Options for Meeting the 150-Hour Requirement to Maximize Students' Demand as Public Accounting Recruits: Have Things Changed?

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Abstract

Students have myriad options to satisfy the 150-hour education requirement necessary for CPA licensure. Prior research suggests that students who want to work in public accounting can maximize their demand as recruits by meeting the requirement through options that lead to a graduate degree in accounting. However, recent trends in hiring practices, most notably a growing demand for data analytics skills, indicate that students meeting the requirement through a graduate degree in accounting may no longer be the most sought after recruits. We therefore investigate the options for meeting the requirement that the students of *today* should pursue to maximize their demand as public accounting recruits. We are especially interested in examining whether recruits who pursue options that incorporate data analytics are in greater demand than other recruits. We conducted a between-participants experiment in which 191 CPAs in public practice indicated how actively their firms would recruit a hypothetical student based on a set of attributes that varied only as to how the student met the requirement. We examined seven options: undergraduate courses in business; undergraduate courses in data analytics; an MBA; an MBA with a concentration in accounting; an MBA with a concentration in data analytics; a MAcc; and a MAcc with a concentration in data analytics. Results of our main tests provide some evidence to support, and no evidence to refute, the prevailing belief that students can maximize their demand as recruits through options that lead to a graduate degree in accounting. And, although results of our main tests provide no evidence that recruits who complete data analytics options are in greater demand at the average firm, results of our exploratory tests provide evidence that recruits who complete the MAcc with a concentration in data analytics option are in greater demand at larger firms than smaller firms. These results should be of interest to students as they plan courses of study, teachers and advisors as they recommend courses of study to students, and chairs, deans, and other administrators as they consider additions or modifications to programs of study currently offered by their institutions.

Keywords: 150-hour requirement; CPA recruiting; advising; data analytics

1. Introduction

Students aiming for a career in public accounting have myriad options to satisfy the 150-hour education requirement that is necessary for CPA licensure in virtually all U.S. states and jurisdictions.[1] Naturally, students will want to pursue the options that maximize their demand in the job market. Several studies speak directly or indirectly to whether and to what extent various options to meet the 150-hour requirement affect the attractiveness of recruits to firms (Bandy, 1990; Donelan & Philipich, 2001; Renner & Tanner, 2001; Almer & Christensen, 2008; Metrejean, Metrejean, & Stocks, 2008; Mauldin, Braun, Viosca, & Chiasson, 2013; McCann & Wilson, 2020). Though the results have been somewhat mixed, these studies, on the whole, suggest that students can maximize their demand as public accounting recruits by pursuing an option that leads to a graduate degree in accounting.[2]

Recent trends, however, indicate that students meeting the 150-hour requirement through a graduate degree in accounting may no longer be the most sought after public accounting recruits. For example, the Association of International Certified Professional Accountants (AICPA) points to a shift in the hiring model for public accounting firms: "As firms continue to embrace technology and evolve their approach to the audit, they are seeking employees with data science and data analytics skills" (AICPA, 2019a, para. 6). Thus, to the extent that firms are seeking recruits with data science, data analytics, and, more broadly, technology skills, it might now be more advantageous for aspiring public accountants to pursue graduate degrees in data analytics, for example, rather than graduate degrees in accounting.

[1] All U.S. states and jurisdictions except for the U.S. Virgin Islands require 150 credit hours for CPA licensure (Association of International Certified Professional Accountants [AICPA], n.d.).

[2] The research discussed herein and the conclusions drawn therefrom pertain to students pursuing careers in public accounting. Though it is beyond the scope of this study, prior research suggests that students pursuing careers in industry may not share the same optimal path to 150 hours (e.g., Albrecht & Sack, 2000; Renner & Tanner, 2001).

Our objective therefore is to investigate the options for meeting the 150-hour requirement that the students of *today* should pursue to maximize their demand as public accounting recruits. Furthermore, given the increased emphasis on data analytics skills in the public accounting firm hiring model (AICPA, 2019a), we are especially interested in examining whether recruits who pursue 150-hour options that incorporate data analytics are in greater demand than other recruits.

We conducted a between-participants experiment in which 191 CPAs in public practice rated how actively their firms would recruit a hypothetical student based on a set of attributes that included the method/option by which the student met the 150-hour requirement. Participants were assigned to one of seven groups. The student's set of attributes differed between groups only in how they met the 150-hour requirement. The seven options/groups were as follows: undergraduate courses in business; undergraduate courses in data analytics; an MBA; an MBA with a concentration in accounting; an MBA with a concentration in data analytics; a master's in accounting (MAcc); and a MAcc with a concentration in data analytics.

Results of our main tests showed that, as expected, the option by which the student met the 150-hour requirement affected CPAs' ratings of how actively their firms would recruit the student. Further analyses, however, revealed only two significant differences between options: The student who met the requirement through an MBA with a concentration in accounting or through a MAcc received higher ratings than the student who met the requirement through undergraduate courses in business. These results therefore provide no evidence to revise the prevailing belief that students can maximize their demand as public accounting recruits, on average, through an option that leads to a graduate degree in accounting.[3] These results also

[3] If "the objective of accounting research is to create legitimate, consequential belief revision about issues associated with accounting-related decisions" (Maines, Salamon, & Sprinkle, 2006, p. 86), our results provide no evidence to revise the belief that a graduate degree in accounting is the optimal 150-hour option for public accounting recruits.

provide no evidence that recruits who meet the 150-hour requirement through options that incorporate data analytics are in greater demand, on average, than other recruits.

We also conducted exploratory tests to determine whether the effect of the 150-hour option on students' demand as public accounting recruits is influenced by characteristics of CPAs and/or their firms. Results showed a significant interaction between the size of the firm for which the CPA worked and the option completed by the student. Further analyses revealed a positive and significant relation between firm size and ratings for the student who completed the MAcc with a concentration in data analytics option. This result suggests that such recruits are in greater demand at larger firms than smaller firms.[4] Thus, students who want to work for larger firms appear to have greater incentives to meet the 150-hour requirement through a MAcc with a concentration in data analytics than those who want to work for smaller firms.

Our study makes two notable contributions. First, it provides some evidence to support, and no evidence to refute, the claim that the students of today, like those of the past, can maximize their demand as public accounting recruits by meeting the 150-hour requirement through an option that leads to a graduate degree in accounting. In this regard, it responds to Kremin and Pasewark (2020) who note "a need to understand the incremental value of completing 150 credit hours by obtaining a master's degree instead of the less expensive additional undergraduate hours" (p. 49). Our study and the others upon which it builds suggest that there is indeed incremental value of a graduate degree in accounting for students who want to work in public accounting. This finding should be of interest to students as they plan courses of study, teachers and advisors as they recommend courses of study to students, and chairs,

[4] This result could possibly be a reflection of the differences between local firms and other firms in their use of technology (e.g., Lowe, Bierstaker, Janvrin, & Jenkins, 2018; Buchheit, Dzuranin, Hux, & Riley, 2020).

deans, and other administrators as they consider additions or modifications to programs of study currently offered by their institutions.

Second, our study provides some evidence to suggest that the effect of the 150-hour option on students' demand as public accounting recruits can be influenced by CPA firm size. Specifically, our results suggest that students who meet the 150-hour requirement through a MAcc with a concentration in data analytics are in greater demand at larger firms than smaller firms. Thus, there appears to be incremental value of a MAcc with a concentration in data analytics for students who want to work for larger firms relative to those who want to work for smaller firms. This finding should be of interest to students, teachers and advisors, and chairs, deans, and other administrators for the same reasons as noted in the previous paragraph.

The remainder of this paper proceeds as follows: Section 2 discusses the prior research and recent trends that motivate our research objective. Section 3 presents our research methodology. Section 4 reports our results. Section 5 concludes.

2. Motivation

2.1. Prior research

Earlier studies primarily consisted of surveys. Bandy (1990) conducted a survey of professionals in public accounting that sheds light on their perceptions of the differences between staff with graduate degrees and staff with only undergraduate degrees.[5] Interestingly, there are differences in perceptions between partners and lower-level professionals. Partners perceived that staff with graduate degrees had superior communication skills, interpersonal skills, and business skills. They also noted that staff with graduate degrees had lower turnover

[5] Although Bandy (1990) did not state that a survey of professionals in public accounting was conducted or provide descriptive statistics for the survey, it is clear that such a survey, even if informal, was conducted.

and were more likely to rise to the level of partner. On the other hand, seniors and managers appeared to perceive no differences between staff with graduate degrees and staff with only undergraduate degrees except for the higher salaries earned by the former.

Donelan and Philipich (2001) conducted a survey of CPA exam candidates working in public accounting to identify the options used by them to meet the 150-hour requirement and to determine whether the options used by them affect the extent to which they are satisfied that their college education prepared them for the profession.[6] Descriptive statistics showed that a higher percentage of candidates met the requirement through a graduate degree than an undergraduate degree and that, among those who met the requirement through a graduate degree, a higher percentage did so via a MAcc than an MBA or other graduate degree.[7] Moreover, the statistics revealed that these differences were more pronounced at the largest firms.[8] The results also showed that candidates who met the requirement through a MAcc were more satisfied with their preparation for the profession than those who met the requirement through an MBA or other graduate degree. These findings, in conjunction with those of Bandy (1990), suggest that firms will more actively recruit students who have met the 150-hour requirement through a graduate degree in accounting because these students are better equipped to advance within the firm and the profession. In fact, recent survey evidence bolsters this claim. McCann and Wilson (2020)

[6] Donelan and Philipich (2001) also surveyed CPA exam candidates working in industry, government, or other areas. The current study, however, is concerned only with those candidates working in public accounting.

[7] On the surface, this would appear to conflict with Bierstaker, Howe, and Seol's (2004) survey of accounting students. Descriptive statistics from their survey showed that a higher percentage of students would prefer to obtain an MBA to meet the 150-hour requirement than a MAcc. Acknowledging this conflict, the authors state that "[t]his anomaly may … be the result of lack of knowledge of surveyed undergraduate students regarding degrees other than the well-known MBA" (p. 219). One should also note that not all of the students surveyed by Bierstaker et al. will enter public accounting and that, as noted in a previous footnote, public accountants and industry accountants may not share the same optimal path to 150 hours (e.g., Albrecht & Sack, 2000; Renner & Tanner, 2001).

[8] Donelan and Philipich (2001) reported that 72% of CPA exam candidates at Big Five firms (the largest firms at the time of the study) met the 150-hour requirement through a graduate degree—53% through a MAcc and 19% through an MBA or other graduate degree. As for candidates at other firms, 55% of them met the requirement through a graduate degree—37% through a MAcc and 18% through an MBA or other graduate degree.

conducted a survey of partners in public accounting who were required to meet the 150-hour rule to identify the degrees that these partners obtained. Descriptive statistics showed that 67% of partners obtained a graduate degree and that 51% of those who did so obtained a MAcc.

Renner and Tanner (2001) conducted a survey of professionals in public accounting to determine which options for meeting the 150-hour requirement are most valued in recruitment.[9] Professionals rated the values to their firms of eleven options that a hypothetical job candidate could have taken to meet the 150-hour requirement. Descriptive statistics showed that a MAcc was valued more than an MBA. That said, a MAcc was only the third-most valued option. It was behind a double major in accounting and management information systems, which, itself, was behind a master's in taxation. When interpreting these results, however, one must consider their generalizability. Most of the professionals in this study worked for very small firms.[10] Even so, the results are not altogether inconsistent with Bandy (1990) and Donelan and Philipich (2001) in that they still hint toward a preference for public accounting recruits who meet the 150-hour requirement with graduate degrees in accounting-related areas.

Later studies have built upon the earlier surveys, employing more rigorous research methodologies. Almer and Christensen (2008) conducted a within-participants experiment to examine, among other things, whether various educational paths (that would satisfy the 150-hour requirement) are associated with public accounting firms' hiring decisions for entry-level audit positions. Recruiters from public accounting firms rated, among other things, how likely it is that their firm would hire a hypothetical student based on a set of attributes. Almer and Christensen

[9] Renner and Tanner (2001) also surveyed accountants working in areas other than public accounting. The current study, however, is concerned only with those accountants working in public accounting.

[10] For example, nearly 65% of Renner and Tanner's (2001) respondents worked at organizations with 15 or fewer professional accountants. Note that the actual percentage of Renner and Tanner's respondents in public accounting who worked for small firms may be higher or lower than this figure. Renner and Tanner did not present the percentages of professional accountants separately for public accounting and other areas.

manipulated within participants four educational paths: an accounting bachelor's degree combined with (1) a MAcc or a second undergraduate major in (2) management information systems or (3) liberal arts or (4) a liberal arts bachelor's degree combined with accounting courses taken as part of a post-baccalaureate certification program.[11] They found that ratings for the MAcc were significantly higher than each of the other options. These results are therefore consistent with the earlier surveys in that they indicate a preference among public accounting firms for a graduate degree in accounting.

Metrejean, Metrejean, and Stocks (2008), on the other hand, provide a different perspective. They conducted a between-participants experiment to determine whether students who meet the 150-hour requirement and have master's degrees from accounting programs would be more actively recruited by public accounting firms than those who have only bachelor's degrees.[12] Recruiters from public accounting firms rated how actively they would recruit a hypothetical student based on a set of attributes. Metrejean et al. manipulated between participants whether the student would graduate with a master's degree or only a bachelor's degree. They found no significant difference in ratings between the master's and bachelor's conditions. They were also unable to find a significant difference in ratings between recruiters from large and small firms. That said, these results could be due to the fact that 90% (85/94) of participants were from local firms. Nevertheless, in contrast to the evidence discussed thus far, their results suggest that a master's degree confers no advantage to public accounting recruits.

Similar to Metrejean et al. (2008), Mauldin, Braun, Viosca, and Chiasson (2013) conducted a between-participants experiment. Their objective was to determine which options

[11] Almer and Christensen (2008) actually used a 4 (educational path) x 2 (age) x 2 (gender) experimental design in which each variable was manipulated within participants. We only discuss the educational path manipulation.
[12] Metrejean et al.'s (2008) participants also included recruiters for companies in industry. The current study, however, is only concerned with the results pertaining to recruiters for public accounting firms.

for meeting the 150-hour requirement are most attractive to public accounting firms in the recruiting process. CPAs from public accounting firms rated how actively their firm would recruit a hypothetical student based on a set of attributes. The set of attributes was the same for all participants except for the method by which the student met the 150-hour requirement. Mauldin et al. manipulated seven options between participants: undergraduate non-business courses; undergraduate business courses; double major in accounting and finance; double major in accounting and information systems; MBA; MBA with a concentration in accounting; and MAcc. They found that the MAcc was rated significantly higher than each option except for the MBA with a concentration in accounting, which, itself, was rated significantly higher than each option except for the MBA (and the MAcc). The MBA, however, was rated significantly higher than only two of the four undergraduate options. These results therefore suggest that public accounting firms are most attracted to recruits who have met the 150-hour requirement through a graduate degree in accounting (i.e., a MAcc or an MBA with a concentration in accounting). This inference is consistent with much of the evidence that has heretofore been discussed.

In sum, although the findings have not always been entirely consistent, prior research, in general, suggests that public accounting firms are most attracted to students who have met the 150-hour requirement with a graduate degree in accounting. Such students, it would appear, are better prepared to advance within the firm and, more generally, the profession.

2.2. Recent trends

Recent trends in hiring practices challenge the notion that the students of today will continue to maximize their demand as public accounting recruits by pursuing 150-hour options that lead to a graduate degree in accounting. For example, the AICPA (2019b) suggests that a

growing demand from firms for employees with technology skills has shrunk the demand from firms for recruits with accounting degrees:

> The marketplace continues to demand different competencies and, while accounting graduates are still being hired, firms are seeking other skill sets to expand services. We are seeing that the gap in skills required in the profession, especially as it relates to technology needs, is being met with non-accounting graduates. (p. 2)

Thus, to the extent that firms are seeking entry-level recruits with technology skills, including data science and data analytics skills, it might now be more advantageous for students to pursue graduate degrees in data analytics, for example, rather than graduate degrees in accounting. However, that entry-level recruits will benefit by pursuing such 150-hour options as a graduate degree in data analytics is not a foregone conclusion as the AICPA (2019b) notes, "There is also anecdotal evidence to suggest that some of this technology-specific hiring is occurring at the experienced hire level" (p. 2).

2.3. Research objective

In light of the above discussion, our objective is to investigate the options for meeting the 150-hour requirement that the students of today should pursue to maximize their demand as public accounting recruits. We expect that the students' 150-hour options will still impact their demand as recruits. We also expect that students who meet the 150-hour requirement through an option that leads to a graduate degree in accounting will be in relatively high demand. We are, however, particularly intrigued as to whether the students of today can benefit by pursuing 150-hour options that respond to the growing demand from firms for employees with data science, data analytics, and, more broadly, technology skills (AICPA, 2019a, 2019b). More specifically,

we are interested in whether and to what extent students can increase their demand as public accounting recruits by completing 150-hour options that incorporate data analytics.

3. Research methodology

3.1. Experimental design and variables

The experimental design was largely based on Mauldin et al.'s (2013). We conducted a between-participants experiment in which participants (CPAs in public practice) indicated how actively their firm would recruit a hypothetical student based on a set of attributes.[13] All attributes remained constant between participants except for the independent variable of interest: the method or option by which the student met the 150-hour requirement (*Option*). We manipulated *Option* between participants, randomly assigning them to one of seven conditions: undergraduate courses in business (UG Bus); undergraduate courses in data analytics (UG DA); an MBA degree (MBA); an MBA degree with a concentration in accounting (MBA Acc); an MBA degree with a concentration in data analytics (MBA DA); a master's degree in accounting (MAcc); and a master's degree in accounting with a concentration in data analytics (MAcc DA). We included UG Bus, MBA, MBA Acc, and MAcc as they are some of the more common and/or inclusive options available (Mauldin et al., 2013). We included UG DA, MBA DA, and MAcc DA as they are plausible options that incorporate data analytics.[14]

Our objective is to identify the 150-hour options that maximize students' demand as public accounting recruits. Accordingly, our dependent variable (*Rating*) was measured by

[13] The experiment was approved by the Institutional Review Board.

[14] For example, in regard to MBA DA, see the Wharton School (University of Pennsylvania), which offers an MBA with a major in business analytics, and the Tepper School of Business (Carnegie Mellon University), which offers an MBA with a track in business analytics. With respect to MAcc DA, see, for instance, the Marshall School of Business (University of Southern California), which offers a MAcc with an emphasis in data and analytics, and the Villanova School of Business (Villanova University), which offers a MAcc with data analytics.

asking participants to indicate how actively their firm would recruit the student. Responses were measured on an 11-point Likert scale, ranging from 0 (*Not very actively*) to 10 (*Very actively*).[15]

3.2. Experimental task

Participants completed an online survey, administered via Qualtrics. The instrument was derived from Mauldin et al.'s (2013). Participants were told to assume that their organization is in the process of recruiting an entry-level accountant. They were further told to assume that they have met a student, who was then described according to several attributes that are pertinent to recruitment. One of these attributes was the option by which the student met the 150-hour requirement. Participants were then asked to indicate how actively their organization would recruit the student.[16] Participants were then asked to answer several other questions. One of these was the manipulation check; the other questions were used to collect demographic data.

3.3. Participants

One hundred ninety-one CPAs in public practice were obtained as participants in this experiment by contracting with EMpanel Online, an online panel/market research firm.[17] These participants were obtained as follows. One thousand seventeen individuals accessed the survey in Qualtrics. Of those who accessed the survey, 317 of them either declined or were not eligible to participate. To be eligible, individuals had to answer in the affirmative to three screening questions. Individuals had to assert that they have an active CPA license to practice public

[15] Variables are defined in Appendix A.
[16] For an example, the screen that was presented to participants in the MBA Acc group is shown in Appendix B.
[17] Brandon, Long, Loraas, Mueller-Phillips, and Vansant (2014) discussed EMpanel Online as a possible means of recruiting participants for behavioral accounting research. For an example of a particular study, see Christensen, Eilifsen, Glover, and Messier (2020), who contracted with the firm to obtain professional investors as participants.

accounting in at least one U.S. state/jurisdiction, that they practice public accounting in at least one U.S. state/jurisdiction, and that they participate to any degree in the recruitment/hiring process for entry-level accountants. In other words, the 700 eligible participants had to indicate that they are CPAs in public practice who are involved in recruiting.

We applied four additional screens to participants who proceeded on to the experiment. First, we excluded 483 participants who failed or did not answer the manipulation check. After stating how actively their firm would recruit the hypothetical student, participants were required, in the next question, to correctly identify, from a list, the method by which the student met the 150-hour requirement. Second, we excluded three participants who did not provide *Rating*. Third, we excluded 21 participants who completed the survey in less than 96.50 seconds, the 10th percentile of time to complete the survey.[18] This screen, along with the manipulation check, were an attempt to exclude participants who did not pay sufficient attention to the survey. Finally, we excluded two participants whose responses for *Rating* were deemed as outliers as they were more than three standard deviations from the means of their respective conditions.[19]

Table 1 presents demographic information on participants. Panel A presents statistics on the sizes of firms for which participants worked and the ages of participants. Participants worked at firms that ranged in size from 3 to 10,000 employees. The distribution of firm size, however, was positively skewed. For example, the mean was 643.59, while the median was only 350.00. Furthermore, 92% of participants worked at firms with 1,000 or fewer employees. These statistics suggest that most participants worked for regional or local firms. Participants' ages ranged from 24 to 74 years. The mean and median were 43.45 and 43.00, respectively. Panel B

[18] The cutoff of 96.50 seconds was the 10th percentile of time to complete the survey for the 214 participants that remained after the two preceding screens (700 – 483 – 3 = 214).
[19] The outliers were identified by condition (*Option*) for the 193 participants that remained after the three preceding screens (700 – 483 – 3 – 21 = 193).

presents statistics on the positions held by participants and the areas in which participants worked. The most common positions were manager (36%), partner (22%), sole proprietor (17%), and senior/in-charge (16%).[20] Since these positions involve the supervision of entry-level accountants, substantially all participants (91%) likely had a keen awareness of the most important attributes to look for in an entry-level recruit. This, along with the requirement that participants be involved in the recruitment/hiring process, suggests that participants had the requisite knowledge and experience to evaluate the recruit. The areas of assignment and their categories (accounting/auditing, taxation, and other) are tabulated according to the classification system used by the AICPA (2019b, endnote g, p. 39). The most common area category was accounting/auditing (66%), followed by other (29%) and then taxation (5%). Among the areas of assignment, the three most common were financial accounting (62%), management accounting (13%), and information management and technology assurance (6%).[21]

[Insert Table 1 about here]

4. Results

4.1. Main tests

Table 2 presents the results of our main tests for the effect of the 150-hour option completed (*Option*) on students' demand as public accounting recruits (*Rating*). Panel A presents descriptive statistics of ratings by option. Panel B presents the results of an ANOVA that was used to test for the effect of option on rating. The effect of option on rating was statistically

[20] Thirty-one (out of 33) self-identified sole proprietors indicated that they worked for firms with 100 or more employees. It seems unlikely that such firms are sole proprietorships. It could, however, be that these participants have substantially all controlling interest in their firms and thus identify as sole proprietors.

[21] We also collected data on the options by which participants met the 150-hour requirement. However, we do not tabulate statistics on such data, nor do we include such data in our analyses, as there was an unusual correlation between the options that were self-reported by participants and the options that were used by the hypothetical students that participants evaluated. This correlation and its possible explanations are discussed in Appendix C.

significant (p = 0.009).[22] This result, also found by Mauldin et al. (2013), suggests that the 150-hour option completed affects students' demand as public accounting recruits.

[Insert Table 2 about here]

Table 2, Panel C, presents the results of pairwise comparisons to test for differences in ratings between options. There were two significant differences. MBA Acc was rated higher than UG Bus (mean 8.63 vs 7.39; p = 0.003), and MAcc was rated higher than UG Bus (mean 8.44 vs 7.39; p = 0.023). These differences, also found by Mauldin et al. (2013), suggest that students who meet the 150-hour requirement through an MBA Acc or a MAcc will be more actively recruited by public accounting firms than those who meet the requirement through UG Bus. Unlike Mauldin et al. (2013), however, there was no significant difference indicating that MBA was rated higher than UG Bus (mean 8.21 vs 7.39; p = 0.185), nor was there a significant difference suggesting that MAcc was rated higher than MBA (mean 8.44 vs. 8.21; p = 0.992). There were also no significant differences suggesting that students can increase their demand as recruits at the average public accounting firm through options that incorporate data analytics.

4.2. Exploratory tests

We supplemented our main tests by exploring whether the effect of the 150-hour option completed (*Option*) on students' demand as public accounting recruits (*Rating*) is influenced by the size of the participant's firm (*SizeP90Max*), the age of the participant (*Age*), the position of the participant (*Position*), or the area of assignment category of the participant (*AreaCategory*).[23]

[22] p-values are two-tailed unless noted otherwise.
[23] Due to positive skewness in the firm size distribution (see Section 3), the maximum size for the tests described herein was set to 850 employees, the 90th percentile of *Size* (untabulated). Hence, *SizeP90Max* is a measure of size in which all sizes greater than 850 employees are set to 850 employees. The mean and standard deviation of *SizeP90Max* (n = 189) were 378.21 and 235.13, respectively, and the median was 350.00 (untabulated).

We first estimated an ANCOVA model that included interactions between option and size, option and age, option and position, and option and area (in addition to the main effects of each variable). The results (untabulated) showed that the interaction between option and size was marginally significant ($p = 0.098$) but that the interactions between option and age, option and position, and option and area were not significant ($p = 0.232$, $p = 0.419$, and $p = 0.270$, respectively). We then proceeded to estimate an ANCOVA model that included an interaction between option and size (in addition to their main effects) and controls for age, position, and area. The results (untabulated) showed that the interaction between option and size was significant ($p = 0.033$) and that the effects of age and position were at least marginally significant ($p = 0.026$ and $p = 0.056$, respectively). The effect of area, however, was not significant ($p = 0.312$). In light of these results, we finally proceeded to estimate an ANCOVA model that included an interaction between option and size (in addition to their main effects) and controls for only age and position. The results of this analysis are presented in Table 3, Panel A. The interaction between option and size was significant ($p = 0.038$). The effects of age and position were also significant ($p = 0.018$, and $p = 0.038$, respectively). Together, the results of the ANCOVA models discussed in this paragraph suggest that age and position have the potential to affect ratings but that size has the potential to alter the effect of the 150-hour option on ratings.

[Insert Table 3 about here]

To explore the interaction between option and size, we estimated regressions of rating on size and controls (age and position) by option. The results of these analyses are presented in Table 3, Panel B. The Model F-statistic was significant for only three options: MBA DA ($p = 0.023$), MAcc ($p = 0.017$), and MAcc DA ($p = 0.002$). Among these options, the coefficient on size was not significant for MBA DA ($p = 0.447$) or MAcc ($p = 0.369$). The coefficient was,

however, positive and significant for MAcc DA (p = 0.003). This result suggests that recruits who meet the 150-hour requirement through a MAcc DA will be more actively recruited by larger firms than smaller firms. Thus, students desiring to work for larger firms appear to have more of an incentive to meet the requirement through MAcc DA than those desiring to work for smaller firms. This concept is visualized through Fig. 1, which shows the positive relation between size and rating for MAcc DA.

[Insert Fig. 1 about here]

5. Conclusion

Students have many options to satisfy the 150-hour education requirement necessary for CPA licensure. Prior research suggests that students who want to work in public accounting can maximize their demand as recruits by meeting the requirement through options that lead to a graduate degree in accounting. However, recent trends in hiring practices, most notably a growing demand for data analytics skills, indicate that students meeting the requirement through a graduate degree in accounting may no longer be the most sought after recruits. We therefore investigate the options for meeting the requirement that the students of today should pursue to maximize their demand as public accounting recruits. We are especially interested in examining whether recruits who pursue options that incorporate data analytics are in greater demand than other recruits. We conducted a between-participants experiment in which 191 CPAs in public practice indicated how actively their firms would recruit a hypothetical student based on a set of attributes that varied only as to how the student met the requirement. We examined seven options: undergraduate courses in business; undergraduate courses in data analytics; an MBA; an MBA with a concentration in accounting; an MBA with a concentration in data analytics; a

MAcc; and a MAcc with a concentration in data analytics. Results of our main tests provide some evidence to support, and no evidence to refute, the prevailing belief that students can maximize their demand as recruits through options that lead to a graduate degree in accounting. And, although results of our main tests provide no evidence that recruits who complete data analytics options are in greater demand at the average firm, results of our exploratory tests provide evidence that recruits who complete the MAcc with a concentration in data analytics option are in greater demand at larger firms than smaller firms.

Our study is subject to limitations that give rise to future research opportunities. First, we did not specify the area of assignment (e.g., auditing) for which the hypothetical student was being recruited, nor did we recruit CPAs/participants from specific areas. Since the growing demand for data analytics skills appears to be particularly pronounced in the audit function (AICPA, 2019a), the decision to not focus on specific areas could explain why we were unable to find evidence that recruits who pursue data analytics options are in greater demand (at the average firm) relative to other recruits. Future research, which is under consideration by the authors, should therefore investigate whether entry-level *audit* recruits who complete data analytics options are in greater demand relative to recruits who complete other options.

Second, we did not recruit CPAs/participants from specific sizes of firms. However, as noted above, we found, through exploratory tests, that the MAcc with a concentration in data analytics option appears to be in greater demand at larger firms than smaller firms. There are indeed differences between local (smaller) firms and other firms in their use of technology (e.g., Lowe, Bierstaker, Janvrin, & Jenkins, 2018; Buchheit, Dzuranin, Hux, & Riley, 2020), and this finding may reflect these differences. Future research, which, again, is under consideration by

the authors, should therefore investigate the differences between firms of various sizes in the demand for recruits who complete data analytics options.

Finally, our instrument may need to be adjusted for use in future research. As detailed in Appendix C, participants were required to correctly identify the 150-hour option completed by the student that they evaluated (the manipulation-check question), and then, in the next question, participants were asked to identify the 150-hour option that they completed (the self-reported option question). We have reason to suspect that some participants answered the self-reported option question as if it were a second manipulation-check question. We also have reason to suspect that some other participants answered both the manipulation-check question and the self-reported option question as if they were the self-reported option question; such participants may therefore have passed the manipulation check by chance. This issue, again, is discussed further in Appendix C.

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Appendix A. Variable definitions

Variable	Definition
Rating	Participant's response to the question, "How actively would your organization recruit this student?," measured on an 11-point Likert scale, ranging from 0 ("Not very actively") to 10 ("Very actively").
Option	Method by which the student evaluated by the participant met the 150-hour requirement: undergraduate courses in business (UG Bus); undergraduate courses in data analytics (UG DA); an MBA degree (MBA); an MBA degree with a concentration in accounting (MBA Acc); an MBA degree with a concentration in data analytics (MBA DA); a master's degree in accounting (MAcc); or a master's degree in accounting with a concentration in data analytics (MAcc DA).
Size	Participant's response to the question, "What is the approximate number of employees in your organization?" If a range was provided, the midpoint was used.
SizeP90Max	Measure of *Size* in which all sizes greater than the 90th percentile are set to the 90th percentile.
Age	Participant's age in years, calculated as the difference between the year 2020 and the year of the participant's birth. Participant's year of birth was the response to the question, "In what year were you born?"
Position	Participant's response to the question, "Which of the following best describes your current position?" Choices were as follows: Associate/Staff, Senior/In-charge, Manager, Partner, Sole Proprietor, or Other.
Area	Participant's response to the question, "Which of the following best describes your area of assignment?" Choices were as follows: Financial Accounting; Auditing, not including Internal Audit; Internal Audit; Assurance Services; Taxation; Information Management and Technology Assurance; Consulting; Financial Forensics; Business Valuation; Personal Financial Planning; Management Accounting; Transaction Services; or Other.
AreaCategory	Participant's area of assignment (*Area*) category. Accounting/Auditing consists of the following areas: Financial Accounting; Auditing, not including Internal Audit; and Internal Audit. Taxation consists of Taxation. Other consists of the following areas: Assurance Services; Information Management and Technology Assurance; Consulting; Financial Forensics; Business Valuation; Personal Financial Planning; Management Accounting; Transaction Services; and Other.

Appendix B. Experimental task example

The experimental task presented to participants in the MBA degree with a concentration in accounting (MBA Acc) group is shown below. Participants in all other groups were presented with the same information except for the method/option by which the student met the 150-hour requirement. The option is bolded for clarity below; it was not bolded for participants.

Assume that your organization is in the process of recruiting an entry-level accountant. You have conducted several interviews and met a student with the following attributes:

- The student is 24 years old with a professional appearance.
- The student is willing to travel.
- The student is involved in several student and professional organizations.
- The student has a B.S. in accounting from a university with an average academic reputation.
- **The student achieved the 150-hour academic requirement necessary for CPA licensure by completing a Master of Business Administration (MBA) degree with a concentration in accounting.**
- The student's GPA in accounting courses is 3.6 with an overall GPA of 3.4 on a 4.0 scale.
- The student has not sat for the CPA exam.
- The student demonstrated excellent communication and computer skills.

How actively would your organization recruit this student?

Not very actively									Very actively	
0	1	2	3	4	5	6	7	8	9	10

Appendix C. Correlation between options self-reported by participants and options used by hypothetical students that participants evaluated

As noted in Section 3, footnote 21, we collected data on the options by which participants met the 150-hour requirement, but we do not tabulate statistics on such data, nor do we include such data in our analyses, as there was an unusual correlation between the options that were self-reported by participants and the options that were used by the hypothetical students that participants evaluated. For example, the percentage of participants whose self-reported option matched that of the student they evaluated (the "option match") ranged from 25% (for the MBA degree option) to 63% (for the MBA degree with a concentration in accounting option). Furthermore, the mean and median of the option match for all seven groups were 46% and 50%, respectively. These unusually high option match rates are likely due to one or a combination of the events discussed below.

Event 1: Participants answered the self-reported-option question as if it were a second manipulation-check question. The manipulation-check question, "How did the student introduced in the previous question achieve the 150-hour academic requirement necessary for CPA licensure?," immediately *preceded* the self-reported-option question, "Which of the following best describes how you achieved the 150-hour academic requirement necessary for CPA licensure?" Participants may therefore have hastily responded to the self-reported-option question, thinking that it was simply another way of phrasing the manipulation-check question.

Event 2: Participants answered both the manipulation-check question and the self-reported-option question as if they were the self-reported-option question. As noted in Section 3, 483 of 700 eligible participants, a considerable proportion, failed (n = 474) or did not answer (n = 9) the manipulation-check question. Participants may have hastily responded to the manipulation-check question, thinking that it was asking them how they met the 150-hour requirement. Participants may therefore have passed the manipulation check by chance. Whether these participants who passed the manipulation check by chance would nevertheless have still been affected by the manipulation is not clear.

Table 1

Participant demographic information.

Panel A: Continuous measures: Firm size (employees) and age (years)

	n	%	Mean	Std Dev	Min	Median	Max
Size	189		643.59	1,302.90	3	350.00	10,000
≤ 10	4	2			3		8
11–100	24	13			13		100
101–1,000	146	77			120		1,000
≥ 1,001	15	8			1,200		10,000
Age	187		43.45	8.21	24	43.00	74

Panel B: Categorical measures: Position and area

	n	%
Position		
Associate/Staff	14	7
Senior/In-charge	31	16
Manager	68	36
Partner	41	22
Sole proprietor	33	17
Other	3	2
Total	190	100
Area		
Accounting/Auditing:		
Financial Accounting	118	62
Auditing, not including Internal Audit	4	2
Internal Audit	3	2
Total Accounting/Auditing	125	66
Taxation	9	5
Other:		
Assurance Services	2	1
Information Management and Technology Assurance	11	6
Consulting	3	2
Financial Forensics	3	2
Business Valuation	6	3
Personal Financial Planning	4	2
Management Accounting	25	13
Transaction Services	1	1
Other Areas	1	1
Total Other	56	29
Total	190	100

Demographic statistics are based on samples of just under n = 191 (the sample described in Section 3) because a few participants did not respond to one or more demographic questions. Variables are defined in Appendix A. For *Area*, Total Other, the percentage (29%) does not equal the sum of its components as listed due to rounding.

Table 2

Effect of the 150-hour option completed on students' demand as public accounting recruits.

Panel A: Descriptive statistics of ratings by option

	Rating		
Option	n	Mean	Std Dev
UG Bus	28	7.39	1.66
UG DA	28	8.00	0.98
MBA DA	29	8.07	1.00
MAcc DA	28	8.11	1.07
MBA	24	8.21	1.18
MAcc	27	8.44	1.34
MBA Acc	27	8.63	1.01
Total	191	8.12	1.23

Panel B: ANOVA: Effect of option on rating

Source	df	SS	F	p-value
Option	6	25.33	2.94	0.009
Error	184	264.14		

Panel C: Pairwise comparisons: Differences in mean ratings between options

	UG Bus	UG DA	MBA	MBA Acc	MBA DA	MAcc
UG Bus						
UG DA	0.486					
MBA	0.185	0.996				
MBA Acc	0.003	0.451	0.872			
MBA DA	0.340	1.000	1.000	0.584		
MAcc	0.023	0.814	0.992	0.998	0.904	
MAcc DA	0.284	1.000	1.000	0.672	1.000	0.943

Options in Panel A are sorted by mean rating in ascending order. *p*-values are two-tailed. Pairwise comparisons in Panel C are conducted using Tukey's HSD test. Variables are defined in Appendix A.

Table 3
Influence of firm size on the effect of the 150-hour option completed on students' demand as public accounting recruits.

Panel A: ANCOVA: Effect of size on the relation between option and rating, with controls

Source	df	SS	F	p-value
Option	6	29.16	4.22	0.001
SizeP90Max	1	13.13	11.39	0.001
*Option*SizeP90Max*	6	15.78	2.28	0.038
Age	1	6.54	5.67	0.018
Position	5	13.93	2.42	0.038
Error	166	191.38		

Panel B: Regressions by option: Rating on size and controls

	UG Bus	UG DA	MBA	MBA Acc	MBA DA	MAcc	MAcc DA
SizeP90Max	0.002	-0.000	0.002	-0.001	0.001	0.001	0.003
t-statistic	1.44	-0.32	2.05	-1.26	0.77	0.92	3.42
p-value	0.167	0.752	0.057	0.222	0.447	0.369	0.003
Controls	Included	Included	Included	Included	Included	Included	Included
n	27	27	24	26	29	26	27
Adjusted R^2	-0.079	-0.085	0.208	0.038	0.314	0.404	0.504
Model F	0.73	0.66	1.86	1.16	3.13	3.42	5.40
p-value	0.651	0.683	0.144	0.366	0.023	0.017	0.002

p-values are two-tailed. Intercept estimates are not tabulated. Control variable coefficient estimates are not tabulated in Panel B. Variables are defined in Appendix A.

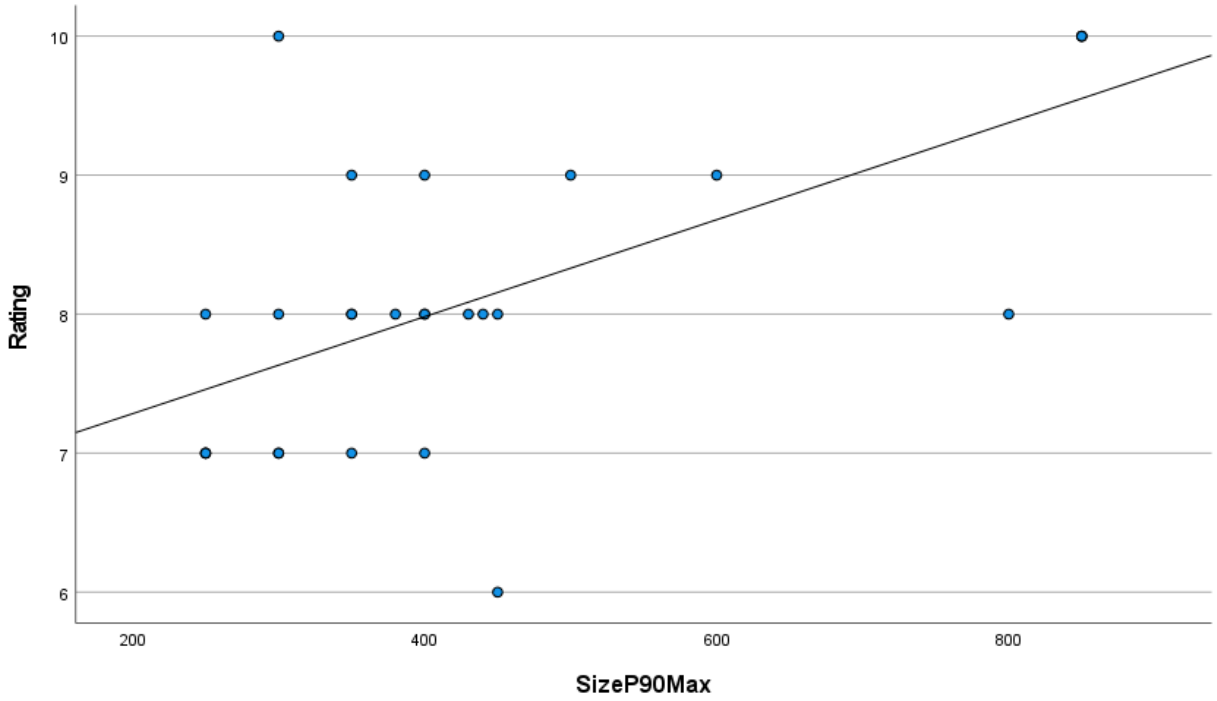

Fig. 1. Relation between firm size and rating for MAcc DA.
This figure shows the relation between firm size (x-axis) and rating (y-axis) for the MAcc DA option sample that was used in the regression reported in Table 3, Panel B. Though the regression estimates the relation between size and rating after controlling for age and position, this figure simply shows the relation between size and rating. Variables are defined in Appendix A.