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Factors Affecting Students' Performance

Determinants of students' performance have been the subject of ongoing debate among educators, academics, and policy makers. There have been many studies that sought to examine this issue and their findings point out to hard work, previous schooling, parents' education, family income and self motivation as factors that have a significant effect on the students GPA. Most of those studies have focused on students' performance in the U.S. and Europe. However, since cultural differences may play a role in shaping the factors that affect students' performance, it is very important to examine those relevant factors to the UAE society. The aim of this study is to investigate the socio-economic characteristics of students of the College of Business and Economics-UAEU in relation to these students' performance and taking into account variables pertaining to the UAE Society. Using a sample of 864 CBE student and regression analysis, our results show that the most important factor that affects student's performance is the student's competence in English. Besides competence in English, students who participate in class discussion and those on leave outperform other students. The factors that negatively affect student's performance the most are missing too many lectures and living in crowded household. The results also show that non-national students outperform national students and female students outperform their male counterpart.

1. Introduction

Determinants of students' performance have been the subject of ongoing debate among educators, academics, and policy makers. There have been many studies that sought to examine this issue and the findings of these studies point out to hard work and discipline, previous schooling, parents' education, family income and self motivation as factors that can explain differences in students' grades. For example, Siegfried and Fels (1979) concluded that the student's aptitude is the most important determinant of his/her learning. In a study of high school students who are in an economics class and want to take another economics course, Beron (1990) found that there is a link between the perceived usefulness of an additional course in economics and the performance of the students in a current economics course. Gender wise, Williams et al (1992) found no evidence to support the hypothesis that significant and consistent gender

differences exist in college students' performance on economic exams. Romer (1993) found that class attendance is reflected significantly on the students' GPA. Anderson and Benjamin (1994) found that the most important factors that affect students' performance in university introductory economics course were the overall achievement level and taking a course in calculus. With regard to gender, they found that male students outperform their female counterpart. Kennedy and Tay (1994) concluded in their survey article that the research on the factors affecting students' performance in economics points out to student's aptitude as the most important determinant of learning. Study effort, age of student, and a good match between student's learning style and instructor's teaching style all have positive effect on student's performance. Cohn *et al* (1995) found that memory and note-taking affect learning in the introductory courses in economics. Devadoss and Foltz (1996) studied the effects of previous GPA, class attendance, and financial status on the performance of students of some agriculture economics related courses. They concluded that previous GPA and motivation affect positively the current GPA. They also found that students who support themselves financially are likely to have better performance. Zimmer and Fuller (1996) in their survey article of the factors affecting students' performance in statistics found that statistics anxiety and attitude, and computer experience are linked to students' performance in statistics courses. Ellis *et al* (1998) in their study on the factors affecting student performance in principles of economics, found that the likelihood of a student making a grade of A or B significantly decreases as the number of absences increases; when the student is a member of fraternity or sorority; and as the number of credit hours carried by the student during the semester increases. On the other hand, the chance of a student making an A or B in the course significantly increases with having taken a calculus course; a higher GPA; and higher SAT scores. Lane and Porch (2002) studied the factors affecting students'

performance on an introductory undergraduate financial accounting course and found that age and students attitude toward accounting have significant effect on students' performance. Karemera (2003) found that students' performance is significantly correlated with satisfaction with academic environment and service received. He also found that the existence of professional development programs and internship opportunities are associated with better academic performance. With regard to background variables, he found a positive effect of high school performance and school achievement while there was no statistical evidence of significant association between family income level and academic performance.

As it can be seen from the above literature review, the previous studies have focused on students' performance in the U.S. and Europe. However, since there are cultural differences between western societies and traditional middle eastern societies, United Arab Emirates (UAE) in our case, and since such differences may play a role in shaping the factors that affect this performance, it is very important to examine those relevant factors to UAE society and in particular to the UAE University (UAEU) students' population.

The aim of this research is to examine determinants of students' performance in the College of Business & Economics-UAEU taking into account variables pertaining to the UAE Society. Besides the conventional factors, this study will investigate the effect of gender on students' performance especially that UAEU has different campuses for male and female students. Another factor to be investigated is whether living on campus has any role in determining students' performance. This factor interacts with gender since there exist very restrict rules on the female campus especially with regard to their movement in and out of the campus. Another factor that may affect students' performance is family size which differs significantly among different ethnic and economic sub-groups. On the other hand, since the language of instruction at

the CBE is English, students' competence in English is included in our list of variables affecting students' performance.

The importance of this study is two folded:

1. It focuses on factors that affect students' performance in the UAEU.
2. It should help policy makers in the UAE in general and in the UAEU in particular to design and implement policies to improve students' performance on one hand and improve the efficiency of education on the other hand.

The remaining of this paper is organized as follows: section (2) presents a general description of the population of the College of Business and Economics in UAEU and the methodology used in conducting this research. In section (3) we discuss the regression results, and we conclude in section (4).

2. Methodology:

UAE is composed of seven emirates: Abu-Dhabi, Dubai, Sharjah, Ajman, Um Quwayn, Fujairah and Ras Al Khaymah. UAEU is located in Al-Ain city in Abu Dhabi emirate. The College of Business and Economics (CBE) at UAEU offers seven majors: Accounting, Economics, Finance, Management, Management Information System, Marketing, and Statistics. In late February 2004, students' population at CBE consisted of 2,207 students. Among those, a majority of 1395 were female students (63.2%). The higher female presence in the students' population can be explained by the fact that many UAE male high school (HS) graduates prefer to join the lucrative public service, especially the army and the police, instead of attending college. Amongst those who decide to go to college, some choose to go to European or U.S. colleges and universities.

Due to tradition and culture, there are two separate campuses; one for female and one for male students. We will try to examine the effects of social factors on each group. Moreover, the non-national students' population represents about 20% of the overall student's population. Most of these non-national students are Arabs who live with their families as residents in the UAE. Besides the Arab students, there are some non-Arabs who are mostly from some African countries and some republics of the former Soviet Union.

This study was carried using a sample of students from the CBE. A questionnaire was prepared and distributed to a representative sample of students. Data was collected in an anonymous way. The questionnaire included three sets of questions: the first set addressed individual student background information such as HS background, parent's education, working experience, and studying hours. The second set covered the perception of the students to the university environment such as the attitude towards the university and students' perception towards their professor. The third set of questions addressed the socioeconomic characteristics of the student's family studying environment, such as how affluent or traditional the family is as we will discuss below.

3. Analysis and Results:

3.1 Sample Overview:

Table (1) represents some descriptive statistics of our sample and it can be noticed from the table that non-national students have higher GPA, attend private schools more frequently, a larger proportion of them are with high school diploma in science, they have a higher average in English language in high school and in the University General Requirement Unit (UGRU), they are more likely to pass the English challenge exam at UGRU, their parents are more educated, they are more appreciative of the university and their professors, and participate more in class discussions. However, they miss more classes than their national counterparts.

Comparing male and female students, it can be seen from the table that female students have higher GPA, have higher score in English, more likely to live with their family or in the dorm, participate more in class (except for non-national females), have higher percentage of marriages, and study more. For male students and compared to their female counterpart, higher percentage of them attend private schools, they are more likely to have high school diploma in science, more likely to pass UGRU challenge English test, more likely to be employed, their parents are better educated, have better attitude towards the university, have better attitude towards their professors (except for non-national), miss more classes (except for non-national males), live in more crowded households, more likely to have driver license, spend more time on their social responsibilities, and go to the movie and shopping malls with their friends more frequently.

Table 1: Students Characteristics by Gender and Nationality*

Surveyed Factors	ALL			FEMALE			MALE		
	NAT	NON-NAT	BOTH	NAT	NON-NAT	BOTH	NAT	NON-NAT	BOTH
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	673	188	864	460	88	550	213	100	314
GPA	2.47	2.95	2.58	2.51	3.16	2.61	2.41	2.77	2.53
# of Students with private schooling	38 (6%)	57 (30%)	95 (11%)	15 (3%)	26 (30%)	41 (7%)	23 (11%)	31 (31%)	54 (17%)
# of Students with Science major in HS	380 (56%)	142 (76%)	524 (61%)	254 (55%)	66 (75%)	322 (59%)	126 (59%)	76 (76%)	202 (64%)
Grade in English in HS	79	88	81	81.4	89.9	82.8	74.3	86	78
Grade in English in UGRU	77.7	83.8	79	78.0	85.7	79.3	77	82.1	78.4
Passed Challenge Exam	48 (7%)	49 (26%)	97 (11%)	21 (5%)	21 (24%)	42 (8%)	27 (13%)	28 (28%)	55 (18%)
Employed Students	71 (11%)	13 (7%)	84 (10%)	13 (3%)	5 (6%)	18 (3%)	58 (27%)	8 (8%)	66 (21%)
Students living with their family	338 (50%)	79 (42%)	419 (48%)	236 (51%)	37 (42%)	274 (50%)	102 (48%)	42 (42%)	145 (46%)
Students living on campus	278 (41%)	100 (53%)	379 (44%)	207 (45%)	50 (57%)	258 (47%)	71 (33%)	50 (50%)	121 (38%)
Father education	1.15	3.21	1.6	0.95	3.14	1.3	1.57	3.28	2.12
Mother education	0.74	2.45	1.11	0.67	2.34	0.94	0.9	2.55	1.42
Students with UAEU positive attitude	267 (40%)	99 (53%)	368 (43%)	169 (37%)	41 (47%)	211 (38%)	98 (46%)	58 (58%)	157 (50%)
Attitude towards professors	2.29	2.54	2.34	2.27	2.57	2.32	2.32	2.52	2.39
Participation in class discussion	354 (53%)	116 (62%)	473 (55%)	225 (49%)	55 (62%)	282 (51%)	129 (61%)	61 (61%)	191 (61%)
Number of missed lectures/course	1.74	2.05	1.8	1.73	2.08	1.78	1.75	2	1.83
Crowding of House Hold	1.27	1.35	1.29	1.26	1.32	1.28	1.29	1.37	1.32
Married students	11%	3%	9%	11%	4%	10%	10%	1%	7%
Studying hrs /weekday	2.93	2.80	2.90	3.14	3.17	3.14	2.57	2.49	2.54
Studying hrs /weekend	2.26	2.35	2.28	2.55	2.68	2.57	1.75	2.08	1.86
Students with driving license	227 (33.7%)	80 (42.6%)	307 (35.5%)	32 (7%)	26 (29.5%)	58 (10.5%)	195 (91.5%)	54 (54%)	249 (79.3%)
Hours for family responsibilities	7.91	5.75	7.43	6.75	5.45	6.54	10.4	6.02	8.99
Number of maids	2.55	0.48	1.88	2.29	0.43	1.99	2.18	0.53	1.68
Students go to movies with friends	23%	59%	31%	6%	49%	13%	60%	68%	62%
Students go to shopping malls with friends	23%	62%	31%	10%	53%	17%	51%	69%	56%

*The percentage numbers shown is the percentage of students where the factor applies amongst the category of students shown in the top of the column.

3.2 Regression Results:

In order to conduct our econometric evaluation of the effect of the above discussed factors on the students' performance, we used OLS to estimate the following model:

$$\begin{aligned} GPA_i = & \beta_0 + \beta_1 GradeUGRU_i(1 - Challenge_i) + \beta_2 Challenge_i + \beta_3 Weekends_i + \beta_4 Science_i \\ & + \beta_5 Private_i + \beta_6 Participation + \beta_7 Missclass + \beta_8 Attitude_i + \beta_9 Credits_i \\ & + \beta_{10} Crowding_i + \beta_{11} MaidsH_i + \beta_{12} NonUAE_i + \beta_{13} Gender_i + \beta_{14} Responsibility_i \\ & + \beta_{15} Leave_i + \beta_{16} JOB_i * (1 - Leave_i) + \beta_{17} (Movie_i \times gender) + \varepsilon_i. \end{aligned}$$

The variables in the above model include most of the variables discussed in the previous section. Some variables were not included because they are expected to be strongly correlated with others. For instance, grade in English in HS is expected to be highly correlated with the grade in English in UGRU, also students who regularly go to shopping malls are expected to go frequently to movie theatre.

The first variable represents grade in English at UGRU for those students who did not pass UGRU challenge English test while the second variable represents students who passed the challenge test and did not have to take English at UGRU, therefore, both variable reflect competence in English for all students in the sample. We chose to include studying hours during the weekend and not studying hours in weekdays because the data for the later was unreliable for many students. It is expected that β_1 , β_2 , and β_3 have positive signs. Since the study at the CBE requires quantitative analytical skills, it is expected that students with scientific background in high school do better than those with literature background. It is expected also that private schools provide better quality education to their students compared to public schools; therefore, we expect β_4 and β_5 to be positive. Class attendance and class participation are expected to have positive effect on student's grade; β_6 is expected to be positive while β_7 , which measures how

many lectures are missed per course and is expected to be negative. We expect also that a positive *attitude* towards the university and professors has a positive impact on students' performance ($\beta_8 > 0$). Indeed, previous literature has shown a positive link between attitude and performance (Zimmer and Fuller, 1996 and, Lane and Porch, 2002). The UAEU students have to enroll in some English, Arabic, math, and IT classes at UGRU before they enroll in their respective colleges and usually their performance in these classes is higher than their performance in the regular classes. Therefore, it is expected that as the student's takes on more credit hours, his/her overall GPA will be negatively affected; β_9 is negative. The only reliable data that may be used as proxy for the student's economic background is CROWDING (the ratio of the number of people who live in the student's household divided by number of rooms in her house). Therefore, β_{10} is expected to be negative because a crowded home does not provide a quiet studying environment. The effect of *Maids/Household* on the student performance is ambiguous. Since this variable may be a proxy for how affluent the family is and it is not clear whether this will have positive or negative effect on student's performance, therefore β_{11} may be positive or negative. The coefficients on the nationality and on gender, β_{12} and β_{13} , are expected to be positive in favor of non national students and female students as was observed in the previous section. β_{14} is expected to be positive because more responsibility means less time to study. In relation to job, two variables are included: $leave_i$ and $Job_i * (1 - leave_i)$. Both variables are taken into account only in the case of male national students since they are the only group of students who may have jobs and work at the same time or have leave from their jobs. Those students are usually mature enough and value studying time more, moreover, their performance is monitored by their employers and are subject to penalties if they do not perform well in school. Therefore β_{15} is expected to be positive. Students who have jobs are also expected to be

mature but to have less studying time; therefore the sign of β_{16} is ambiguous. For female students, going to movie theatre with their friends is indicator of how liberal a family is within the UAE context and we expect that it has positive effect on students' performance.

We ran the regression for all the students in the sample, then we split them into different subgroups: nationals, non-nationals, males, females, male nationals, male non nationals, female nationals, female non nationals, juniors (students with less than 66 credits hours), and seniors students (with more than 66 credit hours). Table (2) represents the regressions' results where it can be seen that the most important factor that positively affect student's performance regardless of gender or nationality is the student's competence in English measured in passing the UGRU challenge test or his/her grade in English at UGRU. The other background schooling factors such as studying hours during the weekend, scientific background, and private schooling do not have that persistent and clear significant effect on students' grade in most of the subgroups. Class participation also has positive and significant effect on students' grades especially for female students. This is an indication that female students who participate in class discussion and are, therefore, not passive are likely to have better performance. Having positive attitudes towards the university has positive effect on overall students' performance and for senior students. The results also show that being on leave has positive effect on student's grade as expected. There are some variables that have negative effect on student's grades such as missing too many classes which have negative and significant effect overall and for most subgroups. The crowding variable has negative and significant effect for the whole sample and for the national and senior students only. Finally, the results show that non-national students and female students outperform their counterparts.

Table 2: Regression Results For Students' Performance By Nationality and Gender
[Dependent variable is student' GPA]

Variables	All	Nation als	Non nationals	Male	Females	Nationals Males	National Females	Non- National Males	Non - National Females	<= 66 Cr. Hrs.	> 66 Cr. Hrs
Regression	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Grade UGRU	0.03* (0.003)	0.02* (0.004)	0.04* (0.01)	0.02* (0.003)	0.03* (0.005)	0.02* (0.003)	0.04* (0.005)	0.04* (0.01)	0.03* (0.01)	0.03* (0.004)	0.03* (0.005)
Challenge	2.64* (0.27)	2.52* (0.29)	3.88* (0.49)	2.32* (0.28)	3.30* (0.47)	1.83* (0.30)	3.20* (0.52)	3.89* (0.65)	3.21* (1.38)	2.70* (0.37)	2.67* (0.45)
Weekends	0.00004 (0.02)	-0.01 (0.02)	0.06* (0.02)	0.01 (0.02)	-0.01 (0.02)	0.03 (0.02)	-0.04** (0.02)	-0.03 (0.05)	0.10* (0.04)	-0.01 (0.02)	0.0004 (0.02)
Science	0.06 (0.06)	0.006 (0.06)	0.41* (0.10)	0.02 (0.06)	0.08 (0.09)	-0.03 (0.06)	-0.01 (0.09)	0.17 (0.15)	0.30 (0.21)	0.02 (0.09)	0.16** (0.09)
Private	0.03 (0.08)	0.19** (0.11)	-0.08 (0.10)	0.14 (0.09)	-0.01 (0.13)	0.41* (0.13)	0.03 (0.18)	-0.18 (0.14)	0.07 (0.19)	0.01 (0.11)	-0.02 (0.13)
Class participation	0.11** (0.05)	0.08 (0.06)	-0.01 (0.09)	0.04 (0.06)	0.16** (0.08)	0.01* (0.07)	0.19* (0.09)	0.07 (0.12)	0.07* (0.17)	0.16** (0.08)	0.04 (0.08)
Missing lectures	-0.06* (0.02)	-0.04** (0.02)	-0.06 (0.03)	-0.10* (0.02)	0.01 (0.03)	-0.07* (0.03)	-0.002 (0.04)	-0.16* (0.06)	0.02 (0.08)	-0.07* (0.03)	-0.04 (0.03)
Attitude	0.12* (0.05)	0.06 (0.06)	0.14 (0.09)	0.09 (0.06)	0.09 (0.08)	0.06 (0.06)	-0.01 (0.10)	-0.02 (0.14)	0.24 (0.22)	0.21* (0.08)	0.09 (0.08)
Credits	-0.003* (0.001)	-0.003* (0.001)	-0.002 (0.002)	-0.003* (0.001)	-0.003* (0.001)	-0.003* (0.001)	-0.003* (0.001)	-0.002 (0.002)	-0.005** (0.002)	---	---
Crowding	-0.05** (0.03)	-0.06** (0.03)	-0.05 (0.06)	-0.05 (0.03)	-0.001 (0.08)	-0.05 (0.03)	-0.09 (0.09)	-0.04 (0.08)	-0.02 (0.18)	-0.08* (0.03)	0.08 (0.07)
Maids / household	-0.08 (0.10)	0.01 (0.10)	-0.23 (0.26)	-0.09 (0.14)	0.07 (0.13)	-0.03 (0.14)	0.05 (0.13)	-0.61 (0.42)	-1.62** (0.82)	-0.29 (0.20)	0.13 (0.13)
NonUAEU	0.22* (0.07)	---	---	0.14** (0.07)	0.39* (0.12)	---	---	---	---	0.18** (0.11)	0.23* (0.10)
Gender	0.14* (0.07)	0.04 (0.07)	0.24* (0.08)	---	---	---	---	---	---	0.21* (0.10)	0.07 (0.09)
Responsibility	0.00002 (0.04)	0.002 (0.004)	-0.001 (0.007)	0.0002 (0.003)	-0.01 (0.01)	0.002 (0.003)	-0.004 (0.01)	-0.01 (0.01)	0.01 (0.02)	0.002 (0.005)	-0.002 (0.005)
Leave	0.25* (0.11)	0.19** (0.10)	---	0.20* (0.10)	---	0.20* (0.10)	---	---	---	0.37* (0.16)	0.14 (0.15)
Job*(1-Leave)	0.07 (0.11)	-0.11 (0.14)	---	-0.08 (0.10)	---	-0.11 (0.10)	---	---	---	0.16 (0.15)	0.009 (0.12)
Movie	0.09 (0.30)	0.08 (0.12)	---	---	-0.04 (0.10)	---	0.09 (0.13)	---	-0.33** (0.19)	0.15 (0.14)	0.06 (0.12)
Adjusted R ²	0.40	0.28	0.56	0.38	0.43	0.32	0.28	0.55	0.58	0.42	0.32
observations	296	215	119	223	137	165	101	58	36	165	131
J-B normality test, p-value	0.12	0.02	0.17	0.10	0.67	0.13	0.34	0.24	0.91	0.38	0.18

Standard error between parentheses.

*(**) Significant at 0.05 (0.10) level.

4. Conclusion:

This paper examined the factors that affect students' performance at the College of Business and Economics-UAE University. The results show that the most important factor with positive effect on students' performance is student's competence in English and class participation. The results also show that the most important factors that have negative effect on students' performance are missing too many classes and credit hours achieved (progression of the students in his/her study plan). Finally, our analysis shows that non-national students outperform national students and female students outperform male students.

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Appendix

The following is a list of the variables used in our survey:

CAMPUS = 1 if the student lives on campus, 0 otherwise.

CHALLENGE = 1 if the student has successfully passed the English challenge exam at UGRU, 0 otherwise.

CREDITS = total number of credit hours that the students had cumulated when she / he filled the questionnaire.

CROWDING = the ratio of the number of people who live in the student's household divided by number of rooms in her house. In our sample, its values vary in the range [0.14, 12.57].

DRIVING = 1 if the student holds a driving license, 0 otherwise.

EDUF = the education level of the father, EDUF = 0 if he has no formal education, = 1 if he has less than high school diploma, =2 if he has high school diploma, =3 if he has junior college, = 4 if he has college degree, and =5 if she has more than college degree (5).

EDUM = the education level of the mother, EDUM = 0 if she has no formal education, = 1 if she has less than high school diploma, =2 if she has high school diploma, =3 if she has junior college, = 4 if she has college degree, and =5 if she has more than college degree (5)

FAMILY = 1 if the student lives with his family, 0 otherwise.

GPA = the Grade Point Average. In our sample its values is in the interval [1.21, 4.0].

GRA_HS = the student's grade in English language at High School. In our sample, its values vary in the range [50, 99].

GRA_UG = the student's grade in English at UGRU. In our sample, its values vary in the range [62, 95].

JOB = 1 if the student holds a job, 0 otherwise.

LITERATURE = 1 if the student holds a literature diploma in High School, = 0 otherwise.

MAIDS = the number of maids in the student's house. In our sample, its values vary in the range [0, 20].

MARRIED = 1 if the student is married, = 0 otherwise.

MISSING = number of missed lectures per course. . In our sample, its values vary in the range [0, 6.5]

MOVIES =1 if the student go to movies with friends, = 0 otherwise.

NEGATIVE = 1 if the students has a negative feelings towards UAEU, 0 otherwise.

PARTICIP =1 if the student participates in class discussions, = 0 otherwise.

POSITIVE = 1 if the students has a positive feelings towards UAEU, 0 otherwise.

PRIVATE =1 if the students had ever attended a private school, = 0 otherwise.

PROF = how the student perceives and appreciates his professors at the UAEU = 0 if very poor, = 1 if poor, = 2 if good, = 3 if very good, = 4 if excellent.

RESP = the number of hours the student spend every week on family responsibilities. In our sample, its values vary in the range [0, 50]

SCIENCE = 1 if the student holds a scientific diploma in High School, = 0 otherwise.

SHOPPING =1 if the student go to shopping malls with friends, = 0 otherwise.

UAEUF = 1 if the students have positive feelings towards UAE University, = 0 otherwise.

UGRU = the University General Requirement Unit where the students prepare their freshman courses.

WEEKDAYS = the average number of hours that the students put on homework every weekday. In our sample, its values vary in the range [0, 15]

WEEKENDS = the average number of hours that the students put on homework every week end. In our sample, its values vary in the range [0, 12]