

## CONSUMPTION EXPENDITURE AND STUDENTS' ACADEMIC PERFORMANCE: AN ECONOMETRIC ANALYSIS OF PUBLIC UNIVERSITY STUDENTS IN BANGLADESH

**Halima Akhter**

Lecturer, Department of  
Accounting, Tejgaon Mohila  
University College, Dhaka

**BANGLADESH**

**Kiptia Akhter Lima**

Lecturer, Department of  
Economics, Tejgaon Mohila  
University College, Dhaka

**BANGLADESH**

### ABSTRACT

This study examines the factors that influence the public university students' consumption expenditure and their academic performance. A linear consumption function is used applying ordinary least squares technique to determine the factors that influence students' consumption expenditure. Based on primary data collected from the four prominent public universities of Bangladesh, the study shows that gender, monthly family income, part-time job, average grade point, residential status, entertainment cost and mobile expenditure are important factors to influence public university students' consumption expenditure in Bangladesh. The co-relation matrix also confirms a positive relationship between students' academic performance and their consumption expenditure.

**Keywords:** Academic performance, consumption expenditure of students, linear regression, ordinary least squares technique.

### INTRODUCTION

Corroborative development is largely dependent on the availability, standard and application of higher education, human capital, and skilled manpower. In the contemporaneous competitive and globalized ambiance, the need of highly skilled human resources is needless to explain. To set a developed nation, individuals with good academic results are required, students' performance (academic achievement) plays an important role in producing the quality graduates who will peruse leadership and become human resources for the country and will act responsibly for country's economic and social development (Ali, *et. al*, 2009). These factors vary from person to person and country to country, students' academic gain and learning performance is effected by consumption expenditure with its various determinants such as gender, monthly family income, part time job, residential status, entertainment cost and mobile expenditure.

Poor academic performance, in both the short term and long term of a country's development, is a cause of worry. On the other side, superior academic performance requires proper nutrition in order to support the health and activity of nerve cells in brain. Adequate nutrition ensures that students can fully utilize their potential for academic achievement. In contrast, students who take unhealthy diets may lag behind certain areas of physical response, learning and academic skills i.e. less cognitive ability, minimum stress response, lower test scores, low brain function and also not to show proper social behavior (Nisbett, R.E., & Storms, M.D., 1974). Healthy eating habits among students plays a key role in the mental and physical development of the national youths. When students don't get proper nutrition, they would not be human capital (HC) and skilled manpower. Because human capital is the value of a business provide through the application of skills know-how and expertise. It also encompasses how effectively an organization uses its human resources as measured by

creativity and innovation. On the other hand, skilled manpower accelerates economic big push in every sector such as education, business, statistics, science, social science etc. of the society and brings out the best in nature through technological revolution in those sectors. Unfortunately, our country like many others in Asia and Africa doesn't have adequate budget for proper food expenditure, lacks consciousness and depends on their traditional aspects. At this scenario, an analysis can take place to see how the graduate students' academic result (GPA) is influenced by their food expenditure behavior in public universities. The influence of food expenditure can affect academic performance of students either positively or negatively depending on how their determinants are utilized.

## **EMPIRICAL LITERATURE**

Students' academic performance is effected by numerous factors including gender, family income, personal income, residential area of students, food expense, transportation cost, entertainment cost, Medical expense, IT expense, accessories, social work expense, daily study hour and accommodation as hostels or day scholar. Many researchers conducted detailed studies about the factors contributing to student performance at different study levels. Considine and Zappala (2002) noticed that parents' income or social status positively affects the student test score in examination. According to Minnesota (2007), the higher education performance depends upon the academic performance of graduate students. Durden and Ellis quoted Staffolani and Bratti (2002) and observed that the measurement of students previous educational outcomes are the most important indicators of students future achievement, this refers that as the higher previous appearance, better the students' academic performance in future endeavors. Numerous studies have been conducted in the area of students' achievement and these studies identified and analyzed the number of factors that affect the academic performance of the student at school, college and even at university level. Their findings identify students' effort, previous schooling, parents' educational background, family income, self-motivation of students, age of students, learning preferences and entry qualification of students as important factors that have effect on students' academic performance in different settings. The utility of these studies lies in the need to undertake corrective measures that improve the academic performance of graduate students.

It is generally assumed that, the students who showed better or higher performance in the starting classes of their studies also performed better in future academic years at degree level. Everyone can be convinced on this assumption if it could be proved scientifically. From the last two decades it has been noticed significantly that there is great addition in research literature and review materials relating to indicators of academic achievement with much emphasis on this dialogue, whether traditional achievement measures of academic performance are best determinants of future academic gain at university or higher level or innovative measures. However, it is also observed that many of the researchers are not agreed with this view point or statement. Reddy and Talcott (2006) disagreed with these assumptions that future academic gains are resolute by preceding performance. In their research on the relationship between previous academic performance and subsequent achievement at university level, they found that students learning or studying at graduate level and the score secured did not predict any academic achievement at university level. They also cited Pearson and Johnson (1978) who observed that, on the whole grade association is only 0.28 between graduate level marks and university degree achievement. Amoah, FilixAsmah, Hughes, Larbi and Ahiabor (2012) notified factors that influence the private university students' consumption and subsequent influence on academic performance. A linear model of the

consumption function was used. The Ordinary Least Square technique was employed to determine the factors that influence students' consumption

## **THEORETICAL REVIEW**

In the last few years in Bangladesh, literacy rate and education quality have been developed significantly. The most of the institutes in Bangladesh are improving the quality of education and producing well educated, competitive and skilled people. These are very important to meet dynamic group market requirement. These are some important reasons that motivate researchers to find out such factors effecting students' performance. This research paper focuses on food expenditure determinants of students which directly affect the students' academic performance.

### **Monthly family income**

In the context of Bangladesh, middle income or low income families cannot afford a higher budget for food expenditure than high income family, moreover such types of families are not conscious about their children's basic nutrition. They are willing to pay more in education than taking balanced food. The families who earn more possess more purchasing power. They try to collect a good diet very frequently than the low earning families. They want to change their taste and preference. That's why they spend extra money for their balanced diet and they always concentrate on their children's nutrition. When students do not get proper nutrition, they face less concentration and poor function of brain.

### **Residential status**

Students' academic performance may vary with their residential status. Generally students who live in urban area must bear more cost on residential purpose than rural area's students in Bangladesh. Moreover, it's a common phenomenon that urban students get extra benefits than rural students for the developed urban infrastructure. Citizen students spend big amount of money for purchasing food than rural citizen students. Though rural students take fresh food than urban students, urban students perform good academic result than rural students because they are more conscious about nutrition, healthy food and balanced diet; where rural students are less conscious about these factors. A survey conducted by the Bangladesh Bureau of Statistics (BBS) has found the rural literacy rate of 50.6% while the urban literacy rate stood at 65.6% for population of 11 to 44 age group (November, 2011). Besides, students who live in mess and hall take unhealthy, unhygienic food and face lack nutrition. One important reason for this is that the most of these students can't take available three times food in a day for various schedules in academic class, tutorial, final exam or other extra curriculum activities. On the other hand, universities dining halls do not serve quality foods for students. For these reasons students have lost their proper concentration which plays a vital role for higher academic achievement.

### **Gender**

After liberation, female literacy rate is increasing day by day very slowly. But starting from twenty first century male and female literacy rate is almost equal. The male and female literacy rate is 62% and 53.4% (Wikipedia.org-update 29 march, 2011). There is a more rapid increase of educational attainment for women than men. Like that, other factors, namely, food consumption is another important factor behind this scenario. In this situation, we can

say every child's guardians are aware of their girl-child's good health and proper nutrition. They remember to take care of their daughter live in a same manner. In this fashion, female students' enrollment in every sector is rising day by day and they prove themselves as quality graduates and competent work force in Bangladesh.

### Part-time job

Students' food expenditure is closely related to part time jobs. Those students who are engaged in part time jobs may carry extra money for purchasing quality food.

### GPA

Students' academic performance largely depends on their consumption expenditure. Students are conscious about healthy food and nutrition and then ultimately their brain functioning well. Students would become quality graduates and skilled labor force. Healthy eating habit among students plays a key role in the mental and physical development of national youths.

### Entertainment cost and mobile expenditure:

Entertainment cost and mobile expenditure can influence consumption expenditure behavior of students. Because, recently it is seen that students are more interested to spend money for entertainment, mobile phone usage which is often unnecessary to them.

### METHODOLOGY

The paper uses a linear consumption function with the appropriate dependent and independent variables as follows-

$$F = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7)$$

$$E_c = B_0 + B_1x_1 + B_2x_2 + B_3x_3 + B_4x_4 - B_5x_5 - B_6x_6 - B_7x_7 + U_{Ec}$$

Where,

$E_c$	= Monthly food consumption spending of the M.S.S. student,
$x_1$	= Monthly family income of his/her family,
$x_2$	= Gender status,
$x_3$	= Part-time job status,
$x_4$	= Grade point average of last semester,
$x_5$	= Monthly entertainment cost,
$x_6$	= Residential status,
$x_7$	= Monthly mobile expenditure,

So, we can say that  $E_c$  (the dependent variable) is a function of income, gender, part-time job, GPA, Entertainment cost, Residential status. This implies that monthly food consumption expenditure responds to the changes introduced by these independent variables in the regression model.

### Sources of Data

The study is conducted by using both primary and secondary sources of information. Primary sources include data collected using questionnaires with respondents in the four selected

public universities namely Dhaka University, Jahangirnagar University, Jagannath University and Jatiyo Kabi Kazi Nazrul Islam University. The secondary data are statistical digests, Internet, magazines, newspapers among others information of these sources included both quantitative and qualitative data.

### Population of the study

The population size of this study is 520 who are the M.S.S. students in the academic year 2012-13 in the following four universities. This period is preferred because secondary data is available only up to 2012 – 2013. Table 4.0 presents the population distribution by gender and university. Population and sample size are not the same because 62 samples are eliminated for misinformation, incomplete script etc.

**Table 4.0 Total enrollment of the four sample public universities.**

Name of University	Enrollment Year	Number of students			Sample used
		Total	Male	Female	
Dhaka University	2012-2013	180	110	70	170
Jahangirnagar University	-Do-	152	86	65	136
Jagannath University	-Do-	102	60	42	86
Kabi Kazi Nazrul Islam University	-Do-	86	56	30	66
<b>Total :</b>		<b>520</b>			<b>458</b>

### Data representation and analysis of results

In this section, analysis of data is done. It is an attempt to present the determinants of food consumption expenditure of public university students. This involves descriptive analysis of sample data, results and analysis of regression, the research has been done with the help of SPSS (version 16).

**Table 4.1 Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	458	1	2	1.44	.497
Monthly Family Income	458	0	7	3.89	1.804
Part-time job Status	458	1	4	1.55	.511
Residential Status	458	0	8	2.47	1.763
Entertainment Cost	457	0	5	2.33	1.319
Mobile Expenditure	458	0	4	1.93	.941
GPA	458	0	31	3.40	1.393
Food Consumption- expenditure	458	0	5	1.73	1.447
Valid N (list wise)	457				

Table 1 presents minimum, maximum, mean and standard deviation values of the variables. According to the data, mean value of monthly family income is 3.89(Value label 10001-

20000). Average entertainment cost is 2.33(Value label 251-500).Mean mobile cost is 1.93(Value label 0-250). On average GPA of the students is 3.4. The dependent variable food consumption expenditure has a mean of 1.73(Value Label 0-1000).

**Table 4.2: Regression Results**

Independent variable	Coefficient	Std. Error	T	P>[t]	95% Confidence		Ho
					Upper	Lower	
Constant	1.937	.334	5.796	.000	2.594	1.280	
Gender(1=male,2=female)	-.793	.119	-6.656*	.000	-.559	-1.027	No influence
Monthly family income	-.119	.033	-3.661*	.000	-.055	-.183	Positive influence
Part time job status	.088	.115	.762	.446	.313	-.138	No influence
Grade point average	.045	.041	1.098**	.273	.124	-.035	No influence
Entertainment cost	-.006	.044	-.128	.898	.081	-.092	Negative influence
Residential status	.321	.033	9.735*	.000	.386	.257	Negative influence
Mobile expenditure	.169	.062	2.725**	.007	.292	.047	Negative influence
R-square	.320	F-change	30.225	DW test	1.632		
Adjusted R-square	.310	Sig.	0				

\*P< .05

\*\* P<.001

### Interpretation of the results: Fitness of the model

The diagnostic test shows that the model is a very good fit for forecasting and prediction. The overall significance and fitness of the model is measured with the F test. The significant F change is recorded 30.225. Which provides indication that all the independent variables together explain the dependent variable food consumption expenditure. The model is significant at 5% level of significance. The R-square (.320) and adjusted R-squared (.310) shows that almost 32% of the variations in food consumption-expenditure is explained by gender, monthly family income, part-time job status, grade point average, entertainment cost,

residential status, mobile expenditure. The model does not have any correlations between the error terms as it has a Durbin-Watson (DW) statistic of approximately 2. And the remaining 68% can be attributed to other factors such as value, personal preference, parental status, health condition, environment condition, etc.

### **Residential Status**

The critical t value 1.96 (df=456,.05 confidence level) is less than the calculated t value 9.735. The study rejects the null hypothesis that residential status has negative influence on food consumption expenditure. And fails to reject the alternative hypothesis at 95% confidence interval. Positive coefficient suggests that holding other things constant, students who live in urban area spend .321 taka more than the students living in rural area.. The residence of a student is important because the atmosphere, ambiance and the nature of the house would influence the dependent variable, holding other things constant.

### **Gender**

Calculated t value for gender is 6.656(in absolute terms) which exceeds the critical value 1.96(df=456,.05 confidence level), the study rejects the null hypothesis that gender has no influence on food consumption-expenditure and fails to reject the alternative hypothesis at the 95% level of significance. The conclusion is that male students spend .793 units less in food than female students, holding other things constant. The P-value of gender (.000) confirms the decision.

### **Monthly family income**

The calculated t value 3.661(in absolute terms) exceeds the critical t value 1.96 (df=456,.05 confidence level). The study rejects the null hypothesis that income has positive influence on food consumption-expenditure holding the other factors constant. It rejects the alternative hypothesis. It is highly significant at 5% level of significance. Income is a very strong determinant of food consumption-expenditure as indicated by economic theories. However, in this scenario, holding other things constant if income rises by 1 taka, consumption decreases by .119 taka .This result contradicts the traditional likely thoughts.

### **Mobile Expenditure**

The calculated t value 2.725 exceeds the critical t value 1.96 (df=456,.05 confidence level). So, The study rejects the null hypothesis that mobile expenditure has a negative influence on food consumption and accepts the alternative hypothesis and it is significant at 95% confidence interval. The coefficient strongly indicates a one unit increase on mobile expenditure has a significantly positive (.169 unit) influence on food consumption expenditure, holding other things constant. It means that the higher the mobile expenditure, the higher the food-consumption expenditure. This is because students with higher mobile expenditure tend to speak, more over phone and they are to spend it, why not spend it on food also.

### **Grade point average**

An absolute calculated t value of the slope coefficient of GPA (1.098) is less than the critical t value 1.96(df=456,.05 confidence level) implying, the study accepts the null hypothesis that

GPA has positive influence on food consumption-expenditure and fails to accept the alternative hypothesis at the 95% level of significance. And it concludes that holding other things constant, if GPA increases by 1 unit, food consumption-expenditure rises by .045 taka. This means higher GPA means higher food consumption and vice-versa. This may be because students with higher GPA are likely to study more in terms of time, so they need more food. That is why they are positively correlated.

### Part-time Job Status

Calculated t value (.762) is less than critical t value 1.96 (df=456,.05 confidence level).The study accepts the null hypothesis that part-time job status has no impact on food consumption-expenditure, and fails to accept the alternative hypothesis at 5% level of significance. The coefficient depicts that holding other things constant, students with part-time job status spends .088 taka more than students without part-time job. This is because, students with part-time jobs are likely to have more money to spend for food than others.

### Entertainment Cost:

The study shows a calculated t .128 (in absolute terms) less than critical t 1.96 (df=456,.05 confidence level). So it accepts the null hypothesis that the entertainment cost has a negative influence on food consumption expenditure and it is not statistically significant at 95% confidence interval. Coefficient suggests that a one unit increase on entertainment cost leads to a fall in food consumption-expenditure by .006 units.

### Correlation analysis between food-consumption-expenditure and GPA

**Table 6.0: Correlation matrix for food expenditure and GPA**

		Food consumption-expenditure	GPA
Food consumption-expenditure	Pearson Correlation	1	.031
	Sig.(2-tailed)		.510
	N	458	458
GPA	Pearson Correlation	.031	1
	Sig.(2-tailed)	.510	
	N	458	458

The above table depicts the result of correlation matrix between GPA and Food consumption expenditure of the public university students. We can see that the two variables are positively correlated. That means the higher the expenditure on foods, the higher the GPA.

### CONCLUSION

In general sense, food consumption expenditure should vary for every single student. The study evidently shows how gender, monthly family income, part-time job status, grade point average, entertainment cost, residential status, mobile expenditure influence public university students food spending greatly. After fitting the model we conclude that impact of gender, monthly family income, residential status and mobile expenditure on the dependent variable



are statistically significant. This has revealed that the universities or government should consider the above factors. Part-time job status, GPA, entertainment cost also effects food consumption expenditure but their results are not significant. Correlation Matrix shows there is a positive correlation between GPA and Food Expenditure, which is anticipated. Policymakers should also consider this matter.

## ACKNOWLEDGEMENT

The authors are grateful to the teachers and students of the universities mentioned above for helping and participating in the interview, related books and INTERNET.

## REFERENCES

- Ali, Shoukat, Zubair Haider, Fahad Munir, Hamid Khan, Awais Ahmed. Factors Contributing to the Students Academic Performance.” : A Case of Islamia University Sub-Campus” . American Journal of Educational Research 1, No. 8 (2013):p 283-289.
- Mustaq, Irfan & Khan, Shabana Nawaz, “ Factors Affecting Students Academic Performance” . Global Journal Management and Business Research, Volume12. Issue 9. Version 1 .0 June 2012. Global Journal Inc. (USA) Online ISSN: 2249-4588 & Print ISSN: 0975-5853.
- Amoah, Anthony, Felix Asmah , George Hughes, Davis Adu Larbi & Godson Ahiabor. “ Students’ Consumption Determinants and Academic Performance Nexus: A Case Study of Private University Students in Ghana.” Developing Country Studies ISSN 2224-607X (Paper) ISSN 2225-0565 (On line) Vol 2, No.11, 2012 .Page188-196.
- Gujarati, Damodar N. (2009-10), “ Basic Econometrics” ,TATA McGraw-HILL,Delhi,India.
- Duesenberry, J. S., (1949), “ Income, Saving, and the Theory of Consumer Behavior. Harvard University Press: Cambridge, MA.
- Friedman M. (1957), “ A Theory of the Consumption Function” . Princeton University Press, Princeton.
- Gujarati, D. N. (2006), “ Essentials of Econometrics” 3rd edition, New York: Mc Graw-Hill.
- Harb, Nasri and El-shaarwi, Ahmed;(July-2006) “ Factors affecting Students' Performance” MPRA paper no.1362.
- Considine, G. & Zappala, G.(2002) Influence of Social and Economic disadvantage in the academic performance of school students in Australia.” Journal of Sociology,38,Page 129-148.
- Bratti' M and Staffolani, S. 2002. “ Student Time Allocation and Educational Production Functions” . University of Ancona, Department of Economics, Working Paper No. 170, Italy.
- Minnesota Measures (2007). Report on Higher Education Performance. Retrieved on May 24, 2008 from [www.opencongress.org/bill/110.S/642/Show-139K](http://www.opencongress.org/bill/110.S/642/Show-139K).
- Pearson, P.D. & Johnson, D.D. (1978). “ Teaching Reading Comprehension” . New York: Holt, Rineheart & Winston.
- Reddy, P ,and Talcott, J. (2006). “ Predicting University Success in Psychology: Are subject specific skills important” ? Retrieved on July 4,2008. From [http://www.aston.ac.uk/downloads/ihs/peelea/huw\\_2006\\_P.pdf](http://www.aston.ac.uk/downloads/ihs/peelea/huw_2006_P.pdf).
- Durden, G.C. and Ellis, L.V.(1995). “ The Effect of Attendance on Student Learning in Principles of Economics” . American Economic Review,85.343-346.

Penman, S. and McNeil .S .L (2008), “ Spending their way to adulthood: Consumption outside the nest. University of Otago, New Zealand.

**APPENDIX**

**Variables Entered/Removed<sup>b</sup>**

Mode	Variables Entered	Variables Removed	Method
1	Mob. Exp., gpa, residence, Sex, Ent. Cost, any p.t. j., m.f.i <sup>a</sup>	.	Enter

a. All requested variables entered.

b. Dependent Variable: Basic food

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.566 <sup>a</sup>	.320	.310	1.204	.320	30.225	7	449

a. Predictors: (Constant), Mob. Exp., gpa, residence, Sex, Ent. Cost, any p.t.j., m.f.i

b. Dependent Variable: Basic food

**Model Summary<sup>b</sup>**

Model	Change Statistics	Durbin-Watson
	Sig. F Change	
1	.000	1.632

a. Predictors: (Constant), Mob. Exp., gpa, residence, Sex, Ent. Cost, any p.t.j., m.f.i

b. Dependent Variable: Basic food

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	306.455	7	43.779	30.225	.000 <sup>a</sup>
	Residual	650.355	449	1.448		
	Total	956.810	456			

a. Predictors: (Constant), Mob. Exp., gpa, residence, Sex, Ent. Cost, any p.t.j., m.f.i

b. Dependent Variable: Basic food

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.937	.334		5.796	.000	1.280	2.594
	Sex	-.793	.119	-.272	-6.656	.000	-1.027	-.559
	m.f.i	-.119	.033	-.149	-3.661	.000	-.183	-.055
	any p.t.j.	.088	.115	.031	.762	.446	-.138	.313
	gpa	.045	.041	.043	1.098	.273	-.035	.124
	Ent. Cost	-.006	.044	-.005	-.128	.898	-.092	.081
	residence	.321	.033	.391	9.735	.000	.257	.386
	Mob. Exp.	.169	.062	.110	2.725	.007	.047	.292

a. Dependent Variable: Basic food

Correlations

		Food Consumption -expenditure	GPA
Food Consumption- expenditure	Pearson Correlation	1	.031
	Sig. (2-tailed)		.510
	N	458	458
GPA	Pearson Correlation	.031	1
	Sig. (2-tailed)	.510	
	N	458	458