

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

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## **Abstract**

Students have myriad options to satisfy the 150-hour education requirement for CPA licensure. We investigate the options for meeting the requirement that the students of *today* should pursue to maximize their demand as accounting recruits. We are especially interested in examining whether recruits who pursue options that incorporate data analytics are in greater demand than other recruits. Our study is motivated by recent trends, most notably a growing demand for technology and data analytics skills, that question the prevailing belief, based on prior research, that students can maximize their demand through a graduate degree in accounting. We conducted a between-participants experiment in which 160 CPAs indicated how actively their organizations would recruit a student based on a set of attributes that varied only as to how the student met the requirement. Results support the prevailing belief that students can maximize their demand with a graduate degree in accounting. Results of further analyses, however, suggest that recruits with a graduate degree in accounting with a concentration in data analytics are in greater demand at larger organizations than smaller organizations. These results should be of interest to students and advisors in planning studies and administrators in evaluating programs.

Acknowledgements: The authors thank National Association of State Boards of Accountancy (NASBA) for funding this project through a research grant. The authors also thank Mark E. Friedman (editor) and two anonymous reviewers for helpful comments throughout the review process.

## Introduction

Students aiming for a career in 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.<sup>1</sup> Naturally, many 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 organizations (Bandy, 1990; Donelan & Philipich, 2001; Renner & Tanner, 2001; Almer & Christensen, 2008; Metrejean, Metrejean, & Stocks, 2008; Author et al., 2013; McCann & Wilson, 2020). Though the results have been somewhat mixed, these studies, when evaluated in their entirety, suggest that students can maximize their demand as accounting recruits, on average, by pursuing an option that leads to a graduate degree in accounting.

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 accounting recruits. For example, a growing demand from public accounting firms for professionals with technology and data analytics skills appears to be shrinking the demand from firms for recruits with accounting degrees (see Association of International Certified Professional Accountants [AICPA], 2019a; AICPA, 2019b). Moreover, there also appears to be a growing need among organizations in industry for management accountants with technology and data analytics skills (see Lawson, 2019). Thus, to the extent that organizations are seeking entry-level recruits with technology 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.

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 accounting recruits, on average. Furthermore, given the increased need for accountants with technology and data analytics skills (as discussed above), 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 160 CPAs rated how actively their organizations 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 organizations would recruit the student. Further analyses revealed that, as expected, graduate degrees in accounting were rated higher than undergraduate courses in business. Specifically, the MBA with a concentration in accounting and the MAcc were each rated significantly higher than undergraduate courses in business, and the MAcc with a concentration in data analytics was rated marginally significantly higher than undergraduate courses in business. There were no other differences between options that were at least marginally significant. Overall, these results therefore provide further evidence to support, and no evidence to revise, the prevailing belief that students can maximize their demand as recruits, on average, through an option that leads to a graduate degree in accounting.<sup>2</sup> These results also 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.

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<sup>1</sup> 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.).

<sup>2</sup> 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 further evidence to support, and no evidence to revise, the prevailing belief that a graduate degree in accounting is the optimal 150-hour option for accounting recruits.

We also conducted exploratory tests to determine whether the effect of the 150-hour option on students' demand as accounting recruits is influenced by characteristics of CPAs and/or their organizations. Results showed a significant interaction between the size of the organization for which the CPA worked and the option completed by the student. Further analyses revealed a positive and significant relation between size and ratings for the student who completed an MBA or a MAcc with a concentration in data analytics. These results suggest that the demand for such recruits increases as organization size increases. Though this finding for the MBA is somewhat puzzling, this finding for the MAcc with a concentration in data analytics is reasonable (and was perhaps predictable) in light of prior research that speaks to the effects of an organization's resources and/or size on its adoption and/or use of technology (e.g., Reinking, Arnold, & Sutton, 2015; Lowe, Bierstaker, Janvrin, & Jenkins, 2018; Buchheit, Dzurinin, Hux, & Riley, 2020). We therefore limit our conclusions to the latter, noting that students who want to work for larger organizations 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 ones.

Our study makes three notable contributions to the accounting education literature. First, it provides further 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 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 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, 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 accounting recruits can be influenced by organization 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 organizations than smaller organizations. Thus, there appears to be incremental value of a MAcc with a concentration in data analytics for students who want to work for larger organizations relative to those who want to work for smaller organizations. In other words, the incremental benefit of obtaining a MAcc with a concentration in data analytics appears to be greater for students who want to work for larger organizations. 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.

Third, our study used a between-participants experiment to provide evidence on a topic of importance in accounting education. It therefore helps to address the needs in the accounting education literature for increases in not only the number of empirical studies but also the rigor of empirical studies (see Rebele & St. Pierre, 2015; Apostolou, Dorminey, & Hassell, 2020).

The remainder of this paper proceeds as follows: The second section discusses the prior research and recent trends that motivate our research objective. The third section presents our research methodology. The fourth section reports our results. The fifth section concludes.

## **Motivation**

### ***Prior Research***

Some studies provide direct evidence on the options for meeting the 150-hour requirement that maximize students' demand as accounting recruits. Such studies directly measure organizations' hiring preferences by asking participants to evaluate hypothetical job candidates. Other studies, however, rather than directly measuring organizations' hiring preferences in such a manner, allow one to infer organizations' hiring preferences based on various criteria, such as the degrees held by the organizations' employees. Such studies therefore provide indirect

evidence on the options for meeting the 150-hour requirement that maximize students' demand. We discuss both of these types of studies, beginning with those that provide indirect evidence.

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.<sup>3</sup> 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 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. Thus, assuming that partners and, more generally, executives exert considerable control over the individuals recruited and hired by their organizations, these findings suggest that students who have met the 150-hour requirement through a graduate degree would be in greater demand than those who have met the requirement through an undergraduate degree.

Donelan and Philipich (2001) conducted a survey of CPA exam candidates employed in public accounting and in industry, government, and other fields to identify the options used by them to meet the 150-hour requirement. Descriptive statistics showed that, among all candidates (without regard to field), a higher percentage met the requirement through a graduate degree than an undergraduate degree (57% vs 43%) 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 (61% vs 39%).<sup>4</sup> Thus, assuming that organizations' hiring preferences can be inferred from the backgrounds of the individuals that they have recruited and hired, these findings indicate that students who have met the 150-hour requirement through a graduate degree would be in greater demand than those who have met the requirement through an undergraduate degree. These findings also indicate that students who have met the 150-hour requirement through a MAcc would be in greater demand than those who have met the requirement through an MBA or other graduate degree. One possible reason for this is that such recruits might be perceived as being more likely to have the requisite knowledge and skills needed to advance within the organization (see Bandy 1990). In fact, recent survey evidence bolsters this claim. McCann and Wilson (2020) conducted a survey of partners in public accounting, measuring, among other things, partners' views on "the best use of the 30 additional credits to meet the 150-hour rule" and "the key benefit of the 30 additional credits" (p. 116). They found that 71% of partners believed that specialized and/or accounting-based credits represented the best use of the additional credits and that knowledge was the most frequently cited key benefit of the additional credits.

We now turn our attention to studies that directly measure organizations' hiring preferences by asking participants to evaluate hypothetical job candidates. Renner and Tanner (2001) conducted a survey of accounting professionals in public accounting and in industry, government, and not-for-profit fields to determine which options for meeting the 150-hour requirement are most valued in recruitment. Professionals rated the value to their organization of eleven options that a hypothetical job candidate could have taken to meet the 150-hour requirement. Descriptive statistics showed that, among all professionals (without regard to field), an undergraduate degree with a double major in accounting and management information systems was the most valued option. The second-most valued option was an MBA, which was followed closely by a MAcc. The fourth-most valued option was a master's in taxation. The

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<sup>3</sup> 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.

<sup>4</sup> The current study is an investigation of the options for meeting the 150-hour requirement that maximize students' demand as accounting recruits, on average, without regard to field. Accordingly, if prior studies include participants from multiple fields (e.g., public accounting, industry), we are more interested in the results from the pooled sample (of all participants, regardless of field) than the results from the subsamples (of participants by field). We therefore report the results from the pooled sample in the body of the paper and the results from the subsamples in footnotes. For Donelan and Philipich (2001), the results for the subsamples are as follows: Descriptive statistics for the public accounting subsample were similar to those of the pooled sample in 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. Descriptive statistics for the industry, government, and other subsample were similar to those of the pooled sample in that a higher percentage of candidates met the requirement through a graduate degree than an undergraduate degree yet dissimilar from those of the pooled sample in that, among those who met the requirement through a graduate degree, a higher percentage did so via an MBA or other graduate degree than a MAcc.

seven remaining options (that were valued less than the master's in taxation) were undergraduate degrees.<sup>5</sup> Thus, with the exception of the double major in accounting and management information systems, these results, like those of Donelan and Philipich (2001), are consistent with the notion that students who have met the 150-hour requirement through a graduate degree would be in greater demand than those who have met the requirement through an undergraduate degree. That said, unlike the results of Donelan and Philipich, these results do not indicate that students who have met the requirement through a MAcc would be in greater demand than those who have met it through an MBA.

Almer and Christensen (2008) conducted a within-participants experiment to examine 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 how likely it is that their firm would hire a hypothetical student based on a set of attributes. Almer and Christensen 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.<sup>6</sup> They found that ratings for the MAcc were significantly higher than each of the other options. These results are therefore consistent with the abovementioned studies in that they suggest that students who have met the 150-hour requirement through a graduate degree would be in greater demand than those who have met the requirement through an undergraduate degree. However, given that a MAcc was the only graduate option included in Almer and Christensen's design, their results do not speak to whether students who meet the requirement through a MAcc would be in greater demand than those who meet it through an MBA or other graduate degree.

Metrejean, Metrejean, and Stocks (2008) 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 organizations than those who have only bachelor's degrees. Recruiters from public accounting firms and companies in industry 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.<sup>7</sup> Thus, in contrast to the evidence discussed thus far, their results suggest that students who have met the 150-hour requirement through a graduate degree may not necessarily be in greater demand than those who have met the requirement through an undergraduate degree. And, as was the case with Almer and Christensen (2008), Metrejean et al.'s design includes only one graduate option and thus does not allow for a comparison between graduate options (e.g., a MAcc vs an MBA).

Similar to Metrejean et al. (2008), Author et al. (2013) conducted a between-participants experiment. Their objective was to determine which options 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. Author 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

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<sup>5</sup> Descriptive statistics for the public accounting subsample were similar to those of the pooled sample in that, for example, a MAcc was the third-most valued option yet dissimilar from those of the pooled sample in that, for example, a double major in accounting and management information systems was the second-most (vs the most) valued option, an MBA was the fourth-most (vs the second-most) valued option, and a master's in taxation was the most (versus the fourth-most) valued option. Descriptive statistics for the industry, government, and not-for-profit subsample were similar to those of the pooled sample in that, for example, a double major in accounting and management information systems was the most valued option, an MBA was the second-most valued option, and a MAcc was the third-most valued option (along with a double major in accounting and finance) yet dissimilar from those of the pooled sample in that, for example, a master's in taxation was the fifth-most (vs the fourth-most) valued option (along with a double major in accounting and economics).

<sup>6</sup> 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.

<sup>7</sup> This was also the case for the public accounting subsample and the industry subsample.

MAcc. Descriptive statistics showed that the MAcc was rated the highest, the MBA with a concentration in accounting the second highest, and the MBA the third highest. The double major in accounting and information systems was rated the fourth highest, followed by the double major in accounting and finance, undergraduate business courses, and then, finally, undergraduate non-business courses. Further analyses revealed the following: First, the MAcc was not rated significantly higher than the MBA with a concentration in accounting, but it was rated significantly higher than the MBA and each of the undergraduate options. Second, the MBA with a concentration in accounting was not rated significantly higher than the MBA, but it was rated significantly higher than each of the undergraduate options. Third, the MBA was not rated significantly higher than either of the double majors, but it was rated significantly higher than undergraduate business courses and undergraduate non-business courses. Fourth, neither of the double majors were rated significantly higher than undergraduate business courses, but both of them were rated significantly higher than undergraduate non-business courses. Fifth, undergraduate business courses were not rated significantly higher than undergraduate non-business courses.

The results of Author et al. (2013) therefore suggest that, in general, students who have met the 150-hour requirement through a graduate degree—specifically, a MAcc, an MBA with a concentration in accounting, or, to a lesser extent, an MBA—would be in greater demand than those who have met the requirement through an undergraduate degree. The results also suggest that, among graduate options, students who have met the requirement through a MAcc would be in greater demand than those who have met it through an MBA. However, students who have met the requirement through an MBA with a concentration in accounting would not, it appears, be in greater demand than those who have met it through an MBA. This is interesting given that there was not a significant difference in demand between students with a MAcc and students with an MBA with a concentration in accounting.

In sum, prior research suggests that students 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) or in business administration (i.e., an MBA) would be in greater demand than those who have met it through an undergraduate degree (Bandy, 1990; Donelan & Philipich, 2001; Renner & Tanner, 2001; Almer & Christensen, 2008; Author et al., 2013; but see Metrejean et al., 2008). Prior research also suggests that students who have met the 150-hour requirement through a graduate degree in accounting would be in greater demand than those who have met it through a graduate degree in business administration (Donelan & Philipich, 2001; Author et al., 2013; McCann & Wilson, 2020; but see Renner & Tanner, 2001). Thus, when evaluated in its entirety, prior research suggests that, on average, students can maximize their demand as accounting recruits by pursuing a 150-hour option that leads to a graduate degree in accounting.

### ***Recent Trends***

Recent trends challenge the notion that the students of today will continue to maximize their demand as accounting recruits by pursuing 150-hour options that lead to a graduate degree in accounting. For example, the AICPA's two most recent reports on trends in the supply of accounting graduates and the demand for public accounting recruits showed that the percentage of new hires that were non-accounting graduates increased from 2016 to 2018 (AICPA, 2019b; AICPA, 2022) and yet again from 2018 to 2020 (AICPA, 2022). A likely explanation for this trend is that a growing demand from public accounting firms for employees with technology skills has shrunk the demand from firms for recruits with accounting degrees. Consider, for example, the AICPA's (2019b; see also AICPA, 2019a) assessment of this trend:

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.

Moreover, the growing demand for employees with technology and data analytics skills is not limited to public accounting. For example, Lawson (2019) noted that “[m]anagement accounting, like many fields, is being disrupted

by new technologies, including big data, predictive analytics, artificial intelligence, blockchain, machine learning, and robotics process automation” (p. 18). Thus, among other things, Lawson stressed that “[m]anagement accountants will need to learn new competencies” in technology and analytics “in order to succeed” (p. 19). Accordingly, similar to students seeking careers in public accounting, students seeking careers in industry might find it more advantageous to pursue graduate degrees in data analytics, for example.

### ***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 accounting recruits. Though we wait to offer specific predictions for differences in demand between options until we detail the specific options that we investigate (in the research methodology section below), we offer a few thoughts here. We expect that students' 150-hour options will still impact their demand. We also expect that students who meet the 150-hour requirement through an option that leads to a graduate degree in accounting will still 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 organizations for employees with technology and data analytics skills (AICPA, 2019a, 2019b; see also Lawson, 2019). More specifically, we are interested in whether and to what extent students can increase their demand as accounting recruits by completing 150-hour options that incorporate data analytics.

### **Research Methodology**

#### ***Experimental Design, Variables, and Predictions***

The experimental design was largely based on Author et al.'s (2013). We conducted a between-participants experiment in which participants (CPAs) indicated how actively their organization would recruit a hypothetical student based on a set of attributes.<sup>8</sup> 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 (Author et al., 2013). We included UG DA, MBA DA, and MAcc DA as they are plausible options that incorporate data analytics.<sup>9</sup>

Our objective is to identify the 150-hour options that maximize students' demand as accounting recruits. Accordingly, our dependent variable (*Rating*) was measured by asking participants to indicate how actively their organization would recruit the student. Responses were measured on an 11-point Likert scale, ranging from 0 (*Not very actively*) to 10 (*Very actively*).<sup>10</sup>

Based on our discussion of prior research (in the motivation section above), we offer predictions for differences in ratings between options, if warranted. As for differences in ratings between graduate options and undergraduate options, we predict the following. First, we predict that each of the graduate options (MBA, MBA DA, MBA Acc, MAcc, and MAcc DA) will be rated higher than UG Bus. Second, we predict that each of the graduate options with data analytics (MBA DA and MAcc DA) will be rated higher than UG DA. However, given the increasing demand for employees with data analytics skills, we believe that it is an empirical question as to whether the graduate options without data analytics (MBA, MBA Acc, and MAcc) will be rated higher than UG DA, and we therefore

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<sup>8</sup> The experiment was approved by the Institutional Review Board.

<sup>9</sup> 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.

<sup>10</sup> Variables are defined in Appendix A.

make no predictions as to the differences between these options. Now, as for differences in ratings between graduate options, we predict the following. First, we predict that each of the graduate options in accounting (MBA Acc, MAcc, and MAcc DA) will be rated higher than MBA. That said, we make no prediction as to the difference between MBA DA and MBA, nor do we make predictions as to the differences between the graduate options in accounting. Second, we predict that MAcc DA will be rated higher than MBA DA. However, we make no predictions as to the differences between graduate options in accounting without data analytics (MBA Acc and MAcc) and MBA DA. Finally, as for differences in ratings between undergraduate options, we make no prediction as to the difference between UG Bus and UG DA.

### ***Experimental Task***

Participants completed an online survey, administered via Qualtrics. The instrument was derived from Author 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.<sup>11</sup> 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.

### ***Participants***

One hundred sixty CPAs were obtained as participants in this experiment by contracting with EMpanel Online, an online panel/market research firm.<sup>12</sup> 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. The 700 eligible participants passed through screening questions that essentially limited the sample to CPAs who were involved in recruiting entry-level accountants.<sup>13</sup>

We applied five screens to participants who proceeded on to the experiment. First, we excluded 483 participants who failed ( $n = 474$ ) or did not answer ( $n = 9$ ) the manipulation check. After stating how actively their organization 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.<sup>14</sup> 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.<sup>15</sup> This screen and the manipulation check were an attempt to exclude participants who did not pay sufficient attention to the survey. Fourth, we excluded 31 participants whose responses to two demographic questions indicated that their responses for *Rating* might not reliably represent organizations' hiring preferences with respect to accounting recruits. These participants indicated that they worked at organizations with 100 or more employees; however, these participants also indicated that they were sole proprietors. It is unlikely that these participants were sole proprietors with firms of 100 or more employees. It could, therefore, be that some

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<sup>11</sup> For an example, the screen that was presented to participants in the MBA Acc group is shown in Appendix B. The complete instrument for the MBA Acc group is shown in Appendix C.

<sup>12</sup> Brandon, Long, Loraas, Mueller-Phillips, and Vansant (2014) discussed EMpanel Online as a means of recruiting participants for accounting research. Several studies have used EMpanel to do so. For example, researchers have used EMpanel to recruit accountants (Prather-Kinsey, Boyar, & Hood, 2018), professional investors (Christensen, Eilifsen, Glover, & Messier, 2020), and nonprofessional investors (Farkas & Murthy, 2014).

<sup>13</sup> To be eligible, participants had to answer "Yes" to three screening questions: (1) "Do you have an active CPA license to practice public accounting in at least one U.S. state/jurisdiction?" (2) "Do you practice public accounting in at least one U.S. state/jurisdiction?" (3) "Do you participate to any degree in the recruitment/hiring process for entry-level accountants?" The second screen (2) was intended to exclude participants who did not work in public accounting. However, it is evident, based on participants' areas of assignment (see Table 1, Panel B), that our sample is not limited to participants who worked in public accounting. Some participants who worked in industry or other fields outside of public accounting may therefore have assumed that it was reasonable to assert that they "practice public accounting" (per the second screen (2)) because they "have an active CPA license to practice public accounting" (per the first screen (1)).

<sup>14</sup> The survey included one question per page. Participants were not allowed to refer back to previous pages (questions). Accordingly, participants had to recall, from the previous page (question), the method by which the student met the 150-hour requirement.

<sup>15</sup> 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 ( $700 - 483 - 3 = 214$ ).



of these participants did not pay sufficient attention to the survey. It could, however, also be that some of these participants practiced accounting on a part-time basis (as sole proprietors), outside of their full-time work at other organizations. It could also be that some of these participants were gig workers who performed contract work for one or more organizations (see, e.g., Yildirmaz, 2020). These are just but a few possibilities. The bottom line is that there is considerable uncertainty as to whether these participants' responses reliably represent organizations' hiring preferences. We therefore excluded these participants.<sup>16</sup> 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.<sup>17</sup>

Table 1 presents demographic information on participants. Panel A presents statistics on the sizes of organizations for which participants worked and the ages of participants. Participants worked at organizations that ranged in size from 3 to 10,000 employees. The distribution of size, however, was positively skewed. For example, the mean was 690.87, while the median was only 350.00. Furthermore, about 91% of participants worked at organizations with 1,000 or fewer employees. More specifically, about 54% worked at organizations with 3 to 350 employees, and about 37% worked at organizations with 360 to 1,000 employees. Participants' ages ranged from 24 to 74 years. The mean and median were 42.85 and 42.00, respectively. Panel B presents statistics on the positions held by participants and the areas in which participants worked. The most common positions were manager (43%), partner (26%), and senior/in-charge (19%). Since these positions involve the supervision of entry-level accountants, substantially all participants (88%) likely had a keen awareness of the most important attributes to look for in a recruit. This, along with the requirement that participants be involved in the recruitment 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 (64%), followed by other (30%) and then taxation (6%). Among the areas of assignment, the three most common were financial accounting (60%), management accounting (13%), and information management and technology assurance (7%).

We also 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 a marked correlation between the options that were self-reported by participants and the options that were used by the hypothetical students that participants evaluated.<sup>18</sup> This correlation likely stemmed from the fact that the manipulation-check question, "How did the student introduced in the previous question [the question that was used to measure *Rating*] 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?" We suspect that some participants may have answered the self-reported-option question as if it were a second manipulation-check question. We also suspect that some participants may have answered both questions as if they were the self-reported-option question. A subset of these participants who met the 150-hour requirement through the same method as the student would therefore have passed the manipulation-check question by chance.<sup>19</sup> Whether participants in this subset would nevertheless have still been affected by the manipulation is not clear.

## Results

### *Main Tests*

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<sup>16</sup> We report the sensitivity of the results of our tests to the inclusion of these 31 participants who indicated that they worked at relatively large organizations but also indicated that they were sole proprietors in Appendix D.

<sup>17</sup> The outliers were identified by condition (*Option*) for the 162 participants that remained after the four preceding screens (700 – 483 – 3 – 21 – 31 = 162). We report further details on these outliers, including the sensitivity of the results of our tests to the inclusion of these outliers, in Appendix D.

<sup>18</sup> For example, the percentage of participants whose self-reported option matched that of the student they evaluated (option matches) ranged from 20% (for the MBA option) to 63% (for the MAcc DA option). Furthermore, the mean and median of the option match for all seven groups were 45% and 41%, respectively. We report the sensitivity of the results of our tests to the exclusion of these options matches in Appendix D.

<sup>19</sup> The other subset of these participants who met the 150-hour requirement through a different method than the student would be a subset of the 474 participants who failed the manipulation-check question (as noted above).

Table 2 presents the results of our main tests for the effect of the 150-hour option completed (*Option*) on students' demand as accounting recruits (*Rating*). Panel A presents descriptive statistics of ratings by option. The order of ratings by option was reasonable, given expectations based upon prior research (see the motivation section and the research methodology section). For example, each of the graduate options (MBA, MBA DA, MBA Acc, MAcc, and MAcc DA) was rated higher than UG Bus, and each of the graduate options with data analytics (MBA DA and MAcc DA) was rated higher than UG DA. Furthermore, each of the graduate options in accounting (MBA Acc, MAcc, and MAcc DA) was rated higher than MBA, and MAcc DA was rated higher than MBA DA. These descriptive statistics therefore suggest that our participants' responses appear to be a reliable measure of organizations' hiring preferences with respect to accounting recruits. In other words, participants' responses appear to be a reliable measure of students' demand as accounting recruits. That said, inferences are limited in the absence of tests of statistical significance, which we turn to next.

Table 2, Panel B presents the results of an ANOVA that was used to test for the effect of option on rating. The effect of option was statistically significant ( $p = 0.040$ ).<sup>20</sup> This suggests that the 150-hour option completed affects students' demand as accounting recruits.

Table 2, Panel C, presents the results of pairwise comparisons to test for differences in ratings between options. The results supported our prediction that graduate options in accounting (MBA Acc, MAcc, and MAcc DA) would be rated higher than UG Bus. Specifically, MBA Acc was rated significantly higher than UG Bus (mean 8.60 vs 7.46;  $p = 0.009$ , one-tailed), MAcc was rated significantly higher than UG Bus (mean 8.38 vs 7.46;  $p = 0.0495$ , one-tailed), and MAcc DA was rated marginally significantly higher than UG Bus (mean 8.37 vs 7.46;  $p = 0.091$ , one-tailed). These results therefore suggest that students who have met the 150-hour requirement through a graduate degree in accounting—an MBA Acc, a MAcc, or a MAcc DA—will be more actively recruited by organizations than students who have met the requirement through UG Bus.

There were no other differences that were at least marginally significant (per Table 2, Panel C). Thus, the results did not support our predictions that graduate options outside of accounting (MBA and MBA DA) would be rated higher than UG Bus and that graduate options with data analytics (MBA DA and MAcc DA) would be rated higher than UG DA. Nor did the results support our predictions that graduate options in accounting (MBA Acc, MAcc, and MAcc DA) would be rated higher than MBA and that MAcc DA would be rated higher than MBA DA.<sup>21</sup> Furthermore, although no predictions were made regarding differences between options with data analytics and options without data analytics (e.g., UG DA and MBA, MBA DA and MBA, MBA DA and MAcc, UG DA and UG Bus), there were no differences suggesting that students can increase their demand as recruits through options that incorporate data analytics.

### **Exploratory Tests**

We supplemented our main tests by exploring whether the effect of the 150-hour option completed (*Option*) on students' demand as accounting recruits (*Rating*) is influenced by the size of the participant's organization (*lnSize*), the age of the participant (*Age*), the position of the participant (*Position*), or the area of assignment of the participant

<sup>20</sup>  $p$ -values are two-tailed unless noted otherwise.

<sup>21</sup> Given that our instrument was based on Author et al.'s (2013) instrument and that our experimental design included four options included in Author et al.'s design (UG Bus, MBA, MBA Acc, and MAcc), a brief comparison of our findings with Author et al.'s findings is warranted. Like Author et al., there were significant differences indicating that MBA Acc and MAcc were rated higher than UG Bus (as noted above). Furthermore, like Author et al., there were no significant differences between MBA Acc and MBA and between MAcc and MBA Acc. However, unlike Author et al., there was no significant difference indicating that MBA was rated higher than UG Bus (mean 8.10 vs 7.46;  $p = 0.289$ , one-tailed), nor was there a significant difference suggesting that MAcc was rated higher than MBA (mean 8.38 vs. 8.10;  $p = 0.493$ , one-tailed). That said, for both of these comparisons, the differences in means were in the predicted directions. That is, ignoring statistical significance, MBA was rated higher than UG Bus, and MAcc was rated higher than MBA. Our inability to detect significant differences between MBA and UG Bus and between MAcc and MBA—that is, to replicate Author et al.—could therefore stem from a lack of power due to smaller sample sizes. For example, our UG Bus, MBA, and MAcc conditions had 26, 20, and 26 participants, respectively (see Table 2, Panel A), whereas Author et al.'s UG Bus, MBA, and MAcc conditions had 50, 61, and 46 participants, respectively (see Author et al., Table 1).

(Area).<sup>22</sup> 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 significant ( $p = 0.025$ ) but that the interactions between option and age, option and position, and option and area were not significant ( $p = 0.538$ ,  $p = 0.703$ , and  $p = 0.859$ , respectively). We then estimated 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 ( $p = 0.038$ ). As for the controls, the effect of position was significant ( $p = 0.038$ ), whereas the effects of age and area were not significant ( $p = 0.286$  and  $p = 0.261$ , respectively). In light of these results, we finally estimated an ANCOVA model that included an interaction between option and size (in addition to their main effects) and a control for position. The results of this analysis are presented in Table 3, Panel A. The interaction between option and size was significant ( $p = 0.036$ ). The effect of position was significant ( $p = 0.002$ ).<sup>23</sup> Together, these results suggest that while position has the potential to affect ratings, size has the potential to alter the effect of the 150-hour option on ratings.

To explore the interaction between option and size, we estimated regressions of rating on size and position (the control variable) 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 ( $p = 0.024$ ), MAcc ( $p = 0.006$ ), and MAcc DA ( $p < 0.001$ ). Among these options, the coefficient on size was not significant for MAcc ( $p = 0.756$ ). The coefficient on size was, however, positive and significant for MBA ( $p = 0.007$ ) and for MAcc DA ( $p < 0.001$ ).<sup>24</sup> These results suggest that recruits who meet the 150-hour requirement through an MBA or a MAcc DA will be more actively recruited as organization size increases. This is visualized through Fig. 1, which shows the positive relation between size and rating for MBA and MAcc DA. As we noted previously (in the introduction section), this relation for the MBA option is somewhat puzzling, while this relation for the MAcc DA option was perhaps predictable in light of prior research (e.g., Reinking et al., 2015; Lowe et al., 2018; Buchheit et al., 2020). We thus limit our inferences to the latter, noting that students desiring to work for larger organizations appear to have more of an incentive to meet the requirement through a MAcc DA than those desiring to work for smaller organizations.

## 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 accounting can maximize their demand as recruits by meeting the requirement through options that lead to a graduate degree in accounting. However, recent trends, most notably a growing demand for employees with 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 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 160 CPAs indicated how actively their organizations 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 further 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

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<sup>22</sup> Due to positive skewness in the organization size distribution (see the research methodology section (the third section)), we used the natural logarithm of *Size* (*lnSize*) for the exploratory tests. The mean and standard deviation of *lnSize* ( $n = 158$ ) were 5.68 and 1.33, respectively, and the median was 5.86 (untabulated).

<sup>23</sup> We also estimated this model using *Size* instead of *lnSize* (untabulated). The interaction between option and size was marginally significant ( $p = 0.085$ ), and the effect of position was significant ( $p = 0.002$ ).

<sup>24</sup> We also estimated these regressions using *Size* instead of *lnSize* (untabulated). The Model F-statistic was at least marginally significant for only three options—the same three options: MBA ( $p = 0.077$ ), MAcc ( $p = 0.004$ ), and MAcc DA ( $p < 0.001$ ). The coefficient on size was not significant for MAcc ( $p = 0.374$ ), but it was positive and significant for MBA ( $p = 0.032$ ) and for MAcc DA ( $p < 0.001$ ).

at the average organization, 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 organizations than smaller organizations.

Our study, though carefully designed, is subject to limitations. One pertains to the internal validity of our study. As detailed in the research methodology section, 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 themselves completed (the self-reported-option question). We observed a correlation between the options that were self-reported by participants and the options that were used by the hypothetical students that participants evaluated. We suspect that some participants may have answered the self-reported-option question as if it were a second manipulation-check question. We also suspect that some participants may have answered both questions as if they were the self-reported-option question. A subset of these participants would therefore have passed the manipulation-check question by chance. Whether participants in this subset would nevertheless have still been affected by the manipulation is not clear. Though we attempted to address this issue in Appendix D through sensitivity tests that excluded participants whose self-reported options matched those of the students they evaluated, we were unable to draw meaningful inferences due to sample attrition.

Other limitations pertain to the external validity of our study. Importantly, however, these limitations present opportunities for future research. For example, we investigated the options for meeting the 150-hour requirement that maximize students' demand as accounting recruits, on average, without regard to field. Future research could therefore attempt to replicate our findings among CPAs who work in specific fields, such as public accounting and industry. Future research could take an even more refined approach and investigate the options that maximize students' demand as accounting recruits for specific positions within specific fields (e.g., audit positions within public accounting). In fact, since the growing demand for data analytics skills appears to be particularly pronounced in the external audit function (AICPA, 2019a), the decision to not focus on a specific area and field could explain why we were unable to find evidence that recruits who pursue data analytics options are in greater demand (at the average organization) relative to other recruits. Future research could therefore investigate, for example, whether entry-level *audit* recruits who complete data analytics options are in greater demand relative to recruits who complete other options. We also did not recruit CPAs/participants from specific sizes of organizations. 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 organizations than smaller organizations. We also noted that this finding was perhaps predictable in light of prior research that speaks to the effects of an organization's resources and/or size on its adoption and/or use of technology (e.g., Reinking et al., 2015; Lowe et al., 2018; Buchheit et al., 2020). Future research could therefore investigate the differences between organizations of various sizes in the demand for recruits who complete data analytics options. That said, this suggestion and the aforementioned suggestion that future research investigate whether audit recruits who complete data analytics options are in greater demand are predicated upon the assumption that recruits who complete data analytics options are likely to have a competitive advantage given the increasing use of data analytics and, more generally, technology at various organizations. Whether this assumption will hold going forward, however, is an empirical question. Data analytics and technology will be increasingly integrated into the curricula of accounting programs for a variety of reasons, such as the desire to align programs with the new CPA Evolution Model Curriculum (see American Institute of CPAs [AICPA] & National Association of State Boards of Accountancy [NASBA], n.d.) and the need to comply with AACSB Standard A5, "Information Technology Skills, Agility, and Knowledge for Accounting Graduates and Faculty" (see AACSB International [AACSB], 2021). Therefore, the gap between recruits who complete data analytics options and recruits who complete other options could narrow. Such a possibility makes future research into this area all the more interesting and important.

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## Appendix A

### Variable Definitions

Variable	Definition
<i>Rating</i>	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").
<i>Option</i>	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).
<i>Size</i>	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.
<i>lnSize</i>	Natural logarithm of <i>Size</i> .
<i>Age</i>	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?"
<i>Position</i>	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.
<i>Area</i>	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.
<i>AreaCategory</i>	Participant's area of assignment ( <i>Area</i> ) 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 survey was administered through Qualtrics. As a result, the experimental task below has been adapted from Qualtrics. The experimental task below shows what was presented to participants in the MBA degree with a concentration in accounting (MBA Acc) group. Participants in all other groups were presented with the same information except for the 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

### Instrument Example

The survey was administered through Qualtrics. As a result, the instrument below has been adapted from Qualtrics. The instrument below shows what was presented to participants in the MBA degree with a concentration in accounting (MBA Acc) group. Participants in all other groups were presented with the same information except for the option by which the student met the 150-hour requirement. The option is bolded for clarity in question 5 below; it was not bolded for participants. Question numbers are included for clarity below; they were not included for participants. Each question was presented on its own page/screen. Participants were not allowed to refer back to previous pages/screens.

#### Question 1

A Survey on the Recruitment of Entry-Level Public Accountants<sup>25</sup>

Introduction: My name is [Redacted], and I am [Redacted]. You are invited to voluntarily participate in a research study, provided that you meet the eligibility criteria below. I am conducting this study in conjunction with [Redacted]. The research study is funded by a grant from the National Association of State Boards of Accountancy (NASBA).

Eligibility: To participate in this study, you must (1) have an active CPA license to practice public accounting in at least one U.S. state/jurisdiction, (2) practice public accounting in at least one U.S. state/jurisdiction, and (3) participate to any degree in the recruitment/hiring process for entry-level accountants.

Purpose: The purpose of the study is to gather information on factors that influence the recruitment of entry-level public accountants.

Procedure: You will be asked to complete an online survey. The survey should take about 10 minutes to complete. You have the right to refuse to answer any questions that you do not wish to complete and/or answer. Participation will remain anonymous and no identifying data will be collected. Only the researchers will have access to the individual data, and only aggregate data will be presented and published.

Benefits and Risks: The results of this study are expected to benefit current and future students and CPAs. There are no anticipated risks to you as a participant in this research study.

Incentives: Incentives provided for completing the survey are limited to those provided as part of your agreement with your panel company.

Additional Information: You can withdraw at any time without consequence. Please contact me at [Redacted] or the Institutional Review Board at [Redacted] if you have questions about your rights as a research participant.

Please indicate whether you agree to participate in this study.

Yes, I agree to participate.

No, I do not wish to participate.

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<sup>25</sup> Since our sample was not limited to participants who worked in public accounting (see footnote 13 for an explanation of why this was the case), our study was actually a survey on the recruitment of entry-level accountants (not just entry-level public accountants) as none of our variables (see Appendix A and questions 5 through 10 of this instrument example) applied exclusively to public accountants. The fact that "entry-level public accountants" appeared in the informed consent sheet should not have a material impact on participants' responses. We believe that it is reasonable to assume that participants, in general, will skim the informed consent sheet, and their perception of it will not overly sway their responses to the survey (unless something egregious appears on it).

**Question 2**

Do you have an active CPA license to practice public accounting in at least one U.S. state/jurisdiction?

Yes  
No

**Question 3**

Do you practice public accounting in at least one U.S. state/jurisdiction?

Yes  
No

**Question 4**

Do you participate to any degree in the recruitment/hiring process for entry-level accountants?

Yes  
No

**Question 5**

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  
0      1      2      3      4      5      6      7      8      9      10  
Very actively

**Question 6**

How did the student introduced in the previous question achieve the 150-hour academic requirement necessary for CPA licensure?

Additional undergraduate courses in business  
Additional undergraduate courses in data analytics  
Master of Business Administration (MBA) degree  
Master of Business Administration (MBA) degree with a concentration in accounting  
Master of Business Administration (MBA) degree with a concentration in data analytics

Master's degree in accounting  
Master's degree in accounting with a concentration in data analytics

**Question 7**

Which of the following best describes how you achieved the 150-hour academic requirement necessary for CPA licensure?

Additional undergraduate courses in business  
Additional undergraduate courses in data analytics  
Master of Business Administration (MBA) degree  
Master of Business Administration (MBA) degree with a concentration in accounting  
Master of Business Administration (MBA) degree with a concentration in data analytics  
Master's degree in accounting  
Master's degree in accounting with a concentration in data analytics  
None. I completed the 150-hour academic requirement in a way that is not described by any of the choices above.  
None. I did not have to complete the 150-hour academic requirement to become a licensed CPA.

**Question 8**

What is the approximate number of employees in your organization?

[Text entry]

**Question 9**

Which of the following best describes your current position?

Associate/Staff  
Senior/In-charge  
Manager  
Partner  
Sole Proprietor  
Other

**Question 10**

Which of the following best describes your area of assignment?

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  
Other

**Question 11**

In what year were you born?

Year: [Drill down, 1900–2010]

## Appendix D

### Sensitivity Tests

In the third section (the research methodology section), we noted that we excluded 31 participants who indicated that they worked at organizations with 100 or more employees but also indicated that they were sole proprietors. For reasons discussed in the research methodology section, we determined that these participants' responses might not reliably represent organizations' hiring preferences with respect to accounting recruits, and we therefore excluded them. For ease of exposition, we refer to these 31 participants as "questionable sole proprietors." We also noted that we excluded two participants whose responses for *Rating* were deemed as outliers. We also noted that we observed a correlation between the options that were self-reported by participants and the options that were used by the hypothetical students that participants evaluated. We refer to participants whose self-reported options matched those of the students they evaluated as "option matches." In this appendix, we report the sensitivity of the results of our main tests, as presented in Table 2, and our exploratory tests, as presented in Table 3, to (1) the inclusion of the questionable sole proprietors, (2) the inclusion of the outliers, and (3) the exclusion of the option matches.

#### Inclusion of Questionable Sole Proprietors

Table D1 presents descriptive statistics of ratings by option for the main sample ( $n = 160$ ) and the sample that includes the 31 questionable sole proprietors ( $n = 191$ ; the questionable sole proprietors included (QSPI) sample). Both samples exclude the same 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 (in both samples). The descriptive statistics for the main sample were originally presented in Table 2, Panel A. We have presented them again in Table D1 so as to facilitate a comparison to the QSPI sample. The order of ratings by option was quite similar between the samples. That said, there was a difference that suggests that the inclusion of the 31 questionable sole proprietors detracts, at least slightly, from the representativeness of the sample (i.e., the extent to which participants' responses are a reliable measure of organizations' hiring preferences with respect to accounting recruits). Specifically, in the main sample, the ratings for MAcc and MAcc DA were nearly identical and clearly higher than MBA. This order (i.e., MAcc and MAcc DA being rated higher than MBA) was expected, given prior research (see the second section (the motivation section) and the third section (the research methodology section)). However, in the QSPI sample, this order did not obtain as the rating for MBA was higher than MAcc DA. Thus, while we are quite confident that organizations' hiring preferences with respect to accounting recruits are represented in the main sample (as argued in the results section), we are not as confident that organizations' hiring preferences are represented in the QSPI sample. It is for informational purposes only, therefore, that we report the results of our main tests and exploratory tests for the QSPI sample.

We first tested the sensitivity of the results of our main tests, as presented in Table 2, to the inclusion of the questionable sole proprietors. The results of an ANOVA that was used to test for the effect of option on rating for the QSPI sample showed that the effect of option was still significant ( $p = 0.009$ ) (untabulated). The results of pairwise comparisons showed that MBA Acc was still rated significantly higher than UG Bus (mean 8.63 vs 7.39;  $p = 0.002$ , one-tailed) and that MAcc was still rated significantly higher than UG Bus (mean 8.44 vs 7.39;  $p = 0.012$ , one-tailed) (untabulated). However, MAcc DA was now not rated marginally significantly higher than UG Bus (mean 8.11 vs 7.39;  $p = 0.142$ , one-tailed) (untabulated), while MBA was now rated marginally significantly higher than UG Bus (mean 8.21 vs 7.39;  $p = 0.093$ , one-tailed) (untabulated). The other pairwise comparisons were still not at least marginally significant.

We next tested the sensitivity of the results of our exploratory tests, as presented in Table 3, to the inclusion of the questionable sole proprietors. The results of an ANCOVA that included an interaction between option and size (*lnSize*) (in addition to their main effects) and a control for position showed that the interaction between option and size was still significant for the QSPI sample ( $p = 0.021$ ) as was the effect of position ( $p = 0.002$ ) (untabulated). Regressions of rating on size and position by option showed that the Model F-statistic was still significant for MAcc ( $p = 0.013$ ) and MAcc DA ( $p < 0.001$ ); however, it was no longer significant for MBA ( $p = 0.112$ ) (untabulated).

The Model F-statistic was still not significant for any of the other options. The coefficient on size was still not significant for MAcc (coeff. = 0.107;  $p = 0.460$ ) (untabulated). The coefficient on size was, however, still positive and significant for MAcc DA (coeff. = 1.020;  $p < 0.001$ ) (untabulated).

In sum, the results of our main tests, as presented in Table 2, and the results of our exploratory tests, as presented in Table 3, do not appear to be all that sensitive to the inclusion of the questionable sole proprietors. However, as noted above, we maintain that organizations' hiring preferences with respect to accounting recruits are better represented in the main sample than in the QSPI sample.

### Inclusion of Outliers

The two participants whose responses for *Rating* were deemed as outliers were identified as such because their responses were several standard deviations from the means of their respective conditions. One of the participants was in the MBA Acc condition (the MBA Acc outlier). The MBA Acc outlier gave a rating of 0. The mean and standard deviation of rating for the MBA Acc condition with the outlier included ( $n = 26$ ) were 8.27 and 1.95, respectively (untabulated). Accordingly, the MBA Acc outlier's rating was 4.24 standard deviations from the condition mean. The other participant was in the MAcc DA condition (the MAcc DA outlier). The MAcc DA outlier gave a rating of 3. The mean and standard deviation of rating for the MAcc DA condition with the outlier included ( $n = 20$ ) were 8.10 and 1.59, respectively (untabulated). Thus, the MAcc DA outlier's rating was 3.21 standard deviations from the condition mean.

We believe that the MBA Acc outlier and the MAcc DA outlier do not at all reflect the demand for MBA Acc and MAcc DA, respectively, for the following reasons. First, the MBA Acc and MAcc DA outliers' ratings were several standard deviations from their conditions' means, as noted above. Second, the MBA Acc and MAcc DA outliers' ratings were clearly outside their conditions' distribution of ratings. For example, in the MBA Acc condition, the 25 other participants gave ratings of 7 ( $n = 3$ ), 8 ( $n = 10$ ), 9 ( $n = 6$ ), and 10 ( $n = 6$ ) (untabulated). Similarly, in the MAcc DA condition, the 19 other participants gave ratings of 7 ( $n = 4$ ), 8 ( $n = 8$ ), 9 ( $n = 3$ ), and 10 ( $n = 4$ ) (untabulated). For these reasons, we believe that these outliers have been properly excluded from our analyses as reported in the fourth section of the paper (the results section) as their inclusion misrepresents and/or obscures the effect of option on rating. It is for informational purposes only, therefore, that we report the results of our main tests and exploratory tests with these outliers included.

We first tested the sensitivity of the results of our main tests, as presented in Table 2, to the inclusion of the outliers. The results of an ANOVA that was used to test for the effect of option on rating showed that the effect of option was no longer significant ( $p = 0.377$ ) (untabulated).

We next tested the sensitivity of the results of our exploratory tests, as presented in Table 3, to the inclusion of the outliers. The results of an ANCOVA that included an interaction between option and size (*InSize*) (in addition to their main effects) and a control for position showed that the interaction between option and size was still significant ( $p = 0.043$ ) and that the effect of position was still at least marginally significant ( $p = 0.051$ ) (untabulated). We then estimated regressions of rating on size and position for MBA Acc and MAcc DA. The results showed that while the Model F-statistic was still not significant for MBA Acc ( $p = 0.463$ ), it was now also not significant for MAcc DA ( $p = 0.594$ ) (untabulated).

In sum, the results of our main tests, as presented in Table 2, and the results of our exploratory tests, as presented in Table 3, are sensitive to the inclusion of the outliers. However, as noted above, we maintain that the inclusion of these outliers misrepresents and/or obscures the effect of option on rating as they do not at all appear to reflect the demand for MBA Acc and MAcc DA.

### Exclusion of Option Matches

Table D1 presents descriptive statistics of ratings by option for the main sample ( $n = 160$ ) and the sample that excludes the option matches ( $n = 88$ ; the option matches excluded (OME) sample). The order, from lowest to highest, of mean ratings by option shared some similarities between the samples. That said, there were differences that suggest that the exclusion of 72 participants detracts from the representativeness of the sample (i.e., the extent to which participants' responses are a reliable measure of organizations' hiring preferences with respect to accounting recruits). For example, in the main sample, the ratings for MAcc and MAcc DA were nearly identical and clearly higher than MBA. As stated previously, this order (i.e., MAcc and MAcc DA being rated higher than MBA) was expected, given prior research (see the second section (the motivation section) and the third section (the research methodology section)). However, in the OME sample, this order did not obtain as the ratings for MBA and MAcc DA were identical and higher than MAcc. Thus, while we are again quite confident that organizations' hiring preferences with respect to accounting recruits are represented in the main sample (as argued in the results section), we are not nearly as confident that organizations' hiring preferences are represented in the OME sample. It is for informational purposes only, therefore, that we report the results of our main tests and exploratory tests for the OME sample.

We first tested the sensitivity of the results of our main tests, as presented in Table 2, to the exclusion of the option matches. The results of an ANOVA that was used to test for the effect of option on rating for the OME sample showed that the effect of option was no longer significant ( $p = 0.197$ ) (untabulated).

We next tested the sensitivity of the results of our exploratory tests, as presented in Table 3, to the exclusion of the option matches. The results of an ANCOVA that included an interaction between option and size (*lnSize*) (in addition to their main effects) and a control for position showed that although the interaction between option and size was no longer significant for the OME sample, it was on the verge of being marginally significant ( $p = 0.128$ ) and that the effect of position was still significant ( $p = 0.005$ ) (untabulated). Even though the interaction between option and size was not quite marginally significant, we proceeded to estimate regressions of rating on size and position by option. The results showed that the Model F-statistic was still at least marginally significant for MBA ( $p = 0.098$ ) and MAcc DA ( $p = 0.089$ ); however, it was no longer significant for MAcc ( $p = 0.371$ ) (untabulated). The Model F-statistic was still not significant for any of the other options. The coefficient on size was still positive and at least marginally significant for MBA (coeff. = 0.419;  $p = 0.060$ ) (untabulated). And, while the coefficient on size was no longer significant for MAcc DA, it was still positive, and it was not too far from being marginally significant (coeff. = 1.183;  $p = 0.170$ ) (untabulated). Hence, the inability to detect a significant and positive association between size and ratings for MAcc DA in the OME sample is likely due to a lack of power. For example, the MAcc DA regression for the OME sample included only 7 participants (untabulated), whereas the MAcc DA regression for the main sample included 19 participants (Table 3, Panel B).

In sum, the results of our main tests, as presented in Table 2, and the results of our exploratory tests, as presented in Table 3, are sensitive to the exclusion of the option matches. However, as noted above, we maintain that organizations' hiring preferences with respect to accounting recruits are much better represented in the main sample than in the OME sample.

**Table 1**

Participant demographic information.

Panel A: Continuous measures: Organization size (employees) and age (years)							
	n	%	Mean	Std Dev	Min	Median	Max
<i>Size</i>	158		690.87	1,418.27	3	350.00	10,000
Decile 1	18	11			3		50
Decile 2	18	11			55		150
Decile 3	22	14			200		250
Decile 4	11	7			260		300
Decile 5	16	10			340		350
Decile 6	16	10			360		400
Decile 7	10	6			410		470
Decile 8	19	12			499		600
Decile 9	14	9			620		1,000
Decile 10	14	9			1,250		10,000
<i>Age</i>	156		42.85	8.41	24	42.00	74

Panel B: Categorical measures: Position and area		
	n	%
<i>Position</i>		
Associate/Staff	14	9
Senior/In-charge	31	19
Manager	68	43
Partner	41	26
Sole proprietor	2	1
Other	3	2
Total	159	100
<i>Area</i>		
Accounting/Auditing:		
Financial Accounting	95	60
Auditing, not including Internal Audit	4	3
Internal Audit	3	2
Total Accounting/Auditing	102	64
Taxation	9	6
Other:		
Assurance Services	1	1
Information Management and Technology Assurance	11	7
Consulting	3	2
Financial Forensics	1	1
Business Valuation	6	4
Personal Financial Planning	4	3
Management Accounting	20	13
Transaction Services	1	1
Other Areas	1	1
Total Other	48	30
Total	159	100

Demographic statistics are based on samples of just under  $n = 160$  (the sample described in the research methodology section (the third section)) because a few participants did not respond to one or more demographic questions. Variables are defined in Appendix A. For *Size*, the percentages per decile do not sum to 100% due to rounding. Similarly, for *Area*, Total Accounting/Auditing and Total Other, the percentages (64% and 30%, respectively) do not equal the sum of their components as listed due to rounding.



**Table 2**

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

Panel A: Descriptive statistics of ratings by option						
Option	n	Rating		Std Dev		
		Mean				
UG Bus	26	7.46		1.70		
UG DA	22	8.00		1.02		
MBA	20	8.10		1.17		
MBA DA	22	8.18		0.96		
MAcc DA	19	8.37		1.07		
MAcc	26	8.38		1.33		
MBA Acc	25	8.60		1.00		
Total	160	8.15		1.25		

Panel B: ANOVA: Effect of option on rating				
Source	df	SS	F	p-value
Option	6	20.29	2.27	0.040
Error	153	228.11		

Panel C: Pairwise comparisons: p-values for differences in mean ratings between options						
	UG Bus	UG DA	MBA	MBA Acc	MBA DA	MAcc
UG Bus						
UG DA	0.731					
MBA	<b>0.578</b>	1.000				
MBA Acc	<b>0.018</b>	0.630	<b>0.819</b>			
MBA DA	<b>0.396</b>	<b>0.999</b>	1.000	0.904		
MAcc	<b>0.099</b>	0.931	<b>0.986</b>	0.996	0.997	
MAcc DA	<b>0.181</b>	<b>0.961</b>	<b>0.993</b>	0.996	<b>0.999</b>	1.000

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. **Bold**  $p$ -values in Panel C indicate that a prediction was made and that the difference was in the predicted direction. Variables are defined in Appendix A.

**Table 3**

Influence of organization size on the effect of the 150-hour option completed on students' demand as accounting recruits.

Panel A: ANCOVA: Effect of size on the relation between option and rating, with position							
Source	df	SS	F	p-value			
<i>Option</i>	6	21.97	3.09	0.007			
<i>lnSize</i>	1	10.23	8.64	0.004			
<i>Option*lnSize</i>	6	16.50	2.32	0.036			
<i>Position</i>	5	24.12	4.08	0.002			
Error	139	164.46					

Panel B: Regressions by option: Rating on size and position							
	UG Bus	UG DA	MBA	MBA Acc	MBA DA	MAcc	MAcc DA
<i>lnSize</i>	0.466	-0.011	0.501	-0.253	0.512	0.043	1.025
t-statistic	1.56	-0.05	3.14	-1.69	1.47	0.32	6.89
p-value	0.135	0.960	0.007	0.107	0.160	0.756	< 0.001
n	25	22	20	24	22	26	19
Adjusted R <sup>2</sup>	-0.025	-0.002	0.414	0.019	0.136	0.452	0.799
Model F	0.89	0.99	3.69	1.11	1.66	4.44	18.91
p-value	0.510	0.440	0.024	0.380	0.201	0.006	< 0.001

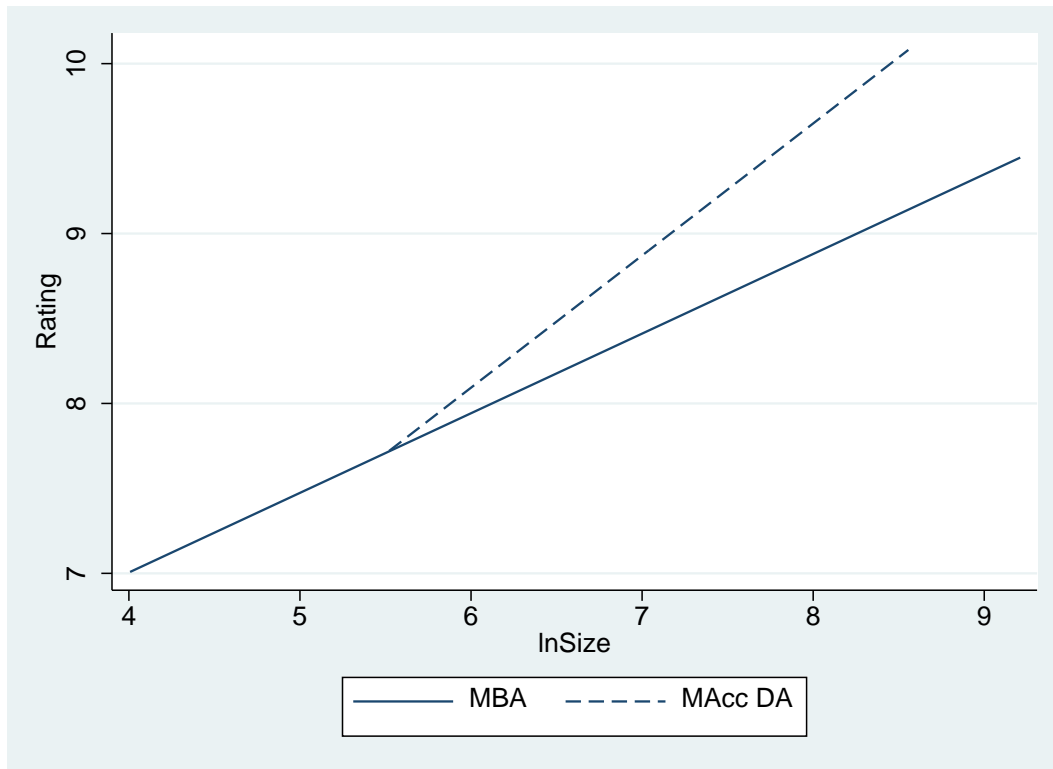
*p*-values are two-tailed. Intercept estimates are not tabulated. Control variable (*Position*) coefficient estimates are not tabulated in Panel B. Variables are defined in Appendix A.

**Table D1**

Descriptive statistics of ratings by option: Main sample vs Questionable sole proprietors included (QSPI) sample and option matches excluded (OME) sample.

<i>Option</i>	<i>Rating</i>								
	<i>n</i>			<i>Mean</i>			<i>Std Dev</i>		
	Main	QSPI	OME	Main	QSPI	OME	Main	QSPI	OME
UG Bus	26	28	13	7.46	7.39	7.23	1.70	1.66	1.69
UG DA	22	28	13	8.00	8.00	7.54	1.02	0.98	0.97
MBA	20	24	16	8.10	8.21	8.00	1.17	1.18	1.03
MBA DA	22	29	13	8.18	8.07	7.77	0.96	1.00	0.93
MBA DA	19	28	7	8.37	8.11	8.00	1.07	1.07	1.16
MBA DA	26	27	16	8.38	8.44	7.94	1.33	1.34	1.24
MBA Acc	25	27	10	8.60	8.63	8.60	1.00	1.01	1.17
Total	160	191	88	8.15	8.12	7.84	1.25	1.23	1.21

Options are sorted by mean rating in ascending order, according to the main sample. Descriptive statistics for the main sample, though first tabulated in Table 2, Panel A, are also tabulated in this table so as to facilitate a comparison with statistics for the samples that result after (1) the inclusion of participants identified as “questionable sole proprietors” (the questionable sole proprietors included (QSPI) sample) and (2) the exclusion of participants identified as “option matches” (the option matches excluded (OME) sample). “Questionable sole proprietors” and “option matches” are defined in Appendix D. Variables are defined in Appendix A.



**Fig. 1.** Relation between organization size and rating for MBA and MAcc DA.

This figure shows the relation between organization size (*lnSize*) (x-axis) and rating (*Rating*) (y-axis) for the MBA and MAcc DA option samples that were used in the regressions reported in Table 3, Panel B. Though the regressions estimate the relation between size and rating after controlling position, this figure simply shows the relation between size and rating for MBA and MAcc DA. Variables are defined in Appendix A.