

Hispanic Ethnicity and Hidden Barriers to CPA Exam Success

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The performance of Hispanic candidates on the CPA Exam has not been studied to identify predictors of performance. However, speculations have been made in the literature that, understandably, proficiency in the English language is a factor. Our study aims to combine the jurisdiction performance on the CPA Exam from 2015 and 2019 with U.S. Census Bureau estimates of the proportion of Hispanic residents that speak English to identify if there is an association to be found between language and performance. To this end, we explore whether the propensity of a Hispanic population to speak English is associated with improved performance. We begin with a descriptive analysis of Puerto Rico candidates and seven jurisdictions that had relatively high participation on the CPA Exam and the greatest proportion of Hispanics in their population. We found the Puerto Rico pass rate consistently below the other jurisdictions. This result suggests that the greater the proportion of Hispanic people, the lower the overall performance.

Keywords: Puerto Rico, Hispanics, CPA, diversity, minorities, underrepresentation, segregation, language, barriers, invisibility, demotivational factors

INTRODUCTION

The Uniform Certified Public Accountant Exam (CPA Exam) low pass rate among Hispanics and other minorities is a challenging issue with implications among different stakeholders and settings (Espahbodi et al., 2023; Akindayomi et al., 2021; Gabre et al., 2015; Enofe 2010). Despite the efforts of the American Institute of Certified Public Accountants (AICPA) and other organizations, the profession continues to struggle to achieve diversity (Adams, 2019; Gabre, 2017; Gabre et al., 2015; Madsen, 2013, James and Hill, 2009; Weisenfeld, and Robinson, 2001; Didia and Flasher, 2021; Holmes et al., 2022; Pelzer & Nkansa, 2022). Hispanic candidates generally have a very low success rate in passing the CPA Exam (Espahbodi et al., 2023; Self et al., 2014) resulting in low representation of Hispanics among CPAs. By the late 1990s, only 0.05% of CPAs were Hispanic when the proportion of Hispanics was 12% of the U.S. population (Hispanics as CPAs, 1997). There has been a disproportionate increase in the representation of Hispanics in the profession as immigration from Mexico and other Latin American countries has increased (Vespa, Medina and Armstrong, 2020; Passel and D,vera, 2008).

Using U.S. Census Bureau data, we find that as the annual average percentage of Hispanics increased by 18% in 2021 to 18.9% of the US population (Hispanic Heritage Month, 2022) 5% of CPAs were Hispanic by 2021 (AICPA Trends: 2021); this marks a 100% increase since 1997 however, Hispanic representation in the profession continues to remain low relative to their proportion of near 20% of the population. It is projected that there will be an increase in Hispanic immigration in the following years, which will add more people to the U.S. than any other minority group (Race and Hispanic Origin, 2023; U.S. Census Bureau, 2023). We anticipate the proportion of Hispanic CPAs will subsequently continue to grow, but are uncertain that it will be at a fast-enough pace.

Although the CPA certification is not necessary to land a job in some fields of the accounting profession, there is consensus that the CPA certification provides greater social and economic opportunities (Cooper, et al., 2023; Enget et al., 2020; Fogarty & Lowensohn, 2017; Bline et al., 2016; Carpenter, 2008). It is also a measure of the quality of accounting programs, when many graduates pass the exam (Fogarty et al., 2016). Attributes, such as competency, are implicitly attached to a CPA certification, increasing marketability and compensation (Decker, 2017; Hutchison & Fleischman, 2003). Due to the relevance and rigor of the CPA certification, many employers locally and internationally consider it a requirement when hiring their workforce (Nellen, 2017, Trinkle et al., 2016; Vollmer, 2013; Needles, 2010). Passing the CPA Exam indicates the quality and success of accounting programs in preparing students with the necessary competencies (Bunker and Cagle, 2021; Nagle et al., 2018; Cordis and Muzatko, 2021). Therefore, lacking the certification could limit the economic mobility and career opportunities for Hispanics in the United States (Gabre et al., 2017; Gabre, et al., 2015).

It takes a lot of effort and resilience for socioeconomically disadvantaged minority groups to complete an academic degree and become a CPA (Espahbodi et al., 2023; Bishop et al., 2019). The low participation and low success of Hispanics as CPAs create a demographic imbalance in the profession. This fact is considered a sign of social disparity and underrepresentation by key accounting organizations such as the AICPA (Gabre, et al., 2017; Lewis, 2020; Self et al., 2014). To counteract that, the AICPA launched several initiatives, such as the Minority Recruitment and Equal Opportunity Committee, to foster inclusion and diversity of Hispanics in the workforce. Another initiative to close the gap in representation and to increase inclusion and diversity in the CPA profession was the creation of the Association of Latino Professionals for America (ALPFA), established to “offer professional development and career-building opportunities” (ALPFA Website). In addition, the AICPA Foundation Minority and Affinity Scholarships fund minority student scholarships each year while the Accounting Profession’s Annual Diversity Symposium provides a platform for diverse sectors to identify ways to expand the accounting workforce with diverse professionals. Despite the efforts, Hispanics in accounting and finance roles in Public Accounting Firms are significantly lower than Whites (Holmes, et al., 2022; AICPA, 2021; Lewis, 2020).

Puerto Rico candidates have consistently underperformed relative to candidates of other jurisdictions (see Appendix). Puerto Rico, in the Caribbean, has been a Hispanic U.S. territory since 1898. As a result, all the Puerto Rico candidates for the CPA Exam are U.S. citizens, yet 100% of them are classified as Hispanic; this differs with other universities in the 50 states that are classified as HIS (Hispanic-Serving Institutions) have “full-time undergraduate enrollment that is at least 25% Hispanic¹”, but their academic population includes Hispanic and non-Hispanic students. Language has been used to explain the discrepancy in performance of Hispanic students in general (Gaudemer, 2023; Schneider et al., 2006); however, there is little or no empirical evidence to support the claim. It is important to explore whether a performance gradient could be identified and explained by the proportion of English-speaking Hispanics in a jurisdiction or the proportion with native-born status. According to our literature review, this is the first study that aims to empirically explain the discrepancy in performance of Hispanic candidates.

This study uses NASBA performance data (National Association of State Board of Accountancy) and U.S. Census Bureau data to explore whether performance on the CPA Exam is associated with the propensity of a Hispanic population in a jurisdiction, being native born, or the ability to speak English.

There are no published, or publicly accessible data, of the proportion of Hispanic CPAs by jurisdiction. However, in the case of Puerto Rico, given that the Hispanic population of Puerto Rico is close to 100%,

we can deduce that the percentage of Hispanic CPAs was also close to 100%. Puerto Rico can serve as a baseline to which other jurisdictions can be compared.

Our results will be important to a variety of stakeholders. The study expands the literature on Hispanics in the accounting discipline. Since the NASBA announced that, as of 2020, it will no longer publish *The NASBA Report on the CPA Exam*². Governments aware of the jurisdictions with the highest participation of Hispanic candidates can allocate resources into language training that might increase professional diversity. The study is useful since it can be replicated to analyze licensing exam results for Hispanic candidates in other professions.

Given the importance of the CPA certification as a tool of social mobility and economic advancement, it is important to study why minorities are lagging when compared with non-minority candidates. The study by Lozada, et al. (2022) was the first to evaluate the performance of Puerto Rico candidates on the CPA Exam and to demonstrate how far they were behind the other jurisdictions. However, that study does not compare the Puerto Rico candidates' performance with the rest of the candidates from other jurisdictions. We consider this study vitally important as we aim to identify whether Puerto Rico candidates are distinct in their performance or perform like other Hispanic candidates. This study answers the call from other authors (Gabre et al., 2017; Akindayomi et al., 2021) to pursue research on Hispanics and the CPA Exam.

The structure of this research includes a review of the relevant literature, followed by methodology, results and discussion. Finally, it provides a conclusion and recommendations for future research.

LITERATURE REVIEW

Research to explain the lack of Hispanic CPAs has been published to address the following issues: The Supply Side, The Pipeline, After Graduation, why Hispanics don't become CPAs, and The Missing Case of Puerto Rico.

The Supply Side

Hispanics have the highest high school dropout rate, Gabre et al. (2017). This means that not enough Hispanics go to college, limiting the pool of students who can be CPAs. This fact is still true, and, according to the National Center for Education Statistics (NCES), in 2019 the dropout rate for Hispanics was 7.5%, higher than Whites (5.2%) and African-Americans (4.2%) (NCES, 2019). According to Pincus et al. (2017) college affordability is one of the top barriers for students due to rising tuition costs. As bad as it is, that not enough Hispanic students are finishing high school, for those that stay and graduate, a negative perception of high school counselors towards the CPA certification affects the decision of high school students to consider majoring in accounting (Berry, et al., 2004). According to Pelzer & Nkansa (2022), it is advisable to create initiatives for minority accounting majors to create and combat negative experiences in the exercise of the profession (auditing). Other studies suggest that once Hispanics make it into universities, they do not pursue a major in accounting for different reasons: the lack of role models and lack of exposure and awareness of the CPA certification are the most important ones, according to Gabre et al. (2017) and Gabre et al. (2015). The AICPA Trends: 2021 show that Accounting bachelor's degree completion by race/ethnicity is 60% for White and only 13% for Hispanic. For Enofe (2010), the lack of representation of minorities as CPAs is due to entry barriers such as the experience that employers demand. Akindayomi et al. (2021) conclude that there are demotivational factors that reduce the number of Hispanics taking the CPA Exam; the authors conclude that the economic factor is one of the most important. This concurs with Shafer & Kunkel (2001), indicating that the only effect of the requirement of 150 hours to take the exam is to increase the cost of education. There are other factors that reduce participation; according to Hays (2017) the CPA career is a generational profession in families, and therefore it is very difficult to have new professionals in families without CPAs. Also, Cory et al. (2010) conclude that Hispanics choose the career of CPA and business if they are related to or know professionals in this area.

Similarly, Brown and Tegeler (2022) indicate that graduates from other disciplines ("converts") returned to university to obtain an accounting degree. The authors conclude that these graduates "discover accounting" through work experience and interaction with accounting professionals. According to Enget et

al. (2020) students choose their professional career considering their personality, and career opportunities, among others. Interestingly, the authors study “*feeling of impostor phenomenon*” and how it influences a “student’s decision to major in accounting”. This phenomenon is described as: “*a feeling of not being good or smart enough despite evidence to the contrary*”. Although this topic has not been studied in the Hispanic community, to determine the relationship with the CPA Exam it is important to investigate if this represents another barrier for them. Finally, Hao, et al. (2021), Maksy (2017) and Maksy & Wagaman (2016), recommend that professors should use different motivation factors so that the student can be successful in their university and professional career.

The Pipeline

Minority candidates who overcome all the obstacles mentioned above and graduated with a major in accounting still have the lowest pass rate for the CPA Exam. Research suggests that, in general, non-minority students have higher pass rates for the CPA Exam than minority students (Booker, 2005; Espahbodi et al., 2023; Appendix). Studies show that candidates graduating from institutions that have accreditation, such as the Association to Advance Collegiate Schools of Business (AACSB) or the AACSB-A, the Accreditation Council for Business Schools and Programs (ACBSP), have higher CPA Exam pass rates than candidates that graduated from institutions without those accreditations (Read et al., 2001; Barilla et al., 2008; Lindsay et al., 2009). Boone et al. (2006) found that the correlation between AACSB accreditation and pass rate is due to “student selectivity” criteria. But, when comparing the CPA Exam pass rates within accreditations, the research demonstrates that candidates graduating from institutions with the AACSB performed better than students graduating from institutions with the ACBSP accreditation (Espahbodi et al., 2023; Self et al., 2014; Howell & Heshizer, 2008). Also, Lozada et al. (2022) analyzed 20 universities in the jurisdiction of Puerto Rico where only two institutions have AACSB accreditation. The pass rate of these two institutions was analyzed; only the candidates of one university (public) had the highest pass rates; however, the candidates of the other university (private) performed far below. Interestingly, Self et al. (2014) found that accreditations (ACBSP/ AACSB) do not improve the CPA Exam pass rate for candidates who graduated from high-environment minority institutions and Federal grant-funded Hispanic Serving Institutions. The authors conclude that candidates from these institutions passed the CPA Exam at a significantly lower rate than Non-Minority Schools. Another reason for the low pass rates of minorities is given by Espahbodi et al. (2023, p.1), who studied how opportunity affects the performance of all candidates for the CPA Exam and how it affects historically disadvantaged groups. They defined opportunity as “the set of circumstances that makes it possible for a candidate to perform well on the CPA Exam.” Their research considered community segregation, socioeconomic status, education and income gaps, quality of the schools, and resources available to the candidates as opportunity variables. They found that Caucasians and males have more opportunities and therefore outperformed African-Americans and Hispanics on the CPA Exam. More importantly, they found that candidates with better opportunities outperformed those with fewer opportunities. They concluded the following: “Specifically, a higher percentage of Caucasian and male candidates pass all four sections of the exam (after the first attempt or first section) than other candidates. Univariate tests also indicate that candidates from public institutions, more selective (higher SAT scores), and AACSB-Accounting-Accredited (hereafter AACSB-A-accredited), perform better than those from private, less selective, and non-AACSB-A-accredited institutions, respectively. As for variables unique to this study, the results indicate that candidates that (1) are from less segregated and more affluent (higher socioeconomic status) communities, (2) attend Big Four recruiting schools, and (3) attend schools with a lower percentage of Pell Grant recipients, perform better than their counterparts. Interestingly, candidates from higher education and income gap communities perform better than those from lower gap communities” (Espahbodi et al., 2023, p. 2).

After Graduation, Why Hispanics Don’t Become CPAs

As Gabre et al. (2015) and the AICPA Trends: 2021 mention, the representation of Hispanics as CPAs is 5%, this is a contrast to Whites, representing 77%. The literature suggests various reasons for that. The exam cost could be a barrier for Hispanic students (Gabre et al., 2015). On average, a candidate must pay

\$1,244 to take the CPA Exam, including application, exam, and registration fees (NASBA, 2022). According to Hays (2017) the CPA track cost anywhere can be between \$15,000 and \$30,000 when taking into consideration other expenses and requirements necessary to take the exam. This prevents Hispanics from continuing to study for the test after failing. The author indicates that Hispanics do not take the CPA Exam since they prioritize work due to the economic hurdles they face. Many Hispanics have the academic skills, but due to the economic limitations they face, are unable to achieve the necessary performance because their efforts and time are directed to securing their economic sustainability. Gabre et al. (2017) suggest a way to reduce costs for candidates by incorporating the CPA review courses into the curriculum to prevent the student from incurring more expenses after graduating. This is also an advantage since according to Shin et al. (2020) concluded that accounting programs affiliated with a non-credit CPA review course are associated with higher CPA Exam pass rates.

Another barrier mentioned by Jackson & Bruns (2011) is that Hispanics show interest in other professions that do not require certification. The authors believe that candidates do not perceive an opportunity to attain professional leadership positions. According to the AICPA 2021 Trend Report, only 5% of the partners in the U.S. accounting firms are Hispanic. This contrasts with Whites, representing 82%. Diversity is sought after in the workforce; yet according to the U.S. Census Bureau's 2020 Business Survey, minority-owned firms accounted for 18% of all employers' firms. According to Holmes et al. (2022) when companies have a diverse workforce they benefit economically and socially as they create better customer relationships. It is therefore necessary to have employees that have the sensitivity and multicultural knowledge that can aid in the success of a business.

The Missing Case of Puerto Rico

The CPA Exam is offered in the 50 states, District of Columbia, and the U.S. territories: Guam, Puerto Rico, and the U.S. Virgin Islands. In the last decade, an annual average of 828 candidates took the CPA Exam in the Puerto Rico jurisdiction (Lozada et al., 2022). Although the number of candidates represents 1% of the total number of candidates, this is very significant because Puerto Rico is the only jurisdiction with 100 % Hispanic candidates. But interestingly, studies about Hispanics CPAs in the U.S. excluded the Puerto Rico jurisdiction. Also, studies don't distinguish between the Hispanic population in the United States and the Hispanic population in Puerto Rico. Espahbodi et al. (2023) studies the performance, environment and other factors on the CPA Exam for Hispanics and other minority groups. Yet it only includes U.S. universities as a sample. Gabre et al. (2017) studies Hispanics' perception of CPA credentials.

Nevertheless, its sample only includes those professionals (CPAs and non-CPAs) affiliated to the ALPFA organization. Akindayomi et al. (2021) studies the factors inhibiting Hispanics from taking the CPA Exam, yet the sample includes candidates from only one university in Texas, classified as the university with second largest number of Hispanics (90%) in the U.S. Self, et al. (2014) indicates that the candidates from institutions that receive federal aid to increase Hispanic enrollment perform significantly lower than candidates from non-Hispanic institutions. Its sample includes the 50 states and the territory of Guam. Cory et al. (2010) studies Hispanics' perception of careers in business. The study includes universities in the east, west and southwest U.S. Since the Puerto Rico jurisdiction is considered an international territory, the sample for the research does not include candidates from Puerto Rico. Blin et al. (2016) linked the characteristics of the accounting school and performance on the CPA Exam, yet the authors excluded international candidates from the analysis. In addition, Gaynor et al. (2019, p.628) analyzed the pass rates and the performance of U.S. jurisdictions in-state and out-of-state candidates. The authors used data from the 50 states and Washington, D.C. only in the study and mention: "*as opposed to considering other U.S. territories and foreign countries*" from candidates who applied for the license and took the test at one of the U.S. Prometric centers.

More importantly, Puerto Rico holds the lowest position in the CPA Exam when comparing the pass rate and the average score with the other jurisdictions (see Appendix). The factors that contribute to this result have not been identified, because there is a lack of research in this area. The authors could speculate that some of the reasons mentioned above for Hispanics living in the United States also apply to Puerto Ricans. But more research needs to be done. Since Puerto Ricans living in Puerto Rico may have

significantly different experiences, when compared with other minorities on the mainland, the factors affecting the low pass rate must be investigated with a macro or a structural approach. Areas of study could be the language, socioeconomics, and political conditions, or even the use of Critical Race Theory (CRT), among other approaches. For example, Puerto Rico's language of teaching in the universities is Spanish and the CPA Exam and accounting textbooks are in English. This means that Puerto Rican candidates translate from English to Spanish or vice versa. Evans (2018) argued that using English as a lingua Franca (ELF) affects minorities when their native language is not English and that "translation is not a simple technical, but a socio-cultural, subjective, and ideological process".

Interestingly, Gingerich (2007) indicates that the issue of bilingual education has faced detractors. Redesigning business school curricula to offer classes in English and Spanish helps create better professionals. Likewise, a workforce capable of adapting to the demands of global markets is created.

Since the Puerto Rico jurisdiction is not included in prior and similar research, our current investigation intends to begin exploring the reasons behind the results of the CPA Exam that include Puerto Rico. There is a lack of research on the reasons for the poor performance that affects the Puerto Rico jurisdiction on the CPA Exam or other minority groups with specific conditions. One reason could be that research results without an "international" approach do not find a venue in specific journals that are required to maintain a Scholarly Academic (SA) status for certain accrediting organizations (McFarlane, 2010; Manimala et al., 2020).

Besides from the language barriers, the authors identified two categories of variables that could explain the lowest passing rates of Puerto Rican CPA candidates. Each category, has multiples variables that could be researched. The first category relates to the macro environment or the infrastructure in which the Puerto Rican CPAs candidates navigates. This includes the availability and quality of the educational resources, the educational infrastructure, socio-economic factors (opportunities) cultural differences, studying support systems, among others. The second category of variables relates to demographic variables that could affect each CPA candidate personally. This includes age, the institution from which the candidates graduated, financial conditions, employment status, and degree or major, among others. As shown in the literature review multiple papers addressed those factors, none of them applies to Puerto Rico. Looking from above Puerto Rican are considered Hispanics, causing invisibility to the particular conditions, and challenges of Puerto Rican CPAs.

On the other hand, when comparing Puerto Rican CPAs, with other Hispanics, cultural and socio-political differences are sufficiently big causing invisibility, lack of associations or cultural differences between Hispanic's. This is the first research that intends to isolate one of the variables that could explain why Puerto Rico has the lowest passing rate in the CPA test among all jurisdictions. The researchers are aware that language alone cannot explain the phenomenon, furthermore this is the main contribution to the existing corpus of knowledge.

METHODOLOGY

Study Instrumentation and Sample

The NASBA does not report participation by ethnicity. To include this variable in our analysis. We combined the aggregated jurisdiction-level data in NASBA reports from 2015 to 2019 with U.S. Census Bureau data that estimates the number of Hispanic people in each jurisdiction and the number of Hispanic residents (regardless of legal status) that self-report as speaking English in their home or who speak English very well (data.census.gov). The NASBA data includes 53 jurisdictions; however, the Census Bureau did not provide data for Guam, so our dataset was reduced to 52 jurisdictions. Given the information provided in the database, all variables were recoded as percentages of the jurisdiction population. Jurisdiction performance on the CPA Exam is provided for the number of sections of the CPA Exam that were completed. As a performance measure, we can examine average pass rates and average scores across jurisdictions. We assess the following hypothesis:

H₀: There is no association between the proportion of Hispanic people in a jurisdiction and performance on the CPA Exam regarding pass rate or average score.

As established by the U.S. Federal Government, Colleges and Universities are Hispanic Serving Institutions (HSIs) if 25% of their population identifies as Hispanic (HACU website). Similarly, we consider focusing our analysis on jurisdictions with a population of 20% Hispanic residents or greater. Over the five-year study period this included the seven jurisdictions of Arizona, California, Florida, Nevada, New Mexico, Texas, and Puerto Rico in all five years, as well as Colorado in 2019.

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics of the pooled data are found in Table 1. There were over 1 million sections completed by candidates in our study period. Sorting the data over the study period, by deciles of the percentage of Hispanic residents in a Jurisdiction, it is apparent that performance is negatively associated with the proportion of Hispanic residents in the population once the population of Latinos reaches 20%. The only jurisdiction with 50% or more Latinos is Puerto Rico, so the deciles between the 5th and the 10th were omitted from the table. The percentage of Hispanic residents in a jurisdiction is positively correlated with the percentage of Hispanics being native-born and, except in the case of Puerto Rico, the percentage of Hispanics that speak English. That is, the greater the percentage of Latinos, the more likely they will be native-born, and the more likely they will speak English, except for Puerto Rico, in the latter. The *percentage of Hispanics that speak English* refers to speaking English at home, or if they speak another language in the home, they still speak English very well. Searching for correlations with performance, the percentage of Hispanic residents, as a categorical variable, appears to have a parabolic relationship with either performance metric. Hispanic jurisdictions, jurisdictions with a Hispanic population of 20% or greater, have a negative association with performance. The states in the third, fourth, and fifth deciles are listed to permit interpretation.

TABLE 1
PERCENTAGE OF HISPANIC RESIDENTS IN A JURISDICTION BY PERFORMANCE ON THE CPA EXAM

Total Sections: 1,132,284	Percentage of Hispanic Residents in a Jurisdiction 2015-2019 (standard error)					Hispanic Residents in Puerto Rico (%)
	[0, 10%)	[10-20%)	[20-30%)	[30-40%)	[40-50%)	
Sections	466,659	357,937	60,711	234,478	4,192	94% on average 8,307
Average Pass Rate [31%, 66%]	50.3% (5.0%)	50.8% (4.6%)	52.8% (3.0%)	49.6% (2.8%)	44.3% (1.4%)	33.8% (1.7%)
Average Score [60%, 77%]	71.7% (1.7%)	71.9% (1.6%)	72.4% (1.2%)	71.4% (1.0%)	69.8% (0.4%)	64.3% (2.0%)
% Native Born Hispanics	66.2% (11.0%)	61.7% (4.9%)	57.7% (10.2%)	64.9% (3.0%)	84.3% (0.3%)	97.3% (0.1%)

Total Sections: 1,132,284	Percentage of Hispanic Residents in a Jurisdiction 2015-2019 (standard error)					Hispanic Residents in Puerto Rico (%)
% Foreign Born Hispanics	33.8% (11.3%)	38.3% (4.9%)	42.3% (10.2%)	35.1% (3.0%)	15.7% (0.3%)	2.7% (0.1%)
% Hispanics Speak English	74.2% (8.7%)	68.3% (4.3%)	68.9% (7.2%)	70.1% (1.3%)	85.2% (0.6%)	23.1% (1.0%)
Jurisdictions with 20% Hispanics or greater			Arizona, Colorado, Florida, Nevada	California, Texas	New Mexico	Puerto Rico

Inferential Statistics

To test our hypothesis, we conduct a χ^2 test of independence between the percentage of Hispanics in a jurisdiction and performance on the CPA Exam. Recoding the pass rate and the average score into categories by 5 percentiles we test the independence of these performance metrics with the deciles of the Hispanic population and reject the null hypothesis of independence (pass rate: Pearson $\chi^2(35) = 202$, $p < 0.0001$; average score: Pearson $\chi^2(15) = 236$, $p < 0.0001$). In other words, there is a relationship between the two sets of variables. Implying there is an association. So H_0 is rejected. Reducing our analysis to examine the relationship between jurisdictions with a 20% Hispanic population or greater, the relationship between the proportion of the Hispanic population and the performance is sustained (pass rate: Pearson $\chi^2(18) = 56$, $p < 0.0001$; average score: Pearson $\chi^2(9) = 48$, $p < 0.0001$). These were the findings when analyzing the categorical coded variables.

CONCLUSIONS AND RECOMENDATIONS

Few studies empirically assess the relationship between CPA Exam performance and ethnicity. NASBA does not report ethnicity in their annual report. We combined U.S. Census Bureau estimates on the number of Hispanic residents, the number of Hispanic residents that are native-born and the number of Hispanic residents that speak English to verify if there is a relationship between CPA Exam performance in a jurisdiction and the proportion of Hispanic residents. We find a non-linear concave relationship suggesting that the more Hispanics in a jurisdiction, the lower the performance. Given that the jurisdictions with a greater proportion of Hispanic residents also tend to have more native-born and English-speaking Hispanic residents, these are unlikely associated with exam performance; rather exam performance is influenced by other factors that we can speculate as hidden barriers to success.

The message and learning from this study are relevant. First: there is not an abundance of literature for studies on the performance of Hispanics on the CPA Exam. Second: the literature excludes the analysis of candidates from Puerto Rico. Third: in the literature reviewed there is no distinction between Hispanics from Puerto Rico and Hispanics from other jurisdictions in the United States. We believe that the exclusion could be due to researchers not knowing the cultural psychology and socioeconomic factors that are unique to the Puerto Rico jurisdiction which is, as mentioned previously, 100% Hispanic. On the other hand, it is possible that many people are not aware that Puerto Rico is a U.S. territory. As authors of this study, we have taken a giant step to resolve the lack of research about the performance on the CPA exam for Hispanics living in the United States and those living in Puerto Rico.

We recommend studying the barriers that cause Hispanic candidates to perform worse than non-Hispanic candidates. In Puerto Rico's case, we recommend that academia and private entities continue forming alliances but that they deal with the unique needs of this island. We recommend that academia

provide the resources to study topics dealing with local needs, for example, the low pass rate on the CPA Exam for candidates from Puerto Rico. Why there is a lack of studies dealing with this and other local issues remains unresolved. In addition, we recommend that government and private sectors and entities related to the development of the profession join together to create recurring and related initiatives to identify why Puerto Rico is in last place for the exam compared to all the other jurisdictions. We consider this to be the first step to creating solutions that deal with the root cause of the shortcomings. Also, we suggest that for future studies, the analysis should be done using only the candidates' performance and that the candidates be classified as Hispanic or non-Hispanic. The analysis can be done for each jurisdiction and by universities. The authors recommend that NASBA provide detailed information about the ethnic origin of candidates and their performance on the CPA Exam.

Limitations of this study include that the NASBA does not report participation by ethnicity. The aggregated jurisdiction-level data was analyzed. The results of the study, although they are of interest, may be limited since only the term Hispanic is used, without establishing the differences in origin, cultural differences, and particular characteristics of the groups that make up the large population of Hispanics in the United States and its territories.

ENDNOTES

- ¹ Hispanic Association of Colleges and Universities (HACU). https://www.hacu.net/hacu/HSI_Definition1.asp
- ² NASBA, "Report on the CPA exam," [Online]. Available: <https://nasbareport.com/>. url: https://www.hacu.net/hacu/HSI_Definition1.asp. AACSB and AAA Write to NASBA on CPA Exam Pass Rate Change. Perspectives <https://www.aacsb.edu/media-center/news/2022/01/aacsb-and-aaa-write-to-nasba-on-cpa-exam-pass-rate-change>

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APPENDIX

**TABLE 2
PERFORMANCE COMPARARISON PUERTO RICO RANKING WITH 53 JURISDICTIONS**

OVERALL PERFORMANCE: ALL TESTING EVENTS DATA								
YEAR	PASS RATE			AVERAGE SCORE			PUERTO RICO RANKING COMPARE WITH 53 JURISDICTIONS	
	PUERTO RICO	ALL JURISDICTIONS	DIF	PUERTO RICO	ALL JURISDICTIONS	DIF	PASS RATE	AVERAGE SCORE
	%	%		%			%	
2010	28.5	48.3	-19.8	61.8	71.2	-9.4	53	53
2011	25.5	45.5	-20.0	59.3	70.6	-11.3	53	53
2012	29.6	48.9	-19.3	63.1	71.7	-8.6	53	53
2013	33.5	49.4	-15.9	64.7	71.8	-7.1	53	53
2014	34.1	49.5	-15.4	65.6	71.9	-6.3	53	53
2015	34.3	49.8	-15.5	65.6	71.9	-6.3	53	53
2016	33.7	48.7	-15.0	65.1	71.5	-6.4	53	53
2017	31.1	48.3	-17.2	64.1	70.7	-6.6	53	53
2018	36.6	51.9	-15.3	65.4	71.8	-6.4	53	53
2019	33.1	52.8	-19.7	63.0	72.1	-9.1	53	53

Prepared by authors. Source: NASBA- Candidate Performance on the Uniform CPA Examination.