. However, the percentage of dissertations based on survey and cases declined from 43.6 percent

TABLE 3
Description of Dissertation Methodology Categories

Archival - Primary	Uses large machine readable databases (e.g., COMPUSTAT, CRSP) as well as data compiled by others in non-magnetic form (e.g., 10-K reports)
Archival - Secondary	Consists primarily of literature reviews and reviews of legal decisions. It looks at issues generally comparing other studies.
Experimental/Simulation	Experimental involves variable manipulation (also includes questionnaires containing hypothetical case(s)). Simulation involves computer-based simulation papers and random numbers.
Internal Logic	Includes analytical papers as well as individual opinion type a priori papers.
Survey/Cases	Survey uses a questionnaire and/or interview approach asking for facts or opinions about certain issues. Cases examine a particular issue by carefully observing a field situation but not interfering with it.

Spiceland and Zekany (1996)

TABLE 4
Distribution of Dissertation Methodologies Based on
When the Accounting PhD Degree Was Earned

Dissertation Methodologies ^a	1970 to <u>1974</u>	1975 to <u>1979</u>	1980 to <u>1984</u>	1985 to <u>1989</u>	1990 to <u>1994</u>	1995 to <u>1999</u>	2000 to <u>2006*</u>	Total
Archival - Primary	38 21.2%	240 31.3%	233 30.7%	406 43.5%	515 49.1%	141 57.1%	97 53.9%	1,670 69.8%
Archival - Secondary	17 9.5%	56 7.3%	53 7.0%	35 3.7%	5 0.5%	6 2.4%	2 1.1%	13 0.5%
Experimental/Simulation	23 12.8%	149 19.5%	154 20.3%	199 21.3%	221 21.1%	59 23.9%	41 22.8%	321 13.4%
Internal Logic	23 12.8%	79 10.3%	70 9.2%	62 6.6%	85 8.1%	6 2.4%	7 3.9%	98 4.1%
Survey/Cases	78 43.6%	242 31.6%	250 32.9%	232 24.8%	222 21.2%	35 14.2%	33 18.3%	290 12.1%
Total	179	766	760	934	1,048	247	180	2,392

^a Significant at .0001 level

* Data is for a seven year period (2000-2006).

Data for 1970 to 1994 was based on Spiceland (1986) and Spiceland and Zekany (1996).

Data for 1995 to 2006 was based on five question survey provided to persons who received PhD.

during the first half of the 1970's to a low of 14.2 percent during the latter half of the 1990s, with a slight increase to 18.3 percent since 2000. Inversely, the archival-primary method (the classification for market-based empirical studies) rose from 21.3 percent during the first half of the 1970s to 53.9 percent during the years since 2000. Again, a simple Chi-Square test illustrates that the probabilities of the different dissertation topics over seven different time periods have changed significantly at the .0001 level.

LIMITATIONS

The data we relied upon do not allow us to determine whether the composition of the applicant pool to accounting doctoral programs has remained constant while acceptance or admission patterns have changed, or whether the composition of the applicant pool has shifted over time, leaving admission committees fewer options. Although we cannot establish causality, we believe that trends found in the data provide evidence that broadening the criteria for acceptance into doctoral programs could generate more applicants. Alternatively, if applicants with non-accounting backgrounds are not being denied entrance, but rather are not applying to doctoral programs, then

an alternative course of action would be indicated – do more recruiting among non-accounting undergraduates.

To augment the data from the two published dissertation directories, whose coverage ends at 1996, we electronically surveyed doctorates who graduated since that time, asking for their undergraduate major and year, their PhD dissertation topic and method and year doctorate was obtained. We reviewed 54 randomly selected abstracts to validate agreement with the respondents' classifications. Results in Table 4 appear to be consistent with recent research findings by Bonner et al. (2006) and Williams et al. (2006).¹⁰

DISCUSSION AND CONCLUSION

The number of accounting PhDs earned was largest during the 1985 to 1994 time period. On average, 195 new accounting PhDs were granted per year during that time. Additionally, the percentage of nonbusiness undergraduate majors (31.1 to 42.2 percent) was highest for our sample from 1975 through 1994. The largest percentage of nonbusiness undergraduate majors occurred from 1985 to 1989 (42.2 percent). There was also a broader acceptance of research methodologies such as surveys and cases before 1995.

The increase in databases and statistical packages, such as Compustat, has made it easier for a PhD student to do an archival – primary type dissertation. Unsurprisingly, the percentage of dissertations using an archival – primary research methodology has increased over the period studied. In fact, about 53.9 percent of dissertations of accounting PhDs earned in our study from 2000 to 2006 used the archival – primary research methodology. As new databases became more readily available for faculty teaching undergraduates, students with accounting, finance or business backgrounds would become more likely have had prior experience with the databases.

We believe that the current shortage in PhDs is probably affecting different types of business schools differently. For example, a research intensive institution such as Michigan State University will probably be less affected than a comprehensive university, such as Eastern Michigan University, because students coming out of a PhD program will more likely to pursue their first job at another research institution. Therefore, quality PhD programs will probably focus on and hire individuals from a narrower undergraduate preparation with a narrower research focus than they did during 1985 through 1994.

There is currently some discussion of providing an abbreviated academic training to retiring professional accountants as a way to expand eligible faculty ranks. Two other innovative approaches to developing more accounting faculty are currently being explored. Marshall et al. (2006) provide statistical support for the bridge program, which would accept doctorates in fields other than accounting, and provide them with an accelerated, concentrated two years of accounting training.¹¹ A second is the Accounting Doctoral Scholars (ADS) program, funded by the Big Four, and focused on recruiting experienced tax and audit professionals into doctoral programs and providing generous

¹⁰ At the 2007 Annual AAA meeting, in conversation Professor Steve Kachelmeier mentioned that 63% of the attendees of the recent New Faculty Consortium expressed an interest in financial accounting research, providing further evidence of a narrowing of the research stream in the current pipeline.

¹¹ AccountingWeb.com (2008) states that the AACSB Bridge Program will not add substantially to the number of PhDs needed to educate future accountants. They state that AACSB's database lists only 78 candidates.

stipends for four years of doctoral study.¹² Both of these programs could increase the number of new accounting faculty. The former would help address the narrowness in earlier academic background that we have discussed earlier in the paper.

In summary, we provide data showing that in recent decades the number of accounting doctorates increased when the number of people with non-business backgrounds entered the doctoral programs in greater numbers. The high productive era of accounting is not explained by higher percentages of accounting undergraduates entering doctoral programs. In closing, we suggest some courses of action that might broaden the pool from which we select potential accounting PhDs.

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¹²Ruff et al. (2009) state that 66 of the largest CPA firms, 36 of the state societies and the AICPA Foundation began the ADS program to encourage practicing audit and tax professionals to consider an academic career in accounting. A quick look at several state society websites will show their connections to ADS. Scott (2009) discusses how the Washington Society of Certified Public Accountants is approaching ADS.

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