

Factors affecting Southern African students' success in CIMA examinations

S Roos

Department of Accountancy
Stellenbosch University

Abstract

This study explores the factors affecting the results obtained by Southern African students in the professional qualification examinations of the Chartered Institute of Management Accountants (CIMA). Thirteen variables were identified and included in a questionnaire sent to CIMA students. It was found that three variables were significantly associated with examination success: age, tuition and study material. Younger candidates, candidates who attended part-time tuition classes and candidates who used the textbooks published by BPP were more successful. Trends were also detected regarding gender, the number of papers written, and examination attempts: females tended to outperform males, candidates had a smaller chance of passing all the papers they sat if they took on more papers at a time, and first-time candidates had a higher tendency to pass than repeat candidates. Opportunities for further research are discussed.

Key words

Accounting examinations
Chartered Institute of Management Accountants
Examination success
Management accounting
Professional education
Professional examinations
Southern Africa

1 Introduction

The Chartered Institute of Management Accountants (CIMA) is a London-based institute of professional management accountants with over 164 000 students and members, and branches in 161 countries across the world (CIMA 2008c). The Southern Africa branch operates from offices in Johannesburg, South Africa, and represents members and students in 14 countries in the region.

To obtain membership of the Institute, a series of examinations have to be passed and specified practical experience requirements have to be met. This study focuses on the first-mentioned requirement for admission to membership, namely the examinations set and administered by CIMA. The aim of the study is to explore the factors that impact on the

success of Southern African students in these examinations. It is hoped that, through analysis of the factors identified, tuition providers, employers and other interested parties in the region may be able to better serve and support Southern African students in their quest for CIMA membership.

The CIMA examination process is explained next, after which the literature review, methodology and the findings of the study are discussed.

2 CIMA and its examination process

CIMA started in 1919 as the Institute of Cost and Works Accountants. In 1976, CIMA was granted Royal Charter status in the UK, allowing it to award professional membership (CIMA 2008a). Today the Institute is the only international professional qualification that focuses its examinations solely on the education of management accountants in business (CIMA 2007). Various factors motivate students of accounting to write the CIMA examinations. According to a 2006 survey of CIMA students, they were drawn to the CIMA qualification because of its global nature, its reputation, the flexible career options it offers, the fact that it meets employers' needs, and its content and structure (Perry 2007).

In order to become a CIMA member, a CIMA student has to either pass or be exempt from the examination papers that form part of the CIMA professional qualification. In order to be eligible to sit these professional-level examinations, the student must have successfully completed the CIMA Certificate in Business Accounting, or must have obtained one of a number of specified degrees or professional qualifications recognised for this purpose. The professional qualification itself consists of 10 examinations grouped into three levels. The first level, known as the Managerial level, consists of six examination papers: Management Accounting Performance Evaluation, Management Accounting Decision Management, Organisational Management and Information Systems, Integrated Management, Financial Accounting and Tax Principles, and Financial Analysis. Candidates may choose how many of these papers are to be written at each sitting. Once all the papers at the Managerial level have been successfully completed, the candidate may progress to the Strategic level, which consists of three papers: Management Accounting Risk and Control Strategy, Management Accounting Business Strategy, and Management Accounting Financial Strategy. It is mandatory to write all three papers at the same examination sitting on a candidate's first attempt at the Strategic level. However, upon failing to pass all the papers on the first attempt, the candidate may thereafter choose how many of the papers he or she wishes to write at subsequent examination sittings. The final level in the professional qualification, which is accessed once all three Strategic level papers have been passed, is the Test of Professional Competence. It consists of only one examination paper, often abbreviated to TOPCIMA (CIMA 2008b).

In the same way as candidates may sometimes be exempt from obtaining the CIMA Certificate in Business Accounting, if they are already in possession of other recognised qualifications that allow them access to the CIMA professional qualification, they may sometimes also be granted exemptions from some Managerial level papers on the basis of their existing academic or professional qualifications. However, exemptions are not granted for the Strategic level and TOPCIMA examination papers.

There are two examination sittings per annum for all of the professional level papers – one in May and one in November. Lately, TOPCIMA candidates have been afforded two additional opportunities to sit the examination each year.

3 Literature review

A literature review was conducted to identify the factors that could affect Southern African CIMA students' examination performance. There is limited research available on the factors that affect students' results in professional accounting examinations. The most notable exception is the US Certified Public Accountant (CPA) examination which has been the focus of a number of studies, with varying degrees of relevance to this study.

3.1 Characteristics of candidates

There are a number of characteristics of candidates that may affect examination results. Such characteristics are the candidate's age, gender, available study time and first language. Each of these factors will be discussed in turn below.

Age

Brahmasrene and Whitten (2001) found the age of a candidate to be a significant variable in determining success in the US CPA examination. They found that older candidates were more likely to pass the examination. In the study, they drew a distinction between those candidates under 26 years of age at the time of the examination, versus those aged 26 years and older. A US study by Frakes (1977) that did not focus on a professional accounting examination, but rather on students in an intermediate accounting course at two universities, used age as an indication of maturity and found it to be a significant contributor to success at one university but not at the other. A Singapore study by Koh and Koh (1999) that investigated university students enrolled for an accounting degree had the opposite result: younger students performed significantly better than older students. In South Africa, Du Plessis, Müller and Prinsloo (2005) and Müller, Prinsloo and Du Plessis (2007) found that students under 30 were more likely to pass a first-year accounting distance education university course than older students. Gammie, Jones and Robertson-Millar (2003a) followed students throughout an accounting degree programme in the UK and found age to be an insignificant variable.

From the literature it therefore appears that the CPA professional accounting examination favours older candidates, but at university level, younger candidates either perform better in accounting or there is no age differential.

Gender

Brahmasrene and Whitten (2001) found that gender was a significant variable affecting success in the CPA examination – male students were more likely to pass the examination than female students. However, studies that focused on university examinations instead of professional accounting examinations yielded mixed results. Black and Duhon (2003) and Bagamery, Lasik and Nixon (2005) found that male students outperformed females in a standardised business examination at US universities, while Koh and Koh (1999) found that males performed better in an accounting degree in Singapore. Du Plessis *et al.* (2005) reported that males substantially outperformed females in a first-year distance education university accounting course in South Africa. In two US studies, however, Mutchler, Turner and Williams (1987) and Tyson (1989) found that female students outperformed males in university accounting examinations. In an open learning university in Australia, De Lange, Waldmann and Wyatt (1997) found that males were more likely to achieve distinctions in undergraduate accounting, while females were more likely to obtain high distinction and credit grades. Females were more likely to fail, and overall, males tended to

outperform females. A US study by Doran, Bouillon and Smith (1991) reported that males performed better in the first-level university accounting course examined, but not in the second-level course. Lipe (1989) found male and female university students enrolled for a management accounting course in the USA to be evenly matched in terms of performance, a finding similar to that of Carpenter, Friar and Lipe (1993) who studied a US introductory accounting course and Gist, Goedde and Ward (1996) who studied minority students' performance in a US introductory accounting course. In a US study by Nourayi and Cherry (1993), gender appeared to be an insignificant variable, except for one accounting course grade in which males outperformed females. Gammie *et al.* (2003a) as well as Gammie, Paver, Gammie and Duncan (2003b) detected no significant indication of a performance differential between male and female students throughout an accounting degree programme in the UK.

The literature on gender as a variable affecting performance in accounting examinations is therefore particularly divided because numerous studies show conflicting results.

Available study time

In a study of black distance education accounting graduates in South Africa, the "heavy course workload" was ranked highly as a factor that contributed to failure, while "too many demands on students' time (work, travel, study, family, etc.)" was also ranked highly by students (Sadler & Erasmus 2005:43-44). In the USA, Schroeder (1986) envisaged that the availability of study time may affect students' examination performance, although he did not find evidence of this in the results of his study. Schroeder used academic course load and employment work hours as the only indicators of the availability of study time. In this study of CIMA students, the equivalent of Schroeder's "academic course load" would be the number of CIMA examination papers written at a particular examination sitting. Candidates' employment is considered and discussed in section 3.2 below.

Both marital status and children could indicate the level of family commitments of candidates, something which could conceivably have an impact on the study time available. A study of the accountancy profession in Scotland by Gammie and Gammie (1995) found that women in the profession started families later in life than the norm because "babies and business are equally demanding". Conversely, as Schroeder (1986) points out, the factors that could potentially limit study time could conceivably also contribute to a candidate's examination success: a high course load could contribute to knowledge, and employment could mean that the candidate was gaining relevant work experience. Family commitments could indicate stability and a work-life balance that may enhance academic focus. In studying an intermediate university accounting course at two universities in the USA, Frakes (1977) used marital status as an indicator of maturity, and found it to contribute significantly to success at one institution but not at the other.

The literature therefore recognises the issue of availability of study time, but provides no definitive guidance on the impact that academic course load, marital status and number of children could be expected to have on the performance of candidates in a CIMA examination.

First language

Another characteristic that is particularly relevant to the population in this study is whether the candidate considers his or her first language to be English. All CIMA examination papers are set in English and should be answered in English, even though many Southern

African students do not regard English as their first language. In a South African study focusing on the language abilities of university students, Parkinson (2001:279) speculated that “subconsciously or otherwise” markers that are predominantly English speaking (as the CIMA examiners in London would be), may mark students down for grammatical errors, resulting in students whose first language is not English receiving lower marks. Apart from difficulties with grammar that Parkinson refers to, it is also conceivable that such students may take longer to properly communicate their thoughts in English which costs them time during the examination, or may not be able to properly communicate their thoughts in English at all. In Hong Kong, Gul and Fong (1993) studied a first-year university accounting course that was taught in both English and Chinese, but the text and other course materials were in English. They found that students who had attended an English secondary school outperformed those who had attended a Chinese secondary school. Wong and Chia (1996) found that a lower degree of proficiency in English language was associated with lower performance levels in a first-year financial accounting course at a Hong Kong university. However, in a study of Australian university students registered for a second-year management accounting course, Jackling and Anderson (1998) found that language (in other words, whether or not English was the student’s first language) did not significantly affect results. Du Plessis *et al.* (2005) came up with a similar finding in a study involving first-year students registered for an accounting course at a South African distance education university.

Hence at university level, there is evidence to suggest that in some contexts, candidates with a first language other than English perform worse in accounting, while in other contexts they appear not to be at an disadvantage.

3.2 Candidates’ historical backgrounds

A candidate’s background in respect of employment, training, qualifications and whether the examination papers entered have been sat before, could affect his or her examination performance.

Employment

Brahmasrene and Whitten’s (2001:49) results indicated that CPA candidates with “private accounting experience” performed better in the examination relative to those with “no related work experience”. An earlier study of CPA candidates by Titard and Russell (1989) reported that one or more years of public accounting experience helped candidates to pass the auditing section of the CPA examination. In the USA, Moses (1987) found work experience to be a predictor of grades in graduate accounting. Black and Duhon (2003) used age as a proxy for work experience, and found that older students performed better in a standardised US university business examination. A Singapore study by Koh and Koh (1999) indicated that students with work experience performed better in a university accounting degree. Schroeder (1986:40 & 44) acknowledged that work experience may provide sufficient prior knowledge “to create an advantage”, but also speculated that employment work hours could be one of the primary factors that has a negative impact on the availability of study time. As mentioned earlier, Schroeder’s results ultimately did not indicate that employment work hours were either positively or negatively associated with examination results.

Evidence from the literature therefore suggests that relevant employment is likely to have a positive impact on examination performance.

Tuition

As early as 1972, Sanders (1972) reported, on the basis of the May 1970 CPA examination results, that formal coaching courses were found to be helpful in passing the examination. Statistics published by the American Institute of Certified Public Accountants (AICPA) in 1983 (*Journal of Accountancy* 1983:10) showed that "some type of CPA exam coaching course" contributed to examination success. Years later, Titard and Russell (1989:57) discovered that formal supplementary study contributed to candidates' success in the CPA examination, and noted that even though it is not possible "to measure individual effort in formal programs, the assumption is that candidates who pay for such courses are likely to expend some additional effort in them". Ashbaugh and Thompson (1993) also found that participation in a CPA review course had surfaced as an important variable in their study. Brahmasrene and Whitten (2001:49) stressed that some individuals may benefit from "using a live review" in preparation for the CPA examination.

Based on the literature, examination-specific tuition is likely to impact positively on performance in a professional accounting examination.

Qualifications

In the AICPA study of its 1980 CPA examination results (*Journal of Accountancy* 1983), it was apparent that candidates with graduate training achieved above-average success in the examination. Data on CPA candidates analysed by Titard and Russell (1989:54) showed "without question that individuals with advanced degrees are more successful on the exam than those without such degrees". This is further supported by a study of CPA candidates conducted by Boone, Legoria, Seifert and Stammerjohan (2006).

Based on the literature, candidates with higher academic qualifications are likely to perform better in a professional accounting examination.

Examination attempts

One would expect that first-time candidates – those who sit a particular CIMA paper for the first time – may have different pass rates compared with candidates who had previously sat and failed a particular CIMA paper. In the US CPA examination, the pass rate for first-time candidates was traditionally in the vicinity of only 10%, a rate that has recently declined further because of the adoption of a new examination rule (Brahmasrene & Whitten 2001). It should be noted that this pass rate refers to candidates passing all four parts of the CPA examination. In contrast to the situation in the USA., the examination pass rate in part 1 of the South African Institute of Chartered Accountants' (SAICA) Qualifying Examination is usually much higher for first-time candidates than for repeat candidates. In 2007, 66% of first-time candidates passed, while the corresponding figure was 75% in 2008. Only 27% of repeat candidates passed in 2007, while the corresponding figure was 32% in 2008 (SAICA 2008). A number of university-level studies of accounting students support the higher success rate of first-time candidates: Gammie *et al.* (2003a) found that the number of resits in a student's first year was a significant predictor of the success of honours graduates in an accounting degree programme in the UK, while in Australia, De Lange *et al.* (1997) found that those who attempted an undergraduate accounting course for the first time were more likely to pass than repeat candidates. In South Africa, Du Plessis *et al.* (2005) and Müller *et al.* (2007) reported that students were more likely to pass a first-year distance education accounting course on their first attempt.

Apart from findings relating to the US CPA examination, the literature therefore points to the fact that first-time candidates are likely to perform better than repeat candidates.

3.3 CIMA-specific factors

In this study, two additional factors that are specifically relevant to CIMA examinations were also investigated: the exemptions from CIMA examination papers that a candidate had been granted and the study material used.

Exemptions

As discussed in section 2, the CIMA syllabus consists of different levels of examination papers. Students have to either pass all the papers at a given level, or be granted exemptions from them, before being allowed to attempt the papers at the next level. CIMA grants exemptions on the basis of its assessment of a student's qualifications. For example, a student who has passed part 1 of the SAICA Qualifying Examination is granted exemptions from all of the Managerial level papers and has to sit only the Strategic level and TOPCIMA papers. The CIMA assessors have to judge which academic and professional qualifications from all parts of the world should be recognised for exemption purposes, and this is a difficult process to manage. This can be seen as a potential risk factor for the student – if a candidate's exemptions are too generous, there may be a lack of prerequisite knowledge at the level at which the candidate enters the examinations. Conversely, some students may be well prepared for the level at which they enter because of a strong background of relevant qualifications. Loveday (1993) examined the consequences at university level of a decision to offer exemptions to students with prior studies in accounting and found that, providing that students achieved a certain level of results in high school, they were not disadvantaged if they were exempt from the first semester university accounting course.

If CIMA grants appropriate exemptions, the extent of exemptions should ideally not affect a candidate's examination performance because he or she would enter the system at the optimal level.

Study material

CIMA publishes its own range of textbooks that specifically prepare students for the CIMA examinations. Other publishers offer competing products specifically tailored for the CIMA examinations. Conceivably, a student's choice of learning materials could affect his or her knowledge and therefore examination performance.

4 Methodology

In order to explore factors affecting Southern African students' results in CIMA examinations, a questionnaire was sent to all students who had registered to write examinations at examination centres in Southern Africa, at the May 2006 sitting. The process was then repeated in respect of students who had registered to write at the May 2007 sitting. CIMA revises its syllabus and examinations approximately every four years (CIMA 2008b). It was therefore essential to choose two examination sittings within the same syllabus period. In this instance, both examinations dealt with what is commonly referred to as the 2005 syllabus – the syllabus that was first examined in May 2005.

The questionnaire was developed on the basis of the literature review in section 3 above. The questionnaire requested students to supply their age, gender, the number of CIMA examination papers written at the particular sitting, marital status, number of children and

whether they considered English to be their first language. In terms of employment, two questions, that are specifically applicable to CIMA students, were formulated. Firstly, students were asked to state the nature of their employment, with the options "full time", "part time", "casual", "retired", "unemployed" and "other". Secondly, students were asked whether they received CIMA training in the workplace from a CIMA employer partner firm, with the option to answer that they were currently receiving such training, had previously received such training, or had never received such training. Regarding tuition, students were asked whether they had received CIMA-specific formal tuition for the papers they sat, and if so, to indicate the type of tuition: full time, part time, distance education, revision sessions, or other. Questions about the candidates' qualifications had to be carefully formulated. Because of the diverse backgrounds of the candidates and their geographical spread across the region, a multiple-choice question about academic background was not feasible. Instead, the candidates were asked in an open-ended manner to specify their highest qualification and the institution from which it had been obtained. In order to determine whether an individual was a first-time or a repeat candidate, students were asked to indicate which of the examination papers that they had written at the relevant sitting were ones that they had also previously sat. To determine the impact of exemptions on the candidates' success, they indicated at which level they had started their CIMA studies when they had first registered as a CIMA student. This could be at the Certificate in Business Accounting level, the Managerial level or the Strategic level. As far as study material is concerned, three main publishers' textbooks are available locally, and these are the books that Southern African students usually purchase. Students were therefore asked whether they had used the textbooks of BPP, CIMA Publishing, FTC Kaplan, or another publisher (to be specified). A brief summary of the factors investigated is provided in table 1.

Table 1: Factors investigated

Factor	Variable(s)	Rationale
Age	Age	Conflicting studies exist in different contexts in the literature
Gender	Gender	Conflicting studies exist in different contexts in the literature
Available study time	Number of papers written Marital status Number of children	Indications in the literature that these may affect examination performance
First language	Whether English is the first language	Conflicting studies exist in different contexts in the literature
Employment	Type of employment Training in the workplace	Various studies suggest that relevant employment impacts positively on performance
Tuition	Type of examination tuition	Various studies suggest that examination-specific tuition impacts positively on performance
Qualifications	Open-ended	Various studies suggest that candidates with higher qualifications perform better
Examination attempts	Whether the paper had been sat before	Various studies suggest that first-time candidates perform better
Exemptions	Level at which the CIMA examination system was first entered	Should not impact on performance if appropriate exemptions were granted
Study material	Name of publisher of textbook	CIMA-specific factor that could affect performance

Prior to its finalisation, the questionnaire was pretested by a small number of past CIMA students. The pretest respondents were asked to complete the questionnaire in its entirety, to record the time it took to complete the questionnaire, and to indicate any ambiguity, incompleteness or other problems encountered in answering the questions.

CIMA's Southern Africa office distributed the final questionnaire to all the relevant Southern African students via e-mail. Students had the option to either complete the questionnaire online or to manually submit their responses. To ensure the credibility of the results, access to the online questionnaire was restricted to the intended participants. The respondents were allowed to remain anonymous, because it is often assumed in research studies, that this leads to greater honesty in answering questions (Barnett 1998:71). The questionnaire was sent out after the students had received their results and they were therefore aware of which papers they had passed or failed – as part of the questionnaire they were asked to indicate their results as such.

CIMA Southern Africa operates examination centres in the following countries: Angola, Botswana, the Democratic Republic of the Congo (DRC), Lesotho, Malawi, Mauritius, Mozambique, Namibia, the Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. In May 2006, 1 728 students sat CIMA examinations in Southern Africa, with candidates in all the countries except for the DRC where no candidates sat the examinations. Students can write more than one examination paper per sitting, and in May 2006, 3 158 papers were written in Southern Africa. Responses to the May 2006 questionnaire were received from 45 students who had written a total of 86 papers. Owing to incompleteness, the responses of two students could not be used – hence responses from 43 students were analysed. This is a response rate of 2.5% of students and 2.7% of examination papers.

In May 2007, 1 898 students sat CIMA examinations in Southern African countries, again with candidates in all of them except the DRC. In May 2007, 3 412 papers were written in Southern Africa. Responses to the May 2007 questionnaire were received from 29 students who had written a total of 58 papers. Once again, owing to incompleteness, the responses of two students could not be used – hence responses from 27 students were analysed. This is a response rate of 1.4% of students and 1.7% of papers. The lower response rate in 2007 is believed to have been the result of the fact that a number of different questionnaires were circulated to the population at the time, resulting in questionnaire fatigue. However, owing to the nature of the study, timing was critical, and the researcher deemed it unwise to postpone the circulation of the questionnaire. In the case of both the 2006 and the 2007 questionnaire, CIMA sent two e-mail reminders to all relevant students to encourage those who had not yet submitted the questionnaire to do so.

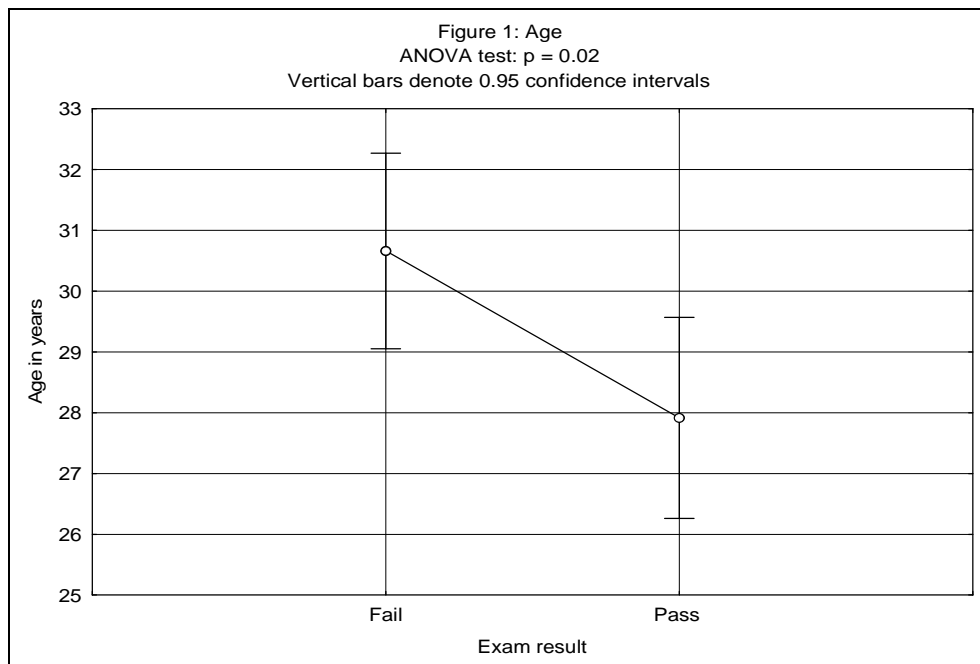
5 Results

Responses in respect of the May 2006 and May 2007 examinations were analysed together. Responses indicated that 51% of the CIMA papers written at these sessions had been unsuccessful – only 49% of attempts had resulted in a pass mark. For the relevant examination sittings, the lowest global CIMA pass rate for a particular paper was 39%, and the highest pass rate 67% (CIMA 2006). As would be expected in the CIMA examination structure, proportionately more lower-level papers were written: 54% of the papers written by the respondents were Managerial level papers, 44% were Strategic level papers, while 2% of respondents wrote the TOPCIMA examination.

The variables, as discussed in section 3, were assigned numbers and statistically analysed in order to determine their significance in relation to the candidates' examination results ("pass" vs. "fail"). All the variables, with the exception of the two ordinal variables for age and qualification, were analysed using chi-square tests. An ANOVA analysis was performed on the ordinal age variable for which a normal distribution could be assumed, while a Mann-Whitney test was conducted on the ordinal qualification variable where a normal distribution could not be assumed. The results of these analyses are discussed below.

Variable 1: age

The median age of the respondents at the time of writing the examinations was 27 years. As stated, on the basis of the assumption of a normal distribution, an ANOVA test was appropriate for the ordinal variable of age. A significant difference in age was found between candidates who passed the examinations, and those who failed ($p = 0.02$). As illustrated in figure 1, the average age of successful candidates was just under 28 years, while the average age of unsuccessful candidates was close to 31 years. This contradicts the US CPA examination study by Brahmastre and Whitten (2001), in which older candidates performed better, and highlights – among other differences such as regional factors – the distinct nature of the professional accounting examinations in question.



Variable 2: gender

Females passed 60% of the papers they wrote compared with males who passed only 43%. This result, however, was not statistically significant ($p = 0.06$), but did indicate a trend that females tended to outperform males. As previously discussed, past studies relating gender to results in accounting examinations have yielded mixed results. Gammie *et al.* (2003b)

identify three main themes in the literature that attempt to explain the differences between the results of studies: the nature of assessment which could impact on males and females in different ways, learning styles which may differ according to gender, and “constructed gender” which focuses on gender identity as opposed to biological gender. Such factors could conceivably have influenced the results of this study. If one also takes into account the fact that the p-value obtained for the gender variable was not strictly speaking statistically significant, one should exercise caution in attaching too much meaning to this finding in the absence of further research.

Variable 3: number of papers written

It is theoretically possible for a candidate to write all of the papers on a specific level at the same examination sitting – this means that up to six papers could be written (at the Managerial level). The majority of respondents in the survey (37%) wrote two papers at the same examination sitting, 30% wrote only one paper, and a further 30% wrote three papers. Analysis showed that 52% of candidates who wrote only one paper, passed it. Of those who wrote two papers, 27% passed both of the papers they wrote, while only 24% of candidates who wrote three papers passed all three. As one might have expected, there is a trend indicating that candidates decrease their chances of achieving success in all the papers they write by taking on more papers at a time.

Failing examination papers could impact on student morale, and could also have practical implications in areas such as work and study time schedules, employability and promotion opportunities. Furthermore, in the case of many Southern African students, their employers do not fund their CIMA studies in full: failing a paper and having to pay examination registration fees again for the same paper has a negative financial impact on such a student. If one takes into account that the exchange rate for Southern African currencies makes paying examination fees in pound sterling rather expensive, it is not surprising that candidates often ask tutors for advice on the optimal number of papers to write per sitting. From the results of this study it would appear that students at the Managerial level, and those who repeat papers at the Strategic level, could be advised to refrain from overloading their examination schedules.

CIMA’s examination rules dictate that candidates who attempt the Strategic level for the first time have to write all three papers at the same sitting. If the data of the candidates who chose to write three papers at the same examination sitting at Managerial level are removed, it is evident that 28% of the candidates passed all three Strategic level papers at the same time (as opposed to the 24% statistic obtained when the levels were combined). For first-time Strategic level candidates in Southern Africa, it may be worthwhile noting that they may have only a 28% chance of passing all three papers – hence the need for thorough preparation.

Variable 4: marital status

Statistical analysis indicated no significant relationship between whether a candidate was married or unmarried at the time of the examination and the examination result obtained ($p = 0.13$).

Variable 5: children

As in the case with marital status, no significant relationship was found between whether a candidate had children and the CIMA examination results ($p = 0.18$).

Variable 6: first language

Of the respondents, 60% considered a language other than English to be their first language. However, language proved to be highly insignificant ($p = 0.68$) in relation to the examination results obtained: those who considered their first language to be something other than English were not more likely to fail the examinations than their English counterparts. This finding is in line with the study of Australian university students registered for a second-year Management Accounting course (Jackling & Anderson 1998). In that study, the authors speculated that the numerical nature of management accounting (which is also the subject examined in CIMA examinations) probably means that language skills are not particularly important. However, CIMA examinations emphasise the strategic aspects of management accounting and include long, discursive, essay-style questions. The weight that such questions carries in the examinations increases with progression through the examination levels. One may therefore expect that language skills could become increasingly significant at the upper levels of the qualification. However, further chi-square tests analysing first language per level did not support this, and on the basis of the results of this study, Southern African students with a first language other than English can be advised that their language skills are unlikely to have a significant negative impact on examination results.

Variable 7: employment

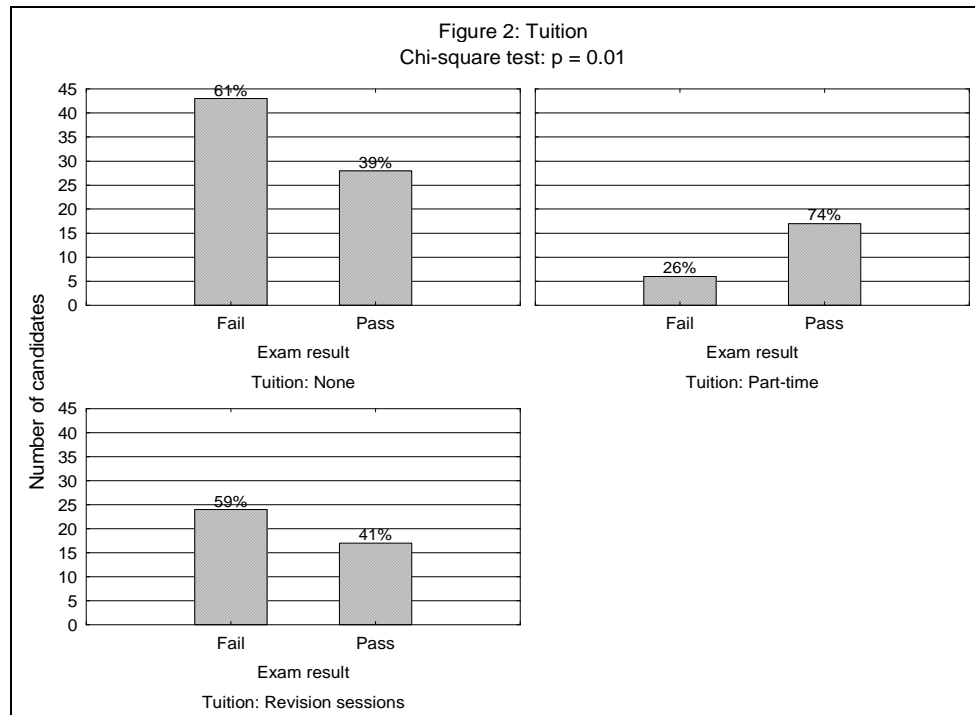
Of the respondents, 94% indicated that they had been employed full time, with the remaining 6% of respondents split between part-time employment, unemployment and "other". Owing to the large percentage of respondents representing only one category of employment and the thin spread across the remaining categories, a meaningful statistical analysis of the relationship between employment and examination results could not be performed.

Variable 8: training

Of the respondents, 92% indicated that they had never received training in the workplace from a CIMA training partner firm, with the remaining 8% indicating that at the time of the examination, they were employed in positions in which they received such training. This is not surprising given the small number of CIMA training partner firms in the region, and the limited positions available at such firms. Analysis showed that there was no significant relationship between training in the workplace and the examination results obtained ($p = 0.68$).

Variable 9: tuition

Formal tuition courses specifically aimed at CIMA students are scarce in Southern Africa compared with the UK. Of the respondents, 49% had received no formal tuition in preparation for the CIMA papers they wrote, 28% had attended revision sessions, while 16% had taken part-time classes. Only 4% had made use of distance education to prepare for the examinations, while 2% indicated that they had received full-time CIMA tuition. Tuition proved to be a particularly significant variable ($p = 0.01$): Figure 2 illustrates that the students who had attended part-time classes outperformed their counterparts by achieving a 74% pass rate in the examinations. This compares favourably with the 49% overall pass rate achieved by the respondents. The group that had received no form of examination-specific tuition performed the poorest, with a pass rate of only 39%.



Hence as far as tuition is concerned, there is evidence to support the findings of the studies of the US CPA examination. As discussed earlier, these studies indicated that some form of examination-specific tuition was in fact beneficial.

Variable 10: qualifications

The candidates' highest qualifications, as reported on the questionnaire, were classified into five ordinate groups: school qualifications, certificate or diploma qualifications, degree qualifications, post-graduate qualifications and professional qualifications. These were assigned values from 1 to 5 in order to perform a Mann-Whitney test, which was the appropriate test for this variable because a normal distribution could not be assumed. A significant relationship between the qualifications held by a candidate at the time of writing the CIMA examinations, and the result obtained in the examinations, was not found ($p = 0.14$). Even though not at all statistically significant, the basic trend indicated by the analysis is in line with that found in studies performed on US CPA candidates. Candidates with higher qualifications performed better.

Variable 11: examination attempts

Of the candidates who sat a particular CIMA paper for the first time, 53% passed, while only 37% of repeat candidates passed. Analysis of these results indicated a trend, although not statistically significant, for first-time candidates to outperform repeat candidates ($p = 0.07$). This finding contradicts the situation in the US CPA examination in which first-time candidates have a less than 10% chance of passing, although it should again be noted that the 10% statistic refers to candidates passing all four parts of the CPA examination. The

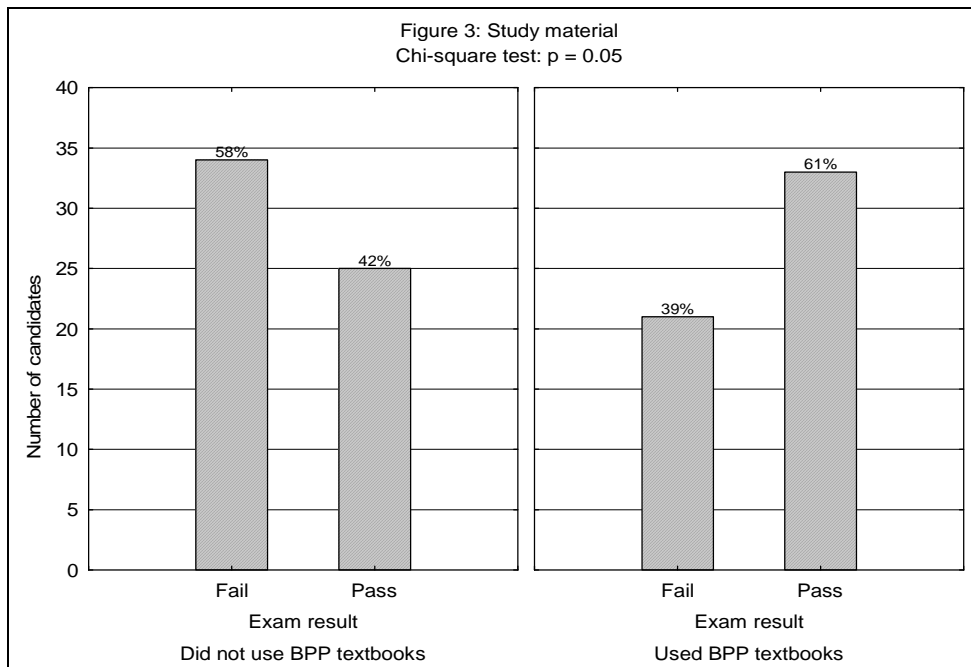
finding of this study is in line with the South African chartered accounting Qualifying Exam (Part 1) in which first-time candidates have a much higher pass rate than repeat candidates.

Variable 12: exemptions

Of the respondents, 56% had first entered the CIMA examination system at the Managerial level, compared with 32% who had received enough exemptions to allow them to enter at the Strategic level. Only 13% of respondents had entered the system at its base by taking the certificate-level examinations. The level at which a candidate first entered the CIMA examination system proved not to have any significant relationship with examination results ($p = 0.45$). This finding is in line with that of Loveday (1993) in relation to university accounting examinations as previously discussed, and could to some extent indicate that the exemption criteria employed by CIMA in the Southern Africa region are appropriate. Exemptions are granted on the basis of a candidate's qualifications: the qualifications variable (variable 10) was not found to be statistically significant, which further suggests that students may be entering the examination system at the appropriate level.

Variable 13: study material

The most popular textbooks were those by CIMA Publishing, but the use of BPP textbooks proved to be significantly associated with examination success ($p = 0.05$). Figure 3 illustrates that 61% of students who used BPP textbooks passed their examinations. This compares favourably with the overall 49% pass rate among respondents. In contrast, 48% of students who studied from CIMA Publishing textbooks passed, while 44% who used FTC books passed.



The reasons why BPP textbooks were associated with examination success are unclear, and further research into this finding would be necessary. The textbooks by CIMA Publishing are often written by persons closely associated with the CIMA examination system, and are the official textbooks endorsed by CIMA. One possible explanation for the finding is that the limited exposure that Southern African students have to CIMA training and tuition could mean that they are better able to digest the BPP writing style. Another possible explanation is the candidates' backgrounds, in terms of their academic qualifications and CIMA tuition (where applicable), could have guided them towards a specific publisher's book that may have been recommended to them. For example, some universities, like certain tuition providers, prescribe or recommend a specific publisher's textbook as part of their management accounting courses. It may in fact be that the particular academic or tuition background was strongly associated with examination success, rather than the textbook. To further explore this finding, future research could be conducted into the identity of all the academic and tuition institutions at which a candidate had previously studied (instead of focusing on only the highest qualification and the nature of CIMA tuition received, as was done in this study).

Since it is unclear at this stage why BPP textbooks were associated with examination success in the region, and because no independent studies were found to support this contention, in the absence of further research, it would be premature to recommend them over other textbooks.

6 Limitations

This study is subject to a number of limitations. Firstly, the questionnaire was sent to the full population of Southern African students who sat the relevant examinations, but the response rate was comparatively low. It should be kept in mind that a low response rate could limit the generalisability of the results. Furthermore, numerous factors could impact on results. Although many factors have been investigated in various studies, their applicability depends on the research methodologies used and the different contexts (Müller *et al.* 2007:23). Finally, as noted by Benke and Street (1992:43), ideal research is undertaken in the form of a controlled experiment, but a completely controlled experiment is not possible for the type of research conducted in accounting education.

7 Conclusions

Of the 13 variables investigated in this study, three showed trends worth mentioning at the 90% confidence level, while three variables could be considered significant at the 95% confidence level. At the 90% confidence level, the gender variable showed a trend for females to outperform males, while another trend was for first-time candidates to perform better than repeat candidates. Candidates who wrote fewer papers per examination sitting were also more likely to pass all the papers they wrote. The three variables that proved to be significant factors at the 95% confidence level were age, tuition and study material. Candidates were more likely to pass the examinations if they were younger than 28 years, attended part-time classes to specifically prepare them for the examinations and used textbooks published by BPP.

Had a higher response rate been achieved in the survey, further factors may have proven significant. The factors that presently specifically appear not to impact on examination

success are family commitments (marital status and children), whether or not English is a candidate's first language, whether or not a candidate had been exposed to specific CIMA training in the workplace and the level of exemptions received.

It was also apparent from the results that the factors impacting on CIMA examination results in Southern Africa may be different from those affecting success in the US CPA examination. The variables of age, gender and examination attempts all yielded results that were not entirely in line with expectations based on the CPA examination, but differences in examination structure have to be kept in mind. For one variable – the desirability of examination-specific tuition – the findings were similar: part-time courses for Southern African CIMA students were found to be strongly associated with examination success, while students who received no form of tuition performed poorly.

From this study it seems that candidates ought to be encouraged to take CIMA examinations at a young age. Candidates who take on multiple papers at the same examination sitting should note that their chances of passing all the papers decrease as the number of papers increases. Repeat candidates could be made aware that they may be slightly more at risk of being unsuccessful in the examination – hence the need to take steps to ensure examination success. One such step that is strongly recommended on the strength of the research would be to attend part-time classes specifically aimed at CIMA examinations.

8 Opportunities for further research

This study simply considered the variables in the light of the final result, that is, whether students had passed or failed the examination. Future research could be extended to analyse the variables according to the mark obtained in order to investigate their relevance at different performance levels.

Besides further exploring the factors that formed part of this study, additional factors could also be included in future research. There are three other factors in particular – based on indications from the existing literature – that could prove to be significant determinants of success. These are motivation (Schroeder 1986; Gul & Fong 1993; Davidson, Gelardi & Hart 1996; Hassall & Joyce 2001; Davidson 2002; Du Plessis *et al.* 2005; Müller *et al.* 2007); prior knowledge of accounting and related subjects (*Journal of Accountancy* 1983; Mitchell 1985; Schroeder 1986; Eskew & Faley 1988; Bartlett, Peel & Pendelbury 1993; Gul & Fong 1993; Tho 1994; Koh & Koh 1999); and academic aptitude (*Journal of Accountancy* 1983; Titard & Russell 1989; Doran *et al.* 1991; Ashbaugh & Thompson 1993; Gul & Fong 1993; Davidson *et al.* 1996; Koh & Koh 1999; Brahmasurene & Whitten 2001; Davidson 2002; Gammie *et al.* 2003a; Sadler & Erasmus 2005). Although there is evidence in the literature to suggest that these factors could possibly be significant variables to investigate, they were particularly difficult to measure in this study. The diversity and geographical spread of the candidates who write CIMA examinations in Southern Africa, coupled with the CIMA entry requirements, mean that candidates' backgrounds in terms of the subjects they majored in (if accepted as a measure of motivation), their prior knowledge of accounting and related subjects, and their academic aptitude, cannot easily be recorded in a uniform and comparable manner. Further research could explore appropriate ways to measure these variables or split the population into more homogeneous segments in order

to determine whether these factors are associated with success in CIMA examinations in Southern Africa.

Similar studies could also be conducted on examinations in other educational contexts in Southern Africa to determine the factors that affect examination success and to study the similarities and differences between findings. Such information could potentially provide valuable insights to education professionals.

Bibliography

- Ashbaugh, D.L. & Thompson, A.F. 1993. Factors distinguishing exceptional performance on the uniform CPA exam. *Journal of Education for Business*, 68(6):334-337.
- Bagamery, B.D., Lasik, J.J. & Nixon, D.R. 2005. Determinants of success on the ETS Business Major Field Exam for students in an undergraduate multisite regional university business program. *Journal of Education for Business*, 81(1):55-63.
- Barnett, J. 1998. Sensitive questions and response effects: an evaluation. *Journal of Managerial Psychology*, 13(1/2):63-76.
- Bartlett, S., Peel, M.J. & Pendlebury, M. 1993. From fresher to finalist: a three year analysis of student performance on an accounting degree programme. *Accounting Education*, 2(2):111-122.
- Benke, R.L. & Street, D.L. 1992. Accounting education research methodology. *Accounting Education*, 1(1):33-45.
- Black, H.T. & Duhon, D.L. 2003. Evaluating and improving student achievement in business programs: the effective use of standardized assessment tests. *Journal of Education for Business*, 79(2):90-98.
- Boone, J., Legoria, J., Seifert, D.L. & Stammerjohan, W.W. 2006. The associations among accounting program attributes, 150-hour status, and CPA exam pass rates. *Journal of Accounting Education*, 24(4):202-215.
- Brahmasrene, T. & Whitten, D. 2001. Assessing success on the uniform CPA exam: a logit approach. *Journal of Education for Business*, 77(1):45-50.
- Carpenter, V.L., Friar, S. & Lipe, M.G. 1993. Evidence on the performance of accounting students: race, gender and expectations. *Issues in Accounting Education*, 8(1):1-17.
- Chartered Institute of Management Accountants (CIMA). 2006. *CIMA publishes May 2006 exam results*. http://www2.cimaglobal.com/cps/rde/xchg/SID-0A82C289-2400D156/live/root.xml/14838_15210.htm. Accessed: 18 August 2008.
- Chartered Institute of Management Accountants (CIMA). 2007. *The CIMA difference: our relevance to business*. London: CIMA.
- Chartered Institute of Management Accountants (CIMA). 2008a. *Our history*. <http://www.cimaglobal.com/cps/rde/xchg/SID-0AAAC544-F936E84B/live/root.xml/1074.htm>. Accessed: 11 June 2008.
- Chartered Institute of Management Accountants (CIMA). 2008b. *Shaping your career*. London: CIMA.

- Chartered Institute of Management Accountants (CIMA). 2008c. *What we do*.
<http://www.cimaglobal.com/cps/rde/xchg/SID-0AAAC544-F936E84B/live /root.xml/1055.htm>. Accessed: 11 June 2008.
- CIMA, *vide* Chartered Institute of Management Accountants.
- Davidson, R.A. 2002. Relationship of study approach and exam performance. *Journal of Accounting Education*, 20(1):29-44.
- Davidson, R.A., Gelardi, A.M.G. & Hart, D. 1996. Factors affecting the use of the Canadian Uniform Final Examination as a means of assessing CA candidates. *Accounting Education*, 5(1):159-167.
- De Lange, P., Waldmann, E. & Wyatt, K. 1997. Personal characteristics and academic achievement of undergraduate accounting students studying through open learning. *Accounting Education*, 6(4):295-306.
- Doran, B.M., Bouillon, M.L. & Smith C.G. 1991. Determinants of student performance in Accounting Principles I and II. *Issues in Accounting Education*, 6(1):74-84.
- Du Plessis, A., Müller, H. & Prinsloo, P. 2005. Determining the profile of the successful first-year accounting student. *South African Journal of Higher Education*, 19(4): 684-698.
- Eskew, R.K. & Faley, R.H. 1988. Some determinants of student performance in the first college-level financial accounting course. *The Accounting Review*, 63(1):137-147.
- Frakes, A.H. 1977. Introductory accounting objectives and intermediate accounting performance. *The Accounting Review*, 52(1):200-210.
- Gammie, E. & Gammie, B. 1995. Women chartered accountants: progressing in the right direction? *Women in Management Review*, 10(1):5-13.
- Gammie, E., Jones, P.L. & Robertson-Millar, C. 2003a. Accountancy undergraduate performance: a statistical model. *Accounting Education*, 12(1):63-78.
- Gammie, E., Paver, B., Gammie, B. & Duncan, F. 2003b. Gender differences in accounting education: an undergraduate exploration. *Accounting Education*, 12(2):177-196.
- Gist, W.E., Goedde, H. & Ward, B.H. 1996. The influence of mathematical skills and other factors on minority student performance in Principles of Accounting. *Issues in Accounting Education*, 11(1):49-60.
- Gul, F.A. & Fong, S.C.C. 1993. Predicting success for introductory accounting students: some further Hong Kong evidence. *Accounting Education*, 2(1):33-42.
- Hassall, T. & Joyce, J. 2001. Approaches to learning of management accounting students. *Education and Training*, 43(3):145-152.
- Jackling, B. & Anderson, A. 1998. Study mode, general ability and performance in accounting: a research note. *Accounting Education*, 7(1):65-73.
- Journal of Accountancy*. 1983. CPA exam takers show rise in levels of education. January:10-12.
- Koh, M.Y. & Koh, H.C. 1999. The determinants of performance in an accountancy degree programme. *Accounting Education*, 8(1):13-29.
- Lipe, M.G. 1989. Further evidence on the performance of female versus male accounting students. *Issues in Accounting Education*, 4(1):144-152.

- Loveday, P.M. 1993. Exemptions from first semester accounting and performance in the second semester course: an empirical study. *Accounting Education*, 2(2):143-150.
- Mitchell, F. 1985. School accounting qualifications and student performance in first level university accounting examinations. *Accounting and Business Research*, 15(58):81-86.
- Moses, O.D. 1987. Factors explaining performance in graduate-level accounting. *Issues in Accounting Education*, 2(2):281-291.
- Müller, H., Prinsloo, P. & Du Plessis, A. 2007. Validating the profile of a successful first year accounting student. *Meditari Accountancy Research*, 15(1):19-33.
- Mutchler, J.F., Turner, J.H. & Williams, D.D. 1987. The performance of female versus male accounting students. *Issues in Accounting Education*, 2(1):103-111.
- Nourayi, M.M. & Cherry, A.A. 1993. Accounting students' performance and personality types. *Journal of Education for Business*, 69(2):111-115.
- Parkinson, J. 2001. Explicit teaching of grammar and improvement in the grammar of student writing. *Journal for Language Teaching*, 35(4):278-293.
- Perry, R. 2007. Your verdict: 2006 student survey. *Financial Management*, April:55.
- Sadler, E. & Erasmus, B.J. 2005. The academic success and failure of black chartered accounting graduates in South Africa: a distance education perspective. *Meditari Accountancy Research*, 13(1):29-50.
- SAICA, *vide* South African Institute of Chartered Accountants.
- Sanders, H.P. 1972. Factors in achieving success on the CPA examination. *Journal of Accountancy*, December:85-88.
- Schroeder, N.W. 1986. Previous accounting education and college-level accounting exam performance. *Issues in Accounting Education*, 1(1):37-47.
- South African Institute of Chartered Accountants (SAICA). 2008. *Media centre: press releases: number of prospective chartered accountants on the rise*. <http://www.saica.co.za>. Accessed: 3 July 2008.
- Tho, L.M. 1994. Some evidence on the determinants of student performance in the University of Malaya introductory accounting course. *Accounting Education*, 3(4): 331-340.
- Titard, P.L. & Russell, K.A. 1989. Factors affecting CPA examination success. *Accounting Horizons*, 3(3):53-59.
- Tyson, T. 1989. Grade performance in introductory accounting courses: why female students outperform males. *Issues in Accounting Education*, 4(1):153-160.
- Wong, D.S.N. & Chia, Y. 1996. English language, mathematics and first-year financial accounting performance: a research note. *Accounting Education*, 5(2):183-189.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.