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Determinants of Academic Performance of Undergraduate Students in Private Universities in Bangladesh: A Case Study

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Determinants of Academic Performance of Undergraduate Students in Private Universities in Bangladesh: A Case Study

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Abstract- **Most of the existing literature studying the determinants of academic performance of undergraduate students in both public and private universities in Bangladesh are qualitative in nature. In this study, a combination of both qualitative and quantitative analysis has been done. Analyses were done using data collected from 605 students of several departments of International University of Business Agriculture and Technology (IUBAT), a private university located in Dhaka, the capital of Bangladesh. Statistical association between academic performance and several explanatory variables was checked. Variables such as type of department, result of pre-university public examinations, gender, class attendance, teacher-student relationship, self-confidence level of the students, depression and amount of credit hours completed were found to impact the academic performance level significantly. The findings of this study would help students, teachers and concerned authority of the institution to comprehend the factors impacting academic performance of the students and take further actions accordingly.**

Keywords: academic performance, demographic variables, socio-economic variables, institutional variables, logistic regression analysis.

I. Introduction

Since its independence back in 1971, there has been an upsurge in higher education in Bangladesh. Before the independence, only four public universities were available for tertiary education in this country. That figure is now 42 along with around hundred other private universities approved by the University Grant Commission (UGC)[1]. These numbers are in no mood to stop in near future. There are debates going on whether such large numbers of institutions for higher education, particularly the ever-increasing number of private universities are still needed in a developing country like Bangladesh. On the other hand, the quality in higher education is continuously moving in a declining trend. There are several issues responsible for such negative trend. But in this study, focus has been given to a specific issue regarding higher study, academic performance of the students who are admitted at undergraduate level in private universities.

Several factors are associated to the academic performance of the undergraduate students such as enthusiasm and individual characteristics of the students, demographic and socio-economic characteristics, institutional characteristics and so on[2]. But only a little research has been done to identify the significant factors, especially in case of Bangladesh. As long as academic performance is concerned, Cumulative Grade Point Average (CGPA) is considered as the indicator by most of the researchers around the world[3]. The family background, educational environment, and financial states of the learners are crucial factors affecting academic performance[4,5]. Involvement of the students in part-time jobs to bear partial educational expenses also affect their academic performance[6,7,8]. Motivation and strong personality direct the students in the way towards the achievement of their academic goal[9]. Academic performance at pre-university level (S.S.C. and H.S.C. in case of Bangladesh) was found to have significant association with its counterpart at university level[10].

The objective of this study was to identify the factors that have significant impact on the academic performance of the undergraduate students of private universities in Bangladesh. The extent of association would also be tested through odds ratio applying logistic regression analysis.

II. Methodology

Primary data for the study were collected from undergraduate students of Fall semester 2018 of International University of Business Agriculture and Technology (IUBAT). A pre-coded self-directed questionnaire was initially developed for the data collection purpose. It was then finalized after being pretested on a small sample of 30 students of BBA (Bachelor of Business Administration) program. There are approximately 10000 students in total under different colleges in IUBAT. An estimated sample size of 605 respondents was interviewed for the study considering 4% margin of error (3.86% to be exact) at 95% confidence interval[11]. The issue of non-response rate was not taken into consideration since the survey was conducted under direct supervision of respective course

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teachers inside the classes. Stratified sampling technique was applied where each of the sections under different colleges was considered as a stratum. Hence, the ultimate sample of 605 students covered all the departments under different colleges namely, College of Business Administration, College of Engineering and Technology, College of Arts and Sciences, College of Agricultural Sciences, College of Tourism and Hospitality Management and College of Nursing.

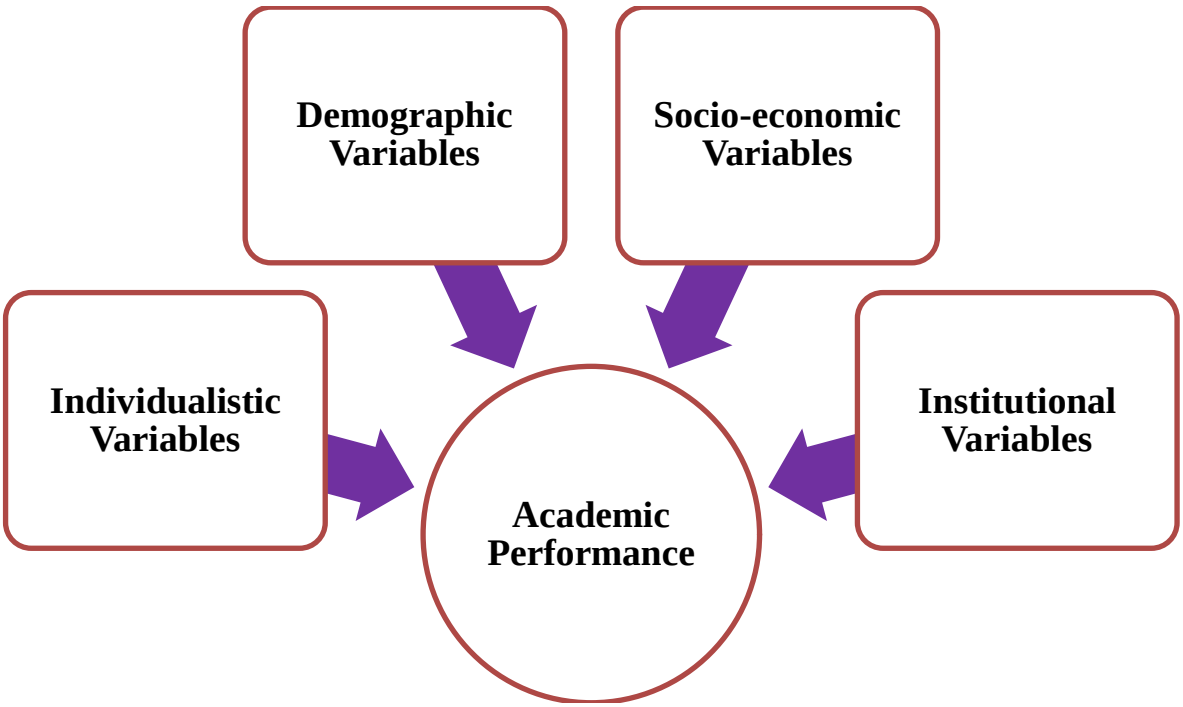

Figure 1: Conceptual framework

Several in dependent variables were considered that can be classified as: socio-economic variables such as location of residence, religion, yearly family income, students' part-time job status, students' physical health status, and educational background of family; demographic variables such as age and gender; institutional variables such as department, teacher - student relationship, class size and course load; individualistic variables such as SSC and HSC result, regularity, and punctuality, self-confidence and depression. Other than the department, all other variables were dichotomous. The dependent variable for the study was academic performance which is also dichotomous, where CGPA $\geq$ 3.00 was coded as 1 and CGPA $<$ 3.00 was coded as 0.The association between academic performance and all the above-mentioned independent variables were checked by applying chi-square test, where p-value $\leq$ 0.05 indicated significant association.

Finally, logistic regression model was fitted among academic performance and the independent variables that showed significant association with it. Logistic regression is the widely applied regression analysis when the dependent variable is dichotomous. No assumption regarding the distributions of the independent variables is needed. It delivers an estimated value for the strength of the association adjusting for other variables. The exponential of the coefficients represents odd ratios (OR) for the given variable. The analysis was performed using SPSS version 20.0. The dependent variable was dichotomous given value 1 if the delivery was attended by trained medical personnel and given value 0 otherwise. The model was fitted as:

$$E(y) = \frac{e^{\beta X}}{1+e^{\beta X}},$$
$$\beta = [\beta_0, \beta_1, \beta_2, \ldots\ldots, \beta_k],$$
$$X = [x_1, x_2, x_3, \ldots\ldots, x_k]'$$

here, y = dependent variable = academic performance,
x_i = corresponding independent variables,
β_i= parameters of the model.

III. Results and Discussion

The background characteristics of the respondents are shown in Table 1. Out of 605 students, more than half (52.2%) were from Engineering departments. Academic performance of almost two-third of them (63.5%) was at satisfactory level. As far as family educational background is concerned, less than half (43.8%) of the family had highly educated one. More than three-fourth of the students (78.5%) performed well in S.S.C. and H.S.C. examinations which are the two pubic exams that take place at national level before they sit for undergraduate admission at university level. The number of male students was 1.78 times more than its

female counterpart indicating the supremacy of male students at tertiary level education. A large proportion of the students (70.2%) belonged to the age group of above 20 years. Most of them (59.7%) came from urban areas which was expected since education in private universities is an expensive deal and is out of reach for most of the rural people. One of the positive aspects of the respondents was their class attendance. Around 93.7% of them attended their respective classes regularly. But the scenario was entirely the opposite one in case of library attendance. Only 19% of the respondents had regular attendance in library. One possible reason might be the increasing access of internet via smart phones where study materials are readily available in various formats in many cases, discouraging the students from spending some quality time in the library to exercise their brain. The teacher-student relationship was found to be friendly in most of the cases (87.1%). The self-confidence level of 70.2% students was found to be high. There was nearly identical number of respondents as far as the depression status of the students is concerned. Most of the students were Muslim (89.9%) which was expected since a huge portion of the population of the country is Muslim. Relatively much higher proportion of students (85.3%) were involved with part-time job.

Table 1: Distribution of respondents by background characteristics

		Frequency	Percentage
Department	Business	178	29.4
	Engineering	316	52.2
	Others	111	18.3
	Total	605	100.0
Education of Family	Highly Educated	265	43.8
	Moderately Educated	340	56.2
	Total	605	100.0
SSC & HSC Result	Good	475	78.5
	Not Good	130	21.5
	Total	605	100.0
Family Income	Good	251	41.5
	Not Good	354	58.5
	Total	605	100.0
Gender	Male	387	64.0
	Female	218	36.0
	Total	605	100.0
Age	At most 20	180	29.8
	Above 20	425	70.2
	Total	605	100.0
Residence	Urban	361	59.7
	Rural	244	40.3
	Total	605	100.0
Class Attendance	Regular	567	93.7
	Irregular	38	6.3
	Total	605	100.0
Library Attendance	Regular	115	19.0
	Irregular	490	81.0
	Total	605	100.0
Teacher-Student Relationship	Friendly	527	87.1
	Unfriendly	78	12.9
	Total	605	100.0
Self-confidence	High	425	70.2
	Low	180	29.8
	Total	605	100.0
Physical Health	Good	484	80.0
	Not Good	121	20.0
	Total	604	100.0
Depression	No	311	51.4
	Yes	294	48.6
	Total	605	100.0
Religion	Muslim	544	89.9
	Others	61	10.1
	Total	605	100.0

Credit Hour Completed	At most 9	217	35.9
	Above 9	388	64.1
	Total	605	100.0
Class Size	At most 50	411	67.9
	Above 50	194	32.1
	Total	605	100.0
Part-time Job	Yes	516	85.3
	No	89	14.7
	Total	605	100.0
Academic Performance	Satisfactory	384	63.5
	Not Satisfactory	221	36.5
	Total	605	100.0

The analytical results of chi-square tests are shown in Table 2.Some of the explanatory variables like department, S.S.C. and H.S.C. results, gender, self-confidence, depression, teacher-student relationship, class attendance and credit hours completed presented significant association with academic performance.

Table 2: Distribution of Respondents by Academic Performance and Explanatory Variables

		Academic Performance		Total	Significance
		Satisfactory	Not Satisfactory		
Department	Business	121	57	178	$\chi^2 = 14.51$ p-value = 0.001
	Engineering	209	106	315	
	Others	54	58	112	
	Total	384	221	605	
Education of Family	Highly Educated	171	94	265	$\chi^2 = 0.22$ p-value = 0.634
	Moderately Educated	213	127	340	
	Total	384	221	605	
SSC & HSC Result	Good	316	159	475	$\chi^2 = 8.90$ p-value = 0.003
	Not Good	68	62	130	
	Total	384	221	605	
Family Income	Good	162	89	251	$\chi^2 = 0.21$ p-value = 0.645
	Not Good	222	132	354	
	Total	384	221	605	
Gender	Male	236	151	387	$\chi^2 = 2.87$ p-value = 0.05
	Female	148	70	218	
	Total	384	221	605	
Age	At most 20	115	65	180	$\chi^2 = 0.20$ p-value = 0.483
	Above 20	269	156	425	
	Total	384	221	605	
Residence	Urban	228	133	361	$\chi^2 = 0.04$ p-value = 0.846
	Rural	156	88	244	
	Total	384	221	605	
Class Attendance	Regular	368	199	567	$\chi^2 = 7.983$ p-value = 0.005
	Irregular	16	22	38	
	Total	384	221	605	
Library Attendance	Regular	77	38	115	$\chi^2 = 0.74$ p-value = 0.388
	Irregular	307	183	490	
	Total	384	221	605	
Teacher-Student Relationship	Friendly	343	184	527	$\chi^2 = 4.59$ p-value = 0.032
	Unfriendly	41	37	78	
	Total	384	221	605	
Self-confidence	High	298	127	425	$\chi^2 = 27.22$ p-value = 0.000
	Low	86	94	180	
	Total	384	221	605	
Physical Health	Good	311	172	483	$\chi^2 = 0.995$ p-value = 0.318
	Not Good	73	49	122	
	Total	384	221	605	
Depression	No	209	102	311	$\chi^2 = 3.843$ p-value = 0.050
	Yes	175	119	294	
	Total	384	221	605	

Religion	Muslim	349	195	544	$\chi^2 = 1.09$
	Others	35	26	61	p-value = 0.297
	Total	384	221	605	
Credit Hour Completed	At most 9	118	99	217	$\chi^2 = 2.57$
	Above 9	266	122	388	p-value = 0.001
	Total	384	221	605	
Class Size	At most 50	252	159	411	$\chi^2 = 1.15$
	Above 50	132	62	194	p-value = 0.109
	Total	384	221	605	
Part-time Job	Yes	332	184	516	$\chi^2 = 27.22$
	No	52	37	89	p-value = 0.285
	Total	384	221	605	

The logistic regression results are shown in Table 3. Other than attendance, teacher-student relationship and depression, the remaining variables were still showing significant association with academic performance.

Table 3: Logistic Regression Results

		β	Wald	Significance	e^{β} (OR)	95% C.I. for OR	
						Lower	Upper
Department	Business (RC)	-	-	-	-	-	-
	Engineering	-.677	6.617	.010	0.51	.303	.851
	Others	-.736	9.144	.002	0.48	.297	.772
SSC&HSC Result	Good (RC)	-	-	-	-	-	-
	Not Good	-.430	4.005	.045	0.65	.427	.991
Gender	Male (RC)	-	-	-	-	-	-
	Female	.399	4.212	.040	1.49	1.018	2.182
Attendance	Regular (RC)	-	-	-	-	-	-
	Irregular	-.491	1.776	.183	0.61	.297	1.260
Teacher-Student Relationship	Friendly (RC)	-	-	-	-	-	-
	Unfriendly	-.354	1.656	.198	0.70	.410	1.203
Confidence	High(RC)	-	-	-	-	-	-
	Low	-.831	16.453	.000	0.44	.292	.651
Depression	No (RC)	-	-	-	-	-	-
	Yes	-.102	.293	.589	0.90	.623	1.308
CourseLoad	Above 9 (RC)	-	-	-	-	-	-
	At most 9	.571	9.281	.002	1.77	1.226	2.556

C.I. = Confidence Interval, OR = Odds Ratio, RC = Reference Category

One notable part of the findings of logistic regression model was that academic performance of female students were 1.49 times better than their male counterparts. Students suffering from depression were less like to perform better than those without depression. The relationship pattern with the teachers also seemed to impact the academic performance of the students. As expected, irregular students were found to be less likely (OR = 0.60) to perform better than the regular ones. Students undertaking not more than nine credits were 1.77 times more likely to perform better than those undertaking above nine credits. This was also usual that the less the amount of credits, the less the burden of study materials for the students; consequently, more time is available to focus on less amount of study materials. Self-confidence level of the students seemed to have highly significant association (p-value = 0.000) with the academic performance of the students. Achievements of the students with low level of confidence were 0.44 times less likely to perform better.

IV. Conclusion

The findings of this study will have crucial strategic implications to the managements of private universities in Bangladesh. Not only the students but also their families will realize which factors would have significant impact on students' academic success. The study will also help to undertake proper actions by Institutional Quality Assurance Cell(IQAC) in the universities as well. The number of private universities will continue its ever-increasing trend in the upcoming days. Therefore, it is high time to take necessary steps to ensure the quality of education at this level. It is the huge amount of tuition feesbeing paid by the students in the private universities that ultimately runs the life of the institutions. Hence, their academic performance level must be taken care of seriously and sincerely.

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