

A Systematic Study on The Significance of Finance in The Higher Education Students by Using Percentage and Regression Analysis

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Abstract

The demand for higher education has increased globally. This paper studies the role of finance in higher education by reviewing existing research and collecting data set online and which was collected by using a questionnaire. It shows that student satisfaction with academic needs significantly affects educational effectiveness. Most respondents agreed on the importance of teachers' subject knowledge but disagreed about their teaching ability. When covering college costs, respondents disagreed on using student loans. Age impacts tuition fees, and grants significantly help with expenses. The conclusion emphasizes that institutions should understand and cater to students' needs for better value.

Keywords: Higher Education, Student Satisfaction, Fees Management, Academic Choice, Regression Analysis.

1. Introduction

Higher education is crucial for individual and societal development, offering economic and non-economic benefits and driving national productivity. The enrollment of young people in higher education has notably increased, especially in the UK, where it rose from 14% in 1980 to 43% in 2006. However, the rising financial challenges in higher education are becoming a major concern, viewing education as is essential for social and economic progress.

Education is increasingly seen as a commercial service, creating negative impacts on society. The cost of tuition greatly affects students' decisions to pursue further studies. Universities aim to manage tuition fees to attract international students while covering their expenses, but opinions on tuition costs vary. Some advocate for tuition-free education to lessen economic disparities, while others point out that high tuition creates financial burdens that lead to student dropouts. Research indicates that financial worries are a leading reason for students leaving education.

The high costs of education significantly impact lower-income families, leading to lower enrollment and higher dropout rates. Universities have responded with policies to address financial deficits, but rising tuition alters students' academic choices without adequately addressing student needs. "Human Capital Theory" shows that financial aid types can influence students' educational decisions.

Factors like social class and residency also shape academic choices. Scholarship recipients often show higher dedication and better performance. Education costs, including direct and indirect expenses, are critical in determining access to quality learning, particularly in developing countries. Six key themes influence students' decisions to study abroad, and satisfaction with academic needs affects educational effectiveness.

Cost-sharing mechanisms for higher education are increasingly practiced, with expectations for individuals to contribute based on income. Concerns arise in European countries over new or higher tuition fees, potentially lowering participation from less privileged students. The school environment significantly impacts academic success through motivation, social influences, and the roles of teachers, reflecting family values and community views on education.

1.1 Objective of the Research

- I. Study and gather knowledge on the Role and Significance of finance in Higher Education students from existing published papers in peer-reviewed journals.
- II. Identifying subject-related datasets from the internet.

III. Make an analysis and find the significant result and discuss it along with previously published papers.

2. Literature Survey

Hans Lundin (2024) calls for more research on how tuition fee policies affect higher education institutions (HEIs) during internationalization. Lundin and Lars Geschwind (2023) explored challenges for Swedish policymakers, noting that increasing international student numbers aims to benefit society, not just fix budget issues. In India, where institutions like the IITs and IIMs attract international applicants and charge varied tuition, similar research can help ensure that internationalization benefits society broadly, not just financially. Ahmad Keykha (2023) found that various factors significantly impact dropout rates at Tehran University due to tuition fees, a trend that resonates with challenges faced by students in India, where financial constraints continue to be a major barrier to higher education.

Alice Dias Lopes et al. (2024) studied the effects of tuition fee hikes on EU student mobility, finding that top universities did not see a drop in enrollment. In India, the IITs might see similar trends, but some private institutions, state universities may not, increasing inequity. Ralf Minor (2023) linked temporary tuition fees in Germany from 2006 to 2014 to fewer first-year enrollments in public institutions. This is relevant to India's recent moves to increase fees in central universities and professional programs. It calls for careful evaluation of how such policies affect enrollment from rural or underprivileged areas.

Juhriyansyah Dalle et al. (2021) created an online system for estimating tuition costs with 83.3% accuracy. Similar systems could be useful in India, especially for first-generation learners and rural families unfamiliar with the costs involved in higher education. Tobi & Renaldo (2024) found that scholarship recipients improved academically. Other studies discuss access, equity, and the impact of fees on education. In India, schemes like the post-matric scholarship or INSPIRE need continued support and research to measure long-term impact.

Katharina Michaelowa (2007) found that differences in secondary education can harm the quality of tertiary education, especially regarding national researchers, and highlighted links between gender inequality and a country's economic development. This reflects the Indian context well, where the Central Board of Secondary Education (CBSE), state boards, and other variations cause uneven preparedness for higher education. LavdimKazazi and his team (2015) looked at how transitions between education phases affect students, suggesting improvements for smoother shifts from primary to secondary to tertiary education. In India, the National Education Policy -2020 (NEP-2020) proposes such integration, and this research supports those reforms.

Helen Crompton and her team (2023) reviewed the rise of Artificial Intelligence in Higher Education, noting a shift in research focus from the US to China. In India, the adoption of platforms like SWAYAM and DIKSHA shows promise, but research is needed on regional access and perceived quality. Maia Chankseliani and colleagues (2021) used surveys to investigate how higher education can support Sustainable Development Goals, particularly in Georgia and Kazakhstan. Souresh Cornet and his team (2024) looked at how community programs affect sustainable development in higher education. Other studies assessed teaching effectiveness, e-learning, education quality in primary schools, and factors influencing student performance. Rajnikant (2018) highlights the various influences on a nation's education system, such as historical, cultural, and political factors. India's complex linguistic, caste, and socio-political structures make such understanding essential for equitable education reform. Mehmet Ozcan (2021) focuses on high school teachers' opinions regarding what affects students' academic success, noting the importance of family education levels, school conditions, and teacher effectiveness.

Li et al. (2023) analyze factors affecting student engagement in higher education, identifying both supportive and hindering elements. Chalapati et al. (2018) studied first-year students' experiences and found that teaching methods and social support play key roles. Batouei et al. (2021) investigate student satisfaction with courses and discover that classroom environments are important, while Vidhi Jain (2014) identifies teaching quality and academic reputation as key for choosing institutions. Indian Higher Educational Institutions (HEI), especially large public universities, can use this research to redesign curricula and student services. Hesham Magd et al. (2022) evaluate e-learning success factors in Oman, emphasizing commitment and technology. Le Thi Hue et al. (2023) find that reputation and lecturer quality impact training services satisfaction. In India, both the e-learning and commitment issues exist outside urban centers. Ellie Yu-Chieh Lin et al. (2023) study m-learning acceptance for EFL, and Elumalai et al. (2020) explore e-learning quality during COVID-19, noting gender and course perception differences.

3. Research Model

The research objective has been divided into three sections. To advance the first section, 68 articles were gathered from reputable journals. Out of these, 45 articles relevant to the study objectives have been chosen. The dataset has been collected from the Kaggle website (<https://www.kaggle.com/datasets/nitindatta/finance-data/data>), which has 240 students' details and was collected through a questionnaire by using a cloud-based Linux Operating System and a PHPMyAdmin7.0-supported web application through a random sampling method. Of the 240 student responses, 20 incomplete responses were discarded, leaving 220 valid responses for the research. A percentage analysis and linear regression model were utilized for data analysis. Microsoft Office 2007 was employed for graphical design and analysis to finalize the results. To finalize and check the results of the linear regression analysis, the R2 value and p value were compared to assess the goodness of fit and the significance of the variable.

4. Proposed work

This paper studies the role of finance in higher education by reviewing existing research and collecting data set online and which was collected using a questionnaire. The first objective of the paper is to study and gather knowledge on the Role and Significance of finance in Higher Education students from existing published papers in peer-reviewed journals. Then, making an analysis and finding the significant result, and discussing it along with previously published papers. For analysis, Percentage analysis and Regression Analysis have been implemented with the dataset.

4.1 Percentage Analysis

Table 1 presents the socio-economic profile of the respondents' classification. In terms of age, the largest group comprises respondents aged "17 Years" at 23.64%, with those aged "18 Years" following closely at 22.73%. Regarding gender, most respondents are "Male" at 58.18%, while "Female" respondents amount to 35.91%. When considering the type of college, the largest segment reflects respondents

from "Arts and Science College," constituting 23.64%, followed by 20.45% from "Diploma College." In terms of social categories, "OBC Category" respondents lead, making up 31.36%, followed by the "General Category," representing 21.36%. Lastly, family income classifications show that most respondents have an income of "40K to 50K," accounting for 14.55%, which is closely matched by those in the "50K to 60K" range, also at 14.55%.

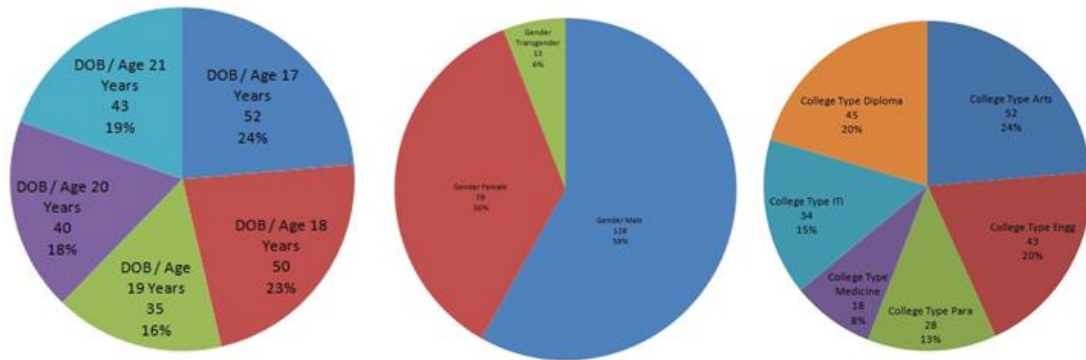


Fig. 1: Classification of Socio Profile of the respondents

In the classification of respondents regarding "College Fees per Annum", the majority reported college fees of less than "10K per term," comprising 19.09%, followed by those with fees ranging from "25K to 50K" and "50K to 75K," each at 18.64%. For the classification based on "Education Level of Parents", most respondents' parents had a level of education categorized as "Above Primary & up to Secondary" at 20.00%, with the second highest group being "Not Applicable", those respondents who choose not to disclose their parents' education at 19.55%. Looking at "Nature of Parents' Employment", the majority indicated that their parents were classified as "Not employed," again reflecting those choosing not to state their parents' employment, which amounted to 23.64%; this was followed by "Not Applicable," collecting 21.36%. Within the classification of "Reason for Choosing the College," the leading choice among respondents was "Affordability of Fee," with 30.00%, followed closely by "No Other Option Available", which constituted 26.36%. Finally, in terms of "Learner Type", the largest portion of respondents identified as "Non-First Generational Learner" at 35.45%, with "First Generational Learner" representing 32.73%.

Table 1: Socio-Economic Profile of the Respondents Classification

Socio-Economic Profile of Respondents Classification			
Category	No. of Respondents		Percentage
Age-wise Classification of the Respondents			
17 Years	52		23.64%
18 Years	50		22.73%
19 Years	35		15.91%
20 Years	40		18.18%
21 Years	43		19.55%
Gender wise Classification of the Respondents			
Male	128		58.18%
Female	79		35.91%
Transgender	13		5.91%
College Type wise Classification of the Respondents			
Arts	52		23.64%
Engg	43		19.55%
Para	28		12.73%
Medicine	18		8.18%
ITI	34		15.45%
Diploma	45		20.45%
Social category wise Classification of the Respondents			
General	47		21.36%
OBC	69		31.36%
SC	31		14.09%
ST	31		14.09%
others	42		19.09%
Family Income wise Classification of the Respondents			
Below10	29		13.18%
10-20	29		13.18%
20-30	25		11.36%
30-40	21		9.55%
40-50	32		14.55%
50-60	30		13.64%
60-70	27		12.27%
70above	27		12.27%
College fees per Annum wise Classification of the Respondents			
Below10	42		19.09%
10-25	29		13.18%
25-50	41		18.64%
50-75	41		18.64%
75-1L	34		15.45%
1L above	33		15.00%
Level of Education of their Parents wise Classification of the Respondents			
Illiterate	37		16.82%
Literate but up to Primary	32		14.55%

Above primary & up to secondary education	44	20.00%
Above secondary and up to graduate	33	15.00%
Post Graduate and above	31	14.09%
Not Applicable	43	19.55%
Nature of Parents Employment wise Classification of the Respondents		
Government	40	18.18%
Private	41	18.64%
Self-employed/ Business	40	18.18%
Not employed	52	23.64%
Not applicable	47	21.36%
Reason to choose the college wise Classification of the Respondents		
Near to home	43	19.55%
Reputation	53	24.09%
Affordability of fee	66	30.00%
No other option available	58	26.36%
Learner Type wise Classification of the Respondents		
First Generational Learner	72	32.73%
Non-First Generational Learner	78	35.45%
Not Applicable	70	31.82%
Have you set a monthly budget for your expenses in college?		
Yes	104	47.27%
No	116	52.73%
Do you have a part-time job to cover your college expenses?		
Yes	111	50.45%
No	109	49.55%
Are you satisfied with your current financial situation as a college student?		
Yes	109	49.55%
No	111	50.45%
Do you feel stressed about your finances while in college?		
Yes	119	54.09%
No	101	45.91%
Have you ever had to borrow money to cover your college expenses?		
Yes	122	55.45%
No	98	44.55%
Do you feel that the cost of education is too high?		
Yes	112	50.91%
No	108	49.09%
Are you aware of any financial aid options available to college students?		
Yes	103	46.82%
No	117	53.18%
Have you ever faced unexpected expenses while in college?		
Yes	99	45%
No	121	55%

The respondents were asked a series of questions about their expenses and college fees, requiring answers of "YES" or "NO". The first question was, "Have you set a monthly budget for your expenses in college?" to which 52.73% of respondents answered "No" while 47.27% answered "YES". In the second question, "Do you have a part-time job to cover your college expenses?," the results showed 50.45% responding "YES" compared to 49.55% who answered "NO". For the third question, "Are you satisfied with your current financial situation as a college student?," 50.45% answered "No" and 49.55% responded "YES". On the fourth question, "Do you feel stressed about your finances while in college?," a majority, 54.09%, answered "YES" while 45.91% said "NO". The fifth question, "Have you ever had to borrow money to cover your college expenses?" resulted in 55.45% responding "YES" and 44.55% answering "NO". Regarding the sixth question, "Do you feel that the cost of education is too high?," 50.91% said "YES" while 49.09% opted for "NO". The seventh inquiry concerned awareness of financial aid options for college students, 53.18% answered "NO" compared to 46.82% responding "YES". Finally, for the eighth question "Have you ever faced unexpected expenses while in college?," the majority answered "NO" at 55%, with 45% saying "YES".

The following Table 2 portrays the students' satisfaction with financial management regarding their higher education fees. This survey captures the satisfaction index across various parameters, including teachers, examinations, campus facilities, major educational expenses, payment management by students, and areas in which they reduce expenses while attending college. According to Table 2, in the realm of teacher satisfaction, most students i.e., 59, representing 26.82%, agreed with the factor "subject knowledge", while 53 students at 24.09% disagreed with the "teaching ability" factor. When it comes to examination satisfaction, 55 respondents at 25.00% notably agreed with the parameter "the pattern of question papers". Furthermore, both the "grading/marking system" and "internal evaluation" were each stipulated as factors, with 54 respondents agreeing, while 54 respondents neutrally agreed on "the pattern of question papers", recording a rate of 24.55%. In the context of campus facilities, 56 respondents at 25.45% appreciated the parameter "supportive campus for differently abled", while 55 respondents at 25.00% strongly disagreed with the factor concerning "cleanliness of the campus". Regarding major educational expenditures, both "tuition fees" and "entertainment" received strong agreements, while "books and supplies" were agreed upon by the majority of 51 respondents, constituting 23.18%. The "transportation" costs received neutral agreements from 50 respondents, amounting to 22.73%.

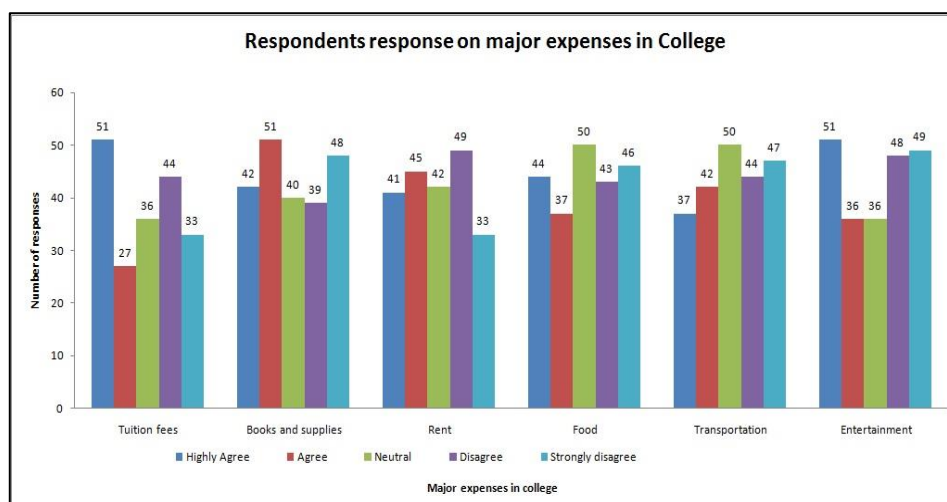


Fig. 2: Major expenses in college and respondents' responses

Table 2: Satisfactory & Financial Management Survey

Satisfactory & Financial Management Survey					
Parameter Index	HA	A	N	DA	SDA
Satisfaction index on parameters of teachers					
Subject Knowledge	44 (20.00%)	59 (26.82%)	43 (19.55%)	37 (16.82%)	37 (16.82%)
Teaching Ability	28 (12.73%)	46 (20.91%)	52 (23.64%)	53 (24.09%)	41 (18.64%)
Regularity/ Punctuality	44 (20.00%)	48 (21.82%)	36 (16.36%)	44 (20.00%)	48 (21.82%)
Fair as evaluator/examiner	34 (15.45%)	48 (21.82%)	49 (22.27%)	50 (22.73%)	39 (17.73%)
Mentor / Role Model and Guide	44 (20.00%)	43 (19.55%)	44 (20.00%)	41 (18.64%)	48 (21.82%)
Satisfaction on Examination					
Reassessment practices	43 (19.55%)	45 (20.45%)	49 (22.27%)	41 (18.64%)	42 (19.09%)
Grading / Marking System	54 (24.55%)	50 (22.73%)	46 (20.91%)	36 (16.36%)	34 (15.45%)
Timely Declaration of Results	51 (23.18%)	44 (20.00%)	40 (18.18%)	39 (17.73%)	46 (20.91%)
External evaluation	38 (17.27%)	46 (20.91%)	50 (22.73%)	44 (20.00%)	42 (19.09%)
Internal evaluation	54 (24.55%)	40 (18.18%)	41 (18.64%)	42 (19.09%)	43 (19.55%)
Practical/External Viva Exam	38 (17.27%)	48 (21.82%)	45 (20.45%)	49 (22.27%)	40 (18.18%)
The pattern of Question Papers	55 (25.00%)	43 (19.55%)	54 (24.55%)	31 (14.09%)	37 (16.82%)
Satisfaction Index on Campus Facilities					
Library	40 (18.18%)	51 (23.18%)	49 (22.27%)	38 (17.27%)	42 (19.09%)
Laboratory	47 (21.36%)	52 (23.64%)	30 (13.64%)	39 (17.73%)	52 (23.64%)
Sports and games	47 (21.36%)	44 (20.00%)	44 (20.00%)	40 (18.18%)	45 (20.45%)
Smart classrooms	41 (18.64%)	37 (16.82%)	52 (23.64%)	36 (16.36%)	54 (24.55%)
Toilets	45 (20.45%)	47 (21.36%)	48 (21.82%)	48 (21.82%)	32 (14.55%)
Drinking Water	47 (21.36%)	49 (22.27%)	33 (15.00%)	48 (21.82%)	43 (19.55%)
Hostel	47 (21.36%)	48 (21.82%)	45 (20.45%)	44 (20.00%)	36 (16.36%)
Canteen	51 (23.18%)	50 (22.73%)	38 (17.27%)	36 (16.36%)	45 (20.45%)
Transport facility	49 (22.27%)	39 (17.73%)	41 (18.64%)	54 (24.55%)	37 (16.82%)
Medical facility	35 (15.91%)	51 (23.18%)	46 (20.91%)	42 (19.09%)	46 (20.91%)
Banking facility/ ATM	36 (16.36%)	43 (19.55%)	39 (17.73%)	49 (22.27%)	53 (24.09%)
Supportive Campus for Differently Abled	42 (19.09%)	56 (25.45%)	50 (22.73%)	38 (17.27%)	34 (15.45%)
Earning While You Learn Facility	43 (19.55%)	41 (18.64%)	38 (17.27%)	47 (21.36%)	51 (23.18%)
Common room	47 (21.36%)	45 (20.45%)	31 (14.09%)	51 (23.18%)	46 (20.91%)

Student's grievance redressal cell	46 (20.91%)	46 (20.91%)	50 (22.73%)	38 (17.27%)	40 (18.18%)
Cleanliness of the campus	39 (17.73%)	54 (24.55%)	47 (21.36%)	25 (11.36%)	55 (25.00%)
Which of the following are your major expenses in college?					
Tuition fees	51 (23.18%)	27 (12.27%)	36 (16.36%)	44 (20.00%)	33 (15.00%)
Books and supplies	42 (19.09%)	51 (23.18%)	40 (18.18%)	39 (17.73%)	48 (21.82%)
Rent	41 (18.64%)	45 (20.45%)	42 (19.09%)	49 (22.27%)	33 (15.00%)
Food	44 (20.00%)	37 (16.82%)	50 (22.73%)	43 (19.55%)	46 (20.91%)
Transportation	37 (16.82%)	42 (19.09%)	50 (22.73%)	44 (20.00%)	47 (21.36%)
Entertainment	51 (23.18%)	36 (16.36%)	36 (16.36%)	48 (21.82%)	49 (22.27%)
How do you usually pay for your college expenses?					
Scholarships	37 (16.82%)	36 (16.36%)	49 (22.27%)	54 (24.55%)	44 (20.00%)
Grants	46 (20.91%)	36 (16.36%)	44 (20.00%)	50 (22.73%)	44 (20.00%)
Student loans	44 (20.00%)	40 (18.18%)	35 (15.91%)	44 (20.00%)	57 (25.91%)
Savings	36 (16.36%)	42 (19.09%)	49 (22.27%)	45 (20.45%)	48 (21.82%)
Parental support	56 (25.45%)	50 (22.73%)	40 (18.18%)	41 (18.64%)	33 (15.00%)
Work-study program	47 (21.36%)	45 (20.45%)	40 (18.18%)	41 (18.64%)	47 (21.36%)
What areas do you think you can cut down on expenses while in college?					
Eating out	37 (16.82%)	54 (24.55%)	43 (19.55%)	43 (19.55%)	43 (19.55%)
Shopping	44 (20.00%)	42 (19.09%)	53 (24.09%)	44 (20.00%)	37 (16.82%)
Entertainment	48 (21.82%)	43 (19.55%)	50 (22.73%)	45 (20.45%)	34 (15.45%)
Transportation	43 (19.55%)	44 (20.00%)	45 (20.45%)	49 (22.27%)	39 (17.73%)
others	41 (18.64%)	43 (19.55%)	54 (24.55%)	49 (22.27%)	33 (15.00%)
Which of the following do you think would be helpful in reducing college expenses?					
More scholarships	45 (20.45%)	44 (20.00%)	39 (17.73%)	40 (18.18%)	52 (23.64%)
Lower tuition fees	48 (21.82%)	41 (18.64%)	48 (21.82%)	42 (19.09%)	41 (18.64%)
Free textbooks	34 (15.45%)	49 (22.27%)	41 (18.64%)	47 (21.36%)	49 (22.27%)
Discounted public transportation passes	36 (16.36%)	43 (19.55%)	46 (20.91%)	43 (19.55%)	52 (23.64%)
Financial literacy programs	49 (22.27%)	44 (20.00%)	39 (17.73%)	47 (21.36%)	41 (18.64%)
How do you think colleges can support students in managing their expenses better?					
Index	No of Respondents			Percentage	
Financial workshops	49			22.27%	
Budgeting resources	51			23.18%	
Emergency funds	61			27.73%	
Part-time job opportunities on campus	59			26.82%	

In examining how students typically cover their college expenses, the item "Student loans" received a significant amount of disagreement from 57 respondents, at 25.91%. On the other hand, the factor "Parental support" gathered strong agreement from 56 respondents, reflecting 25.45%. When considering which areas students might reduce expenses while studying, three factors emerged: "Eating out", which found agreement from 54 respondents at 24.55%, and "others", which was given a neutral stance. Additionally, the "Shopping" factor received a neutral response from 53 respondents, accounting for 24.09%. In terms of strategies that could effectively minimize college expenses, both "More scholarships" and "Discounted public transportation passes" attracted robust disagreement from 52 respondents, amounting to 23.64%. In contrast, "Free textbooks" generated a drive towards both agreement and disagreement, while "Financial literacy programs" received strong support from 49 respondents at 22.27%. Yearning for better support in managing expenses from colleges, a majority of 61 respondents pointed to "Emergency funds" with 27.73%, closely followed by "Part-time job opportunities on campus," selected by 59 respondents at 26.82%.

4.2 Regression Analysis

The following Table 3 displays the results of the regression analysis regarding students' satisfaction and their financial management related to higher education fees. This survey encompasses a Satisfaction Index focused on various parameters, including teacher performance, examination experience, campus facilities, major college expenses, students' typical payment methods, and areas where they reduce spending while in college, among others. The regression analysis utilizes the satisfaction indexes alongside the respondents' socio-demographic profiles, such as Age, Gender, College type, and Social Category.

This table indicates that, concerning Satisfaction on Examination, the factor “Grading / Marking System” shows a p-value of 0.0101 for Social Type, and “The pattern of Question Papers” shows a p-value of 0.0245 for Social Type, both of which are <0.05 . This indicates that the respondents' Social Type is statistically significant about the “Grading / Marking System” and “The pattern of Question Papers” under examination satisfaction. Similarly, the factor “External evaluation” presents a p-value of 0.0333 for Age, also <0.05 , indicating that the respondents' Age is statistically significant concerning “External evaluation” in examination satisfaction.

In the Satisfaction Index regarding Campus Facilities, the “Library” and “Banking facility/ATM” showed p-values of 0.0461 and 0.0283 for Gender, respectively, both of which are below 0.05. This indicates that respondents' Gender is statistically significant concerning their satisfaction with the “Library” and “Banking facility/ATM.” Similarly, the p-value for “Earn While You Learn Facility” by Age is 0.0293, also below 0.05, signifying that respondents' Age has statistical significance concerning this facility.

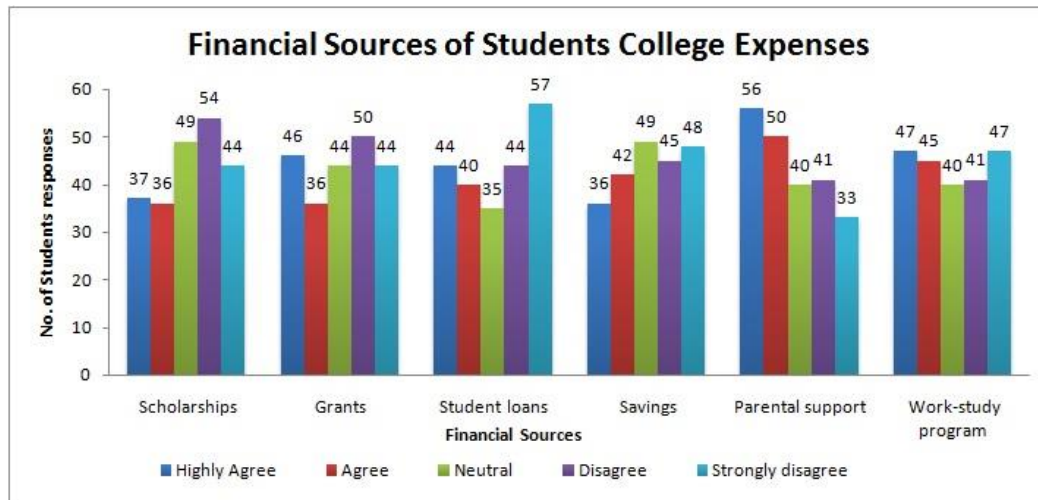


Fig. 3: Financial Sources of Students' College expenses and respondents' responses

In terms of major expenses in college, the “Tuition fees” factor has a p-value of 0.0345 when examined by Age, which is less than 0.05; this suggests respondents' Age is statistically significant for the factor of “Tuition fees.” Additionally, regarding how students typically manage their college expenses, the “Grants” factor presents a p-value of 0.0397 related to Social Type, meaning that respondents' Social Type significantly impacts the reliance on Grants to address their college expenses.

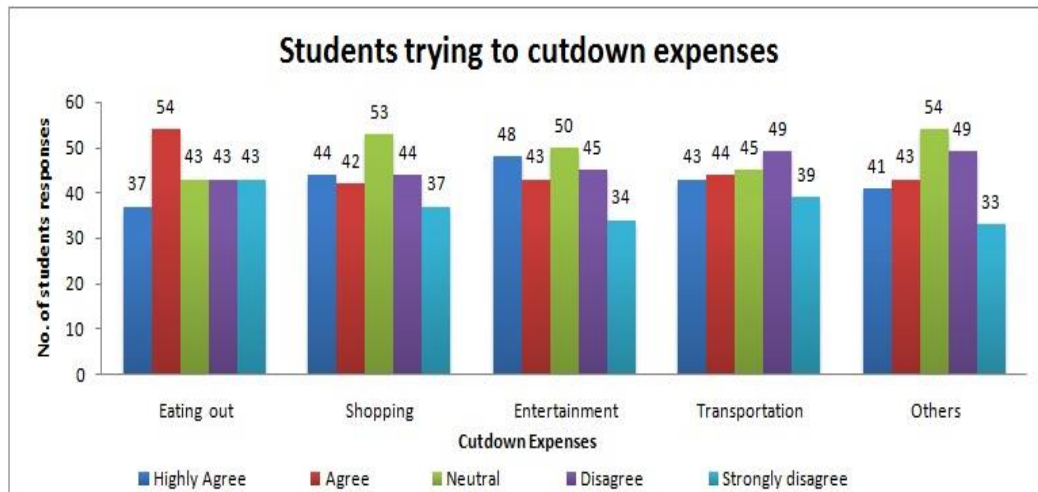


Fig. 4: Students cut down the expense factors and respondents' responses

Lastly, in discussing areas where students can economize on expenses while in college, the factor labeled “others” has a p-value of 0.0161 related to College Type, indicating a statistically significant relationship between respondents' College Type and the options for where they may reduce spending in college.

The income level of the students' families, the educational attainment of their parents, and the nature of their parents' employment are examined alongside the socio-demographic profiles of the respondents, including age, gender, College Type, social type, monthly budget, and borrowing habits, among others. Table 4 presents the results of the regression analysis concerning respondents' family income. The table reveals that the p-values for the variables Borrowing Money, Unexpected Expenses, Financial Aid, and Books & supplies of Major Expenses are 0.0238, 0.0255, 0.0164, and 0.0234, respectively, with corresponding R² values of 0.0231, 0.0226, 0.0261, and 0.0233. Since all p-values are below the 0.05 threshold, these factors are statistically significant about respondents' family income. The closeness of the p values and R² values suggests that these variables provide a reasonably good fit and are significant contributors to the model.

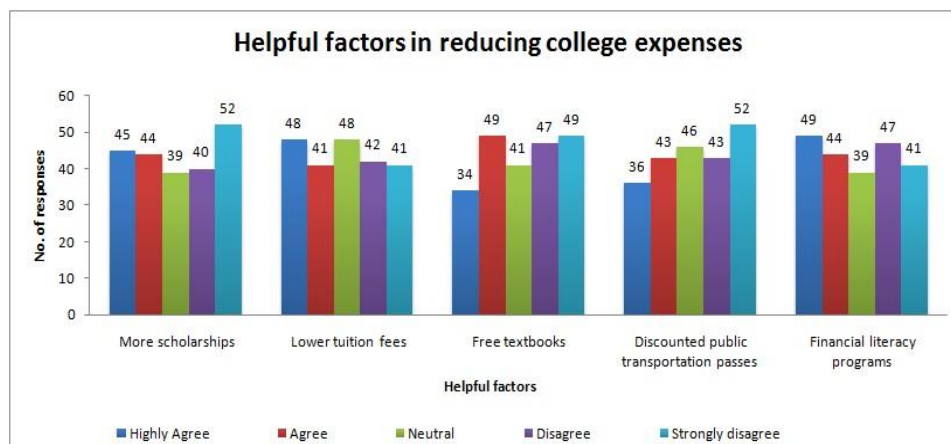
Table 3: Regression analysis on satisfactory & Financial Management Survey

	Age		Gender		College Type		Social Type	
	P Value	>95%	P Value	>95%	P Value	>95%	P Value	>95%
Satisfaction index on the parameters of teachers								
Subject Knowledge	1.2577	0.1588	3.4483	1.8171	7.2321	0.7035	3.2839	0.9010
Teaching Ability	3.4837	0.1752	3.0932	1.9471	2.7597	0.7739	1.8932	0.9750
Regularity/ Punctuality	1.6923	0.1689	6.2132	1.9110	1.2027	0.7580	1.8155	0.9463
Fair as evaluator/ examiner	7.4322	0.1699	6.2974	1.9255	1.5169	0.7648	1.4141	0.9679
Mentor / Role Model and guide	4.5213	0.1698	3.7817	1.9199	4.1211	0.7488	1.7942	0.9512
Satisfaction with Examination								
Reassessment practices	0.4121	0.0742	0.7423	0.2550	0.6457	0.1212	0.6428	0.1611
Grading / Marking System	0.1116	0.0240	0.7040	0.3647	0.0549	0.0020	0.0101	0.2972
Timely Declaration of Results	0.8771	0.1234	0.1084	0.5814	0.5126	0.0688	0.7538	0.1589
External evaluation	0.0333	0.2583	0.5630	0.3884	0.4991	0.1294	0.5272	0.1690
Internal evaluation	0.2612	0.0571	0.3040	0.4878	0.0799	0.1937	0.4450	0.1897
Practical / External Viva Exam	0.4443	0.1733	0.6044	0.2209	0.9933	0.0967	0.5317	0.1683
The pattern of Question Papers	0.3943	0.1836	0.1117	0.0581	0.1487	0.0260	0.0245	-0.0193
Satisfaction Index on Campus Facilities								
Library	0.1159	0.2258	0.0461	-0.0052	0.6793	0.1176	0.7832	0.1471
Laboratory	0.9658	0.1334	0.6253	0.2461	0.7566	0.0885	0.6046	0.1761
Sports and games	0.9492	0.1356	0.8884	0.3379	0.1827	0.1692	0.1358	0.2352
Smart classrooms	0.2997	0.1998	0.0752	0.0291	0.3929	0.0570	0.1929	0.2222
Toilets	0.2865	0.0564	0.8100	0.3331	0.6468	0.1174	0.5169	0.1680
Drinking Water	0.4400	0.0801	0.9208	0.3331	0.0600	0.1978	0.6228	0.1688
Hostel	0.6971	0.1518	0.5012	0.4081	0.6766	0.0769	0.6498	0.1596
Canteen	0.9670	0.1307	0.9148	0.3381	0.6132	0.1293	0.3704	0.0742
Transport facility	0.5101	0.0858	0.9815	0.3137	0.7248	0.0817	0.8945	0.1232
Medical facility	0.2737	0.1957	0.3851	0.4357	0.7889	0.0839	0.9226	0.1353
Banking facility/ ATM	0.3777	0.1876	0.0283	0.6532	0.6418	0.1235	0.8749	0.1433
Campus Support- Differently Abled	0.1857	0.0398	0.6062	0.3709	0.9272	0.0987	0.2499	0.1980
Earning While You Learn Facility	0.0293	-0.0148	0.5669	0.4114	0.5831	0.0737	0.3419	0.0700
Common room	0.9871	0.1347	0.3589	0.4699	0.6729	0.0809	0.4029	0.1946
Student's grievance redressal	0.8568	0.1392	0.5487	0.3994	0.4330	0.1373	0.4040	0.1856
Cleanliness of the Campus	0.5777	0.1690	0.3011	0.1497	0.7110	0.0824	0.2165	0.2189
Students' major expenses in college								
Tuition fees	0.0345	-0.0123	0.3156	0.5688	0.8059	0.1060	0.3965	0.2298
Books and supplies	0.3843	0.1887	0.2153	0.1159	0.5026	0.1353	0.4484	0.0823
Rent	0.0630	0.2463	0.5629	0.3957	0.1772	0.1650	0.1179	0.2329
Food	0.1534	0.0352	0.8283	0.2765	0.7510	0.1159	0.2190	0.0494
Transportation	0.0868	0.0160	0.7793	0.2607	0.2754	0.0433	0.3426	0.1917
Entertainment	0.8770	0.1252	0.2268	0.5253	0.6203	0.0783	0.7811	0.1586
How do you usually pay for your college expenses?								
Scholarships	0.7338	0.1466	0.8886	0.3216	0.0838	0.1800	0.6529	0.0986
Grants	0.1659	0.0382	0.0701	0.5980	0.2572	0.0424	0.0397	-0.0065
Student loans	0.7605	0.1569	0.1049	0.5925	0.7907	0.0906	0.1561	0.2384
Savings	0.1206	0.2254	0.2326	0.1190	0.5218	0.1292	0.7047	0.1045
Parental support	0.2368	0.0510	0.9215	0.3243	0.2192	0.0370	0.7370	0.1091
Work-study program	0.6677	0.1038	0.7079	0.3795	0.4674	0.0644	0.9773	0.1339
What areas do you think you can cut down on expenses while in college?								
Eating out	0.8443	0.1136	0.8394	0.3342	0.5764	0.1248	0.9786	0.1273
Shopping	0.2438	0.1985	0.1863	0.0979	0.5675	0.0683	0.9554	0.1243
Entertainment	0.7289	0.1034	0.4971	0.4052	0.9740	0.0952	0.4423	0.1784
Transportation	0.2006	0.0440	0.8458	0.3345	0.3164	0.1472	0.7502	0.1507
others	0.2275	0.1957	0.8528	0.2646	0.0161	0.2063	0.8363	0.1375
Which of the following do you think would help reduce college expenses?								
More scholarships	0.6431	0.1025	0.9261	0.3374	0.3241	0.1549	0.4554	0.1891
Lower tuition fees	0.2350	0.2068	0.3550	0.1642	0.4409	0.0605	0.0997	0.2419
Free textbooks	0.3626	0.0682	0.7120	0.3630	0.4071	0.0567	0.2941	0.0606
Discounted public transportation passes	0.2794	0.0577	0.1490	0.0815	0.8946	0.1058	0.7630	0.1517
Financial literacy programs	0.8304	0.1168	0.2716	0.4896	0.4969	0.1358	0.4924	0.0872

Table 5 presents the results of the regression analysis concerning respondents' parents' education level. According to the table, the p-values for the factors "Lower fees" and "Unexpected Expenses" are 0.0119 and 0.0238, respectively, with corresponding R² values of 0.0286 and 0.0232. Since these p-values are both below the 0.05 threshold, these factors are statistically significant concerning respondents' parents' education level. The closeness of the p values and R² values suggests that these variables provide a reasonably good fit and are significant contributors to the model. Table 6 shows the regression analysis related to respondents' parents' employment. The analysis indicates that the p-value for the factor "others" is 0.0018 with a corresponding R² value of 0.0434. Since this p-value is less than 0.05, it suggests that the factor "others" is statistically significant concerning respondents' parents' employment.

Table 4: Regression analysis on respondents' Family Income

Socio Profile	R ²	Family Income	
		P Value	>95%
Age	1.7874	0.9502	0.2183
Gender	0.0101	0.1370	0.1227
College Type	0.0094	0.1504	0.04350
Social Type	0.0034	0.3886	0.3109
Monthly Budget	0.0037	0.3661	0.3330
Borrow Money	0.0231	0.0238	-0.0945
High Cost	0.0037	0.3673	0.8974
Unexpected Exp	0.0226	0.0255	-0.0863
Stress feel	0.0045	0.3202	0.9290
Financial Aid	0.0261	0.0164	1.3574
Part-Time Job	1.5642	0.9534	0.6347
Major Expense: Tuition fees	2.4467	0.9418	0.1730
Major Expense: Books & supplies	0.0233	0.0234	-0.0336
Major Expense: Rent	0.0033	0.3898	0.3180
Major Expense: Food	0.0018	0.5235	0.1472
Major Expense: Transportation	0.0044	0.3237	0.3343
Major Expense: Entertainment	0.0007	0.6947	0.1663
Cut down expenses: Eating out	0.0002	0.8248	0.2490
Cut down expenses: Shopping	0.0157	0.0631	0.0117
Cut down expenses: Entertainment	0.0152	0.0677	0.0152
Cut down expenses: Transportation	0.0001	0.8917	0.2074
Cut down expenses: others	0.0076	0.1963	0.0792
Reducing expenses: Scholarships	0.0003	0.7805	0.1807
Reducing expenses: Lower fees	0.0005	0.7333	0.2561
Reducing expenses: Free textbooks	0.0035	0.3781	0.1222
Reducing expenses: Transport pass	0.0006	0.7118	0.2607
Reducing expenses: Financial Literacy programs	0.0161	0.0596	0.0083

**Fig. 5:** Helpful factors in reducing college expenses and respondents' responses**Table 5:** Regression analysis on respondents Parents Education Level

Socio Profile	R ²	Parents Education Level	
		P Value	>95%
Monthly Budget	0.0077	0.1926	0.0637
Major Expense: Tuition fees	0.0011	0.6121	0.0980
Major Expense: Books & supplies	0.0048	0.3034	0.1674
Major Expense: Rent	0.0137	0.0826	0.2004
Major Expense: Food	0.0022	0.4873	0.0703
Major Expense: Transportation	0.0013	0.5906	0.1353
Major Expense: Entertainment	0.0001	0.8610	0.1243
Cut down expenses: Eating out	0.0033	0.3916	0.1519
Cut down expenses: Shopping	0.0002	0.8081	0.0920
Cut down expenses: Entertainment	0.0003	0.7764	0.0902
Cut down expenses: Transportation	0.0006	0.7080	0.0862
Cut down expenses: others	0.0116	0.1102	0.0189
Borrow Money	0.0020	0.5048	0.0252
High Fee	0.0040	0.3497	0.0567
Reducing expenses: Scholarships	0.0005	0.7239	0.0925
Reducing expenses: Lower fees	0.0286	0.0119	-0.0306
Reducing expenses: Free textbooks	0.0017	0.5402	0.1401
Reducing expenses: Transport pass	0.0002	0.8219	0.0957
Reducing expenses: Financial Literacy programs	0.0001	0.8504	0.1207
Unexpected Expenses	0.0232	0.0238	-0.0058
Supporting factors for Expenses	0.0025	0.4566	0.1172

Table 6: Regression analysis on respondents Parents Employment

Socio Profile	Parents Employment		
	R ²	P Value	>95%
Monthly Budget	0.0027	0.4359	0.0284
Borrow Money	0.0119	0.1059	0.0852
High Cost	0.0035	0.3778	0.0260
Unexpected Expenses	0.0110	0.1197	0.0838
Major Expense: Tuition fees	0.0001	0.8958	0.1514
Major Expense: Books & supplies	0.0020	0.5063	0.0894
Major Expense: Rent	0.0037	0.3673	0.0711
Major Expense: Food	0.0135	0.0846	0.0160
Major Expense: Transportation	0.0000	0.9862	0.1295
Major Expense: Entertainment	0.0064	0.2363	0.0555
Cut down expenses: Eating out	0.0016	0.5547	0.0910
Cut down expenses: Shopping	0.0011	0.6101	0.0955
Cut down expenses: Entertainment	0.0071	0.2117	0.2111
Cut down expenses: Transportation	0.0038	0.3594	0.0697
Cut down expenses: others	0.0434	0.0018	-0.0731
Reducing expenses: Scholarships	0.0041	0.3439	0.0716
Reducing expenses: Lower fees	0.0107	0.1248	0.2365
Reducing expenses: Free textbooks	0.0008	0.6610	0.1605
Reducing expenses: Transport pass	0.0010	0.6267	0.1654
Reducing expenses: Financial Literacy programs	0.0005	0.7278	0.1591

5. Result Findings and Discussion

Finding 1: Social Type statistically significant to “Grading / Marketing System” and “The pattern of Question Papers” in satisfaction with the Examination.

Finding 2: Age is statistically significant to “External evaluation” in satisfaction with Examination.

Finding 3: Gender is statistically significant to the factors “Library” and “Banking facility/ ATM” in the satisfaction index on Campus facilities.

Finding 4: Age is statistically significant to the factor “Earn While You Learn Facility” in the satisfaction index on Campus facilities.

Finding 5: Age is statistically significant to the factor “Tuition fees” in Students' major expenses in college.

Finding 6: Social type statistically significant to the factors “Grants” in Students how they usually pay for their college expenses.

Finding 7: College Type is statistically significant to the factor’s “others” in Students ' areas they can cut down on expenses while in college.

Finding 8: The factors Borrowing Money, Unexpected Expenses, Financial Aid, Books & supplies of Major Expenses are statistically significant with respondents' Family Income.

Finding 9: The factors, Lower tuition fees and Unexpected Expenses, are statistically significant with respondents' Parents Education Level.

Finding 10: The factor “others” of Cut down Expenses is statistically significant with respondents' Parents' Employment.

5.1 Discussion:

According to Jongbloed et al. (2004) and Marginson et al. (2011), tuition fees are typically regulated by the government, and public funding plays an essential role in subsidizing these fees, since higher education is considered crucial for society. Dynarski et al. (2018) emphasized that lowering tuition fees is one of the key methods to close the achievement gap between high-performing students from lower-income backgrounds and those from affluent backgrounds. The proposition to provide free education for all international students has been deemed unsustainable due to the ongoing increase of this student group, potentially marginalizing national students and kindizing public funding for them.

Efforts to increase affordability, such as the allocation of scholarships, grants, and subsidies, are vital for alleviating financial obstacles. In addition, implementing policies that set tuition fee regulations and foster free or low-cost education can greatly influence students' prospects for pursuing and completing their studies. To offer greater value to students, higher education institutions must anticipate and respond to their needs and preferences. Understanding the factors that students consider when choosing an institution is central to successfully developing any higher education establishment.

There is a correlation between family support and reduced levels of emotional distress, improved self-esteem, and enhanced academic self-efficacy among university students. Research shows that students who receive familial social support report higher life satisfaction, more positive emotions, and reduced negative moods compared to those without this support. Therefore, it is important for students to have strong family backing and to remain connected with their families while studying, as this support positively influences students' academic performance and will reduce dropouts.

However, many students are unaware of the scholarships available to them and the eligibility criteria. In India, the government offers several scholarship schemes. For example, the Central Sector Scheme of Scholarships provides financial aid to college and university students. Undergraduate students receive Rs.1,000 per month, while postgraduate students receive Rs .2,000 per month for the first three years. Professional course students can receive Rs 2,000 per month during their fourth and fifth years, for up to 10 months each year. There is also a scholarship for students from non-Hindi speaking states who are studying Hindi, offering a one-time amount of Rs .2,500 and monthly support ranging from Rs .300 to Rs .1,000. A special scheme supports students from Jammu & Kashmir who are studying outside the state and belong to families with an annual income below Rs .6 lakhs. The Post-Matric Scholarship targets students from Backward Classes, with a family income ceiling of Rs. 2.5 lakhs, covering various academic fees. The Free Education Scheme waives tuition and other fees for students from specific communities, also with an income limit of Rs. 2.5 lakhs. These scholarships are managed through a centralized web application, ensuring direct payment to students' bank accounts. Additionally, fees for government school students enrolled in medical courses are reimbursed.

6. Conclusion

Tuition fees in higher education are typically regulated by governments, with public funding used to subsidize costs in recognition of higher education's societal value. Reducing tuition fees remains a key policy tool for supporting students from low-income backgrounds. However, offering completely free education to all international students is financially unsustainable and may limit resources available to domestic students. To create a balanced model, governments should consider income-based tuition models and targeted financial aid schemes, including scholarships, grants, and need-based subsidies, to ensure affordability without compromising institutional resources. Universities should regularly assess student financial stress levels through data-driven tools, enabling timely interventions. Additionally, policies encouraging part-time work opportunities, flexible payment plans, and enhanced financial literacy programs could help students manage costs more effectively. To improve educational outcomes, institutions must also address non-financial barriers. Universities should develop support systems that promote family engagement, mental health, and academic mentorship, as strong family connections have been shown to correlate with better emotional well-being and academic performance.

A key limitation of this study is the use of static, non-real-time data and a narrow focus on financial challenges. Future research should aim to use real-time datasets with broader variables, capturing academic performance, career trajectory, and well-being indicators. The proposed future application should include automated analytics with machine learning capabilities to process large datasets, identify at-risk students early, and provide personalized recommendations for academic and career development. Collaboration with government education departments and technology providers can help ensure that the model is scalable and aligned with national education goals.

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