

The CPA Exam as a Postcurriculum Accreditation Assessment

ANTHONY G. BARILLA
SCHOOL OF ECONOMIC DEVELOPMENT
GEORGIA SOUTHERN UNIVERSITY

ROBERT E. JACKSON
J. LOWELL MOONEY
SCHOOL OF ACCOUNTANCY
GEORGIA SOUTHERN UNIVERSITY

ABSTRACT. Business schools often attain accreditation to demonstrate program efficacy. J. A. Marts, J. D. Baker, and J. M. Garris (1988) hypothesized that candidates from Association to Advance Collegiate Schools of Business International (AACSB)-accredited accounting programs perform better on the CPA exam than do candidates from non-AACSB-accredited programs. However, relatively few business schools (only 168 at the time of the present study) had separate accounting accreditation. The authors compared CPA exam performance of candidates from AACSB-accredited business-only programs with that of candidates from nonaccredited programs. The authors also compared candidate performance from programs accredited by 2 alternative business-school-accrediting organizations with nonaccredited programs. Last, the authors explored whether the 1994 CPA exam's change in format represents a regime change in pass-rate data.

Keywords: accreditation, assessment, CPA exam, grouped logit, regime change

Copyright © 2008 Heldref Publications

Assessment as an evaluation of the efficacy of education is a reality. Many colleges of business administration seek accreditation from independent third parties to demonstrate to their stakeholders that they are delivering quality education to their students. The premiere business-school-accrediting organization is The Association to Advance Collegiate Schools of Business International (AACSB), which began setting standards for business administration in 1919.

In 1980, AACSB added a separate accreditation for accounting. According to AACSB, accounting accreditation was established to promote the development of accounting education programs that produce high-quality graduates (AACSB, 2007). The standards also make it clear that a high-quality program is one that prepares students to serve those needs of society that are met by the discipline and profession of accounting (Standard 37) and that placement and later career success are key indications of the quality of accounting graduates (Standard 33).

Marts, Baker, and Garris (1988) conducted one of the first studies to use a postcurriculum assessment of the efficacy of AACSB-accredited accounting programs. Marts et al. hypothesized that candidates from AACSB accounting-accredited programs would perform better on the certified public accountant (CPA)

exam than would candidates from non-AACSB-accredited programs and from AACSB-accredited programs with business accreditation only. Using the results from the 1985 and 1986 CPA exams, they found that graduates from AACSB accounting-accredited programs did perform significantly better on the CPA exam than did graduates from schools that were not AACSB-accredited. However, in the second part of their study, Marts et al. found that graduates from AACSB accounting-accredited programs did not perform significantly better on the CPA exam than did graduates from AACSB schools with business-only accreditation. Marts et al. did not compare the performance of candidates from AACSB business-accreditation-only programs with that of candidates from non-AACSB-accredited programs.

The purpose of the present study was to repeat the Marts et al. (1988) study 20 years later but to extend it by using more data and a more robust methodology. In addition to making the comparisons made by the original researchers (AACSB accounting vs. non-AACSB and AACSB accounting vs. AACSB business-only), in this study we compared the performance of candidates from AACSB business-accreditation-only programs with that of candidates from non-AACSB-accredited programs. This is an important comparison because only 168 (as of this writing)

AACSB schools have separate accounting accreditation. This study also extends Marts et al.'s study by comparing the CPA exam results of AACSB accounting-accredited candidates with those of candidates from schools that have business school accreditation from the Association of Collegiate Business Schools and Programs (ACBSP) and the International Assembly for Collegiate Business Education (IACBE). Last, at the time of Marts et al.'s study, only 2 years of CPA exam results were available. In the present study, we examined results over an 18-year period.

Background and Literature Review

Much has changed in the 20 years since Marts et al.'s (1988) study: State occupational licensing rules have become more restrictive, leading to the wide implementation of the 150-hr requirement; the CPA exam format has changed; computational power and techniques have improved.

CPA Exam Entrance Requirements

The regulatory environment determines the educational and personal attributes that candidates must possess and the exam restrictions that they face when taking the CPA exam (Muzondo & Pazderka, 1980). Over the last 35 years, the CPA entrance requirements have become more restrictive as jurisdictions have increased the minimum required education. For this study, regulatory restrictions include the completion of the 150-hr requirement and the completion of an accounting concentration, both of which have been shown to increase candidate success (Jackson, 2006).

By 2003, 41 states required additional education beyond the baccalaureate degree for CPA licensure. Of those 41 states, 34 required, at a minimum, a baccalaureate degree and some combination of 30 credit hr beyond the baccalaureate degree for eligibility to take the CPA exam. To meet the postbaccalaureate education requirement, many colleges and universities began offering a degree of master of accounting (MAcc) for those wishing to become CPAs. Boone and Coe (2002) showed a

reduction in the number of accounting baccalaureate degrees and an increase in MAcc degrees conferred in states implementing the 150-hr requirement. An alternative approach to the MAcc is completing the additional required credit hours in the form of either a secondary degree (e.g., MBA) or extra baccalaureate-level credit hours.

The data presented by the National Association of State Boards of Accountancy (NASBA; 1986–1996, 1997–2004) suggest that the success of first-time test takers increases in states adopting the 30-hr postbaccalaureate requirement. Jackson (2006) showed that the newly required postbaccalaureate education has significantly improved applicants' performance on the CPA exam. As an assessment of accreditation, the present study extended Jackson's results by testing whether accredited programs better prepare candidates for the rigors of the CPA exam than do nonaccredited programs.

CPA Exam Format

Before 1994, the CPA exam was administered semiannually over a 2.5-day period and consisted of four parts—practice, auditing, business law, and theory. After 1993, the exam was reformatted and administered semiannually over a 2-day period, and although there were still only four parts—titled Accounting and Reporting (ARE), Auditing (AUDIT), Business Law and Professional Responsibilities (LPR), and Financial Accounting and Reporting (FARE)—there was some minor content shuffling. In addition, the 1994 change in format assigned 5% of the scores of three parts of the exam to writing skills (May & Menelaides, 1993).

METHOD

Previous studies commonly analyzed a candidate's human capital attributes and exam performance by using the individual's exam score as the dependent variable. Matching data from pre-exam questionnaires to the candidates' exam scores, studies found the following factors to be relevant in determining CPA exam success rates. Sanders (1972) reported that completing a baccalaureate degree improves candidate success.

However, graduate school attendance provides mixed results: Reilly and Stettler (1972) found no significantly positive contribution to success, whereas others (Sanders; Titard & Russell, 1989) did. Similarly, whereas Reilly and Stettler and Leathers and Sullivan (1978) found that an accounting degree did not significantly contribute to candidate success, Dunn and Hall (1984) and Jackson (2006) found the opposite.

Most of these studies used linear probability models (LPMs) for estimation. In these models, the dependent variable is a percentage that the researcher regressed on the independent variables by using ordinary least squares. These models allow for predictions outside the range (0, 1), yet a success rate cannot be less than zero or greater than 100%. To overcome the prediction problems associated with using LPM, in this study we used a logit estimation technique that limits the prediction of success rates to the range (0, 1; Maddala, 1983).

Data Description

Each observation in the data set represents the performance of the group of first-time CPA exam candidates taking the semiannual uniform CPA examination from each of the schools with at least 5 candidates taking the exam. NASBA (1986–1996, 1997–2004) does not report groups of less than 5 candidates, to preserve the anonymity of the individuals in the group. The individual first-time CPA candidates do not reappear in the observation for a particular school. It is possible for a candidate to appear for a second time in the school's pool of first-time candidates if that student moved from one state to another.

The dependent variable in the model is the first-time-candidate pass rate. The pass rate is the number of first-time candidates who are listed as passing all parts of the CPA exam divided by the total number of first-time candidates taking the exam at that time. Five states do not require first-time candidates to take all four parts of the uniform CPA exam on their first sitting. A candidate in those states who takes fewer than four parts of the exam and passes all of the taken parts is listed as passing all parts taken. The independent

variables represent the accreditation credentials of individual schools, educational attainment by the candidates, and the regulatory environment faced by the first-time candidates.

The accreditation variable measures the presence or absence of credentialing by one of the three business school accreditation organizations. Because this study assumes that candidates are subject to the regulatory environment of their school's state, that state's regulations determine minimum educational attributes. These attributes include the presence or absence of the 150-hr requirement and the presence or absence of an accounting major at the institution. We included the completion of a graduate degree program, although it was not required for taking the CPA exam, to account for individual human capital beyond the minimum requirements.

Data Sources

The data for first-time pass rates and graduate degree program completion are available from the annual editions of the *CPA Candidate Performance on the Uniform CPA Examination* published by the National Association of State Boards of Accountancy (1986–2004). Only 2 years of pass rate data had been published at the time of Marts et al.'s (1988) study. The present study uses data for examinations from May 1985 through November 2003. These include all published data on the semiannual administration of the CPA exam during that period. State-specific requirements for admission to the CPA exam were determined by reviewing the *Digest of State Accountancy Laws and State Board Regulations* (American Institute of Certified Public Accountants, 1983, 1985, 1987/1988), reading state accountancy laws and regulations, reviewing the respective jurisdiction's Web page for CPA examination candidates, and consulting with Board of Accountancy representatives of the respective jurisdictions, as necessary.

Table 1 presents the summary data that we used in this research. Accreditation credentials may vary over time. Other requirements for admission to the CPA exam vary by state and over time.

TABLE 1. Descriptive Statistics

Variable	<i>M</i>	<i>SD</i>	Min	Max
Number of first-time sitters passing all parts taken	3.807	6.915	0	169
Number of first-time sitters	21.363	24.710	5	360
Business program AACSB accredited	0.496	0.500	0	1
Accounting program AACSB accredited	0.216	0.412	0	1
Business program IACBE accredited	0.001	0.024	0	1
Business program ACBSP accredited	0.025	0.157	0	1
150 credit hours required	0.143	0.350	0	1
Accounting concentration required	0.916	0.277	0	1
Graduate degree completed	0.182	0.386	0	1
New CPA exam format (1994)	0.496	0.500	0	1
No. of AACSB business programs				319
No. of AACSB accounting programs				151
No. of IACBE business programs				4
No. of ACBSP business programs				43

Note. There are 27,627 observations for all variables. AACSB = Association to Advance Collegiate Schools of Business International; ACBSP = Association of Collegiate Business Schools and Programs; IACBE = International Assembly for Collegiate Business Education.

Procedure

The impact of accreditation on the pass rates of first-time takers of the uniform CPA examination is estimated by using the logit model

$$\log \frac{P_{it}}{1 - P_{it}} = f(\alpha \text{Accreditation}_{it} + X_{it}\beta + \varepsilon_{it})$$

where $\log \frac{P_{it}}{1 - P_{it}}$ is the log of the odds

ratio of the pass rate P_{it} of the group of first-time candidates on the uniform CPA exam from school i on exam date t ; $\text{Accreditation}_{it}$ is the presence of an accreditation credential at school i on exam date t ; X_{it} is explanatory variables including the presence of regulatory conditions, in state i on exam date t ; and ε_{it} is the regression error. Each school in the sample was assigned an indicator or dummy variable to capture unidentified variables that reflect differences in schools other than accreditation. The school variables are included in X_{it} . An indicator variable was also included to recognize the impact of changing the examination format beginning in 1994.

In the model, a positive coefficient on the accreditation variable (α) indicates that the first-time pass rate increases for accredited programs. No previous empirical studies over time have shown the degree to which higher CPA exam pass rates are associated with business school accreditation. The model also

includes an explanatory variable to reflect the reduction in pass rates that accompanied the change in the CPA exam format and increased emphasis on writing skills. Jackson (2006) established the necessity for such a variable.

RESULTS

The grouped logit odds-ratio estimation provides a weighted least squares estimation of the logit odds-ratio function to account for the different-size groups that each observation represents (Maddala, 1983). The results of the econometric analysis, which are shown in Table 2, correct the results to allow for differences in individual schools.

The coefficient of accreditation (α) after adjusting for school differences is significant and positive, indicating that the odds of passing all parts taken by first-time CPA exam takers increases at AACSB-accredited accounting programs and at ACBSP-accredited programs. The other accreditations in the study, AACSB business school accreditation and IACBE accreditation, show coefficients that are positive but not significantly different from zero.

The 150-hr requirement, accounting major, and completion of a graduate degree increased CPA exam success and were positive and significant, as we expected. The exam format change in

TABLE 2. Grouped Logit Estimation Results

Variable	Coefficient	<i>p</i>
Business program AACSB accredited (α_1)	0.033	.273
Accounting program AACSB accredited (α_2)	0.073	.001
Business program IACBE accredited (α_3)	0.171	.571
Business program ACBSP accredited (α_4)	0.158	.037
150 credit hours required	0.271	.000
Accounting concentration required	0.121	.001
Graduate degree completed	0.777	.000
New CPA exam format (1994)	-0.357	.000

Note. The coefficients for school indicator variables are available on request. Total observations = 20,343. $F(999, 19343) = 18.48, p < .001$.

1994 reduced candidate success rate. There is significant variation in the coefficient in the school indicator variables, indicating heterogeneity among the different schools. The reference group is a group of candidates from a school in Texas that was not accredited by any of the business accreditation organizations during the period under study.

The present study confirmed that the coefficients of accreditation variables are sensitive to the presence or absence of the 1994 format change variable. In fact, omission of the variable results in negative coefficients from the grouped logit estimations, which is an unexpected outcome. Together, Jackson's (2006) study and the present study support the conclusion that the 1994 exam changes represent an important regime change. A Lagrangian multiplier test confirms that the data before and after the exam change are different.

DISCUSSION

The present study makes several significant contributions to the literature. First, the study confirms Marts et al.'s (1988) study by finding that AACSB accounting program accreditation does contribute to increased success rates of first-time candidates on the uniform CPA exam. However, AACSB accreditation of the business program alone does not increase the odds of success of first-time CPA exam candidates over candidates from non-AACSB school candidates.

On the issue of whether other accreditations make a difference, we found that ACBSP business program accreditation also contributes to increased exam suc-

cess rates but that IACBE accreditation does not increase the odds of success of first-time CPA exam candidates. This finding does not indicate that IACBE accreditation is not as valuable as the others. This finding indicates simply that other postcurriculum assessment tools may be necessary to show the benefit of that accreditation.

Inclusion of the 1994 CPA exam's format change is a critical component of the model because of the sensitivity of the results to its presence. The 1994 format change represents a structural change in the CPA exam and a change in the resulting candidate performance. Future researchers using CPA exam results will need to include this variable or use pre- or post-1994 results.

Implications

The study has implications for students, administrators, researchers, and practitioners. For students, increased CPA exam pass rates are associated with AACSB-accredited accounting programs and ACBSP-accredited business programs. However, students must also be aware of the differences in the schools' unmeasured characteristics in addition to their accreditation status.

For accounting administrators, the cost of accreditation must be weighed against the benefit of increased pass rates of the institution's CPA exam candidates. However, it is likely that most administrators would consider accreditation costs a small sacrifice to achieve a higher CPA exam pass rate, which is an important variable in models that researchers use to rank accounting programs.

For researchers, as mentioned earlier, the 1994 CPA exam's format change represents a factor that they must consider in future research on CPA exam pass rates over time periods that include 1993 and 1994. Additionally, the results of the present study suggest that any future research on CPA exam pass rates that includes both the semiannual paper-and-pencil exam format and the new computerized exam format must consider whether a structural change has occurred in the data.

Practitioners should be interested in the study's results as well. It is common to hear staff recruiters complain about staff accountants they cannot promote to management positions because those accountants have not yet passed the CPA exam. If their firms are looking for graduates who are most likely to be successful on the exam, then they should recruit at AACSB accounting-accredited schools.

NOTES

Anthony G. Barilla, PhD, is an associate professor of economics at Georgia Southern University, where he teaches labor and global economics.

Robert E. Jackson, PhD, CPA, is an assistant professor of accounting at Georgia Southern University, where he teaches in the financial accounting and governmental areas.

J. Lowell Mooney, PhD, CPA, CMA, is a professor of accounting and past director of the Georgia Southern University School of Accountancy. He teaches in the managerial and accounting systems areas.

Correspondence concerning this article should be addressed to Dr. Julian Mooney, Georgia Southern University, School of Accountancy, PO Box 8141, Statesboro, GA 30460, USA.

E-mail: lmooney@georgiasouthern.edu

REFERENCES

- American Institute of Certified Public Accountants. (1983, 1985, 1987/1988). *Digest of state accountancy laws and state board regulations*. Englewood Cliffs, NJ: Prentice Hall.
- Association to Advance Collegiate Schools of Business International (AACSB). 2007. *Eligibility procedures and standards for accounting accreditation*. Tampa, FL: Author.
- Boone, J. P., & Coe, T. L. (2002). The 150-hour requirement and changes in the supply of accounting graduates: Evidence from a quasi-experiment. *Issues in Accounting Education*, 17, 253-268.
- Dunn, W. M., & Hall, T. W. (1984). An empirical analysis of the relationships between CPA examination candidates attributes and candidate performance. *Accounting Review* 59, 674-689.
- Jackson, R. E. (2006). Post-graduate educational requirements and entry into the CPA profession. *Journal of Labor Research* 27, 101-114.
- Leathers, P. E., & Sullivan, J. A. (1978). *Uniform*

statistical information questionnaire, 1975: A supplementary report. New York: American Institute of Certified Public Accountants.

Maddala, G. S. (1983). *Limited-dependent and qualitative variables in econometrics*. New York: Cambridge University Press.

Marts, J. A., Baker, J. D., & Garris, J. M. (1988). Success on the CPA examination in AACSB accredited and non-accredited schools. *Accounting Educators' Journal*, 1, 97-105.

May, C. B., & Menelaides, S. L. (1993). Good writ-

ing counts. *Journal of Accountancy*, 175, 77-79.

Muzondo, T. R., & Pazderka, B. (1980). Occupational licensing and professional incomes in Canada. *Canadian Journal of Economics*, 13, 659-667.

National Association of State Boards of Accountancy (NASBA). (1986-1996). *CPA candidate performance on the uniform CPA examination*. New York: Author.

National Association of State Boards of Accountancy (NASBA). (1997-2004). *CPA candidate*

performance on the uniform CPA examination. Nashville, TN: Author.

Reilly, F. K., & Stettler, H. F. (1972). Factors influencing success on the CPA exam. *Journal of Accounting Research*, 10, 308-321.

Sanders, H. P. (1972). Factors in achieving success on the CPA examination. *Journal of Accountancy*, 134, 85-88.

Titard, P. L., & Russell, K. A. (1989). Factors affecting CPA examination success. *Accounting Horizons*, 3, 53-59.

Subscribe Today and Access Content Online!



Well-known and respected as an opinion magazine dealing with contemporary issues in higher learning, the award-winning *Change* spotlights trends, provides new insights, and analyzes the implications of educational programs. Articles cover influential institutions and individuals, new teaching methods, curricula, finances, governance, and public policy. *Change* is published six times a year with editorial leadership provided by The Carnegie Foundation for the Advancement of Teaching. Editorial content includes resource and technology columns, analytical features on current issues in higher education, and other special departments. Recent articles include:

- Accept, Avoid, Resist: How Faculty Members Respond to Bias Against Caregiving . . . and How Departments Can Help
- Moving from I to We: Reorganizing for Collaboration in Higher Education
- Rethinking Academic Work and Workplaces
- The New Core Competency of the Community College

Bimonthly; ISSN 0009-1383

Regular Annual Subscription Rates:

Individual: \$58 print only, \$62 print and online

Institutional: \$151 print only, \$182 print and online

Add \$16 for postage outside the U.S.



Subscription Office:
PO Box 830350
Birmingham, AL 35283-0350
P. 866.802.7059 ■ F. 205.995.1588
heldref@subscriptionoffice.com
www.heldref.org

**CALL OR VISIT US
ONLINE TO SUBSCRIBE!**

Libraries may order through subscription agents.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.