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The Information Systems Content Area on the CPA Exam: Does Candidate Age Matter?

Steven Muzatko
Arkansas State University, smuzatko@astate.edu

Adriana Cordis
Winthrop University, cordisa@winthrop.edu

Gaurav Bansal
University of Wisconsin - Green Bay, bansalg@uwgb.edu

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Arkansas State University
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Adriana Cordis
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cordisa@winthrop.edu

Gaurav Bansal
University of Wisconsin—Green Bay
bansalg@uwgb.edu

ABSTRACT

This study examines scores on the Business Environment and Concepts (BEC) section of the Uniform Certified Public Accountant Examination. The BEC examination includes six content areas, one of which is Information Systems and Communication (INFO SYS). The relationship of candidate age and candidate performance for the BEC examination was examined, along with each of the six related content areas that comprise the BEC exam. The results show that candidate age is negatively related to scores on the BEC examination. The results also show that age is negatively related to five of the six content areas of the BEC examination. No relationship was found between performance on the INFO SYS content area and candidate age. These results suggest that information systems knowledge is retained with age. These findings are of interest to accounting and information systems educators and CPA examination candidates.

Keywords

Information systems knowledge, professional examinations, CPA examination, age.

INTRODUCTION

The successful completion of the Uniform Certified Public Accountant Examination (CPA Exam) is a requirement to be licensed as a Certified Public Accountant in all fifty states and five territories of the United States. The exam tests the knowledge and skills appropriate for entry-level employees in the field of public accounting. This professional exam has four separate examinations: (1) Financial Accounting and Reporting, (2) Auditing and Attestation, (3) Regulation, and (4) Business Environment and Concepts. Candidates may take the examinations in any order, but credit for any successfully completed part is maintained for only eighteen months. Thus, the successful completion of the CPA Exam requires the four examinations to be passed within an eighteen-month window.

After completing any of the four exam sections, exam candidates receive scores on a 0-99 scale. A score of 75 is required to pass. Along with the overall score, the candidate gets feedback on their performance in content areas within each exam section. For each content area, the candidate receives categorical scores of Stronger, Comparable, or Weaker, which ranks the individual's performance against other candidates taking the examination.

Previous research has shown a relationship between different factors and successful completion of the CPA Exam. One of the earliest studies on CPA Exam performance examined eleven independent variables and found four to be statistically significant in explaining pass rates—GPA, SAT/ACT scores, AICPA Level II test scores, and hours of independent study (Dunn and Hall, 1984). There have been numerous studies since. Some of these have examined factors related to the individual candidate. These factors include age (Franklin, Lepak and Myers, 2017), gender (Franklin et al., 2017; Trinkle, Scheiner, Baldwin and Krull, 2016), or whether the candidate has a graduate degree (Menk, Nagle and Rau, 2017). Other studies have examined institutional factors related to the college or university where the candidate studied. These include the college or university accreditation status (Menk et al.,2017), admission requirements measured by SAT and GMAT (Menk et al., 2017), online versus face-to-face delivery (Morgan, 2015b), faculty qualifications (Bline, Perreault and Zheng, 2016b), or separate AACSB-accreditation for the accounting program (Bunker, Cagle and Harris, 2014). Finally, geographic characteristics such as state-level higher education funding have also been examined (Cordis and Muzatko, 2021).

While overall pass rates have been studied extensively in prior research, very little research has focused on the BEC section. The BEC examination was introduced in 2004 when the CPA Exam content was broadened to include general business knowledge and information technology (Buchanan, Vucinic, Rigos and Gleim, 2004; Snyder, 2003). The BEC examination tests knowledge of the business environment and concepts related to business transactions. The topics on the BEC examination test knowledge from a variety of disciplines within six content areas: Information Systems and Communications, Corporate Governance, Economic Concepts and Analysis, Financial Management, Strategic Planning, and Operations Management.

One of the only section-specific studies of the BEC examination found a significant positive relationship between the number of college courses required in the cost and managerial accounting area and performance on the BEC section of the CPA Exam (Lindsay, Tan and Campbell, 2009). No studies have examined predictors of scores for the six content areas. Prior research can be extended to determine whether relationships that hold for overall section scores hold for individual content areas. For example, the research findings described above provide evidence that age is negatively related to overall pass rates on the CPA Exam. No studies have examined whether this finding is generalizable to the BEC section of the CPA Exam or the content areas within the BEC exam.

One criticism of the CPA Exam is that it relies on questions focused on remembering and understanding fact patterns (Tysiac, 2016a). In explaining the benefits of taking the exam soon after meeting the education requirements, Charron and Lowe (2009) assert that material will likely be forgotten over time. Morgan (2015a) found a significant negative relationship between CPA Exam pass rates and the delay in taking the CPA Exam, and those results are partially attributable to "memory fades." Given that the average candidate takes over one year to complete all four sections of the exam (Bline, Perreault and Zheng, 2016a), candidates are recalling information that may have been learned in college classes several years before taking the CPA Exam. Where candidate age is a proxy for the length of time between learning and being asked to recall information, it is intuitive to expect exam performance to be negatively related to age.

To study whether age is a predictor variable for performance on the BEC examination as a whole, the following hypothesis is proposed:

H1: There is a negative relationship between BEC candidate age and performance on the BEC section of the CPA Exam.

Intuitively, the negative relationship between age and candidate performance would also hold for each of the six content areas within the BEC exam. Thus, the second set of hypotheses is as follows:

H2 a-f: There is a negative relationship between BEC candidate age and performance on the content areas of (a) Information Systems and Communications, (b) Corporate Governance, (c) Economic Concepts and Analysis, (d) Financial Management, (e) Strategic Planning, and (f) Operations Management.

METHODOLOGY

The CPA Exam data were collected from the 2013-2016 editions of the *Candidate Performance on the Uniform CPA Examination*, published by the National Association of State Boards of Accountancy. This annual publication provides exam data aggregated for each state and selected data for each college or university. The state-level data used in this study includes the overall pass rate, overall pass score, and the average age of candidates. This same information is provided for each of the four exam sections.

Additionally, scores are provided for each content area within the four exam sections. The content area scores report the percentage of candidates who received either a Stronger or Comparable ranking on the content area. This study limits its examination to 2013-2016. The content areas scores were first included in the *Candidate Performance on the Uniform CPA Examination* with the results for the 2013 examination, which coincides with new content and skills specifications that went into effect in 2013 (AICPA, 2009). Data is only included through 2016 because the CPA Exam was revised in April 2017. Among other changes, Strategic Planning was eliminated as one of the content areas from the BEC examination.

Regression analysis was used to examine the relationship between the CPA Exam performance and candidate age. Table 1 provides the descriptive statistics for variables used in this study.

Variable		Description	Mean	Std. Dev.	Min	Max
BEC AGE	AVG	Average age for candidates taking the BEC section.	28.70	1.46	25.9	33.3

BEC SCORE	Average score for candidates taking the BEC section	74.45	1.99	69.4	79.7	
INFO SYS	Performance on Information Systems content area.	69.69	4.96	55.5	84.4	
CRP GOV	Performance on Corporate Governance content area.	66.73	5.08	52.8	78.0	
ECO CON	Performance on Economic Concepts and Analysis content area.	60.43	6.20	44.2	77.5	
FIN MGT	Performance on Financial Management content area.	55.00	6.87	35.1	76.5	
STR PLA	Performance on Strategic Planning content area.	58.75	6.78	37.1	79.4	
OP MGT	Performance on Operations Management content area.	58.99	6.22	39.9	79.4	

Notes: For all variables, N=200. All amounts are by state, 2013-2016. Performance on the six content areas is the percentage of candidates who received scores of Stronger or Comparable.

Table 1. Descriptive Statistics

RESULTS

Table 2 provides the results of the OLS regression. Separate regressions were run to test each of the seven hypotheses. Age is a significant predictor variable for the overall score on the BEC examination. Age is also a significant predictor variable for performance on five of the six content areas within the BEC exam. INFO SYS is the one content area where age is not significantly related to exam performance.

	Dependent Variable:	Constant	Independent Variable: BEC AGE	R2	N	Hypothesis Supported
H1	BEC SCORE	90.64***	-0.56***	0.17	200	Yes
		(35.70)	(-6.38)			
H2a	INFO SYS	78.02***	-0.29	0.01	200	No
		(11.27)	(-1.20)			
H2b	CRP GOV	102.41***	-1.24***	0.13	200	Yes
		(15.41)	(-5.38)			
H2c	ECO CON	90.54***	-1.05***	0.06	200	Yes
		(10.76)	(-3.58)			
H2d	FIN MGT	86.32***	-1.09***	0.05	200	Yes
		(9.23)	(-3.35)			
H2e	STR PLA	108.96***	-1.75***	0.14	200	Yes
		(12.39)	(-5.72)			
H2f	OP MGT	106.16***	-1.64***	0.15	200	Yes
		(13.21)	(-5.88)			

Notes: ***, **, and * denote statistical significance at the .1%, 1%, and 5% level, respectively; t-statistics are reported in parentheses.

Table 2. OLS Model

DISCUSSION

This study shows that information systems knowledge differs from other knowledge tested on the BEC section of the CPA Exam. The results suggest that scores on the information systems content area are unrelated to candidate age. In contrast, the performance on the other five content sections and the overall BEC examination scores decline as age increases.

One explanation for this finding is that information systems knowledge is retained better than other knowledge tested on the BEC examination. Information system skills extend across multiple career paths in accounting, and utilizing these skills could lead to knowledge retention. This explanation is supported by Franklin et al. (2017), who state, "What needs to be considered relative to age is the fact that the deep study approach is an approach that is learned, and many of the skills that lead to successful deep study come from experience and skills that may be learned from real work experience."

With respect to future research, the findings of this study can be extended to periods after 2016. In addition to changes to content starting with the 2017 CPA Exam, the assessment methods of remembering, understanding, and application skills were modified to emphasize higher-order analysis and evaluation skills (Tysiac, 2016b). This change presents an opportunity to examine whether the findings in this study persist to the new content specifications and emphasis on higher-order thinking skills.

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