

Higher Education Budget: A Perception Analysis using the Evidence from Bangladesh

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Abstract:

Purpose: Analyse the perception of higher education budget in Bangladesh. **Research Methodology:** Utilised mainly primary data collected from 314 professions respondents using a structured questionnaire. Both descriptive and inferential statistics was used to analyse data. **Findings:** Statistical results indicates that most respondents suggested to increase the budget for higher education as the current budget is insufficient. The respondents also agreed to increase research allocation, incentives to teachers, modernise higher educational institutions, laboratories and classrooms, and update the teacher-student ratio as standard. Mann-Whitney U test and Kruskal-Wallis H Test suggested that there was a significant mean rank difference on statements relating to higher education budget by different respondents groups in terms of marital status, education level, education discipline, administrative division, university categories, income group, and working experience, except for some of the statements. **Practical Implications:** The research adds value to the existing knowledge and providing policymakers with insights into the scenario of higher education budget and expenditure in Bangladesh. **Research Limitations:** No opinions were taken from policy-level authorities of concerned ministries and the University Grants Commission of Bangladesh. **Originality/Value:** A pioneer studies identified the scenario of the budget and expenditure in higher education in Bangladesh based on first-hand data.

Key Words: Higher education, higher education budget, higher education expenditure, Bangladesh.

1 Introduction

Education is considered a merit good, a social investment for human development, a tool for promoting fairness, and a measure of overall quality of life (Tilak, 2012). Elementary education is generally considered a public good, while higher education is typically viewed

as a merit good (Balodi & Srivastava, 2021). The quality and efficiency of higher education are crucial for developing high-quality human capital in a country (Goksu & Goksu, 2015). There is a positive relationship between higher education budget and higher education quality (Sarkar & Hossain, 2016). Traditionally, states have provided significant subsidies for higher education in nearly all nations. This practice has been supported by acknowledging education's ability to generate external benefits and considering it a public good and a semi-public good precisely in the case of higher education (Tilak, 2012). A nation's level of spending on higher education varies greatly depending on its economic wealth and the proportion of young people in its population (Jha & Das, 2020). Government grants, both administrative and developmental, provided to universities in Nepal from FY 1999 to 2006 were not consistent (Baral, 2007). The Government of Nepal has adopted a cost recovery approach in higher education, aiming to fund capital expenses itself while shifting recurrent costs to beneficiaries to lessen its financial burden (Baral, 2007). The education budget in terms of gross domestic product (GDP) was 3.4 per cent in Nepal, 5.6 per cent in Bhutan, 2.5 per cent in Bangladesh, 3.8 per cent in India, 2.3 per cent in Pakistan, and 1.9 per cent in China in 2003 (Baral, 2007). However, the Nepalese government plans to apportion 6% of GDP to education, but the budget has remained steady at around 4% (Joshi, 2023).

On the other hand, an inadequate budget is a significant obstacle to expanding teaching, learning, and research facilities in higher education in Bangladesh (Sarkar, Hossain, & Rahman, 2014). Public expenditure on education was 2.37 per cent of GDP, where the education commission's recommendation was 4 to 5 per cent of GDP, and the UNESCO benchmark was 4 per cent of GDP. Higher education expenditure accounted for 0.28 per cent of GDP, whereas the Education Commission's recommendation was 0.75 per cent of GDP in Bangladesh (Sarkar & Hossain, 2016). The Education 2030 Agenda (SDG 4) recommends allocating at least 4% of GDP or 15% of national public spending to education (UNESCO, 2022). In Pakistan, a 1% increase in education expenditure results in an approximate 0.039% rise in output over the long term (Riasat, Atif, & Zaman, 2011). Public expenditure on higher education in India accounts for 0.53% of the GDP and 2.01% of total public expenditure, which remains insufficient to meet the country's higher education needs (Jha & Das, 2020). India's higher education expenditure as a percentage of its GDP decreased from 0.61% in 2000 to 0.53% in 2016 (Jha & Das, 2020). In India, while the total budget of the Union Government has been increasing in absolute terms, the proportion allocated to education has been gradually declining (Balodi & Srivastava, 2021). India allocates a relatively small portion of its GDP to education, compared to developed countries, and an even smaller share is directed towards higher education (Azam & Ahmad, 2024). There was a notable inequity between the oldest-large and the new-small universities in terms of per student yearly expenditure (8 times), teacher-student ratio (4

times), and area of campus (about 35 times), which was higher in the oldest-large than in the new-small university (Sarkar, Rana, & Zitu, 2013).

Many countries are approaching, but still not achieving, the target of 15–20 per cent of public expenditure being spent on education (Balsera, Klees, & Archer, 2017). Higher education expenditures in Canada, Korea, and the United States exceed 2.5 per cent; however, in Hungary, Italy, and the United Kingdom, allocations are less than 1.5 per cent of GDP (Goksu & Goksu, 2015). Private sector expenditures accounted for 5 per cent or less of total higher education expenditures in Denmark, Finland, and Norway. However, they were more than 40 per cent in Australia, Canada, Japan, and the United States in 2010 (Goksu & Goksu, 2015). Higher education should be publicly funded, as it has become a social right that is increasingly under threat in many countries. In the UK, particularly in England, this shift is evident as the focus has shifted from education as a public good to a private investment, leading to individuals bearing a greater share of the tuition and living costs (Boliver & Promenzio, 2025).

In advanced economies, an average of 1.47% of GDP is spent on tertiary education, though the wide variation (SD 0.52) shows differing investment levels. In contrast, transition countries allocate less—about 0.99% of GDP—likely due to limited resources or differing budget priorities (Oana & Raluca, 2025).

The problem statement indicates that the higher education budget and expenditure are a burning issue worldwide, especially in developing countries like Bangladesh. The study aimed to identify the actual scenario of higher education budget and expenditure in Bangladesh, utilising secondary data and literature. The primary focus of the study is to explore the perceptions of different professionals regarding higher education budgets and the necessary reforms to ensure quality education.

2 Objectives of the Research

The main objective of the research is to analyse higher education budget in Bangladesh. The following specific objectives are in place to achieve the primary goal.

- i. To find out the level of allocation of the higher education budget in Bangladesh.
- ii. To explore the perception of different professionals regarding the higher education budget in Bangladesh.

3 Review of Literature

Available literature at home and abroad on the internet relevant and related to higher education, its spending pattern and budget is reviewed and summarised here.

Simanaviciene, Giziene, Jasinskis, and Simanavicius (2015) found that though higher education investment crops individual welfares such as higher wages, it can also have

adverse state-level effects like brain drain. They concluded that funding university education proposals a higher return than funding college studies.

Mamadova, Novruzova, Huseynova, Nasirova, Azizova, and Aliyeva (2019) observed that education spending averages about 5% of GDP in South Asia, Latin America, and the Caribbean, related to about 5.3% in North America and Europe.

Sarkar, Rana, and Zitu (2013) revealed that the insufficiency of educational aids, library services, the readiness of books and journals, research and laboratory facilities are the serious encounter of quality higher education in public universities of Bangladesh.

Sarkar and Hossain (2016) identified that the inadequate monetary support from the government and inappropriate implementation of the same due to absence of decent governance and impractical use of allotted amount is the prime challenges of the higher education budget in Bangladesh.

Sarkar, Hossain and Rahman (2014) highlighted that insufficient budget for education in Bangladesh troubles the expansion of higher education and the human development index (HDI).

Majumder, Deb, and Paul (2017) concentrated that education is a key segment for expansion in Bangladesh, but government financing remains low, with the majority of the education budget allotted to primary education.

Karim (2015) found that in Bangladesh, public education spending excessively welfares richer, urban, and male students over poorer, rural, and female students.

Riasat, Atif, and Zaman (2011) empirically found that education expenses have a affirmative and noteworthy long-term consequence on economic development in Pakistan, with a 1% upsurge in education expenditure leading to an estimated 0.039% rise in output.

Grbić, Jovanović, Fedajev, and Atanasovska-Cvetković (2025) presented that education expenditure indicators can aid forecast real GDP per capita growth, confirming a one-way contributing connection from public education spending to economic development, while refusing opposite, bidirectional, or no connecting relationships.

Boliver and Promenzio (2025) identified that in 2007, the UK—especially England—reflected a typical Liberal model with a commodified higher education system, but by 2020 it had become an outlier marked by extreme marketisation, high tuition fees, loan-based student support, and lower public spending per student. Despite rising enrolment, similar increases in other countries challenge the neoliberal notion that shifting education costs to individuals is necessary for expansion.

Oana and Raluca (2025) observed that there is a prominent gap in education investment, as developed countries dedicate extreme superior resources than transition economies, where budget restraints boundary adequate educational funding.

After review of above literature, it is found that higher education expenditure is a most discussing issue in the education research world. Some study was conducted in

Bangladesh, emphasising budget allocation, its implementation, spending pattern, etc. But there is apparent scope to study on the perception analysis of higher education budget in Bangladesh. Therefore, the researcher wants to conduct the present study to analyse perception of higher education budget based on primary data.

4 Methodology

This section presents the nature of the study, including the selection of the study area, population, sample, and sampling method, as well as data collection, data processing, and analysis.

4.1 Nature and Justification of Selecting the Study

The study is an empirical research based on secondary and primary sources of data. Bangladesh is a densely populated country with limited natural resources; however, there are ample opportunities to develop its population into human resources in a planned manner. Literature suggests that Bangladesh has been experiencing an expansion in the rate of education, particularly in higher education. However, there is a debate about the quality of education, particularly in higher education. Literature also suggests that the country has not adhered to the recommended norms of budget allocation as outlined by the Bangladesh Education Commission. Therefore, it is necessary to examine the current budget allocation for higher education in Bangladesh and analyse the perception of different professionals regarding higher education budget.

4.2 Population, Sample and Collection of Data

Different professionals, including teachers, doctors, lawyers, bankers, and officers, were considered as the study population. According to Krejcie and Morgan's table (1970, cited in KENPRO) for determining the sample size of an infinite population, the study required a sample size of 384, which is considered a large sample.

4.3 Demographic Distribution of the Respondents

Most of the respondents (about nine-tenths) in the study are married. About two-thirds (63.1%) of the respondents are teachers, approximately one-eighth are officer, one-tenth are bankers, and one-tenth are in the other category. About two-thirds (65.6%) of the respondents hold a postgraduate degree, and more than one-fifth (22.3%) hold a PhD degree. Approximately half (47.5%) of the respondents' fields of education are business, about one-sixth (15.3%) are science, about one-eighth (12.4%) are engineering, one-tenth (9.9%) are social science backgrounds, and the remainings' fields include arts, agriculture, medicine, and others. More than half of the respondents (56.4%) work in divisional towns, while more than one-fourth are at the district level, and the remaining are at the upazila level. The highest number (30.6%) of respondents was from the Dhaka division, the second highest (24.8%) from the Mymensingh division, and the lowest (0.3%) from the Barisal

division. About one-half of the respondents' monthly income is between 30,000 and 70,000 Taka. More than one-fifth (21.3%) of the respondents' monthly income exceeds 90,000 Taka. Approximately three-fourths (72.3%) of the respondents' age from 31 to 50 years, with 47.8% falling within the 31- to 40-year age range and 24.5% within the 41- to 50-year age range. Approximately three-fourths (73.6%) of the respondents graduated from a general university, while the remaining 26.4% graduated from a science and technology university (8.3%), an engineering university (7.0%), an agricultural university (5.1%), or another category (6.1%).

4.4 Questionnaire Development

A structured questionnaire was developed where some questions were to measure the level of positive or negative attitude towards some facts on a 1-5 point Likert scale, where the numeral 1 meant 'highly disagree' and the numeral 5 for 'highly agree', 'disagree', 2, 'neither agree nor disagree', 3 and 'agree', 4 in between them. It should be noted that some potential statements related to higher education budget allocation were included in the questionnaire through a review of available literature. The questionnaire also included some questions to collect specific information related to the respondent's personal, professional, and educational background. Expert opinion was gathered from renowned researchers and educationalists prior to the finalisation of the questionnaire. Then, the final questionnaire was developed in Google Forms.

4.5 Data Collection

Awotwe, Sam, Dwaase, and Tackie (2020) used secondary sources from books, journals, and the Internet. Mamadova, Novruzova, Huseynova, Nasirova, Azizova, and Aliyeva (2019) used government expenditure on education as a percentage of GDP, which is the total government expenditure (current and capital) on education, expressed as a percentage of GDP in a given year. They suggested assessing the relationship between education expenditure and GDP growth.

Jacob, Neubauer, and Ye (2018) conducted interviews based on an IRB-approved questionnaire that included questions about outcomes, financial trends, and strategies for best meeting the needs of the most underserved and low-income populations in their respective countries and regions.

The study draws on both secondary and primary sources of data. Secondary sources of data were collected from different publications of Bangladesh University Grants Commission. Primary data were collected by administering questionnaires to different professionals using Google Forms. Primary data was collected from 314 respondents which is less than Krejcie and Morgan's suggested norms. The questionnaire link was sent to approximately 5,000 potential respondents via the researcher's personal Messenger, WhatsApp, and email to collect primary data. In addition, the researcher, well known to the participants, was

requested to share the link with their nearest friend and colleague, with a request to provide data.

4.6 Data Analysis Techniques

The study used descriptive and inferential statistics to analyse the data. Time series analysis was used to illustrate the scenario of education and higher education expenditure in Bangladesh, expressed as a percentage of GDP and the national budget. Comparative higher education expenditure is presented alongside national, regional, and global benchmarks, based on existing literature. Literature was reviewed to present the scenario of sources of higher education budget in Bangladesh, along with comparative information from neighboring countries and developed and developing countries. Primary sources of data was analysed through descriptive statistics as well as inferential statistics including Mann Whitney U test and Kruskal-Wallis H Test.

5 Analysis and Discussion

The analysis is presented in two parts, each divided into sections. In the first part, the scenario is presented based on secondary data, accompanied by a descriptive analysis. In the second part, the perception of higher education expenditure is presented based on primary data, accompanied by descriptive analysis and inferential statistics.

5.1 Higher Education Expenditure in Bangladesh

Table 1 indicates that the average share of the education budget in the national budget is ~10.9%, with fluctuations ranging from 9.54% to 14.03% over the years. The allocation is significantly below the Education Commission's recommendation in Bangladesh. The university education budget accounts for approximately 7.66% of the total education budget on average. University budgets contribute roughly 0.83% to the total national budget on average. There is a significant increase in both national and educational budgets over time, reflected in the wide range of values (minimum to maximum). In absolute figures without adjustment for inflation, it is found that the budget is increasing over time. However, in relative terms, the budget is increased.

Table 1: National budget, education budget and university budget in Bangladesh

FY	National Budget (in Million Taka)	Edu. Budget (in Million Taka)	University Budget (in Million Taka)	% of Edu. Bud. on National Bud.	% of Univ. Bud. on Edu. Budget	% of Univ. Bud. on National Budget
1992-1993	161185.9	16740	1330	10.39	7.90	0.83
1993-1994	184088.6	17560	1430	9.54	8.10	0.78
1994-1995	184500.9	20008.8	1533	10.84	7.60	0.83

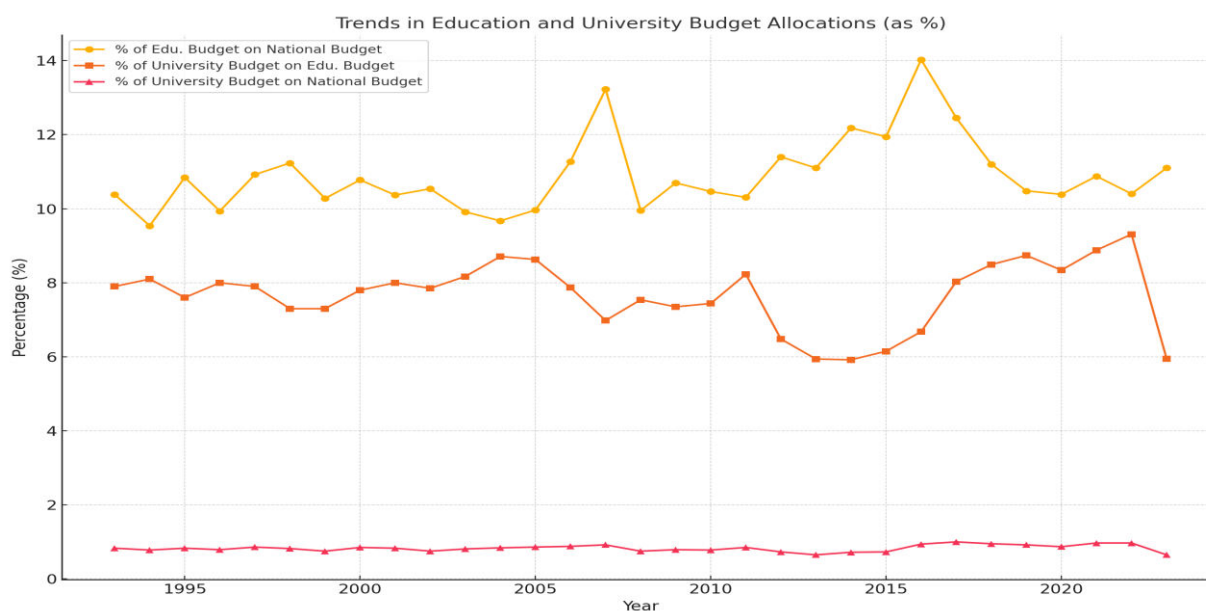
1995-1996	216276.1	21493.7	1713.9	9.94	8.00	0.79
1996-1997	210156.1	22955.4	1817	10.92	7.90	0.86
1997-1998	239941.9	26957.4	1961.6	11.23	7.30	0.82
1998-1999	289498.2	29757	2177.6	10.28	7.30	0.75
1999-2000	302187.1	32567.6	2555.7	10.78	7.80	0.85
2000-2001	345970	35874.6	2886.7	10.37	8.00	0.83
2001-2002	354792.9	37389.7	2935.7	10.54	7.85	0.75
2002-2003	399455.4	39603.9	3235.3	9.91	8.17	0.81
2003-2004	462636.2	44748	3898.5	9.67	8.71	0.84
2004-2005	509031.1	50718.5	4375	9.96	8.63	0.86
2005-2006	562847.7	63471.3	4998.6	11.28	7.87	0.88
2006-2007	598916.8	79226.6	5528	13.23	6.98	0.92
2007-2008	860855.8	85673.5	6467.5	9.95	7.54	0.75
2008-2009	941394.7	100700	7501.5	10.70	7.35	0.79
2009-2010	1105242.3	115664.6	8604.6	10.47	7.44	0.78
2010-2011	1300121.3	133994.4	11022.4	10.31	8.23	0.85
2011-2012	1612129.3	183785.8	11924.7	11.40	6.48	0.73
2012-2013	1893257	210162.7	12485.7	11.10	5.94	0.65
2013-2014	2162219.5	263397	15596.4	12.18	5.92	0.72
2014-2015	2396677.3	286280.4	17608.9	11.94	6.15	0.73
2015-2016	2645646.7	371146	24800.7	14.03	6.68	0.94
2016-2017	3171711.5	395078.2	31721.7	12.46	8.03	1.00
2017-2018	3714953.4	416236	35358.7	11.20	8.49	0.95
2018-2019	4425413.1	463894.8	40544.9	10.48	8.74	0.92
2019-2020	5015768.6	521032.7	43444	10.39	8.34	0.87
2020-2021	5389830	586300	52064.7	10.88	8.88	0.97
2021-2022	6036810	628000	58453.8	10.40	9.31	0.97
2022-2023	1893257	210162.7	12485.7	11.10	5.95	0.65
Mean	1599573	177761	13950	10.90	7.66	0.83
SD	1689393	184773	16009	0.99	0.89	0.09
Minimum	161189	16740	1330	9.54	5.92	0.65
Maximum	6036810	628000	58454	14.03	9.31	1.00
Median (50th percentile)	901,125	93,187	6,984	10.74%	7.86%	0.83%
25th percentile (Q1)	335,024	35,048	2,804	10.35%	7.30%	0.77%
75th percentile (Q3)	2,220,834	269,118	16,100	11.21%	8.19%	0.87%

Source: UGC Annual Report and Authors Calculation.

Figure 1 shows that the education budget as a percentage of the national budget exhibits a generally stable trend, ranging from 10% to 12% over the period. Similarly, the university budget on education budget remains fairly steady between 7-8%. On the other hand, the university budget in the national budget is consistently below 1%, indicating a relatively small share of the national budget that is explicitly allocated to universities.

The matter of concern is that the allocation for salaries, pensions, and retirement benefits was 71.3%. In contrast, only 1.57% of the total university budget was allocated for research in the fiscal year 2021-2022 (UGC, 2022).

Figure 1: Presentation of % of Edu. Bud. on National Bud., % of Univ. Bud. on Edu. Budget and % of Univ. Bud. on National Budget



Source: Table 1

5.2 Comparative Scenario of Higher Education Expenditure

South Asian countries have diverse cultures, geographies, and economies, comprising mainly middle- and lower-middle-income countries, with both similarities and unique features in education (Sarangapani & Pappu, 2020). Bangladesh spent 2.0 per cent of its GDP on education, whereas Afghanistan spent 4.6 per cent, Bhutan 6.0 per cent, India 3.8 per cent, Maldives 5.2 per cent, Nepal 4.7 per cent, Pakistan 2.5 per cent, Sri Lanka 1.7 per cent and Iran 3.1 per cent of GDP (Majumder et al., 2017). Roughly 1.7% of the Palestinian GDP and around 30% of overall education funds are dedicated to higher education, exceeding the worldwide average per international standards (Kuhail & Hauptman, 2015). In terms of government expenditure, Bangladesh allocated 13.5 per cent of its total government expenditure to education. In contrast, Afghanistan spent 18.4 per cent, Bhutan

17.8 per cent, India 14.1 per cent, Maldives 15.3 per cent, Nepal 22.1 per cent, Pakistan 11.3 per cent, Sri Lanka 8.8 per cent and Iran 19.7 per cent (Majumder et al., 2017). The higher education budget in Nepal is comparatively low and insufficient to maintain the quality of higher education (Baral, 2007). The education budget in terms of gross domestic product (GDP) was 3.4 per cent in Nepal, 5.6 per cent in Bhutan, 2.5 per cent in Bangladesh, 3.8 per cent in India, 2.3 per cent in Pakistan and 1.9 per cent in China in 2003 (Baral, 2007). The higher education budget was 9 to 19 per cent of the education budget in Nepal from FY 1999 to 2006 (Baral, 2007).

Different Central and Eastern European (CEE) countries followed financing formulas in different ways, such as Lithuania, which used the formula of accredited programs; Hungary and Romania applied state funding of higher education establishments; in Bulgaria, 60% to 65% is covered by state funding (Erina & Erins, 2015). In 2010, education expenditure as a percentage of GDP of the CEE countries was 5.17 per cent in Poland, the Czech Republic 4.24 per cent, Hungary 4.88 per cent, Slovakia 4.22 per cent, Bulgaria 4.10 per cent, and Romania 3.53 per cent, however the average of UE 27 was 5.43 per cent (Manta, Sarler, & Vaidean, 2015). In the same year higher education expenditure as a percentage of GDP of the CEE countries was 1.24 per cent in Poland, the Czech Republic 1.09 per cent, Hungary 1.22 per cent, Slovakia 0.93 per cent, Bulgaria 1.35 per cent, and Romania 1.18 per cent, however the average of UE 27 was 1.20 per cent (Manta, Sarler, & Vaidean, 2015).

Tax was previously the key source of financing government education procedure – even in highly aid-dependent low-income countries (Balsera, Klees, & Archer, 2017). More than 70 per cent of higher education was financed from the private sector in Korea and the United Kingdom, where more than 70 per cent of the budget of educational institutions is made up of tuition fees in Korea and approximately 50 per cent in the United Kingdom (OECD, 2013, cited in Goksu & Goksu, 2015). Approximately 80 per cent of students in Korea are enrolled in private institutions, whereas 100 per cent of students in the United Kingdom are enrolled in government-dependent private institutions (Goksu & Goksu, 2015).

In South Korea, the input rate in higher education is 82 per cent; total expenditure on the same level of education is 2.6 per cent of GDP, which is twice the average for the EU19 of 1.3 per cent (Barr, 2009).

Since the early 1970s, the financing of higher education in Australia has undergone significant evolution. During that time, the Federal Government was the leading provider of funds, and until the late 1980s, there was limited political support for any changes. However, over the last decade, there has been a notable shift towards more substantial private contributions, primarily through student tuition fees (Chapman, 2001).

5.3 Perception Analysis on Higher Education Budget in Bangladesh

The perception of the higher education budget is analysed considering two categories of opinion as follows:

5.3.1 Perception on Higher Education Budget Allocation in Bangladesh

Table 2 indicates that only about one-tenth of the respondents feel that the budget allocation for higher education in Bangladesh is sufficient for quality education. Most respondents (over three-fourths) disagreed with the statement. The mean score on the 5-point Likert scale is 1.95, and the mode is 1, indicating a high level of disagreement with the statement.

A small proportion of respondents (7.3%) agreed with the statement that the budget allocation in public universities is sufficient for providing quality higher education. Most respondents (over four-fifths) disagreed with the statement. The mean score on the 5-point Likert scale is 1.76, and the mode is 1, indicating a high level of disagreement with the statement.

About one-eleventh of the respondents (8.6 per cent) agreed with the statement that the budget allocation for research in public universities is sufficient for quality research. Most respondents (over four-fifths) disagreed with the statement. The mean score on the 5-point Likert scale is 1.86, and the mode is 1, indicating a high level of disagreement with the statement.

However, the majority of respondents (84.7 per cent) believed that there is a positive relationship between higher education budget and higher education quality. The mean score of the 5-point Likert scale is 4.33, and the mode is 5, indicating a high level of agreement with the statement. Only a few respondents (7.3%) disagreed with the statement.

Table 2: Respondents Perception on Higher Education Budget in Bangladesh

Particulars	Fully Disagree	Disagree (%)	Neutral (%)	Agree (%)	Fully Agree (%)	Mean	Mode	%>3
The budget for higher education is sufficient for quality higher education in Bangladesh	134 (42.7)	107 (34.1)	42 (13.4)	18 (5.7)	13 (4.1)	1.95	1	9.8
Public universities' budget (0.72%-1.0% of the national budget) is sufficient for quality higher education in Bangladesh	157 (50.0)	104 (33.1)	30 (9.6)	16 (5.1)	7 (2.2)	1.76	1	7.3
Higher education budget has a positive relationship with higher education	10 (3.2)	13 (4.1)	25 (8.0)	81 (25.7)	185 (58.0)	4.33	5	84.7

quality)	8)	9)			
The budget of the research in public universities is adequate to conduct quality research	146 (46.5)	106 (33.8)	35 (11.1)	13 (4.1)	14 (4.5)	1.86	1	8.6

Source: Analysis of Primary Data.

5.3.2 Perception on Budgetary Reform for Quality Higher Education

Table 3 suggests that most respondents (94.9%) believe that the budget allocation for higher education in Bangladesh needs to increase to improve the quality of higher education. The mean score of the 5-point Likert scale is 4.74, and the mode is 5, indicating a high level of agreement with the statement.

A similar opinion was expressed regarding the statement that public universities' budgets need to be increased, with 94.5 per cent agreeing with the statement on the need to increase the universities' budgets. The mean score of the 5-point Likert scale is 4.69, and the mode is 5, indicating a high level of agreement with the statement.

A large number of respondents (92.7%) agreed that the budget allocation for research in public universities in Bangladesh needs to increase to support quality research. The mean score of the 5-point Likert scale is 4.60, and the mode is 5, indicating a high level of agreement with the statement.

A majority of respondents (91.4%) agreed with the statement that it was necessary to provide incentives to teachers for research to improve the quality of education. The mean score of the 5-point Likert scale is 4.56, and the mode is 5, indicating a high level of agreement with the statement.

About all of the respondents (97.5 per cent) agreed with the statement of modernisation of higher educational institutions. The mean score of the 5-point Likert scale is 4.75, and the mode is 5, indicating a high level of agreement with the statement.

A similar opinion was expressed regarding the necessity of modernising the laboratory and classroom, with 96.8 per cent agreeing to increase the university's budget. The mean score of the 5-point Likert scale is 4.75, and the mode is 5, indicating a high level of agreement with the statement.

More than nine-tenths of the respondents (92.4%) expressed a positive opinion on implementing a similar teacher-student ratio as recommended by the education commission. The mean score of the 5-point Likert scale is 4.56, and the mode is 5, indicating a high level of agreement with the statement.

A similar opinion was expressed regarding the necessity of providing training to teachers at home and abroad, with 92.9% agreeing to provide training. The mean score of the 5-point Likert scale is 4.57, and the mode is 5, indicating a high level of agreement with the statement.

A notable number of respondents (86.9%) agreed that the financial facilities of teachers in Bangladesh need to be brought in line with those of neighbouring countries, such as India, Pakistan, Sri Lanka, and Nepal. The mean score of the 5-point Likert scale is 4.47, and the mode is 5, indicating a high level of agreement with the statement.

Table 3: Respondents' Perception on Higher Education Budget Reform in Bangladesh

Particulars	Fully Disagree	Disagree (%)	Neutral (%)	Agree (%)	Fully Agree (%)	Mean		%>3
Higher education budget needs to be increased	8 (2.5)	3 (1.0)	5 (1.6)	31 (9.9)	267 (85)	4.7 4	5	94.9
Public university budgets need to be increased	7 (2.2)	3 (1.0)	7 (2.2)	46 (14.6)	251 (79.9)	4.6 9	5	94.5
Public universities need to increase their research budget	6 (1.9)	5 (1.6)	12 (3.8)	63 (20.1)	228 (72.6)	4.6 0	5	92.7
Necessary to provide incentives to teachers in research	9 (2.9)	5 (1.6)	13 (4.1)	61 (19.4)	226 (72.0)	4.5 6	5	91.4
Higher education institutions need to be modernized	2 (0.6)	3 (1.0)	3 (1.0)	54 (17.2)	252 (80.3)	4.7 5	5	97.5
Necessary to modernize the classrooms and labs	5 (1.6)	1 (0.3)	4 (1.3)	49 (15.6)	255 (81.2)	4.7 5	5	96.8
Teacher-student ratio needs to be aligned with the recommendations of the Education Commission	5 (1.6)	5 (1.6)	14 (4.5)	75 (23.9)	215 (68.5)	4.5 6	5	92.4
Necessary to provide training for teachers at home and abroad	5 (1.6)	8 (2.5)	9 (2.9)	73 (23.2)	219 (69.7)	4.5 7	5	92.9
Financial facilities of teachers need to be brought in line with neighboring countries like India, Pakistan, Sri Lanka, Nepal etc.	5 (1.6)	9 (2.9)	27 (8.6)	66 (21.0)	207 (65.9)	4.4 7	5	86.9

Source: Analysis of Primary Data.

5.4 Inferential Analysis

A normality test of the data is a precondition for inferential analysis. In this section, first test the normality of the data and then perform the analysis.

5.4.1 Test of Reliability of the Likert-Scale Statements

Table 4 shows that the value of Cronbach's Alpha is 0.772, which exceeds the recommended threshold of 0.70. This means that there is internal consistency among all the Likert scale statements regarding the higher education budget in the questionnaire. Therefore, the data set on higher education budgets has reliability based on Likert scale statements.

Table 4: Test of Reliability by Cronbach's Alpha

Cronbach's Alpha	Total no. of statements	Benchmark	Comment
0.772	13	0.70	Reliability exists

Source: Analysis of Primary Data

5.4.2 Test of Data Normality

The benchmarks for testing the normality of the data are Skewness and kurtosis values between -1.96 and +1.96, and the Shapiro-Wilk test yields a p-value greater than 0.05. The statistical results from Table 3.5 indicate that though the skewness and kurtosis values are within the range of the normal limit, the actual value is not within the limit (after dividing the skewness and kurtosis values by the corresponding values of the standard error). Shapiro-Wilk test results are $p < 0.05$. So, the data set is not normally distributed. In that situation, the non-parametric test is the most suitable choice for the dataset.

Table 5: Test of the Normality of Data

Sl. No.	Statements	No. of Obs.	Mean	Skewness	Kurtosis	P-Value (Shapiro-Wilk test)	Comment
1.	The budget for higher education is sufficient for quality higher education in Bangladesh	314	1.95	1.185 (Std. Error 0.138)	0.848 (Std. Error 0.274)	0.000	Not-Normal
2.	Public universities'	314	1.7	1.408	1.654	0.000	Not-

	budget (0.72%-1.0% of the national budget) is sufficient for quality higher education in Bangladesh		6	(Std. Error 0.138)	(Std. Error 0.274)		Normal
3.	Higher education budget has a positive relationship with higher education quality	314	4.33	-1.702 (Std. Error 0.138)	2.451 (Std. Error 0.274)	0.000	Not-Normal
4.	The budget of the research in public universities is adequate to conduct quality research	314	1.86	1.387 (Std. Error 0.138)	1.491 (Std. Error 0.274)	0.000	Not-Normal
5.	Higher education budget needs to be increased	314	4.74	-3.648 (Std. Error 0.138)	13.717 (Std. Error 0.274)	0.000	Not-Normal
6.	Public university budgets need to be increased	314	4.69	-3.251 (Std. Error 0.138)	11.510 (Std. Error 0.274)	0.000	Not-Normal
7.	Public universities research budget need to be increased	314	4.60	-2.586 (Std. Error 0.138)	7.403 (Std. Error 0.274)	0.000	Not-Normal
8.	Necessary to provide research incentives to teachers	314	4.56	-2.522 (Std. Error 0.138)	6.572 (Std. Error 0.274)	0.000	Not-Normal
9.	Higher education institutions need to be modernized	314	4.75	-3.328 (Std. Error 0.138)	14.458 (Std. Error 0.274)	0.000	Not-Normal
10.	Necessary to modernize the classrooms and labs	314	4.75	-3.697 (Std. Error 0.138)	16.519 (Std. Error 0.274)	0.000	Not-Normal

11.	Teacher-student ratio needs to be aligned with the recommendations of the Education Commission	314	4.56	2.333 (Std. Error 0.138)	6.309 (Std. Error 0.274)	0.000	Not-Normal
12.	Necessary to provide training for teachers at home and abroad	314	4.57	-2.428 (Std. Error 0.138)	6.507 (Std. Error 0.274)	0.000	Not-Normal
13.	Financial facilities of teachers need to be brought in line with neighboring countries like India, Pakistan, Sri Lanka, Nepal etc.	314	4.47	-1.867 (Std. Error 0.138)	3.302 (Std. Error 0.274)	0.000	Not-Normal

Source: Analysis of Primary Data.

5.5 Development of Hypotheses

The Mann-Whitney U Test and the Kruskal-Wallis H Test are used to determine the significant association between or among the groups' opinions regarding the statements. There are ten demographic variables included in the data set. The following ten hypotheses are developed to test the descriptive statistics result.

H₁: Significant mean rank differences between married and unmarried exist.

H₂: Significant mean rank differences among the age groups exist.

H₃: Significant mean rank differences exist among the groups in terms of working area.

H₄: Significant mean rank differences among the groups of administrative divisions exist.

H₅: Significant mean rank differences among income groups exist.

H₆: Significant mean rank differences among the occupation groups exist.

H₇: Significant mean rank differences among the length of experience groups exist.

H₈: Significant mean rank differences among levels of education exist.

H₉: Significant mean rank differences among the respondents' university categories exist.

H₁₀: Significant mean rank differences exist among the respondents' educational disciplines.

5.6 Interpretation Regarding the Perception on Budget

The association between the demographic variables of the respondents and their opinions is discussed here, based on these variables.

5.6.1 Mann-Whitney U Test

Table 6 presents the statistics of the Mann-Whitney U test between the group, along with its p-value. There is one demographic variable with two groups.

5.6.1.1 Marital status

The Mann-Whitney U test for marital status, along with its p-value. Statistical results indicate that all of the null hypotheses are accepted, owing to the p-value of all statements being greater than 0.05. The statistical results showed that there is no significant difference in mean rank between married and unmarried respondents regarding all statements related to the higher education budget. The results suggested that male and female respondents shared similar opinions on the statements related to the higher education budget.

Table 6: Analysis of Mann-Whitney U Test regarding Perception on Higher Education Budget

S.N.	Mann Whitney U test			S.N.	Mann Whitney U test		
	Marital Status				Marital Status		
	Test Stat.	P value	Null Hypothesis		Test Stat.	P value	Null Hypothesis
P:13	4123.000	0.174	Accepted	S:20	4074.000	0.081	Accepted
P:14	4609.000	0.741	Accepted	S:21	4556.000	0.555	Accepted
S:15	4435.500	0.295	Accepted	S:22	4701.000	0.862	Accepted
S:16	4648.000	0.748	Accepted	S:23	4599.500	0.694	Accepted
R:17	4199.500	0.204	Accepted	S:24	4614.000	0.717	Accepted
P:18	4736.000	0.959	Accepted	S:25	4464.000	0.480	Accepted
S:19	4274.500	0.213	Accepted				

$P > 0.05$ means that do not reject the Null Hypothesis

Source: Analysis of primary data using SPSS

5.6.2 Kruskal-Wallis H Test

Table 7 shows the test statistics of the Kruskal-Wallis H Test among the groups of demographic variables. It is worth noting that there are nine demographic variables with more than two groups. All variables are analysed using the Kruskal-Wallis H Test and discussed as follows.

5.6.2.1 Profession

There are significant mean rank differences among the groups of profession on the statements of P: 13, P: 14, S: 15, R:17, S:19, S:20, S:21, S:24, & S:25. The results suggested that similar opinion was given by all professional group of respondents on the statements S:16,

P:18, S:22 and S:23 relating to the higher education budget. On the other hand, opinions differed among professionals regarding the statements P: 13, P: 14, S: 15, R: 17, S: 19, S: 20, S: 21, S: 24, and S: 25.

5.6.2.2 Educational Level

There are significant mean rank differences among the respondents of different education levels regarding the statements S:15, S:16, R:17, S:19, S:20, S:24, and S:25. The results suggested that the respondents of different education levels gave similar opinions on the statements S:13, P:14, R:18, S:21, S:22, and S:23 relating to the higher education budget. On the other hand, opinions varied among different educational levels regarding the statements S:15, S:16, R:17, S:19, S:20, S:24, and S:25.

5.6.2.3 Education Discipline

There are significant mean rank differences among the respondents of different education disciplines regarding the statements of R:17, P:18, S:19, and S:20. The results suggested that similar opinion was given by the respondents of different education disciplines on the statements P:13, P:14, S:15, S:16, S:21, S:22, S:23, S:24 and S:25 relating to the higher education budget. On the other hand, opinions differed among various educational disciplines regarding the statements of R:17, P:18, S:19, and S:20.

5.6.2.4 Administrative Division

There are significant mean rank differences among the respondents of different administrative divisions regarding the statements of S:25. The results suggested that similar opinion was given by the respondents of different administrative divisions on the statements P:13, P:14, S:15, S:16, R:17, P:18, S:19, S:20, S:21, S:22, S:23 and S:24 relating to the higher education budget. On the other hand, opinions varied among different administrative divisions regarding the statements of S:25.

5.6.2.5 University Category

There are significant mean rank differences among the respondents of different categories of universities regarding the statements of S:25. The results suggested that similar opinion was given by the respondents of different categories of universities on the statements P:13, P:14, S:15, S:16, R:17, P:18, S:19, S:20, S:21, S:22, S:23 and S:24 relating to the higher education budget. On the other hand, opinions varied among different categories of universities regarding the statements of S:25.

5.6.2.6 Income

There are significant mean rank differences among the respondents of different income groups regarding the statements S:15, S:16, S:19, and S:20. The results suggested that similar opinion was given by the respondents of different income groups on the statements P:13, P:14, R:17, P:18, S:21, S:22, S:23, S:24 and S:25 relating to the higher education budget. On the other hand, opinions differed among different income groups regarding the statements S:15, S:16, S:19, and S:20.

5.6.2.7 Working Experience

There are significant mean rank differences among the respondents of different working experience regarding the statements of S:19, S:24, and S:25. The results suggested that similar opinion was given by the respondents of different income group on the statements P:13, P:14, S:15, S:16, R:17, P:18, S:20, S:21, S:22, and S:23. On the other hand opinion was dissimilar among different income group on the statements of:19, S:24, and S:25.

5.6.2.8 Work Area

There is no significant mean rank difference among the different work groups regarding all statements, as the P-value is greater than 0.05. The results suggested that respondents from different work groups shared similar opinions on all the statements.

5.6.2.9 Age Groups

There are also no significant mean rank differences among the different age groups regarding all statements, as the P value is greater than 0.05. The results suggested that respondents from different age groups shared similar opinions on all the statements.

On the other hand, there are no significant mean rank differences among the groups of all demographic variables regarding the statements of S: 22 and S: 23.

Table 7: Analysis of Kruskal-Wallis H Test to Measure the Perception on Higher Education Budget

Statements	Kruskal Wallis H test																	
	Profession		Educational Level		Education Discipline		Work Area		Work in Division		Monthly Income		Age Group		University Category		Working Experience	
	Test Stat.	P value	Test Stat.	P value	Test Stat.	P value	Test Stat.	P value	Test Stat.	P value	Test Stat.	P value	Test Stat.	P value	Test Stat.	P value	Test Stat.	P value
P:13	17.976	.012*	6.703	.152	4.823	.776	4.073	.130	10.626	.156	4.399	.355	5.840	.211	3.728	.444	7.452	.114
P:14	19.040	.008*	6.297	.178	5.026	.755	.672	.715	10.536	.160	8.121	.087	7.553	.109	.865	.930	2.432	.657
S:15	20.669	.004*	14.408	.006*	7.729	.460	1.057	.59	6.76	.45	11.485	.022*	4.782	.310	4.386	.356	6.796	.147

								0	5	4								
S:16	12.10 9	.09 7	13.6 69	.00 8*	9.69 4	.28 7	4. 33	.11 4	11. 32	.1 2	13. 70	.00 8*	3.4 67	.48 3	4.3 74	.3 58	5.3 86	.25 0
R:17	30.8 28	.00 0*	20.6 47	.00 0*	18.2 75	.019 *	.6 95	.7 0	13. 95	.0 5	7.6 00	.10 7	3.2 56	.51 6	6.7 59	.14 9	8.15 4	.0 86
P:18	11.56 5	.116	8.78 3	.06 7	17.16 7	.02 8*	1.1 37	.5 6	11. 39	.1 2	8.0 69	.08 9	3.7 64	.43 9	4.1 89	.3 81	4.8 75	.30 0
S:19	15.7 07	.02 8*	12.21 3	.01 6*	15.71 1	.04 7*	1.6 62	.4 3	13. 82	.0 5	14. 881	.00 5*	3.1 97	.52 5	5.0 07	.2 87	10.1 20	.03 8*
S:20	32.2 49	.00 0*	16.2 31	.00 3*	17.2 46	.02 8*	.16 4	.9 21	10. 73	.1 51	9.5 99	.04 8*	2.9 53	.56 6	6.2 10	.18 4	4.6 30	.32 7
S:21	14.4 44	.04 4*	8.54 4	.07 4	5.40 7	.713	.0 65	.9 6	4. 68	.6 9	3.7 50	.44 1	2.8 51	.58 3	4.5 89	.3 32	3.41 4	.4 91
S:22	5.83 9	.55 9	7.87 1	.09 6	4.35 3	.82 4	.2 31	.8 91	2. 24	.9 4	4.11 5	.39 1	.94 1	.91 9	6.8 91	.14 2	5.4 78	.2 42
S:23	6.20 1	.51 6	6.77 9	.14 8	10.15 3	.25 4	1.6 00	.4 4	3. 40	.8 4	3.7 81	.43 6	2.5 91	.62 8	4.1 92	.3 81	6.2 37	.18 2
S:24	29.2 30	.00 0*	15.4 76	.00 4*	8.10 4	.42 3	.8 85	.6 4	8. 99	.2 5	2.6 85	.61 2	1.5 53	.81 7	7.9 11	.0 95	12.2 43	.01 6*
S:25	31.9 52	.00 0*	23.9 76	.00 0*	15.32 2	.05 3	.5 06	.7 7	15. 73	.0 2	7.8 19	.09 8	3.4 28	.48 9	10. 33	.0 35*	10.9 41	.0 27*

*= means that reject the Null Hypothesis(Since P value <0.05)*Significant mean rank differences between/among the groups of the variable except statement S: 22 & S: 23

Source: Analysis of data using SPSS

6 Conclusion

Bangladesh is a densely populated developing country that is attempting to become a middle-income country as soon as possible. Historically, budget allocation for education has been in a measurable condition in the country, both before and after its independence from Pakistan in 1971. Higher education in the country has also been suffering from insufficient budget allocation. Gradually, the allocation of budget for education has been decreasing over the years as a percentage of GDP or national budget. The country has one of the lowest expenses for education in South Asian. Literature suggests that universities have been unable to provide updated laboratories, library facilities, and research facilities due to insufficient budget allocation. Literature also supports the notion that there is a positive relationship between higher education budgets and higher education quality, and an insufficient higher education budget is an obstacle to quality higher education. Therefore, it is crucial to identify the perception of individuals based on firsthand data regarding the higher education budget in Bangladesh.

The study aimed to fill the gap by utilising primary data sources collected from 314 professionals employed in various organisations. A five-point Likert scale questionnaire was developed, and after receiving suggestions from some research scholars, the questionnaire was finalised to collect opinions using Google Forms. The collected data were analysed using SPSS software. Cronbach's Alpha was applied to test the reliability of the data. The calculated Cronbach's Alpha value was 0.772, which is greater than 0.70. The results indicate that there is internal consistency among all the Likert scale statements regarding the higher education budget in the questionnaire. The result suggested the reliability of the data set. Shapiro-Wilk test is used to examine the normality of the data set. A non-parametric test is appropriate for the data set because the test result indicates that the data set is not normally distributed. Data for the study were analysed using both descriptive statistics, such as frequency, mean, standard deviation, and percentile, and inferential statistics, such as the Mann-Whitney U test and the Kruskal-Wallis H Test.

Descriptive statistics indicate that a large number of respondents (nearly 90%) believe the higher education budget is insufficient, suggesting that the budget for higher education needs to increase (approximately 95% of respondents) to ensure quality higher education. About all (more than nine-tenths) of the respondents believe that budget for public universities is not sufficient for quality education. They opted (approximately 95% of respondents) to increase the budget for quality higher education. Similarly, most (about eleven-twelfths) of the respondents believe that budget for research in public universities is not sufficient. They opted (more than nine-tenths of the respondents) to increase the budget for research and provide incentives to teachers to enhance the quality of research in public universities. However, maximum (about seven-eighths) of the respondents opted that there is a positive relationship between higher education budget and higher education

quality. Almost all respondents suggested modernising higher educational institutions, and more than nine-tenths suggested modernising the laboratories and classrooms to ensure quality higher education. More than nine-tenths of the respondents suggested complying with the teacher-student ratio recommendations of the Education Commission of Bangladesh and providing training to teachers both at home and abroad. A notable number (eight-ninths) of the respondents believe that financial facilities for teachers in Bangladesh need to be brought in line with those of neighbouring countries, such as India, Pakistan, and Sri Lanka.

The Mann-Whitney U test indicates that there is no significant difference in mean ranks between married and unmarried respondents on all statements related to the higher education budget in Bangladesh. Kruskal-Wallis H test indicates that there is mean rank differences among respondents group based on profession on all of the statement relating to higher education budget except statements S:16, P:18, S:22 and S:23. There is mean rank differences among respondents group based on education level on all of the statement relating to higher education budget except statements S:13, P:14, R:18, S:21, S:22, and S:23. However, there is no mean rank differences among respondents group based on education discipline on all of the statement relating to higher education budget except statements R:17, P:18, S:19, and S:20. Similarly, there is no mean rank differences among respondents group based on administrative division and university categories on all of the statement relating to higher education budget except statements S:25. The mean rank differences were found among respondents group based on income of the respondents on all of the statement relating to higher education budget except statements S:15, S:16, S:19, and S:20. The mean rank differences were also found among respondents group based on working experiance of the respondents on all of the statement relating to higher education budget except statements S:19, S:24, and S:25. The similar opinion was given by the respondents of different age groups and works in different areas on all of the statements. Moreover, a similar opinion was expressed by all respondents based on the demographic variables related to higher education budget regarding the statements of S: 22 and S: 23. The major limitation of the study is that qualitative opinions were not obtained from policy-level authorities. However, the study is a pioneer in the field and is expected to inform policy-level authorities on how to rethink the higher education budget. The study also opens an avenue, and new researchers will conduct further studies on the area to identify and explore new knowledge in the field.

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