Determinates of Accounting Students' Performance in Kuwait University

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ABSTRACT. This paper examines the factors associated with performance of the accounting majors graduated from Kuwait University (KU). The three factors now in effect which influence admission decisions at KU are secondary school scores, branch of study in secondary school, and nationality. The advantage of the current admission policy adopted by KU is that it allows the earliest possible point in the academic program at which the screening of those students that should be admitted into the accounting program to take place. However it is not clear whether improvements in this admission policy are possible if other factors were used (in addition to the three factors currently being used) in predicting subsequent performance and thus for screening students for admission into the accounting program.

Relevant factors that may be associated with performance include the overall grade-point average (GPA) at the end of the Freshman year and at the end of the Sophomore year, as well as grades in specific collegiate accounting courses. The objective of this study is to assess the ability of some of these factors in conjunction with those currently used by KU to predict the performance of students of accounting majors graduating from KU.

Earlier Studies

Predicting the performance of students pursuing a collegiate accounting degree has received considerable attention in recent years from accounting educators and researchers. Various studies, mainly conducted in Developed Countries, have examined several factors associated with success or failure of students majoring in accounting. Research results suggest that knowledge of these factors could assist in making admission and retention decisions, designing accounting curricula, improving students' counselling, and reducing the drop or failure rate among prospective accounting majors. However, the question arises as to whether factors associated with performance in educational institutions in developed nations will have the same relevance in a developing nation. As a result of environmental factors educational models vary from one country to another, as well as from one educational institution to another.

Several earlier studies have identified a number of factors (attributes of students), which may be related to their subsequent academic performance. Previous studies in education in general indicate that past academic performance is significantly related to future performance (Astin, 1971). Research has also shown that overall academic performance is determined by complex interactions of several predictor variables (Lavin, 1965 and Bensinger et. al, 1999).

Several studies in the accounting education literature have focused on the evaluation of performance of students majoring in accounting or taking specific accounting courses, or some admission tests for accounting courses. Clay and Mann (1976) conducted a survey of the use of GPA for admission and retention of students majoring in accounting and suggested that the modification of admission and/or retention standards is perhaps the most viable alternative to cope with increased enrolment in accounting programs. Frakes (1977) reports the results of a study in which several factors are associated with performance. The results of his study show that prior college GPA correlates well with performance in intermediate accounting course. Dockweiler and Willis (1985) studied the relationships between 11 independent variables and the subsequent performance of a sample of undergraduate accounting students. The results indicate that entering GPA is the single best predictor of subsequent academic performance. Certain other factors also appear to be useful in this regard such as student's grade in the second introductory accounting course.

Eckel and Johnson (1983); and Clark and Sweeney (1985) used multiple discriminant analysis to classify accounting students into two achievement groups based on several variables which included GPA after earning a certain number of semester hours, grades in specific lower division courses, and scores in some standardized tests. Some of these variables appeared to be correlated with achievement level of accounting students. Again, prior GPA appeared - in general- to be the most important factor in predicting success or failure in the accounting program.

AICPA achievement test scores were the subject of study by several researchers. Buehlmann (1975); McCormick and Montgomery (1974); Delaney et al (1979); and Ingram and Petersen (1987) examined AWPA test scores as a predictor of the performance of accounting majors. Ingram and Petersen (1987) included as predictors of performance some other explanatory variables such as grades in all upper division courses, grades in upper division accounting courses (overall and accounting GPA during the students' junior years). The results of their studies show that students' GPA for the first two years of college is by far the most important variable for predicting accounting student performance in upper division courses. They point also to the need for extending the research to other students at other universities in order to generalize the findings.

In a study by Hicks and Richardson (1984), students' performance in intermediate accounting was correlated with score on an entry examination and two measures of GPA. The results indicated that scores in principles of accounting course has a stronger correlation with performance than does overall Freshman - Sophomore GPA. Eskew and Faley (1988) developed a model to explain students' performance in the first college-level financial accounting course. High school and previous collegiate performance, as well as previous specific and related academic experience are all significantly related to examination performance in introductory accounting course.

Karim and Ibrahim (1992) have compared the performance of male and female students in an upper – division accounting course offered during the period of 1985 – 1989 in a third world university. The findings indicated that the male students performed better than the female students. The results signified that mathematics had no effect on students' performance in accounting courses nor did the female students with mathematics backgrounds significantly outperform their male peers in the same group. It is argued that differences in culture could be an important factor that limits the generalizability of the findings of other studies.

In another study by the same researchers the question of whether accounting majors have higher levels of writing apprehension than students in other majors was investigated. Current perceptions of business are often less than flattering. One view is that deceptive and unethical practices have not diminished; another is that management has become more proficient and sophisticated in its application of questionable practices and short – term strategies.

Fisher (2000) examined the ethical predisposition of a group of accounting and business students. Results indicated that a breach of ethical conduct is one of the surest ways of bringing a desired relationship to a premature conclusion, it is today's students, who represent the next generation of business leaders. A consortium of university outreach staff and professors from Ohio University and accounting professionals has worked together to plan and offer continuing professional education program at the university for local practitioners for the past 20 years.

Figg (1999) has warned that the number of accounting students graduating this year in the US will drop to half of what it was several years ago, this necessitates measuring student performance and identifying variables affecting their performance.

One of NSA'S greatest investments in the future of the accounting profession is its scholarship program. The NSA Scholarships Foundation annually awards approximately 40 scholarships to college students majoring in accounting at the undergraduate level. Scholarships are awarded primarily for academic attainment, demonstrated leadership ability and financial need, which is done through some performance measurements.

Accounting education is changing as is the faculty teaching tomorrow's accounting professionals. The changes in accounting faculties are likely to have important consequences for the accounting practitioners as current and future accounting graduates join the accounting profession. Changes include a reduction in full–time accounting faculty and changes in academic preparation, professional certification and gender of the accounting faculty. These changes have the potential to alter the product that is being presented to the business community and how the business community should interface with both accounting students and accounting faculty. The accounting profession needs to maintain close ties with universities that train its future members. Only a highly visible and regular presence on campus can keep accounting faculty and students aware to changes in the skills and specialized areas of knowledge in demand by the profession (Gibson & Schroeder, 1998).

In January 1998, AICPA members voted by a margin of 4 to 1 require new members to have 150 semester hours of collegiate study. Approaching the 21st century, it is clear that the 150 semester- hour requirement will become the standard for accounting education of

benefits in several ways when its newest members receive more educational training. The students should have greater maturity, and thus be able to better apply professional judgment. In addition, their business and communication skills should be improved, and they should require less on – the – job training (Kaplan & Welker, 1998).

At a time when specialist understanding of public sector issues is most needed, New Zealand's universities are moving away from offering appropriate courses. Recent academic accounting literature has heavily criticized accounting departments in New Zealand's universities for producing graduates who lack the required skills to meet the challenges of the 21st century. But it appears that one of the areas of greatest challenge, the public sector, is an area where specialist education is most wanting (Rahaman, 1999).

In general, the studies cited above point to the need for further research which examines both the intellective and non-intellective predictors of performance of accounting students in order to qualify them for professional life. And, as pointed out by Williams et al (1988: 62) "very little is currently known from a scientific perspective about the qualities and qualifications which are predictive of success in accounting. Research which assists in the establishment of admission and retention standards would increase the effectiveness of accounting program by making them more efficient". They also indicated that "much additional work should be done in the area of student demographics..".

Defining Performance in Accounting Programs

Although the majority of studies reviewed in the above section and other similar ones attempt to identify factors associated with success or failure of students admitted to accounting programs, they used different criteria of performance. The performance criterion chosen in studies by Baldwin and Howe (1982); Bergin (1983); and Eskew and Faley (1988) was scores in introductory accounting for undergraduates. Performance in graduate level financial accounting was the criterion in the study by Moses (1987). Success or failure in intermediate accounting course was the subject of study, for example by Delaney -et al (1979); Frakes (1977); Hicks and Richardson (1984); and Buehlmann (1975). Ingram and Petersen (1987) used the overall and accounting GPA's earned during the students' junior years, while Dockweiler and Willis (1984) used as a measure of performance GPA earned while enrolled in the accounting program in junior and senior years. Clark and Sweeney 1985) classified students' performance according to whether they had a GPA of 2.3 or more on their last 21 semester hours of accounting courses.

This study examined two performance measures: the students' overall GPA upon graduation and the students' GPA in all accounting courses upon graduation. GPA's upon graduation were thought to be capable of distinguishing students who perform well in the program from those who do not; a consideration usually relied upon by most recruiters in the job market for accounting graduates, as well as for admission into graduate programs and selection for scholarships offered by several Kuwaiti institutions.

Admission Requirements

In order to be enrolled at the college of administrative sciences – KU, students have to fulfil the following; attending capabilities exams, passing 3 pre-college core courses (calculus 1, Basic English, and introductory computer), and scoring a minimum of 61% GPA at high school. These conditions have to be met before advancing to the first year in college. Firstly, applicants to the college have to hold a minimum high school GPA of 61%,

if not his paper would be transferred to another college at KU. Then based on his scores at the capabilities exam, applicant would either be admitted to the college as freshman, or otherwise be given two chances to fulfil that requirement.

The Data

This study used data made available by the registrar office at KU and which are maintained on a computerised database. The number of students in the sample of this study is 183 students, which represents the total students' population graduating from KU with accounting major during the 1998-1999 academic year (fall, spring, and summer graduation). Graduates from the accounting program during the 1998-99 academic year represent 27.6% of the total students graduating during the same year from the college of Administrative sciences, and 5.9% of those graduating from all KU colleges.

Graduates from the accounting program during the 1998-99 year were chosen as the subject of this study in order to reflect as close as possible the most recent graduation where data were available. In addition, the majority of those graduates were admitted into the accounting program after the year 1991-92 when a major change in the accounting curriculum was introduced, and was effective since the 1991-92 academic year (Only 4 students included in the sample were admitted before 1992).

The Parameter

Based on the above discussion, the students' overall performance was hypothesised to be a function of the following factors: (1) Secondary school academic performance and type of secondary school branch (sciences or arts), (2) performance in specific accounting courses, (3) Freshman's GPA and Sophomore's GPA, and (4) some demographic variables.

Pre-college academic performance is measured by scores in secondary school uniform examination, measured in a percentage form. A dichotomous variable for branch of study in secondary school was included since it affects the minimum scores required to be admitted into the accounting program according to the current admission policy adopted by KU. Grades achieved by students in lower division accounting courses were chosen to reflect the scholastic aptitude in accounting subject; a consideration worthy of testing which may have implications for designing admission policy into accounting program. Overall GPA after the first year and after the second year in the accounting program were chosen to reflect the general academic performance in early years of residence at college (Grades for all students comprising the sample were measured according to a 4-point scale used by KU. Three demographic variables were included in the model: Students' age upon admission to the college, nationality (Kuwaiti or non-Kuwaiti), and sex. The model can be specified as follows:

$$GPA = GPA1 + GPA2 + FA1 + FA2 + FA3 + CA1 + HSS + HSB + AGE + NAT + SEX$$

<u>Where</u>

GPA = Performance of student upon graduation (overall GPA (GPA99)-GPA on all accounting courses (MGPA99)).

GPA1 = Overall GPA earned at the end of first year in college (at the end of the first 30 Semester hours)

GPA2 = Overall GPA earned at the end of second year in college (at the end of the first 60 semester hours)

FA1	=	Grade earned in the first introductory accounting course
FA2	=	Grade earned in the second introductory accounting course
FA3	=	Grade earned in the first intermediate financial accounting course
CA1	=	Grade earned in cost accounting course
HSS	=	Score in secondary school certificate examination; expressed in a percentage form
HSB	=	Branch of study (stream) in secondary school (sciences =1, arts =0)
AGE	=	Age of student upon admission to college
NAT	=	A dichotomous variable representing student's nationality (Kuwaiti = 1, Non-Kuwaiti = 0).
SEX	=	Sex of student (Male = 1, Female = 0).

Data Analysis Procedure

Descriptive statistics were performed for the 183 students comprising the study sample, and also for four individual sub-samples of students determined by dividing the full sample along two dimensions as follows:

1. Nationality: Kuwaiti citizens (142 students), and non-Kuwaiti citizens (41 students)
2. Secondary school branch: Arts stream (85 students), and sciences stream (98 students).

Correlation analysis was conducted in order to measure the degree of association of each independent variable with students' overall GPA earned upon graduation. Since correlation analysis ignores the joint contribution of independent variables, stepwise multiple regression analysis was used to analyse the relationships between students' performance and the independent variables. Linear regression model was used because simple plots of the data provided no evidence on the existence of non-linear relationships. Correlation and multiple regression analysis were also conducted separately on sub-samples.

Results and Discussions - Descriptive Statistics

Table (1) lists descriptive statistics for the 183 students comprising the study sample. The data shows that non-Kuwaiti students, as compared with Kuwaiti students, are about the same age, have higher secondary school scores, and consistently outperform Kuwaiti students in terms of GPA1, GPA2, GPA99, and GPA on accounting courses upon graduation (MGPA99). They also have higher scores on each of the accounting courses (FA1, FA2, FA3, and CA1).

The statistics also show that students entering accounting program from sciences stream of the secondary school, as compared with students from arts stream, tend to perform better in individual accounting courses as well as in terms of GPA upon graduation, although their secondary school scores upon admission (HSS) are lower. In addition the statistics presented in Table 1 reveal that students tend to improve their overall performance as they move from Freshman year to Sophomore year, as evident from comparing GPA1 with GPA2. However, students' performance in accounting courses did not improve as students progressed in their study of accounting. Table 1 shows that students' scores in first intermediate financial accounting (FA3) and cost accounting (CA1) are, on average, lower than their scores in the two introductory accounting courses (FA1 and FA2).

Table (1)
Descriptive Statistics
(Continuous variables)

Variable	Full sample Mean (std.dev.)	Kuwaiti Mean (std.dev.)	Non-Kuwait Mean (std.dev.)	Sciences Mean (std.dev.)	Arts Mean (std.dev.)
AGE	19,40	19.23v	19.74	19.35	19.46
	(3.10)	(2.93)	(3.42)	(2.84)	(3.39)
HSS	73,91	71.69	78.35	71.94	76.18
	(11.41)	(0.89)	(11.21)	(13.21)	(8.42)
GPA99	4,88	4.61	5.44	5.00	4.75
	(1.25)	(1.10)	(1.37)	(1.33)	(1.16)
MGPA99	4.69	4.42	5.23	4.82	4,54
	(1.46)	(1.30)	(1.62)	(1.54)	(1.37)
GPA1	4,25	3.73	5.27	4.23	4.26
	(2.03)	(1.98)	(1.73)	(2.29)	(1.69)
GPA2	4.75	4.40	5.45	4.90	4.58
	(1.41)	(1.30)	(1.38)	(1.57)	(1.19)
FA1	5.35	5.05	5.87	5.80	4.88
	(2.32)	(2.34)	(2.22)	(2.22)	(2.34)
FA2	5.37	5.20	5.72	5.56	5.15
	(2.18)	(2.19)	(2.13)	(2.26)	(2.07)
PA3	4.68	4.29	5.39	4.92	4.43
	(2.03)	42.04)	(1.83)	(2.13)	(1.90)
CA1	4.77	4.62	5.03	4.84	4.69
	(2.26)	(2.24)	(2.30)	(2.21)	(2.33)

Correlation Analysis

Table (2) presents the results of Pearson Product-Moment correlation coefficients of each independent variable with GPA earned upon graduation, for the full sample, as well as for each of the four individual sub-samples. The correlations presented in Table 2 allow several observations. First, GPA2 exhibited the highest correlation with the dependent variable GPA99, followed by GPA1, and then by HSS. Correlation coefficients between GPA99 and   these three variables were 0.895, 0.777., and 0.619 respectively for all students sample. Second, as expected, all independent variables reflecting scores in individual accounting courses (FA1, FA2, FA2, CA1) or overall GPA (HSS, GPA1, GPA2) had positive correlations with GPA99 (ranging from 0.445 to 0.942) and all coefficients are significant at the 0.01 level.

Table (2)
Pearson Product-Moment Correlation Coefficients
of Independent Variables with GPA99

Variable	Full Sample	Kuwaiti	Non-Kuwait	Science	Arts
SEX	-0.105	-0.147	-0.107	0.038	-0.289*
NAT	-0.327**	-	-	-0.436**	-0.124
AGE	-0.232*	-0.194*	-0.420**	-0.296*	-0.167
ESB	0.128	0.070	0.228	-	-
HSS	0.619**	0.445**	0.766**	0.657**	0.607**
GPA1	0.777**	0.684**	0.854**	0.799**	0.736**
GPA2	0.895**	0.837**	0.942**	0.875**	0.924**
FA1	0.497**	0.374**	0.641**	0.504**	0.465**
FA2	0.598**	0.510**	0.712**	0.684**	0.475**
FA3	0.594**	0.496**	0.679**	0.643**	0.512**
CA1	0.599**	0.532**	0.719**	0.615**	0.585**

  * Significant at the 0.01 level
  ** Significant at the 0.001 level

The three demographic independent variables (sex, nationality, and age) had negative correlations with GPA99 which indicate that a female non-Kuwaiti student of a younger age would be expected to perform better in the accounting program. However, sex and secondary school branch had rather low correlation coefficients, which are not significant at the 0.01 level. Third, the correlations between GPA99 and scores in FA2, and FA3, and CA1 are about equal (0.598, 0.594, and 0.599 respectively), and show consistent patterns when considering sub-samples of Kuwaiti versus non-Kuwaiti, and sciences stream versus arts stream. Fourth, the coefficient on FA1 is positive and significant at the 0.001 level, but it is lower than those on the other accounting courses (FA2, FA3, and CA1).

Regression Results

Using stepwise regression process in the Statistical Package for Social Sciences (windows. SPSS), a series of different models were developed. In model 1, the dependent variable was GPA upon graduation (GPA99), and data on all variables were employed as independent variables. Table 3 presents the results of the stepwise regression analysis for the full sample. Table (4) and Table 5 present analogous results for model 1 derived separately from the four sub-samples. Each table reports the beta coefficient, the F ratio, as well as the R^2 change for each independent variable entered into regression equation. The F ratio indicates the relative contribution of each independent variable in explaining the dependent variable when it is the last variable entered in the regression model. This F ratio and its significance level (given in parenthesis) helps in assessing the importance of a single variable in explaining the variation in the dependent variable. The R^2 and the Adjusted R^2 for the model as a whole are reported at the end of each table. Their values show that the model is significant at the 0.001 level. Thus the model provided a good fit for the GPA99 variable.

Table (3)
Summary of Regression Analysis - Full Sample
Model I Dependent Variable GPA99

Independent Variable Entering the Equation	Beta Coeff	F Ratio (Prob.)	R^2 Change
GPA2	0.599	236.99 (0.000)	0.800
HSS	0.030	50.69 (0.000)	0.043
CA1	0.067	11.88 (0.001)	0.013
FA3	0.068	9.32 (0.003)	0.008

F = 261.17
R^2 = 0.864
Adjusted R^2 = 0.861

Table (4)
Summary of Regression Analysis
Sample Split According to Nationality
Model 1 - Dependent Variable: GPA99

Independent Variable Entering the Equation	Kuwaiti Students			Non-Kuwaiti Students		
	Beta Coef	F Ratio (Prob.)	R^2 Change	Beta Coef.	F Ratio (Prob.)	R^2 Change
GPA2	0.586	249.41 (0.000)	0.700	0.634	456.34 (0.000)	0.887
HSS	0.024	17.87 (0.000)	0.043	0.032	30.85 (0.000)	0.040
CA1	0.078	11.22 (0.001)	0.025	-	-	-
FA3	-	-	-	0.080	5.45 (0.023)	0.006
FA2	0.060	4.97 (0.028)	0.011	-	-	-
FA1	-	-	-	0.064	5.45 (0.023)	0.006

F = 91.37
R^2 = 0.779
Adjusted R^2 = 0.770

F = 212.96
R^2 = 0.939
Adjusted R^2 = 0.935

Table (5)
Summary of Regression Analysis
Sample Split According to Branch in Secondary School
Model I - Dependent Variable: GPA99

Independent Variable Entering the Equation	Sciences Branch			Arts Branch		
	Beta Coef	F Ratio (Prob.)	R^2 Change	Beta Coef.	F Ratio (Prob.)	R^2 Change
GPA2	0.494	273.52 (0.000)	0.765	0.975	470.84 (0.000)	0.853
HSS	0.028	31.91 (0.000)	0.065	0.025	11.60 (0.001)	0.019
CA1	0.070	13.26 (0.001)	0.024	-	-	-
FA2	0.071	6.97 (0.010)	0.012	-	-	-
FA3	0.074	4.79 (0.032)	0.008	-	-	-
GPA1	-	-	-	-0.139	6.74 (0.011)	0.010

F = 110.08
R^2 = 0.874
Adjusted R^2 = 0.865

F = 196.59
R^2 = 0.882
Adjusted R^2 = 0.877

As anticipated, the sign for all beta coefficients of the independent variables entered the regression were positive, except for GPA1 achieved by students with arts stream in secondary school. Thus, GPA at the end of Freshman year for these students were negatively contributing to their over-all performance in accounting program.

The most important predictor variable influencing performance in accounting program turned out to be GPA at the end of Sophomore year (GPA2). GPA2 was consistently having the largest marginal contribution in explaining performance across all sub-samples as well as for the full sample, and was highly statistically significant. This reinforces the initial conclusion that followed from correlation analysis reported earlier (Table 2). GPA2 was followed by scores in secondary school examination (HSS) which is currently taken as the main criterion in admitting students into the accounting program.

In addition, the results reported in Table (3) indicate that CA1 and PA3 contribute significantly to an explanation of the variance in students' performance in accounting program. However, as reported in Tables 4 and 5, CA1 appeared as a significant explanatory variable only for Kuwaitis' and for sciences' sub-samples, while FA3 appeared significant for only non-Kuwaitis' and sciences sub-samples. It can be noticed also from Table 5 that none of the independent variables representing grades in individual accounting courses could be considered as a significant factor in explaining overall performance of students graduating from arts stream in secondary schools. Rather, it is their overall performance in secondary school (HSS) and GPA2, which significantly positively associated with success in accounting program. The effect of PA1 in explaining overall performance was not significant except for the non-Kuwaiti students (Table 4).

Other independent variables, including demographic variables (sex, nationality, and age) and secondary school stream did not enter the regression equation, and thus, did not contribute to explaining variation in students' performance. In other words, they showed little usefulness as explanatory variables when used jointly with other variables (GPA2, HSS, CA1, and FA3).

Alternative Performance Criterion

Alternatively, Model II was developed using the students' GPA on all accounting courses upon graduation (MGPA99) as a performance measure in order to identify factors associated with performance in accounting courses only. The stepwise regression results of Model II are presented in Table 6. The results indicate that Model II provided a good fit for the MGPA99 variable as F ratio for the model was statistically significant at the 0.001 level. Both Models I and II identified GPA2, HSS, CA1, and FA3 as significant factors in explaining performance whether in terms of overall GPA in all courses upon graduation (GPA99) or in terms of accounting courses only (MGPA99). GPA at the end of second year achieved consistent results in both models as it had the largest F ratio and R2 change. However, the order the other variables entered the regression equations (HSS, CA1, and FA3), and thus their relative importance in explaining performance when used jointly with other predictors were somewhat different in the two models.

Table (6)
Summary of Regression Analysis- Full Sample
Model II - Dependent Variable MGPA99

Independent Variable Enteric the Equation	Beta Coeff	F Ratio (Prob.)	R2 Chance
GPA2	0.432	58.02 (0.000)	0.668
FA2	0.137	20.93 (0.000)	0.063
CA1	0.129	21.494 (0.000)	0.036
PA3	0.146	20.93 (0.000)	0.020
HSS	0.025	17.17 (0.001)	0.020

F   = 136.25
R2   = 0.807
Adjusted R2   = 0.801

In addition, results of Model II indicate that there is additional usefulness in including FA2 as a predictor of performance as measured by MGPA99. As anticipated, more weights will be given to performance in individual accounting courses if overall success in accounting program is being judged on the basis of MWA88. This explains the relatively higher explanatory power of the three individual accounting courses FA2, CA1, and FA3 over HSS in Model II as compared with model I. This conclusion reinforces the observation found from the rather high correlation coefficient between MGPA99 and individual accounting courses (Correlation coefficients between MGPA99 and PA1, FA2, and CA1 were 0.5315, 0.6705. and 0.6430 respectively).

Multicollinearity

Multicollinearity refers to the condition of a high degree of interdependence among the independent variables which causes difficulties in assessing the individual effect of an independent variable upon the dependent variable. Table 7 presents results of a simple pair wise correlation analysis for the various independent variables. The results show few cases of moderate intercorrelations that exist among some independent variables, particularly among GPA1, GPA2, FA1, FA2, PA3, and CA1. To investigate the existence of multicollinearity in the regression model, tolerance criterion has been applied which requires that the tolerance of each variable in the model (a measure of the proportion of variability not explained by the other variables) should be high enough to be acceptable. Tolerance of independent variables in regression equation for Model I and Model II were between 0.4 and 0.75. Based on these results it was judged that multicollinearity does not appear to be a serious problem in the model.

Table (7)
Simple Correlation Coefficients between
Independent Variables

	SEX	NAT	AGE	HSB	HSS	GPA1	GPA2	FA1	PA2	FA3	CA1
SEX	1	-0.05	0.30	0.05	-0.26	-0.08	-0.04	-0.06	.01	0.14	-0.05
NAT		1	-0.15	-0.26	-0.22	-0.34	-0.38	-0.17	-0.14	-0.26	-0.09
AGE			1	-0.15	-0.07	-0.37	-0.14	-0.19	0.11	-0.07	-0.02	-0.10
HSB				1	-0.07	0.14	0.16	-0.22	0.09	0.13	0.05
HSS					1	0.48	0.49	0.29	0.37	0.23	0.33
GPA1						1	0.87	0.52	0.52	0.47	0.40
GPA2							1	0.49	0.57	0.58	0.55
FA1								1	0.42	0.42	0.34
PA2									1	0.47	0.45
FA3										1	0.42
CA1											1

In addition, in view of relatively moderate intercorrelations among the above mentioned independent variables and as a remedy, an alternative regression model was developed (Model III) in which two collinear variables (FA3 and CA1) were dropped from the regression in Model I. Table 8 reports the results of stepwise regression for Model III for the full sample as well as for the four sub-samples. All regressions were found to be statistically significant at the 0.001 level.

The results presented in Table 8 indicate that dropping FA3 and CA1 did not change the previous conclusion of Model I regarding the importance of GPA2 in predicting students' overall performance. GPA2 by far provided the most important variable in

explaining success in accounting program; a conclusion that is consistent throughout the various regression models developed in this study. When comparing results of Model III (Table 8) with analogous results of Model I (Tables 3,4, and 5), it appears that the relative contribution of HSS to explaining performance comes next to GPA2 in the two models. In addition, the effect of dropping the two independent variables (CA1 and FA3) allowed FA2 (grades in the second introductory course) to enter the regression equation for the full sample as well as for the two sub-samples representing Kuwaiti students and graduates of sciences stream of secondary schools. Grades in the first introductory accounting course again showed a significant explanatory power in predicting performance of non-Kuwaiti students only. Since it is more desirable to identify candidates for admission to accounting program at an earlier point in their academic study, Model III provides an advantage over Model I in identifying factors related to overall performance. The omission of CA1 and FA3 in Model III resulted in a reduction in the overall R^2 of the full sample by only 0.014 when compared with that of Model I (.864 - 0.850). Therefore, results of Model III suggest that grades in the second introductory accounting (PA2) could be regarded as a substitute for the more advanced accounting courses (CA1 and FA3), and thus permitting an earlier prediction of students' performance.

Table (8)
Summary of Regression Analysis
Model III - Dependent Variable GPA99
Full Sample

Independent variable Entering the Equation	F Ratio P Ratio (Prob.).	R2 Chance
GPA2	676.95 (0.000)	0.800
HSS	45.49 (0.000)	0.043
PA2	7.65 (0.020)	0.007

F   = 315.11
R^2 = 0.850
Adjusted R~ = 0.847

Sample Split

Independent Variable Entering the Equation	Kuwaiti		Non-Kuwaiti		Sciences		Arts	
	F (Pr.	Rz change	F (Pr)	R2 change	F (Pr.	Rz change	F (Pr.	Rz change
GPA2	256.91 (0.000)	0.70	450.54 (0.000)	0.88	273.52 (0.000)	0.76	460.90 (0.000)	0.85
HSS	18.11 (0.000)	0.04	29.57 (0.000)	0.04	31.95 (0.000)	0.07	11.81 (0.001)	0.02
FA2	6.58 (0.012)	0.01	-	-	13.18 (0.001)	0.02	-	-
FA1	-	-	7.66 (0.008)	0.01	-	-	-	-
F	112.92		262.05		159.63		269.76	
R2		0.75		0.93		0.85		0.87
Adjusted R2		0.74		0.92		0.84		0.86

Conclusions

The results of this study provide evidence which suggests that GPA earned by accounting majors at the end of second year in college (GPA2) is the single most important variable associated with their overall performance upon graduation from accounting program. Other variables such as secondary school scores (HSS) and grades in specific accounting courses (CA1, FA3, FA2) show a lesser degree of significance in predicting performance as compared with GPA2. The results also indicate that none of the other variables examined in the study (nationality, sex, age, and secondary school branch) provided a significant contribution in predicting performance when used jointly with other variables. In addition, results also suggest that grades in the second introductory accounting course (FA2) are better associated with performance than grades in the first course (FA1), and significantly contribute to the predictive power when used in lieu of the more advanced accounting courses (CA1 and FA3).

These Findings imply that better use of available resources at Kuwait University may be achieved by considering GPA2 and FA2 as additional factors in admitting students into accounting program, instead of the current reliance on secondary school scores as the main admission criterion.

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المحددات المؤثرة على أداء طلبة المحاسبة بجامعة الكويت

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جامعة الكويت – الكويت

المستخلص : تقوم هذه الدراسة على تحديد محددات أداء الطلاب في تخصص المحاسبة بجامعة الكويت من حيث التعرف على أبرز تلك العوامل المؤثرة على الأداء. فمن خلال تطبيق الدراسة على عينة من ١٨٣ طالب منتسب لكلية العلوم الإدارية بالجامعة وباستخدام معيار مكون من عوامل تؤثر على أداء الطلاب في مساقات المحاسبة كمعدل الطالب في الثانوية العامة وطبيعة المسار الدراسي فيها (علمي ، أدبي)، وجنسية الطالب، وعدد من المتغيرات الديموغرافية، علاوة على درجاته الدراسية في المقررات الابتدائية بالسنتين الدراسيتين الأولى والثانية، من خلال ذلك كله اتضح للباحث أن المعدل التراكمي للطالب في السنة الدراسية الثانية بالجامعة هو أهم متغير يرتبط بأدائه عند التخرج.

وتشير النتائج إلى إمكانية توظيف الموارد الدراسية المتاحة بشكل أفضل في السنة الدراسية الثانية، وبالأخص في المقررات المحاسبية، سعيا نحو أداء أفضل للطلبة في هذا التخصص، الأمر الذي يساعد متخذ القرار بالجامعة على التنبؤ بأداء خريجي تخصص المحاسبة مسبقا.