Who are we missing? An empirical investigation of institution and program factors on graduate attempts on the CPA exam

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Abstract

While a wide body of prior research investigates institutional and program factors which influence candidate performance on the Uniform CPA Exam, much less attention has been paid to the influence of such factors on the number of graduates who attempt the CPA exam following degree completion. We create a novel dataset by combining relevant fields from National State Boards of Accountancy data for candidate numbers with institutional data from the National Center for Education Statistics (NCES) Institutional Post-secondary Education Data System (IPEDS), the Association to Advance Collegiate Colleges of Business (AACSB), and from school and program websites. We calculate an institution's participation rate as the number of first-time candidates divided by the number of accounting graduates for a year. Using a multiple regression framework, we find the percentage of accounting graduates who are female, or who are classified as non-traditional by age, the percentage of a school's undergrads receiving Federal grant assistance for education costs, and the relative urbanity of a school's location have significant effects on the participation rate. We discuss these results in light of diversity, equity, and inclusion (DEI) initiatives and suggest stakeholders consider students from schools with these characteristics as potential targets in promoting board representation in the CPA profession.

Introduction

Performance on the Uniform CPA Exam has long been a research topic of interest to practitioners, educators, and academics alike. Unsurprisingly, a wide body of literature has grown over the past several decades with the aim of understanding the factors that lead to candidate success on the exam. While many of these studies rely on school or candidate-provided data, others also leverage summary data presented by the National Association of State Boards of Accountancy (NASBA) in it's annual *Candidate Performance Bulletin*. This important publication presents the pass rates of students on each of the four parts of the current exam, stratified by the school attended, the state in which the candidate sat, whether this is a first-time testing event, and whether the candidate has a graduate degree. While this data is not limited to the performance of recent graduates, much research is focused on the pass rates of graduates from particular programs, likely because data on academic programs is more widely available than for individual candidates.

The factors which influence the choice of accounting program graduates to sit for the exam are much less commonly examined (Howell and Heshizer 2008, . Understanding these factors is particularly important considering declining numbers of candidates and accounting program enrollments. Blay and Fennema (2017) use a novel experimental design to measure innate ability for financial and managerial accounting tasks. They find that students who planned to major in accounting did no better (or worse) than other students of similar innate ability, and that students who did well on the tasks performed better on the CPA exam. This and other studies examine whether students self-select into the accounting major, but are unable to provide insight into whether those accounting majors ultimately pursue the CPA credential. We believe insight into factors influencing the choice to sit for the CPA exam is a necessary component of broadening diversity, equity, and inclusiveness (DEI) in the CPA profession. While the CPA exam is, perhaps

notoriously, difficult and designed to serve as a barrier to entry in an effort to maintain the public trust, accounting graduates who do choose to sit's only relevant barrier is that self-selection.

Using a large sample of schools with graduates who attempted the CPA exam in 2015-2019, we examine institutional and program characteristics which are associated with the percentage of a school's graduates who take the CPA exam. Nagle et al. (2018) identify several relationships between institutional characteristics and graduate CPA exam pass rates. We examine whether similar characteristics influence the participation rate, the number of first-time exam candidates from a school divided by the number of accounting degrees awarded by that school. Using a multiple regression model, we find several important institutional factors. We find the percentage of undergraduate accounting degrees awarded to female students, the percentage of accounting degrees awarded to nontraditional students, and the percentage a school's undergraduate students receiving financial aid all to negatively impact a school's participation rate.

We proceed with a synthesized review of the literature and development of hypotheses and variables of interest, followed by the construction of our dependent variables and sample. Our methodology and results are presented subsequently, and we conclude with a discussion of implications for the profession.

Variable Construction and Hypotheses

Our variables of interest are factors that influence a school's participation rate. We follow prior literature, detailed earlier, in determining appropriate factors and metrics. Unless otherwise stated, we do not hypothesize the direction of any relationship, as most prior literature focuses on exam pass rates, which may not relate the same to the percentage of graduates attempting the CPA exam. All hypotheses are stated in null form.

$InstitutionType_i$ is a dummy variable equal to 1 if a school is private (not publicly supported), and 0 otherwise. Nagle et al. (2018) find no significant association between public or private status and CPA exam performance, but we similarly assert that this status can have a fundamental effect on all stakeholders, including student, as well as the mission and enrollment. We make no prediction on the sign of $InstitutionType_i$,

$H1_0$: Accounting graduates of private schools do not take the Uniform CPA Exam with a different frequency than graduates of public schools.

$Accreditation_i$ is a dummy variable equal to 1 if a school's accounting program holds separate accreditation by the Association to Advance Collegiate Schools of Business (AACSB). Prior research finds conflicting results on the role of separate accreditation on student *performance* on the Uniform CPA exam. Examining pass rates from 1991-2003 of candidates from programs awarded separate accreditation during that timeframe, Miller and Nouri (2015) find no change in pass rates from the pre- to post-accreditation period. Bunker et al (2014) however find, in a different 2011-2012 time period, that candidates with degrees from schools with separately accredited programs pass at a higher frequency, and with overall higher scores, than those from other programs. Nagle et al. similarly find a positive association between separate accreditation

and exam pass rates. Given this conflict, we do not predict a sign for $Accreditation_i$ despite examining its influence on participation rates.

$H2_0$: Accounting graduates of accounting programs with separate AACSB accreditation do not take the Uniform CPA Exam with a different frequency from graduates of programs without separate accreditation.

Espahbodi et al. (2018) examine characteristics of more than 130,000 CPA exam candidates from 2005 to 2016 to investigate the impact of ethnicity, gender, and opportunity on their exam performance. Their findings include that female candidates are less likely to pass all four sections and are more likely to stop testing after both multiple failed attempts, as well as after taking only one section. Trinkle et al. (2016) find similar results. We include the variables $Female_i$ and $FemaleMS_i$, the percentage of an accounting program's undergraduate and graduate degrees awarded to females, respectively. We again do not predict a positive or negative association, as while a lower likelihood of passing may dissuade female candidates from attempting the exam, we find no prior literature or relevant theory to support this notion.

$H3_0$: Accounting graduates of accounting programs with a greater percentage of female graduates do not take the Uniform CPA Exam with a different frequency from graduates of programs with lower percentages.

Espahbodi et al. also examine whether African American or Hispanic candidates are more or less likely to pass the exam. For both ethnic groups, the authors find that these candidates are more likely to pass all four sections, and less likely to stop testing after a failed attempt, than the over candidate pool. We include the variables $Minority_i$ and $MinorityMS_i$, the percentage of

accounting degrees awarded to minority candidates as reported in IPEDS. Following our rationale for $Female_i$ we do not make a directional prediction.

> *$H4_0$: Accounting graduates of accounting programs with a greater percentage of minority graduates do not take the Uniform CPA Exam with a different frequency from graduates of programs with lower percentages.*

Additionally, Espahbodi et al. find also that socioeconomic factors play an important role in candidate exam success, especially when considered in conjunction with gender and ethnicity. We measure $FinancialAid_i$ as the percentage of undergraduate students at an institution receiving Federal grant (generally Pell grant) assistance. Because these grants are need, and not merit based, and only available to students with demonstrated financial need this variable provides a proxy for the socioeconomic background of its students. We predict a negative coefficient for $FinancialAid_i$, given the significant cost of both preparing for and taking the CPA exam, and that neither cost is generally covered by financial aid.

> *$H5_0$: Accounting graduates of schools with a greater percentage of students receiving Federal grant assistance take the Uniform CPA Exam at a lower frequency than graduates of programs with lower percentages.*

While CPAs, like all accountants, can be found in most every ZIP code in the U.S., a great number of new accounting graduates find opportunities in major metropolitan areas. Big 4, national, regional, and local offices in these areas are almost always larger than more rural counterparts. The proximity of these large offices to schools in these urban areas can provide benefits to these students through an increased on-campus presence. The IPEDS database contains a degree of urbanization, measured as cities (IPEDS variable LOCALE codes 11, 12, and 13 for

populations of greater than 250,000, greater than 100,000, and 100,000 or less, respectively) and suburbs, areas close to these cities (codes 21, 22, and 23) We construct the variable $Urban_i$ as equal to 1 if the school is located in, or within a short distance of, an urban area (codes 11, 12, 13, 21, 22, and 23), and 0 otherwise. Because of the proximity to opportunities and practicing CPAs, we predict a positive association between schools in or close to urban settings and the schools' participation rate.

$H6_0$: Accounting graduates of schools located in or close to urbanized take the Uniform CPA Exam at a higher frequency than graduates of programs outside these regions.

Another finding from Espahbodi et al. relevant to our study is the association between a candidate's age and their likelihood of passing. The authors find that older candidates are less likely to pass all four sections of the exam, and are more likely to drop after both the first attempt or the first section taken. We posit that this association could be due in part to the increased obligations bore by many nontraditional students, including full-time employment, child or elder care, etc. The variable $Nontraditional_i$ is the percentage of undergraduate accounting degrees conferred to students aged 25 or older. We expect a negative association between $Nontraditional_i$ and participation on the CPA exam.

$H7_0$: Graduates of accounting programs with a greater percentage of degrees awarded to students 25 and older take the Uniform CPA Exam at a lower frequency than those from graduates of programs with lower percentages.

As not all accounting students plan to sit for the CPA exam. Not all accounting degree programs are designed for students pursuing CPA careers. Determining which schools offer programs which heavily promote the CPA exam is difficult. For example, a small liberal arts

college with affluent students and high achieving students may have accounting graduates who often go to law school, or a large public land grant institution may have students frequently beginning careers with large global conglomerates who recruit on campus while hiring engineers or graduates of the hard sciences. Other programs, however, are designed mostly with public accounting careers, where the CPA is most valued, in mind. We use the presence of a Master of Science in Taxation program, designated by dummy variable MST_i, as a proxy for schools most likely to have a heavy emphasis on public accounting careers. We expect a positive association between MST_i and the percentage of accounting graduates taking the CPA exam.

$H8_0$: Accounting graduates of schools with Master of Science in Taxation programs do not take the Uniform CPA Exam with a different frequency than graduates of other schools.

Finally, we include $Doctoral_i$, a dummy variable equal to 1 if a school's Carnegie classification is Doctoral-Research Extensive (CC2000 code 15) or Doctoral-Research Intensive (CC2000 code 16). Bline et al. (2016) find that faculty research productivity is positively associated with a school's students' success on the CPA exam, though Nagle et al. (2018) find no association between a school's research rankings or the proportion of faculty with terminal degrees and CPA exam pass rates. Rau et al. (2018) find mixed results for the importance of faculty credentials. As doctoral-granting institutions generally have higher research expectations for faculty, we include this variable as a proxy for faculty research productivity. Given the conflict of findings in prior literature, we do not predict a direction for the relationship between $Doctoral_i$ and a school's participation rate.

$H9_0$: Accounting graduates of doctoral-granting schools do not take the Uniform CPA Exam with a different frequency than graduates of other schools.

We construct our dependent variables, *ParticipationALL* and *ParticipationUG*, by dividing the number of first-time testing events in a year for each school by the number of accounting degrees awarded in that year. The number of first-time testing events for all candidates for a school in a calendar year is provided by NASBA in the *Candidate Performance Bulletin*, Appendix B-1. Appendix B-3 contains the number for students with only an undergraduate degree, the lowest permissible academic credential allowed in any testing jurisdiction. We subsequently collect the number of accounting degrees awarded in an academic year from the National Center for Education Statistics (NCES) Institutional Post-secondary Education Data System (IPEDS).

NASBA provides exam attempt and pass rate data on a calendar year basis, while IPEDS data from NCES is provided only on an academic year (and subsequent summer) basis. Given the relatively short time available for students to test in the same calendar year following a December graduation, it is likely that December graduates in year *t-1* first test in year *t*, as do May and July/August graduates in year *t*, and as such we consider this timing match appropriate. Henceforth, we consider the degrees awarded in December *t-1*, May *t*, and Summer *t* as being the degrees awarded in year *t*.

$$ParticipationALL_{i,t} = \frac{First\ time\ CPA\ exam\ testing\ events\ (B1, all\ candidates)_{i,t}}{Total\ undergraduate\ and\ masters\ accounting\ degrees\ awarded_{i,t}}$$

$$ParticipationUG_{i,t} = \frac{First\ time\ CPA\ exam\ testing\ events\ (B3, undergraduate\ candidates)_{i,t}}{Total\ undergraduate\ accounting\ degrees\ awarded_{i,t}}$$

Sample

We restrict our sample to accounting programs offered by AACSB-accredited business universities to ensure data availability. We use the National Center for Education Statistics' (NCES) Institutional Post-secondary Education Data System (IPEDS), and hand collection from schools' websites, to create a database of institutional and program characteristics. We then marry this information with the data presented in the *Candidate Performance Bulletin*, published annually by NASBA, for the years 2015-2019. We omit from our analysis schools with fewer than five first-time exam candidates in any one year. After removing these observations, and other school-year observations lacking the required data, 1,295 observations (1,282 for undergraduate-only) remain for our primary analysis.

Methodology & Results

We jointly test all nine hypotheses with a multiple regression model using ordinary least squares (OLS). In addition to the variables above, we include testing jurisdiction (state) and year fixed effects. The inclusion of the testing jurisdiction captures differences in requirements to sit for the CPA exam (Allen and Woodland 2006, Bierstaker et al. 2005, Boone et al 2006, Soileau et al. 2017). We include year fixed effects to capture broader market conditions, as well as changes, and anticipation of changes, in exam content.

$$Participation_{i,t}$$

$$= \beta_0 + \beta_1 InstitutionType_{i,t} + \beta_2 Accreditation_{i,t} + \beta_3 Female_{i,t}$$
$$+ \beta_4 FemaleMS_{i,t} + \beta_5 Minority_{i,t} + \beta_6 MinorityMS_{i,t} + \beta_7 Nontraditional_{i,t}$$
$$+ \beta_8 FinancialAid_{i,t} + \beta_9 Urban_{i,t} + \beta_{10} MST_{i,t} + \beta_{11} Doctoral_{i,t}$$
$$+ State\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{i,t}$$

Table 1 presents descriptive statistics for each variable used in our study. The mean (median) number of undergraduate accounting degrees awarded per school, *TotalUndergrad*, is 89.8 (67), and masters' accounting degrees, *TotalMasters*, is 49 (33). For *B1*, the number of first-time testing events, for all candidates, the mean (median) number per school is 93.9 (63), while *B3*, limited to first-time testing events of candidates possessing only an undergraduate degree, is 66.6 (44). *ParticipationALL*'s mean is 1.059 (105.9%) but has a median of only .773 (77.3%). This high participation rate likely is driven by students who do not obtain graduate accounting degrees but instead pursue an MBA or other graduate degree, but who are eligible by means of their coursework or perhaps additional coursework in the undergraduate degree to sit for the Uniform CPA exam. This would be particularly true for schools with relatively small numbers of graduates in the denominator. Also, the high standard deviation of *ParticipationALL* suggests this result could be heavily skewed by outliers. When restricting to candidates with only undergraduate degrees, *ParticipationUG* has a mean value of .149 (14.9%) and median of .129 (12.9%).

Table 2 presents Pearson-Spearman correlation coefficients between variables. We note a number of significant, moderate correlations. Two significant strong correlations, between *Minority* and *MinorityMS* (0.67579), and *Nontraditional* and *Financial Aid* (0.59298), are present.

The former association is not surprising, particularly given the number of undergraduate accounting students who continue to graduate studies at the same institution. The latter correlation is likely explained by Pell Grant eligibility being need-based, and that students over the age of 24 are no longer required to report parental financial information on the Federal Application for Student Financial Aid (FASFA).

We present the results of our regression tests in Table 3. In the first column, the dependent variable is *ParticipationALL*, which includes both undergraduate and graduate candidates and degrees conferred. The second column, *ParticipationUG*, limits the analysis to undergraduate candidates and degrees conferred. For *ParticipationALL*, 1,295 school-year observations have sufficient variables for inclusion, and the model has reasonable explanatory power with an adjusted r-squared of 0.46. *ParticipationUG* is estimated with 1,282 observations and has a similar but slightly smaller adjusted r-squared of 0.40.

We fail to reject hypotheses H1 and H2 for both *InstitutionType* and *Accreditation.* In both the *ParticipationALL* and *ParticipationUG* models, we find no significant association between a school's public or private status and its graduates' participation rate on the CPA exam. We similarly find no association between accreditation and the participation rate. Both variables have significant but low or moderate correlations with other variables of interest (see Table 2) which may explain this result.

We find mixed support for a relationship between the gender of a program's graduates and its CPA exam participation rate in H3. *Female*, the percentage of undergraduate accounting degrees awarded to female students, has a significant, negative coefficient (0.068), suggesting as an undergraduate program's number of female graduates increases, it experiences a drop in the overall undergraduate exam participation rate. We fail to find support for such an association for

all exam candidates including graduate degree recipients. In untabulated analyses, we find that the participation rate for graduate candidates is consistently and significantly higher than for undergraduate students. If fewer graduate candidates generally do not take the exam, there would be less variation for the model to explain, perhaps explaining this result. We note that, from the data available and used in this study, whether female students in general take the exam less frequently than males, or that for programs with a higher percentage of female graduates, a similar or higher proportion of those females elect not to pursue the CPA credential.

Minority and *MinorityMS,* from H4 show no significant association with either *ParticipationALL* or *ParticipationUG* in our multiple regression models. We did not predict a direction of any potential relationship, noting an absence of prior literature or any theoretical basis to expect an association. However, prior literature finds that minority students experience lower pass rates and take longer to pass the exam. Experience from alumni could deter future students from pursuing the CPA. Regardless, we find no evidence to support this conjecture, but acknowledge this result perhaps counter intuitive. An optimistic view of this result would be that sufficient progress in diversifying the CPA profession has been made, but more likely, data limitations are impacting our results.

Our most interesting results begin with H5. *Nontraditional* has a significant, negative effect on both *ParticipationALL* (-1.264) and *ParticipationUG* (-0.523), showing that schools with a larger proportion of undergraduate accounting degrees awarded to students 25 and older have a lower participation rate on the CPA exam. Proceeding to H6, we similarly find that schools with a higher percentage of undergraduate students receiving Federal grant assistance also exhibit a lower participation rate. The negative coefficients on *FinancialAid* (-0.005 and -0.001) are much smaller than for *Nontraditional*, however, but remain significant in both models. We again call attention

to the strong, positive correlation between *Nontraditional* and *FinancialAid*. Despite the inclusion of both variables, both show negative and significant effects on the CPA exam participation rates.[1] Future research may endeavor to understand the interaction between these effects and would be most fruitful with candidate-level data.

Inversely, we find a positive association between a school location in or near a city and CPA exam participation in our test of H7. In both models, the coefficient on *Urban* is positive and significant (0.077 and 0.031). As discussed earlier, employment and career prospects for new accounting graduates, and CPAs in particular, in large, urban areas when compared with more rural schools. The perception of more opportunities for CPAs in relative proximity may both directly and indirectly impact participation rates. For example, a student attending a school in a large metropolitan area may plan to stay in that, or another, metropolitan area, and seeing an abundance of opportunities in public accounting, may choose to pursue the CPA exam. Other students in the same school who intend to begin their careers in less urban areas may still be more likely to pursue the CPA credential simply because their peers will. Further, these students likely have far more opportunities, both formal and informal, to interact with practicing CPAs whose offices are relatively close to the school, as opposed to students at schools at greater distance from large public accounting offices. These more urban schools also are likely able to more easily recruit practicing accountants as part-time faculty.

Consistent with our prediction, we find a positive association between the presence of a Master of Science in Taxation (MST) program, *MST* and the school's CPA exam participation rate. For H8, we predicted this relationship because such programs are designed almost exclusively

[1] Variance Inflation Factor (VIF) scores did not exceed 10 in our estimations.

to send graduates into public accounting careers. We find more mixed evidence for H9, however, with no significant association between doctoral-granting institutions and *ParticipationALL* but find a small negative but significant effect (-0.015) when only considering undergraduate degrees and exam candidates.

Discussion and Conclusion

We identify several institution-level and program-level characteristics associated with the percentage of an accounting program's graduates who sit for the CPA exam. Most notably, we find that programs awarding a greater proportion of their undergraduate accounting degrees to female students, nontraditional students, and students with greater financial need are likely to have lower participation rates by undergraduates on the CPA exam. We further find that those programs awarding a greater proportion of all accounting degrees to nontraditional students and students with greater financial need are likely to have these lower participation rates. In addition, we find that programs located in or near large cities, and programs with a graduate Master of Science in Taxation degree, are likely to have higher participation rates for both undergraduate and all candidates.

These findings may have important implications for diversity, equity, and inclusion (DEI) initiatives in schools, the profession, and employers alike. As large professional organizations such as the American Accounting Association (AAA), American Institute of Certified Public Accountants (AICPA), National Association of State Boards of Accountancy (NASBA), and others strive to promote accounting careers, and the CPA credential particularly, there is no doubt much-needed emphasis will continue to be placed on underrepresented minority groups. This study provides evidence that in addition to continuing to diversify the public accounting profession for underrepresented races and ethnicities, additional opportunities to diversify the next generation of

CPAs exists. Additional emphasis on promoting the CPA career path to socioeconomically disadvantaged students, nontraditional students, and students at more geographically isolated schools may yield additional CPA candidates, and in turn provide a greater diversity of thought and experience into the profession. We also note that while exam participation among students with graduate degrees does not appear to differ along gender lines, female students with only an undergraduate degree are less likely to pursue the CPA exam. Further research, best at the candidate level, is necessary to understand this divergence and ensure female graduates at all levels consider the value of the CPA credential for their careers.

We expect that for both nontraditional students and those who received Federal grant aid, assistance defraying the cost of preparing for and taking the CPA exam would be effective at improving participation in these groups. While many employers offer assistance with the cost of review courses and/or examination fees, candidates may be unaware of these opportunities. Further, while students from more affluent backgrounds may be able to study for and perhaps complete the CPA exam in between graduation and starting their careers without other employment, nontraditional and financially strapped students are less likely to afford this privilege. Schools with high numbers of graduates from these groups might consider offering scholarships with stipends that provide financial support during the period following graduation, or integrating CPA exam preparation more deeply in curriculum. Employers might also consider signing bonuses or low or no-interest loans to provide students from these groups opportunities to prepare, and to cover the cost of the examination.

Employers and professional organizations should strive to increase their presence on more rural campuses. Graduates from these campuses may bring unique skills or perspectives to employers, especially to public accounting firms. Additionally, these schools should make efforts

to provide opportunities for students to see CPAs in practice, through office visits, campus invitations, and affiliations with larger student organizations which promote the CPA credential, such as Beta Alpha Psi, the AICPA, and the National Association of Black Accountants (NABA). We expect these activities will have a positive impact on the representation of graduates from these groups in the CPA profession.

Our study is subject to several limitations, most related to the available data. Our sample period is limited to five years, and we restrict our sample to only accounting programs at AACSB accredited business schools. Our empirical analysis using institution and program-level data is unable to determine the reasons for the associations documented, and while we speculate on probable causes, analysis of candidate-level data would likely lead to additional inferences. We propose additional behavioral research with individual graduates would also provide more insight into the reasoning behind the decision sit for the CPA exam. We hope that our findings in this study provide a springboard to investigating further the determinants of participation in the CPA exam.

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Appendix A: Variable Definitions

Variable	Definition
B1	Total number of candidates with first time testing events. Variable Cand Total from Appendix B1 of The NASBA Report on the CPA Examination.
B3	Total number of candidates with an undergraduate degree with first time testing events. Variable Cand Total from Appendix B3 of The NASBA Report on the CPA Examination.
TotalMasters	Total number of master's degrees in accounting (CIP 52.03) conferred between August of year t-1 and July of year t.
TotalUndergrad	Total number of undergraduate degrees in accounting (CIP 52.03) conferred between August of year t-1 and July of year t.
ParticipationALL	The ratio of students who have sat for an exam for the first time divided by the total number of undergraduate accounting degrees and master's accounting degrees conferred by an institution during the previous academic year. B1 / (TOTALUNDERGRAD + TotalMasters)
ParticipationUG	The ratio of undergraduate students who have sat for an exam for the first time divided by the total number of undergraduate accounting degrees (CIP = 53.02) conferred by an institution during the previous academic year. B3 / TotalUndergrad
InstitutionType	A dummy variable equal to 1 if the university is a private university, 0 otherwise.
Accreditation	A dummy variable equal to 1 if the accounting department is separately accredited, 0 otherwise.
Female	The total number of undergraduate accounting degrees conferred to students who are female divided by the total number of undergraduate business degrees conferred. Calculated as CTOTALWUG/CTOTALTUG
FemaleMS	The total number of graduate accounting degrees conferred to students who are female divided by the total number of undergraduate business degrees conferred. Calculated as CTOTALWUG/CTOTALTUG
Minority	The fraction of undergraduate accounting degrees conferred to students who are nonwhite. Calculated as the total number of undergraduate business degress conferred to students who are female divided by the total number of undergraduate business degrees conferred; 1 - CWHITTUG/CTOALTUG
Nontraditional	The total number of undergraduate accounting degrees conferred to students who are 25 or older divided by the total number of undergraduate accounting degrees conferred. Calculated as (CS25-39 + CSABV40) / CSTOTLT.
Financial Aid	Percent of full-time first-time undergraduates at an institutional level receiving federal grant aid; FGRNT_P
MST	A dummy variable equal to 1 if the institution offers a MS Taxation degree, 0 otherwise.
Doctoral	A dummy variable equal to 1 if the institution is a Doctoral/Research University under the Carnegie classification, 0 otherwise.
Urban	A dummy variable equal to 1 if the city is in an urban area, 0 otherwise. Urban areas are defined as areas with a value of 11, 12, 13, 21, 22, and 22 for LOCALE using the IPEDS database.

Table 1 - Descriptive Statistics

This table presents the mean, median, standard deviation, 5th percentile, 25th percentile, 75th percentile, and 95th percentile for all variables used in our regressions, as well as variables used in underlying calculations. Complete variable definitions are available in Appendix A.

Variable	Mean	Median	StdDev	5th	25th	75th	95th	N
B1	93.9	63	94.4	13	31	123	277	2260
B3	66.6	44	68.8	9	21	86	199	2221
TotalMasters	49.0	33	52.6	1	16	61	144	1847
TotalUndergrad	89.8	67	76.9	15	37	116	247	2294
ParticipationALL	1.059	0.773	1.465	0.254	0.571	1.052	2.556	2077
ParticipationUG	0.149	0.129	0.105	0.038	0.087	0.185	0.318	2198
InstitutionType	0.30	0	0.46	0	0	1	1	2722
Accreditation	0.38	0	0.49	0	0	1	1	2722
Female	0.487	0.486	0.113	0.319	0.411	0.552	0.674	2267
FemaleMS	0.515	0.509	0.149	0.276	0.429	0.600	0.750	1772
Minority	0.344	0.293	0.215	0.089	0.185	0.450	0.807	2267
MinorityMS	0.409	0.361	0.250	0.071	0.211	0.578	0.893	1772
Nontraditional	0.041	0.037	0.027	0.007	0.020	0.056	0.088	2706
FinancialAid	33.4	32.0	14.9	13.0	22.0	43.0	62.0	2707
Urban	0.835	1	0.371	0	1	1	1	2722
MST	0.097	0	0.296	0	0	0	1	2722
Doctoral	0.443	0	0.497	0	0	1	1	2722

Table 2 - Correlations

This table presents the Pearson correlations for variables used. Correlations significant at the 5% level or below are bolded. All variables are defined in Appendix A.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
ParticipationALL	(1)	1	**0.13541**	-0.00194	**-0.07731**	**-0.04737**	0.03623	**-0.11164**	**0.22815**	0.03212	-0.0034	**0.07548**	**0.06398**	-0.01777
ParticipationUG	(2)		1	**0.18462**	-0.00152	**-0.1498**	-0.04568	**-0.05077**	0.00261	**-0.21475**	**-0.20583**	**0.07295**	**0.07969**	0.02777
InstitutionType	(3)			1	**-0.15775**	**-0.19993**	-0.01567	**0.04243**	**0.14552**	**-0.38256**	**-0.40466**	**0.19532**	**0.06023**	**-0.05508**
Accreditation	(4)				1	**-0.05497**	-0.04378	-0.02474	**-0.10153**	-0.02571	**-0.13694**	**0.11268**	**0.18911**	**0.41731**
Female	(5)					1	**0.2893**	**0.35147**	**0.20647**	**0.26985**	**0.36859**	**-0.06426**	**-0.10243**	**-0.07781**
FemaleMS	(6)						1	**0.24944**	**0.34143**	**0.12808**	**0.12884**	0.04414	-0.00522	0.03842
Minority	(7)							1	**0.67579**	**0.23246**	**0.39056**	**0.19718**	**0.05995**	**0.12796**
MinorityMS	(8)								1	**0.1352**	**0.2285**	**0.19221**	**0.07283**	**0.08829**
Nontraditional	(9)									1	**0.59298**	0.01798	**0.0422**	**-0.14213**
FinancialAid	(10)										1	**-0.15134**	**-0.0385**	**-0.25936**
Urban	(11)											1	**0.10552**	**0.21308**
MST	(12)												1	**0.15752**
Doctoral	(13)													1

Table 3 - Total Participation Rate

This table reports the results of OLS regressions where the dependent variable is the participation rate for the CPA exam. All variables are defined in Appendix A. T-statistics are presented. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

	ParticipationALL		ParticipationUG	
InstitutionType	0.033		(0.004)	
	1.51		(0.59)	
Accreditation	0.024		0.007	
	1.27		1.16	
Female	(0.022)		(0.068)	
	(0.25)		(2.45)	**
FemaleMS	0.010		0.002	
	0.18		0.11	
Minority	(0.029)		0.024	
	(0.48)		1.26	
MinorityMS	0.016		0.016	
	0.35		1.10	
Nontraditional	(1.264)		(0.523)	
	(3.20)	***	(4.10)	***
FinancialAid	(0.005)		(0.001)	
	(5.55)	***	(5.48)	***
Urban	0.077		0.031	
	3.13	***	3.95	***
MST	0.094		0.024	
	4.04	***	3.19	***
Doctoral	(0.008)		(0.015)	
	(0.44)		(2.48)	**
FixedEffects	State/Year		State/Year	
R2	0.460		0.400	
N	1295		1282	