

## Impact of Staying in Student Dormitories on Educational Outcomes: Evidence from the University of Chittagong

Mohammad Morshedul Hoque<sup>1\*</sup>, Md. Alauddin Majumder<sup>2</sup>

### Abstract

Students' staying in dormitories is often considered an important factor influencing their academic performance as the dormitories provide structured environment, academic support, and access to peer networks. It is believed that if students perform better in their university life in terms of educational outcomes, their labor market outcomes would also be better and hence they could contribute to the economy significantly. However, the actual impact of dormitory residence on students' academic outcomes remains an empirical question, particularly in the context of Bangladeshi universities. Therefore, this study focuses on the university students' educational performance based on their residential status. In order to pursue the empirical analysis this study applied a multiple regression model estimated by ordinary least-squares (OLS) method. Primary data have been collected from a sample of 240 students studying in different disciplines at the University of Chittagong. In addition to residential status, age, dummy for gender, and dummy for whether a respondent's family owns or rents a house in Chittagong city were used as explanatory variables. Estimated results suggest that there is no statistically significant difference between the treatment group (students staying in dormitory) and the control group (those not staying in dormitory) in educational outcomes. This finding has important policy implications. In order to harness benefits of student dormitory in terms of educational performance authority can initiate measures to restrict student politics and increase budgetary allocation for ensuring healthy meals in student dormitories.

**Keywords:** Student Dormitory, Educational Performance, Residential Status, Ordinary Least Squares, Bangladesh

### 1. Introduction

Students' residential places such as dormitories, families, or private accommodations can have significant influence on their academic performance. Those living in the dormitories often enjoy academically oriented environment, with access to libraries, study groups, peer networks, and campus activities with higher academic engagement. On the other hand, students living off-campus or with family may benefit from emotional support and stability but can be obstructed by longer commuting times, household responsibilities, or social distractions, which cause to reduce their study time. Thus, residence status can pose opportunities as well as challenges for the students in their learning process. The question of whether the residential status of a student matters for educational outcome is therefore, an empirical issue. Some studies suggest

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<sup>1</sup> Associate Professor, Department of Economics, University of Chittagong, Bangladesh;  
E-mail: [mohoque75@yahoo.com](mailto:mohoque75@yahoo.com) \* Corresponding Author

<sup>2</sup> Professor, Department of Economics, University of Chittagong, Bangladesh; E-mail: [ecoalauddin@cu.ac.bd](mailto:ecoalauddin@cu.ac.bd)

that a student with higher GPA is likely to attain better labor market outcomes (Buddin, 2012). Ali *et al.* (2009) observed that students' educational outcome plays a vital role in creating high quality graduates who will become an efficient workforce in the future, and contribute to the country's socio-economic development.

In Bangladesh, a student who stays in a dormitory enjoys some positive sides. A residential student requires less commuting time to attend the classes. He or she can allocate relatively longer time for study purpose and accomplishing coursework and assignments and can get benefits of university library and resource facilities. So, his or her academic performance is likely to be better than one who stays with family or off-campus. Legaspi *et al.* (2010) surveyed 100 college students of about 23 years of age, and found a statistically significant correlation between commuting time to the college campus and the students' educational outcome measured by their cumulative GPA, indicating that students staying at college dormitories would result in a higher GPA than those who lives with their parents.

As an emerging and developing economy, Bangladesh requires improvement of its labor force productivity, given the nexus between educational performance and labor market outcomes. Thus, it is necessary to find out the factors affecting university students' educational outcome. The University of Chittagong ranks among the largest universities in Bangladesh in terms of student number and academic program offerings. The university has about 24,000 students enrolled, with around 7000 reside in the 14 dormitories of the university. Residential students of this university can spend more time in computer laboratories with internet facilities. In all the student dormitories of the university there are adequate provisions of newspapers, magazines and reputed journals for the students. Above all, as a reputed public university, the University of Chittagong has a central library full of most-valued and rare books and other resources. Students staying in different dormitories can use the central library at their convenient time for study purposes. The increased time spent on using those facilities is helpful in obtaining good grade. In this regard, this study as an examples refers to the experimental study of Fairlie and London (2008) involving the effects of home computers on the students' educational outcomes in a community college in the USA. In this study, financial-aid students with free computers were followed for two years and it was found that students receiving free computers had better grades and graduation rates than the control group that did not receive free computers.

Staying in student dormitory has some negative sides too. A residential student misses the parents' company and parental care, which affects the student emotionally. As a result, a negative consequence may arise in terms of his educational outcomes. This observation can be substantiated by the findings of Bettinger *et al.* (2013). This study analyzed a program of the Norwegian government that substantially increased parents' incentives to stay home with children under the age of three. It found a significantly positive treatment effect on older siblings' 10<sup>th</sup> grade GPA. Although the maturity level of university students is high as they are self-dependent to a significant extent, the positive role of parents' company and parental care in their lives cannot be ignored.

University students in Bangladesh are always found to get involved in part time works, and it is tempting for a residential student to engage in tutoring works to cover his or her dormitory and other educational expenses. In this case, less study time will be available for them which might adversely affect their academic performance. This point can be reflected in Rokicka (2014), who performed a longitudinal study of young people in England where the impact of school students' part-time employment on educational outcomes was studied. Its results suggested that working part-time during the last year of compulsory education has a negative impact on educational achievements and on participation in education in subsequent years.

Generally, it is alleged that the quality of meals served in student dormitories are not good. The meals are claimed to lack hygiene and proper nutrient contents. Research suggests that healthy nutrition radically improves students' cognitive function and academic achievement. Specifically, some vitamins and minerals play a critical role in brain growth and learning. Besides, staying hydrated is also important because a drop of just 2% in body fluid can cause difficulty with solving mathematical problems and trouble focusing on a page of text or a computer screen.

In Bangladesh, student wings of political parties actively exercise their activities in university's student dormitories. Thus, likelihood of getting involved in student politics is higher for those staying in the dormitories. Though participating in political activities is supposed to enhance students' leadership, positive effects of politics are overwhelmingly offset by its negative effects due to corrupt practices associated with student politics in Bangladesh. As a result, political connection may downgrade students' educational performance. Empirical studies also supported this observation. For example, Gyamerah *et al.* (2014) revealed that student politics affects student leaders' academic performance adversely since they dedicate more time to campaigning purpose. When they assume official responsibility they concentrate more on their leadership role than paying attention to educational activities.

Staying in dormitory, therefore, has enhancing as well as deterring effects on educational outcome of the university students. The net effect depends on the relative strength of these two opposing forces. Therefore, the main objective of the study is to identify observe the net effect of students' staying in the dormitories taking the context of the University of Chittagong. One important source of motivation for this study is to see whether the government should increase the residential infrastructural development for the students in public universities or not in the future. This study can provide effective information to the concerned authorities in this regard.

## **2. Literature Review**

While the relationship between staying in the dormitories and students' academic performance is interesting and research worthy in the context of the developing countries, scarce attention has been devoted by the researchers on this particular field. Only a small number of empirical studies are found which are reviewed below.

Turley and Wodtke (2010) found that different groups of students are differentially affected by their living environments. Using a sample of 1st-year students from the National Postsecondary Student Aid Study, it found that the type of residence during

college has no significant effect on 1st-year academic performance. But black students living in campus have significantly higher outcomes than those who live off campus with their families. Etikan *et al.* (2017) investigated if students staying in campus residential dormitory have better academic performance compared to students living outside the campus environment as a result of the facilities available on the campus. The results of this study suggest that there is no significant difference in the academic performance of the students residing on-campus and those residing off-campus.

Blimling (1989) carried out a meta-analysis of 21 studies that looked at the impact of living in a college residence hall on US undergraduate students' academic performance and were published between 1966 and 1987. An effect size might be calculated using the statistics provided by the studies. The examined study did not demonstrate that living in a traditional residence hall had a greater impact on academic achievement than living at home, when only studies that adjusted for variations in prior academic performance were utilized. A study by Aktar & Rahman (2019) found that students residing in university dormitories performed better academically than their non-residential counterparts. The proximity to campus resources, reduced living costs, and increased opportunities for peer interaction were identified as key factors contributing to this improved performance.

Conversely, research by Nath *et al.* (2019) indicated that students living at home exhibited better academic behaviors, such as attentiveness in class and active participation in assignments, compared to those living in dormitories or private accommodations. However, this study also noted higher levels of anxiety and stress among dormitory residents, which could potentially offset the academic advantages. Furthermore, a study by Tajwar (2024) highlighted that the residential environment in public universities significantly impacts students' mental well-being and academic engagement. The research emphasized the need for improvements in dormitory facilities to foster a more conducive learning environment.

These findings suggest that while dormitory living can offer academic benefits through enhanced access to resources and peer support, it also presents challenges such as increased stress and health issues. Therefore, a balanced approach that addresses both the advantages and drawbacks of dormitory living is essential for optimizing students' academic outcomes in Bangladesh's higher education context.

### **3. Methodology**

#### **3.1 Sample Selection and Data Collection**

This study is based on primary data collected from the current students staying in the dormitories as well as living at their own or rented houses with parents in Chittagong city. For selecting the students for this study, lists of students are collected from the dormitory offices. A students of Chittagong University, either resident or non-resident, must be attached to a dormitory of this university. Therefore, it was easy to get all the students if the lists of students are taken from the dormitories. Considering the lists of students as the sampling frame, 240 students are selected for survey following the random sampling procedure. Of the 240 students, 120 students are taken who are

staying in the dormitories while the rest 120 students live at their parents' own or rented house. Students living with parents are considered as 'control group' while the students living in the dormitories are considered as 'treatment group'. The sample students comprise both male and female students studying in different levels at different departments. It is to note that some students live in student messes nearby the university campus and some others live in the city corporation areas at rented houses in rent sharing basis. For these study, these two groups of students were not considered because, within the groups, their living condition and other facilities differ significantly.

For data collection, a structured questionnaire has been prepared. In the questionnaire, questions on relevant variables related to students' food and living facilities; different costs incurred, access to reading and learning materials; commuting and transport facilities and time; the educational outcomes in terms of GPA achieved, etc. along with other socioeconomic covariates were included. Before executing the questionnaire survey, a pilot survey was administered and after the pilot survey required revisions are done. Finally, data have been collected by the enumerators following face-to-face interview method. After completing the survey, the data were inputted for analysis in the SPSS spreadsheet, and focusing on the objectives of the study, quantitative analytical methods are employed.

### 3.2 Empirical Methods

Given the nature of the data, the researchers considered calculation of means and differences, and estimation of a multiples regression model as suitable methods for attaining the objectives of the study. Descriptive statistics report the mean, and differences of the variable values that help understand the central value and degree of scatteredness of the variable values. For assessing the influence of whether living in the dormitories or at own houses, along with the influence of other covariates on educational outcomes of the students a multiples regression model has been fitted with the collected data. Following Gujarati (2003) the multiple regression model has been specified as follows:

$$gpa_i = \beta_0 + \beta_1 gender_i + \beta_2 age_i + \beta_3 dorm_i + \beta_4 house_i + \beta_5 parent\_inc + u_i \dots (1)$$

Where, *gpa* is recently earned GPA, *gender* is a dummy variable that takes the value of 1 if the respondent is a male student and zero otherwise, *age* is a respondent's age in years, *dorm* refers to a student's status about staying in a dormitory used as a dummy assuming the value 1 if a student stays in a dormitory and zero otherwise. Finally, *house* indicates whether a student's lives in family owned or rented house with parents in Chittagong city, and zero otherwise. *Parent\_inc* stands for monthly income of the parents of a student to show his ability of access to get resources like books, tuition, devices, and other education supporting services and materials.  $u_i$  is the stochastic error term expressing the other non-systematic influences on student's educational outcomes.

### 3.3 Variable Selection and Estimation Method

In this study, educational outcome is represented by recently earned GPA. This is dependent variable of this study. On the other hand, the main explanatory variable in this study is 'staying in the dormitory' as is focused in the title of the paper. It is a dummy variable which assumes the value of 1 if a student stays in student's dormitory.

Considering the fact that omitting variables which are correlated with the dependent variable, are likely to cause omitted variables bias (Wooldridge, 2016). This study used gender, age, and living with parents in own or rented house, and monthly income of the parents as covariates. These variables are used for control purpose.

Performing a two-sample *t*-test with equal variance, it is seen that our treatment group (those staying in dormitory) and control group (those staying with parents) are statistically significantly different in terms of gender, age and family's owning a house or not, and parents' monthly income. The summary of the test results is presented in Table 1. This is the justification as to why this study included these three control variables to disentangle the causal effects of staying in student dormitory on educational outcome.

**Table 1: Differences in means of covariates between 'control' and 'treatment' groups**

Variables	Mean Difference	p-value	Statistical Significance
Gender (dummy)	0.274	0.0073	Significant
Age	0.012	0.2601	Not significant
Own or rent a house by patents (dummy)	0.122	0.0714	Significant
Parents' monthly income	0.148	0.0652	Significant

The results in Table 1 show that the treatment and control groups differ significantly in gender composition and, to a lesser extent, in parental house- own or rented, and income. Age differences between the two groups are statistically insignificant. These findings suggest that while both groups are similar in age, there exists some imbalances in socioeconomic and demographic characteristics, and if omitted, absence of these variables from the regression equation would have created serious estimation problems.

The multiple regression equation stated in Equation 1 has been estimated using the ordinary least squares (OLS) method in the level form. Assuming the standard assumptions of the classical regression model with the stochastic error terms normally and independently distributed, OLS provided good and acceptable results.

#### 4. Empirical Results

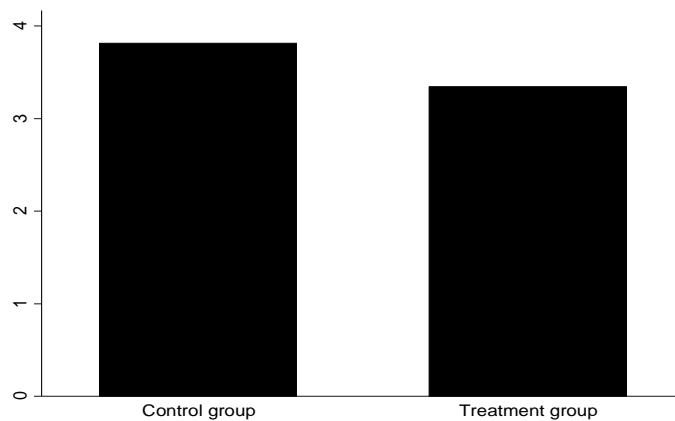
##### 4.1 Descriptive Statistics

Table 2 reports summary statistics for full sample and subsamples (two groups). For brevity, only sample means are presented. Of the sampled students, 50% stay in university's student dormitories. Male students constituted 69% of the sample. The average age of respondents is just above 23.206 years. Families of 50% of the respondents own or rented houses in Chittagong city. Regarding our dependent variable, we see that on average, the GPA of a student is 3.74 on 4.00 scales. Parents' monthly income is 46469 BDT

The remainder of the summary statistics gives an impression that the treatment and the control groups are significantly different in all the variables under consideration except for age. Of particular importance is the difference in the dependent variable. Students who stay in university's dormitory apparently earn lower GPA than nonresidential students. This is also visualized in Figure1. However, causality cannot be confirmed out of this, since this difference is based on unconditional means.

**Table 2: The sample means of variables for full sample and subsamples**

Variables	Full sample	Treatment group	Control group
Recently earned GPA	3.739	3.305	3.819
Dummy for staying in dormitory	0.500	1.000	0.000
Dummy for gender (male or female)	0.690	0.458	0.733
Age	23.206	23.351	23.061
Dummy for staying with parents	0.500	0.000	1.000
Parents' monthly income	42469.000	38402.350	46535.650
Observations	240	120	120

**Figure1: Comparing mean GPA of treatment group and control group**

#### 4.2 Results from the OLS Estimation

Since simple mean difference based on unconditional means hardly says anything about causal relationship, we controlled four covariates mentioned earlier by means of the OLS method in order to disentangle causal effects of staying in student dormitory on educational performance. We estimated the regression using the OLS method and the results of this regression are reported in Table 3.

**Table 3: Results from OLS regression**

Variables	Coefficient	Standard Error	t-value	p-value
Dorm	0.0440	0.1641	0.27	0.789
Gender	-0.0680	0.1130	-0.60	0.548
Age	-0.0599**	0.0254	-2.36	0.036
House	0.1909	0.1710	1.12	0.266
Parent_inc	0.0031*	0.0017	1.82	0.0871
Constant	11.88195	0.5874	20.23	0.000

Note: \*\* and \* indicate significant at 5% and 10% levels.

Obviously, the negative coefficient of the key explanatory variable, which was found from unconditional mean difference, turned to be a positive coefficient once we controlled for gender, age and residential status either in dormitories or with own families. However, the coefficient was not statistically significant. This leads us to conclude that staying in student dormitory does not have any causal effect on students' educational outcome. It is found that 'age' and 'parent's income' turned significant at 5% and 10% levels of significance. It is found that students with lower ages fared better in achieving higher GPA indicating that younger students are better performers as they may be more serious with learning while the elders may have got involved in other activities dampening their educational outcomes. The variable 'parent's income' has positive influence on students' GPA earning. This indicate that parents with higher income can send more money to their child which allows the students for access to more reading materials and educations supporting services, which in turn directly or indirectly enhance the GPA of the students.

Several factors can be invoked to explain the neutral role of staying in students' dormitory in improving educational outcome. Parent's company and guidance are supposed to make study more productive for a student. But students living in the dormitory are away from their parents and hence extremely deprived of parent's company and guidance. Some may argue that in this digital world it is possible to reach anyone online in no time. Parents can guide and advise their children over phone or through email communications. However, as a matter of fact, online communications cannot never be a perfect substitute for in-person contact.

Students living in the dormitory are susceptible to political activism. Student politics is allowed in our educational institution. Taking advantage of this, student wings of political parties remain actively engaged in recruiting new members for their organization. Sometimes they exercise power. As a result, a student living in the dormitory is more likely to be involved in politics. It is commonly perceived that political activism among the students distract them from study leading to worse academic results.

Most importantly, food served to the students living in the dormitory are generally poor in quality. As empirical studies (e.g. Burrows *et al.*, 2017) suggest, there is positive association between dietary intake and academic outcomes. Thus living in dormitory is likely to cause students to attain lower academic performance. This may offset part of benefits that a dormitory gives rise to.

### **Conclusion**

It is widely recognized that educational attainment positively influences labour market outcomes, which, in turn, positively affect economic development. There are many factors that determine educational attainment from tertiary to university levels. Among these factors, 'staying in student dormitory' seems to be important. So far our knowledge goes, there is not a single study that examines the effect of this factor on educational outcome in the context of Bangladesh. This study has provided additional insights in fulfilling this gap.



It is generally believed that providing dormitory facility for the students results in better educational achievements. There are other covariates such as gender, age, family vicinity, etc. which also determine students' educational outcomes. Our results suggest that there is no significant impact of staying in university's student dormitory on educational outcome. As is mentioned earlier, several reasons might be responsible for this. For example, being deprived of parents' company and parental care, high possibility of getting involved in student politics, low quality of food served in student cafeteria and getting tempted to engage in private tuition(s) to increase personal earnings may have deterred the positive effects of staying in student dormitory. However, we are in no way suggesting that students' dormitory be stopped or the government should not take initiatives to set up new ones.

The findings have important policy implications. While adopting policies regarding the provision of student dormitories in public universities, government should keep in mind that given the present circumstances, benefits of residential facilities in terms of educational success cannot be reaped. Beneficial effects are completely offset by adverse effects. To harness the potential benefits, government can do a couple of things. It can allow student politics in university campus only in a very restricted form. It should have a long-run plan of making student politics completely separate from national politics. Besides, government can increase budgetary allocation for ensuring the provision of healthy food in student dormitories.

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