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Factors Affecting First Year Undergraduate Students Academic Performance

Kanagi Rajandran*, Tan Chun Hee, Sarimila Kanawarthy, Lim Kik Soon, Haslina Kamaludin, Dr. Dariush Khezrimotlagh

Department of Applied Statistics, Faculty of Economics and Administration, University of Malaya, Malaysia

*Corresponding Author
Kanagi Rajandran
Email: r.kanagi@gmail.com

Abstract: This study investigates the effects of age, gender, race, post-secondary level result and place of origin on the academic performance of first year undergraduate students at Faculty of Economics and Administration, University Malaya, Malaysia. All undergraduate students during the academic year 2013/2014 were examined and a sample of 100 students were randomly selected. Cross-tabulation and Multinomial Logistic Regression were applied. The outcomes revealed gender and place of origin as insignificant determinants, the entry qualification as a weak factor, and the student's CGPA of entry qualification as the strongest variable that determines the Cumulative Grade Point Average (CGPA) of first year students.

Keywords: Academic performances, Cumulative Grade Point Average (CGPA) of entry qualification, University Malaya.

INTRODUCTION

Determinants of students' performance have received considerable attention in the education literature, and it continues to be a challenged theme. Student performance is generally viewed as product of socio-economic, psychological and environmental factors. Hence, the factors are expected to vary from one country to another.

In the past, several studies have been done to ascertain whether demographic factors, previous experiences, or background are associated with students' course performance. Some of these studies have examined the importance of the following factors such as previous Grade Point Average (GPA) [1-5], academic background ,course prerequisites [2, 6, 7], and demographic characteristics such as gender [1, 3]

While various studies adopt different approaches, several empirical regularities have emerged. Students' scores on tertiary entrance examinations. This characterised studies looks at the average marks achieved at university as well as studies that examine pass or fail criteria. Geiser and Santelices[8], Acato[9], and Swart [10] all argued that admission points which is a reflection of the previous performance influence future academic performance. Another strong empirical regularity concerns the link between gender and performance at university. It is commonly found that female students outperform male students. The female advantage at university carries across studies that examine pass rates[11-13]as well as those focus on mean marks[14, 15]. Other attributes found to consistently influence outcomes at university include type of attendance at university (whether the student is studying on a full-time or a part-time basis) and field of study.

This study investigates the effect of some factors such as age, gender, race, post-secondary level result and place of origin on the academic performance of first year undergraduate students in the Faculty of Economics and Administration at University of Malaya, Malaysia in 2014. Multinomial logistic regression and Cross-tabulation are used to find the factors which affect student performance. The rest of paper consists of four sections. Section 2 reviews the previous researches on student performance and the research designs and methods are illustrated in Section 3. The results are interpreted in Section 4 and the paper is concluded in Section 5.

LITERATURE REVIEW

Many practical studies are carried out to investigate factors affecting first year university student performance. The results however seem to be different to kind of analysis and factors undertaken. For instance, Cantwell [16], Dancer[17]and Hewitt[18] claimed that the female students' scores were better than the male counterparts in university exam.Abdullah [19]and Alhajraf[20] determined the performance of the students by the factor of the student's nationality, age,

gender and the score of high school, and revealed that there was a significant difference in gender where the female students performed better than the male student in the university. Their analysis indicated that married students performed better than non-married counterpart. However, Mlambo[21]argued that, gender, age, learning preferences and entry qualification did not cause any significant variation in the academic performance of student.

Table 1: A summary of previous study on student academic performance.

Author/year	Methodology	Variable/ Factor	Findings
Cullen et al. [22]in (1996)	Cross-tabulation	Gender, Tertiary academic,	Students' tertiary academic performance is not influenced by their gender.
Dickson et al. [23]in (2000)	Cross-tabulation	Level in tertiary study, age and past academic performances	Not strong relationship between high school achievement and achievement.
Martin et al. [24]in (2001)	Cross-tabulation	Gender, Region, Place of birth	No negative effects on transition to the labour market by non-course completers.
Hewitt [18]in (2003)	Cross-tabulation	Gender, Cultural attitudes, academic performances	Significant differences between gender and cultural attitudes towards education
Nowicki[25]in (2003)	Cross-tabulation	Gender, academic performances	Female students being more likely to meet literacy and numeracy requirements in primary school.
Thamavithya[26]in (2008)	Descriptive Statistics	Lack of study skills, difficult subjects, too heavy course load, pressure, stress, tension, anxiety, Career issues, family and social adjustment, personal issues and perceptions of their lecturer	The first set of factors are noteworthy on the academic performance. The second set of factors do not have a strong impact in the completion of their academic tasks.
Soto [27]in (2012)	Logistic regression	Student attendance, GPA, Passing the course	Student attendance and GPA had significant effects to passing the course.
Mlambo[21]in (2012)	Cross-tabulation	Gender, Age, Learning preferences and Entry qualification.	Gender, age, learning preferences and entry qualification did not cause any significant variation in the academic performance of student.

Table 1 illustrates a summary of previous researches on student academic.Some studies reported that younger students performed better than older students such as Long *et al*.,[28], some found the opposite such as Cullen *et al*.,[22]; Smyth *et al*.,[11] and Cantwell *et al*.,[16],and some claimed that students' tertiary academic performance is not influenced by their age such as Dickson *et al*.,[23] and McKenzie and Schweitzer[29]. Similarly, some researches said that students born overseas perform better at university than those born at country such as Lewis *et al*., [30] and Logan and Bailey[31] however, some showed opposite such as de Lange *et al*.,[32]. As noted above, the different conclusion obtains due to different used methodology in their papers. Some of the previous researches are not also appropriate due to have categorical variables. Most of the above studies are for single institutions, and the findings in relation to age and birthplace could reflect institution-specific factors.

Soto [27]conducts a research by logistic regression and claimed that the perfect student attendance followed by GPA were the most important factors associated with passing the course. Palardy et al. [33]findings suggest that the teacher on the basis of their background qualification is insufficient for ensuring that classrooms are led by teachers who are effective in raising student achievement. Mushtaq[34]clamming on factor of communication, learning facilities and proper guidance shows the positive impact and the family stress indicates a negative result on the first year student performance. Furthermore, Kyalo et al. [35]also tested on guidance and counselling programme and the outcome shows a critical role in assisting students to adjust in the university. Moreover, Mersha et al. [36]state that, the personal and the other problems are caused by the university environment which female students encounter also affect their academic performance.

METHODOLOGY

The population of this study consists of second year students who had completed their first year study at Faculty of Economics and Administration, University Malaya, Malaysia in 2014. The requirement of respondents must have completed their first year and prefer student intake for semester of 2013-2014 in order to test the latest result for this study. Sample size was arbitrarily determined and estimated around 100 which is set for this study to provide sufficient number of respondents for Cross-tabulations. Data were obtained by distributing the questionnaire to the students of the Faculty of Economic and Administration of the University of Malaya. Data collected included student's first year CGPA, gender, race, place of origin, type of foundation and CGPA of foundation.

Key variables are demographic factors and result of pre-university given by:

CGPA_g: Cumulative Grade Point Average of First year (below 3.33 =1, 3.33to4.00 = 2)
Gender: Gender of student (male =1, female = 2)
Race: Race of student (Malay = 1, Chinese = 2, Indian = 3, others = 4)
Origin: Place of origin of student (Rural =1, Urban = 2)
Entry: Entry qualification of student (STPM =1, Matriculation =2, Diploma = 3, Others =4)
CGPA Entry: CGPA of entry qualification (below 3.00=1, between 3.00 to 3.40 = 2, above 3.50 = 3)

The nature of these variables is qualitative question and by single choice only. The CGPA was measured in interval and sample group only required to choose based on their foundation result[37]. Figure 1 depicts the key variables relationships.

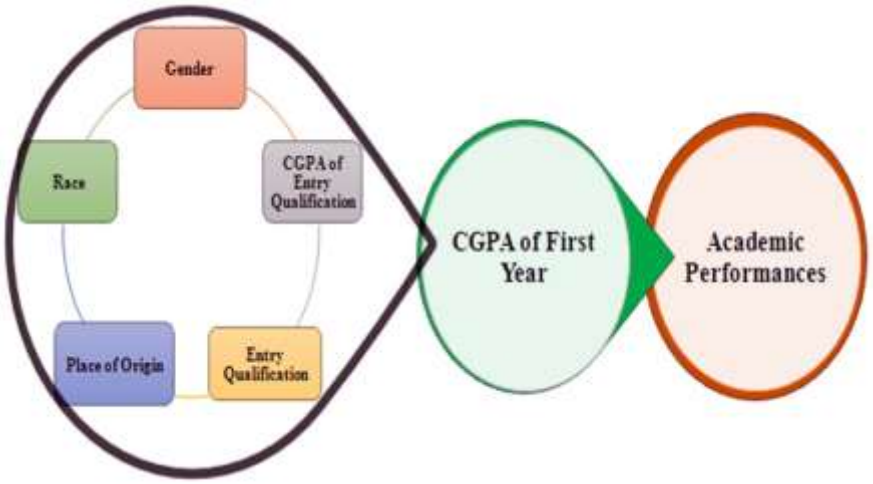

Fig-1: Key Variables Relationship.

DATA ANALYSIS

The empirical results are presented using statistical analysis of Multinomial logistic regression and Cross-tabulation. All the tests were run using SPSS 22.0 programme. The profile of the students' characteristics is summarized in table 2.

Table-2: Profile of the student's characteristics

Characteristics	Total (%)	Characteristics	Total (%)
Gender		*Entry Qualification*	
Male	20	STPM	34
Female	80	Matriculation	57
Race		Diploma	3
Malay	38	Others	6
Chinese	41	*CGPA of entry qualification*	
Indian	13	< 3.00	9
Others	8	3.00 - 3.49	30
Place of Origin		3.50 - 4.00	61
Rural	35		
Urban	65		

Table 3 presents the measures of association between gender, race, place of origin and entry qualification with CGPA. The independency of association is reported by using Pearson – Chi Square test. The gender and place of origin with significant value greater than 0.05 suggests that, both of the factors are independent with the first year student CGPA. Due to the limitation of small sample size (more than 20% have expected count less than 5) some of the level of entry qualification and race are merged when chi-square analysis is conducted. Entry qualification of STPM, diploma and others are merged while race Indian and others are combined. The calculated *p*-value of 0.002 for Entry Qualification and 0.034 for race suggest that both of these factors are related to the CGPA.

Table 3: Measures of association between factors

	Pearson Chi-Square	sig
gender	0.25	0.617
Race_g	6.788	0.034
Origin	0.044	0.834
Entry Qualification_g	9.18	0.002

Since both CGPA Entry and CGPA_g are ordinal variables, a cross tabulation with gamma test is carried out. Result is shown in Table 4.From the table, the value of gamma is 0.635 and p-value = 0.000. It suggests that, the CGPA Entry and CGPA_g have a significant positive relationship. As the CGPA Entry getting higher, the CGPA_g will be higher as well. Hence, CGPA Entry is the factor that affect first year undergraduate academic performance.

There were 50% of the student scores below 3.33 and this category will be used as the reference group.

Table 4: Cross tabulation with gamma test.

	value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig
Ordinal by Ordinal Gamma	0.635	0.126	3.993	0.000
N of Valid Cases	100			

Table 5: Model Fitting Information.

	-2 Log Likelihood	Chi-Square	sig
Intercept Only	104.941		
Final	77.847	27.093	0.003

Table 5 shows that the value of chi-square statistic with 10 degrees of freedom is 27.093 and its calculated *p*-value = 0.003 < 0.01 which concludes that the model is valid where at least one of the regression coefficients is not equal to zero.

All the three Pseudo R-Square values are greater than 0.195. 19.5% of the variation of the CGPA is explained by gender, race, place of origin, entry qualification and CGPA of entry qualification.

Table 6: Pseudo R-Square.

Cox and Snell	.237
Nagelkerke	.316
McFadden	.195

Table 7 illustrates that CGPA of entry qualification is the only significant factor that affect the CGPA of the first year student, with *p*-value = 0.003. Among the other factors, entry qualification has *p*-value = 0.069, which indicates that it can be considered as a weak factor if we using □□= 0.10 instead of 0.01.

Table 7: Likelihood Ratio Tests.

	-2 Log Likelihood	Chi-Square	sig
Intercept	77.847[a]	.000	.
Gender	78.023	.176	.675
Race	80.859	3.012	.390
Origin	77.892	.044	.833
Entry	84.942	7.094	.069

The multinomial logit for CGPA Entry group 1(below 2.99) relative to group 3(3.50 to 4.00) is 2.776 unit lower for scoring CGPA 3.33 and above while other variables in the model held constant. In other words, students with CGPA Entry below 2.99 are more likely to have a lower academic performance in first year study compare to those who score 3.50 to 4.00.

The multinomial logit for CGPA Entry group 2(3.00-3.49) relative to group 3(3.50-4.00) is 1.184 unit lower for scoring CGPA 3.33 and above while other variables in the model held constant. In other words, students with CGPA Entry between 3.00 to3.49 are more likely to have a lower academic performance in first year study compare to those who score 3.50 to 4.00.

Table 8: Parameter estimate

		B	Std. Error	Wald	f	Sig.	Exp(B)
3.33-4.00	Intercept	1.427	1.215	1.378	1	.240	
	[gender=1.00]	-.271	.646	.175	1	.675	.763
	[gender=2.00]	0[b]	.	.	0	.	.
	[race=1.00]	-1.488	1.017	2.140	1	.144	.226
	[race=2.00]	-.756	1.007	.563	1	.453	.470
	[race=3.00]	-.926	1.118	.687	1	.407	.396
	[race=4.00]	0[b]	.	.	0	.	.
	[origin=1.00]	.112	.534	.044	1	.833	1.119
	[origin=2.00]	0[b]	.	.	0	.	.
	[entry=1.00]	1.024	1.037	.975	1	.323	2.783
	[entry=2.00]	-.352	.988	.127	1	.722	.704
	[entry=3.00]	.189	1.669	.013	1	.910	1.208
	[entry=4.00]	0[b]	.	.	0	.	.
	[CGPA Entry=1.00]	-2.776	1.225	5.132	1	.023	.062
	[CGPA Entry=2.00]	-1.184	.517	5.237	1	.022	.306
	[CGPA Entry=3.00]	0[b]	.	.	0	.	.

From the results of logistic regression, we found that the CGPA of Entry Qualification is the strongest factor that affects the first year student academic performance.

In short, unlike the studied by Cantwell [16]and Dancer [17], gender did not play an important role in determining the students' first year academic performance as Cullen et al. [22] noticed.There is no difference between CGPA of rural and urban areaasstudy by Long et al. [29]. Entry Qualification can be considered as a weak factor similar to studies by Mlambo [21] and Noble et al. [38].

CONCLUSION

The outcome of the study offers an important insight into factors that affects student's performance of Faculty of Economic and Administration in University Malaya, Malaysia. Unlike previous research variables such as gender and place of origin appeared to be insignificant determinants of undergraduate student's and the student's CGPA of entry qualification is the strongest variable that determines the CGPA of first year student. For further research, other factors such as instructor and family income can be examined as well asemploying different samples of students in other faculties for all academic years at University Malaya, Malaysia.

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