

St. Xavier's College, Mumbai

Third Year B.Sc. (2021-22)

STATISTICS PROJECT

Title:

Factors affecting subject selection and hence career choices of students.

Group Members:

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Target Population:

Students of Mumbai in the age group of 15 - 30 years

Sample size:

200

Purpose:

The three major areas affecting subject selection and career choices are environment, opportunity and personality. A student's perspective towards choosing a career might be affected by different factors such as personality and interests, industry's stability, financial stability and salary offered, and more.

Through this study, we aim to analyse the different factors affecting the choices made by the students in selecting their respective subject combinations and hence career choices.

We also intend to gain an understanding of what the massive educational sectors are focusing upon - helping students to find their talent or polishing them according to the stereotypical standards of success.

Objectives:

- To estimate how important is the family's opinion and background in deciding one's stream.
- To study a student's perspective towards choosing a stream considering different factors such as likeability of the subject, peer influence, and more.
- To find out the relevance of the economic and social conditions of life in selecting a career choice.

Confidentiality Note:

This survey is being conducted by the students of St. Xavier's College, Mumbai. The study is based on the various factors that affect a student's decision in his/her choices regarding subject/stream selection, and hence career choices. The responses obtained from this survey will be used solely for academic purposes and will not be disclosed to third parties.

METHODOLOGY

Target population for the study included students of Mumbai from any discipline. We have adopted convenience sampling as the sampling technique.

In order to collect generalized data that represents the whole population from the sample, the Questionnaire method was adopted as the data collection method. The data used in this study was collected via online self-administered survey. All respondents answered the questions anonymously online using Google form and all answers were held as strictly confidential. The questionnaire was framed in a way that could be easily understood by the respondents. The questionnaire was first pretested (pilot survey) on 36 students to check whether the language & text used in it is understood clearly or not and also other structural issues in it before we move to the final collection and analysis of the data.

To analyze the same we collected empirical data from students studying in Mumbai belonging to different Program Areas to draw inferences about the population. At the end of the data collection process, the total number of 200 responses were collected successfully.

In the next phase, the collected data was cleaned, sorted, filtered and analyzed. This process was followed by integrating the answers /data received and allowing them in the graphs. We used Excel for most of the analysis work. As soon as the graphs were complete in understandable format, the result of the project was noted and written and conclusion was drawn.

QUESTIONNAIRE**Confidentiality Note:**

This survey is being conducted by the students of St. Xavier's College, Mumbai. The study is based on the various factors that affect a student's decision in his/her choices regarding subject/stream selection, and hence career choices. The responses obtained from this survey will be used solely for academic purposes and will not be disclosed to third parties.

1. Age (in years): _____
2. State of Residence: _____
3. Gender
 - Male
 - Female
 - Others
4. Stream
 - Arts
 - Science
 - Commerce
 - Others
5. Which program area are you attending?
 - Business and Management Studies
 - Accountancy
 - Arts and Design
 - Aviation
 - Natural Sciences
 - Mathematics and Statistics
 - Information Technology
 - Medical Sciences
 - Legislative Law
 - Language, Social sciences, and Economics
 - Other _____
6. What do you want to pursue as your career?
 - _____
 - I don't know

7. Mother's highest educational qualification
- Primary and secondary education
 - Higher secondary education
 - College/ university
 - Post-graduation
 - Don't know
 - Does not apply
8. Father's highest educational qualification
- Primary and secondary education
 - Higher secondary education
 - College/ university
 - Post-graduation
 - Don't know
 - Does not apply
9. Guardian's highest educational qualification
- Primary and secondary education
 - Higher secondary education
 - College/ university
 - Post-graduation
 - Don't know
 - Does not apply
10. When did you decide which program area to attend?
- During School
 - After School
 - During Junior College
 - After Junior College
 - I don't know
11. What is your family's annual income?
- Less than 1 Lakh
 - 1 - 5 Lakhs
 - 6 - 10 Lakhs
 - 11 - 20 Lakhs
 - More than 20 Lakhs
12. Are you on a scholarship grant or an educational loan?
- ☐ Scholarship grant
 - ☐ Educational loan
 - ☐ None

13. To what extent do you agree with the following statements regarding your stream/subject selection?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
It was my own choice					
I chose this subject/stream based on my caliber/skills/ability					
Informal talks between peers led me to choose this subject					
I chose the subject/stream that most of my peers opted for					

14. Which of the following factors influenced your stream/subject choice? (Can select more than 1)

- ☐ Future job opportunities in that field
- ☐ Trends of subjects in the society
- ☐ Entrance Requirements for further studies
- ☐ Having multiple choices for further studies
- ☐ Courses available in your preferred institute
- ☐ Affordable fees
- ☐ Your passion for a particular career
- ☐ Other _____

15. Has your career choice been affected by your parents/guardian's profession?

- Yes
- No

16. If yes, are you planning to pursue the same career as your parents/guardian?

- Yes
- No

17. Do you plan to choose a career related to your current field of study or do you have some other aim in life?

- The current field of study
- Some other aim

18. To what extent have you been inspired or motivated by the following in selecting your career? (1 = least effective, 5 = most effective)

	1	2	3	4	5
Teachers					
Parents/ guardians					
Peers					
Private counselors					
Media/ Internet					
Films/ TV series					
Your Role Model					

19. Are you expected to choose a career as per family values or beliefs?

- Yes
- No

20. Does your family provide psychological/mental support to make independent subject career choices?

- Yes
- No

21. To what extent do you agree with the following statements about you and the program area you are attending?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I'm certain that I chose the right program area.					
I enjoy the program area I have chosen.					
I'm good at the subjects I'm studying.					
I am studying something that will benefit me in the future.					

22. Do you think while choosing your career, your gender has affected your parent's opinion?

- Yes
- No

23. What is your primary concern in the desired job?

- Reputation
- Power
- Money
- Likeability
- Other _____

24. On a scale of 1 to 5, How much do the following factors affect your career choice?
(1 = least effective, 5 = most effective)

	1	2	3	4	5
Industry's stability					
Financial stability					
Job security					
Salary offered					
Personal interests and likeability					
Creative freedom					
Parental pressure					

THANK YOU!

We would like to thank you for being patient with us and filling the complete questionnaire. Your responses will aid our research and help us better understand the objectives of this project.

Pilot Survey Report

The report highlights the methodology used and the amendments made to improve the efficiency of the questionnaire containing 26 questions. A total of 36 responses were collected. All respondents answered the questions anonymously using Google Forms.

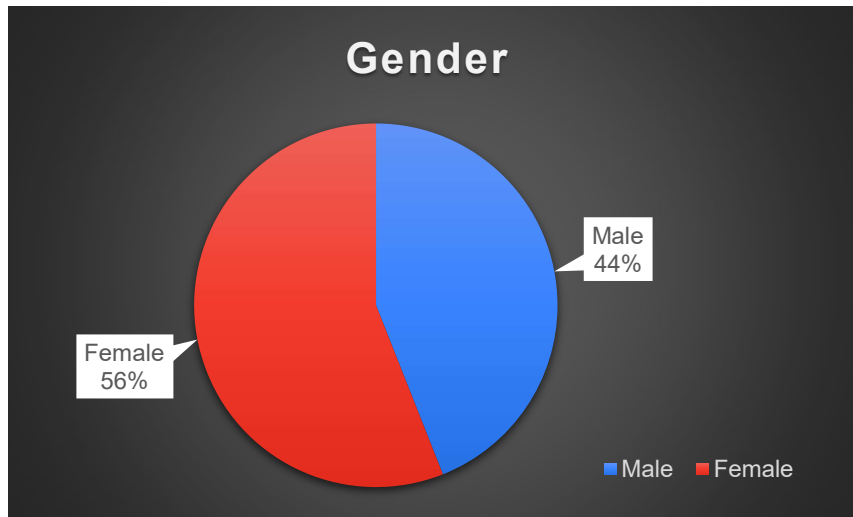
Because of the varied responses, the city of residence was changed to the state of residence. A few respondents were not clear about certain options of a question. Therefore, we decided to remove them. We also converted certain options of two questions into more justified and relevant ones on the basis of their differentiability. Two questions were removed from the pilot questionnaire. Some questions were reordered. Range of the scale was also changed from 1 being the most effective and 5 being the least effective to 1 being the least effective and 5 being the most effective as a lot of the respondents presumed 1 as the lower level and 5 as the higher level without checking the labels.

We made appropriate changes in the questionnaire to avoid problems with collecting all the data needed for future analysis and made sure that sufficient analysis was possible from the data collected by the final questionnaire.

STATISTICAL ANALYSIS

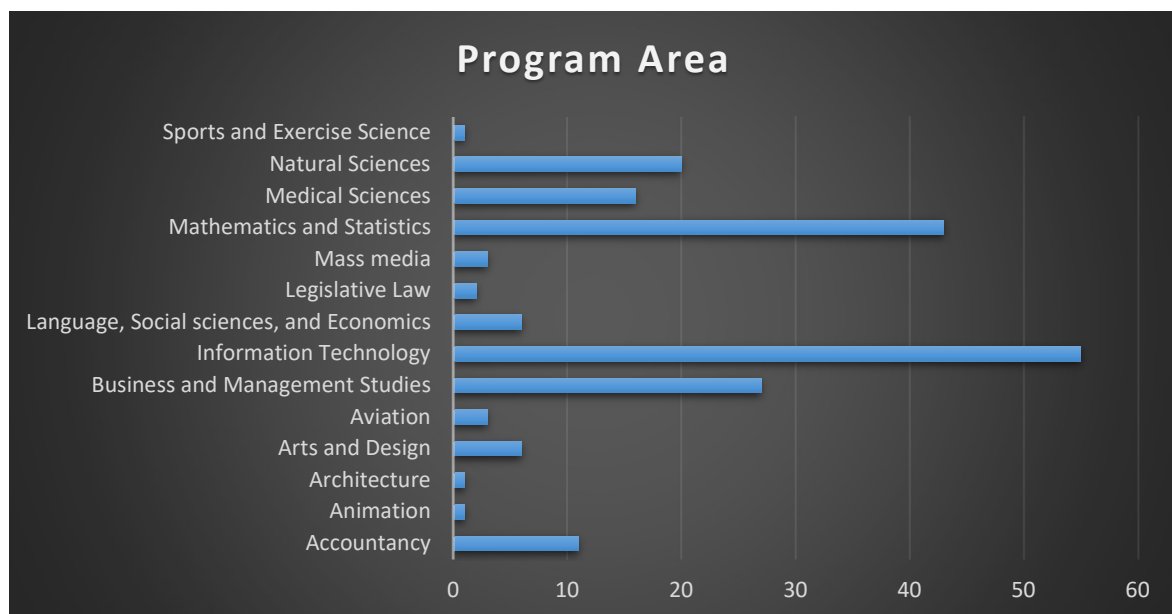
❖ Demographic Analysis

1. Gender Distribution



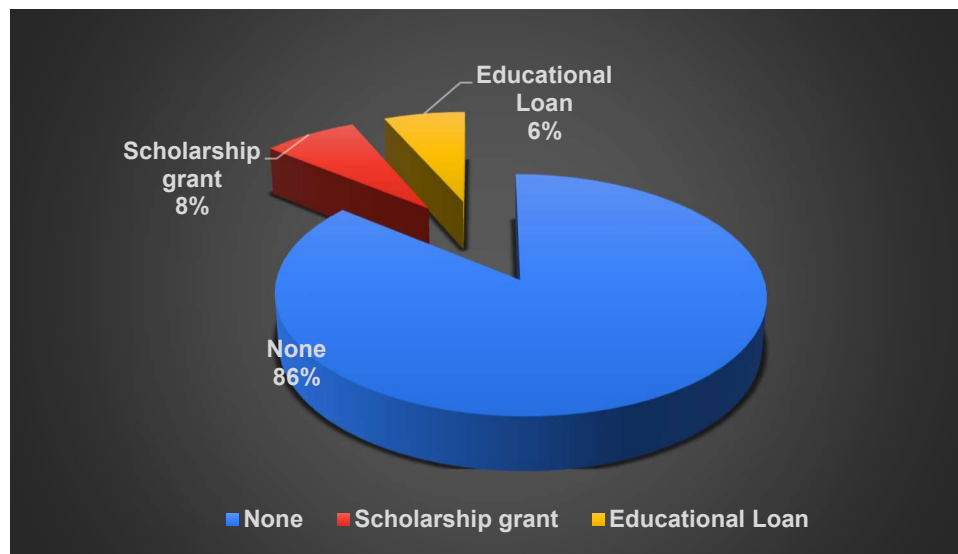
Out of 200 responses, 88 were male and 112 were female.

2. Program Area selected by students.



Most of the respondents belonged to Information Technology, Mathematics and Statistics, and Business and Management programs

3. Students on Educational loan and Scholarship grant.



Of all the respondents, 6% are on an Educational loan and 8% are on a Scholarship grant

❖ Analysis of family's opinion and background in subject selection and career choices of students.

1. Association between the gender of the students and the psychological support provided by parents.

H0: There is no association between the gender of the students and the psychological support provided by parents.

H1: There is an association between the gender of the students and the psychological support provided by parents.

OBSERVED FREQUENCY			
	Yes	No	Total
Female	97	15	112
Male	70	18	88
Total	167	33	200

EXPECTED FREQUENCY			
	Yes	No	Total
Female	93.52	18.48	112
Male	73.48	14.52	88
Total	167	33	200

Since the calculated chi-square value of 1.784 is less than the critical chi-square value of 3.8414, there is a strong evidence to accept the null hypothesis. Therefore, it is inferred that there is no significant association between the between the gender of the students and the psychological support provided by parents.

2. Association between the gender of the students and the need for selecting a career based on family values or beliefs.

H0: There is no association between the gender of the students and the need for selecting a career based on family values or beliefs.

H1: There is an association between the gender of the students and the need for selecting a career based on family values or beliefs.

OBSERVED FREQUENCY			
	Yes	No	Total
Female	28	84	112
Male	23	65	88
Total	51	149	200

EXPECTED FREQUENCY			
	Yes	No	Total
Female	28.56	83.44	112
Male	22.44	65.56	88
Total	51	149	200

Since the calculated chi-square value of 0.033 is less than the critical chi-square value of 3.8414, there is a strong evidence to accept the null hypothesis. Therefore, it is inferred that there is no significant association between the gender of the students and the need for selecting a career based on family values or beliefs.

3. Association between parents' education and motivation provided by parents in career choice.

a) Association between mother's education and motivation provided by parents in career choice.

H0: There is no association between mother's education and motivation provided by parents in career choice.

H1: There is an association between mother's education and motivation provided by parents in career choice.

OBSERVED FREQUENCY					
	Primary and sec	Higher sec	College/ Uni	Post-gradua	Total
1	3	3	7	3	16
2	7	5	9	6	27
3	9	10	21	7	47
4	11	6	15	19	51
5	11	9	9	9	38
Total	41	33	61	44	179

EXPECTED FREQUENCY					
	Primary and sec	Higher sec	College/ Uni	Post-gradua	Total
1	3.664804469	2.94972067	5.45251397	3.93296089	16
2	6.184357542	4.97765363	9.20111732	6.63687151	27
3	10.76536313	8.66480447	16.0167598	11.5530726	47
4	11.68156425	9.40223464	17.3798883	12.5363128	51
5	8.703910615	7.00558659	12.9497207	9.34078212	38
Total	41	33	61	44	179

Since the calculated chi-square value of 12.115 is less than the critical chi-square value of 21.0261, there is a strong evidence to accept the null hypothesis. Therefore, it is inferred that there is no significant association between mother's education and motivation provided by parents in career choice.

b) Association between father's education and motivation provided by parents in career choice.

H0: There is no association between father's education and motivation provided by parents in career choice.

H1: There is an association between father's education and motivation provided by parents in career choice.

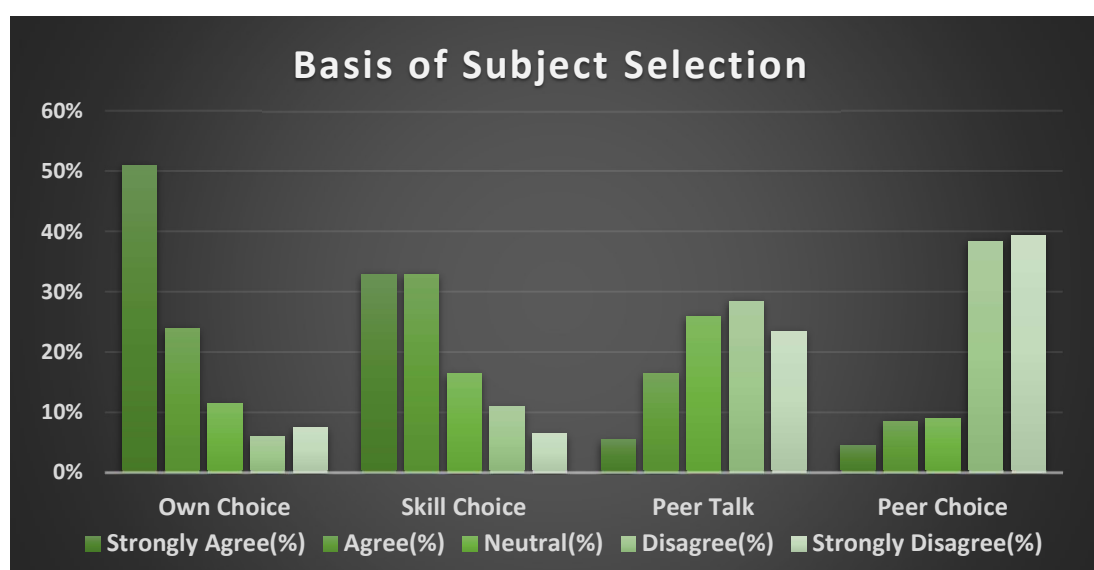
OBSERVED FREQUENCY					
	Primary and sec	Higher sec	College/ Uni	Post-graduate	Total
1	0	4	9	4	17
2	3	5	15	4	27
3	4	14	26	5	49
4	10	11	18	15	54
5	9	7	16	12	44
Total	26	41	84	40	191

EXPECTED FREQUENCY					
	Primary and sec	Higher sec	College/ Uni	Post-graduate	Total
1	2.31	3.65	7.48	3.56	17
2	3.68	5.80	11.87	5.65	27
3	6.67	10.52	21.55	10.26	49
4	7.35	11.59	23.75	11.31	54
5	5.99	9.45	19.35	9.21	44
Total	26	41	84	40	191

Since the calculated chi-square value of 17.2407 is less than the critical chi-square value of 21.0261, there is a strong evidence to accept the null hypothesis. Therefore, it is inferred that there is no significant association between father's education and motivation provided by parents in career choice.

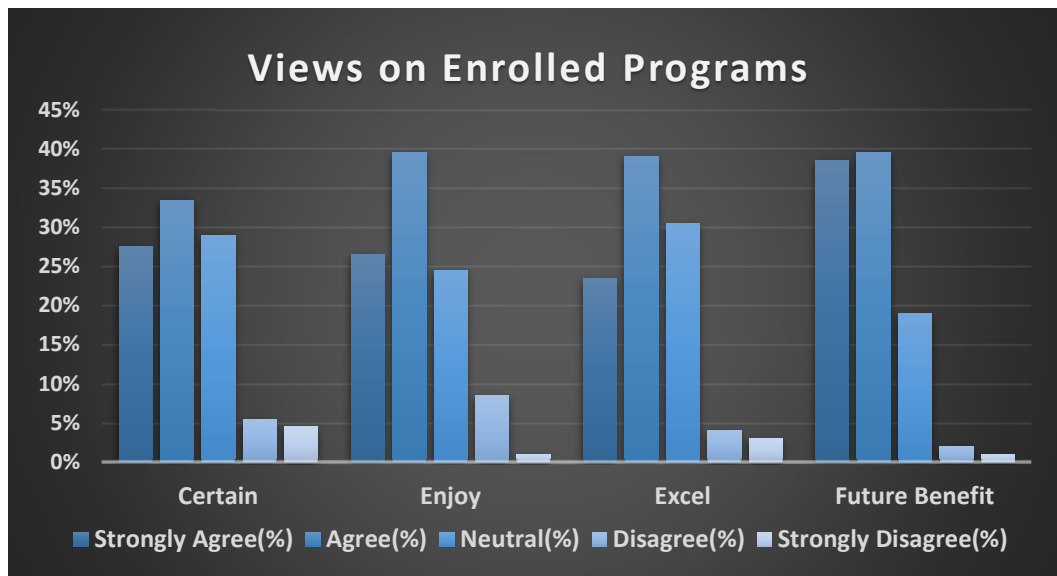
❖ **Analysis of student's perspective towards choosing a stream considering different factors such as likeability of the subject, peer influence, and more.**

1. Basis of Subject Selection



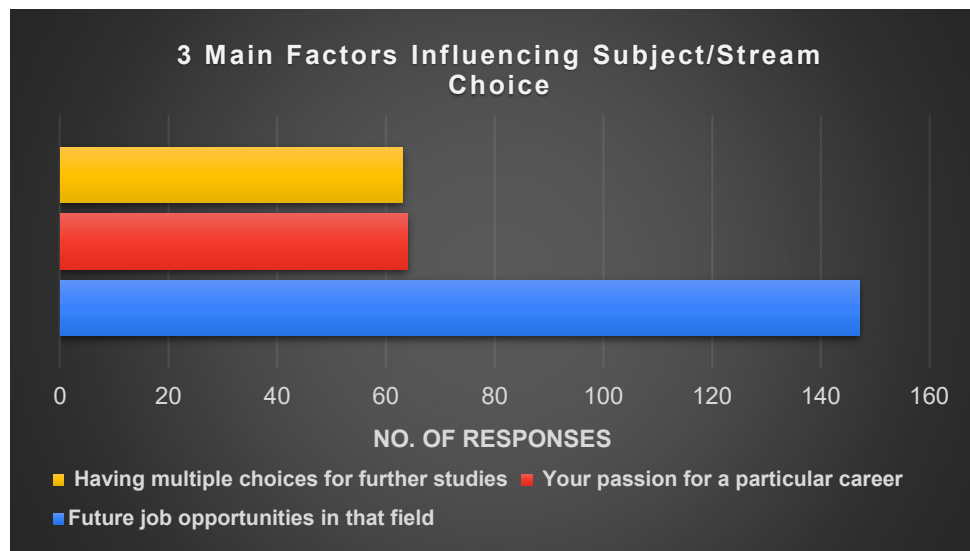
We can see that, most of the “strongly agree” and “agree” responses suggest that the subjects students selected is either their own choice or based on their calibre, skills or ability. Majority of the respondents deny peer influence as a major factor in their subject selection.

2. Views on Enrolled Programs



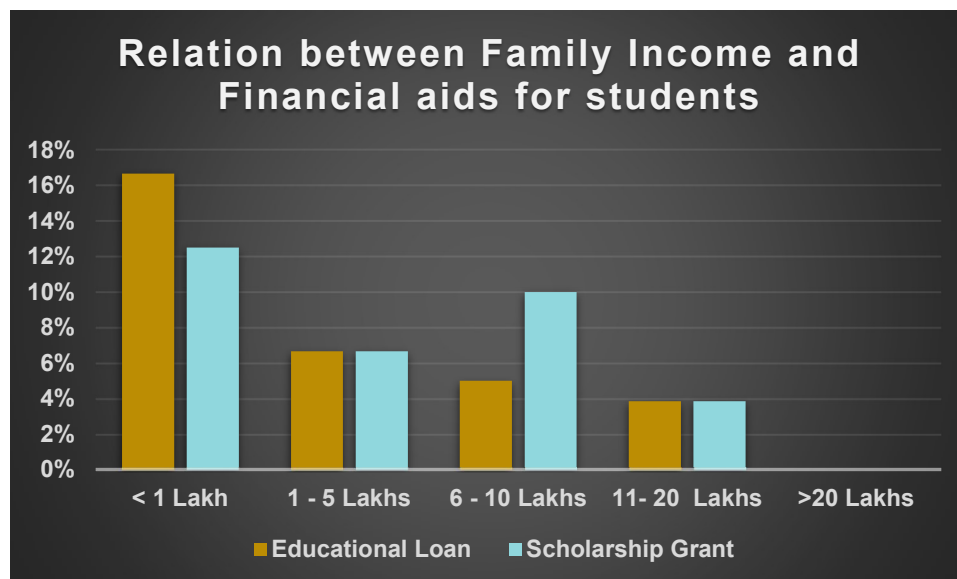
We can see that about 10% of the respondents are not certain that they selected the right program area and nearly same percentage of respondents do not enjoy the subject they have selected. Otherwise most of the respondents are certain that they selected the right program area, they enjoy the subject they have selected and are good at these subjects. Majority believe that they are studying a subject that will benefit them in the future.

3. Three Main Factors Influencing Subject/Stream Choice.



According to our survey, future job opportunities in the field (selected by 147 out of 200 respondents) is the main factor influencing subject and stream choice, followed by passion for a particular career and having multiple choices for further studies.

4. Relation between Family Income and Financial aids for students



Among the respondents whose family income is less than 1 Lakh, 30% have either opted for an educational loan or have received a scholarship grant and we can see that the percentage of students with financial aids decreases with increase in family income.

❖ Analysis of economic and social conditions of life in selecting a career choice.

1. Career choice based on family profession.

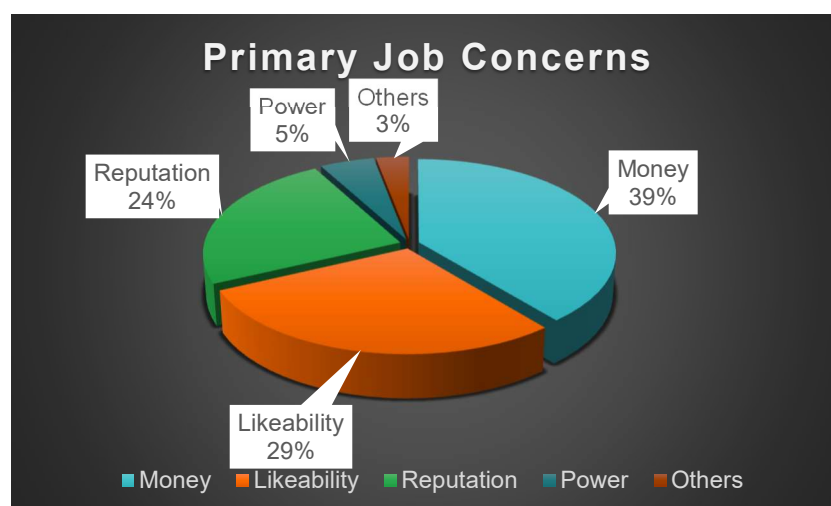
Family Profession	
Affects	Does not Affect
20.50%	79.50%

20.50% of the students' career choice has been affected by their parents/guardian's profession.

Affected	
Same	Other
34.15%	65.85%

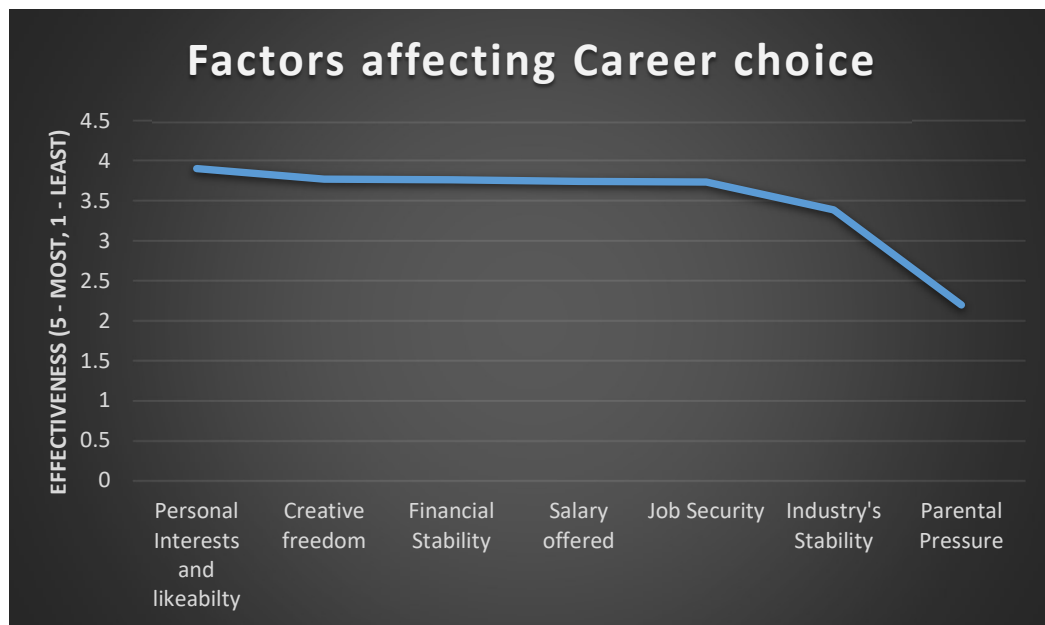
Among these 20.5% respondents, 34.15% students are planning to pursue the same career as their parents/guardian's.

2. Primary Job Concern



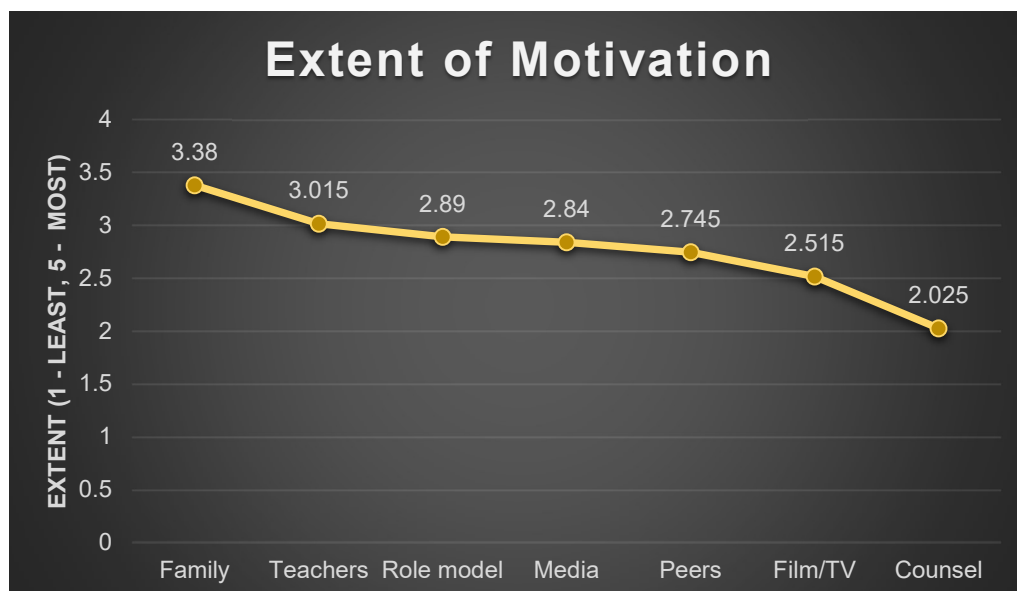
I guess this should be pretty obvious that the majority of our responses chose Money (39% of our total respondents) as their Primary Job Concern followed by likeability (29%) and reputation (24%).

3. Factors affecting Career choice



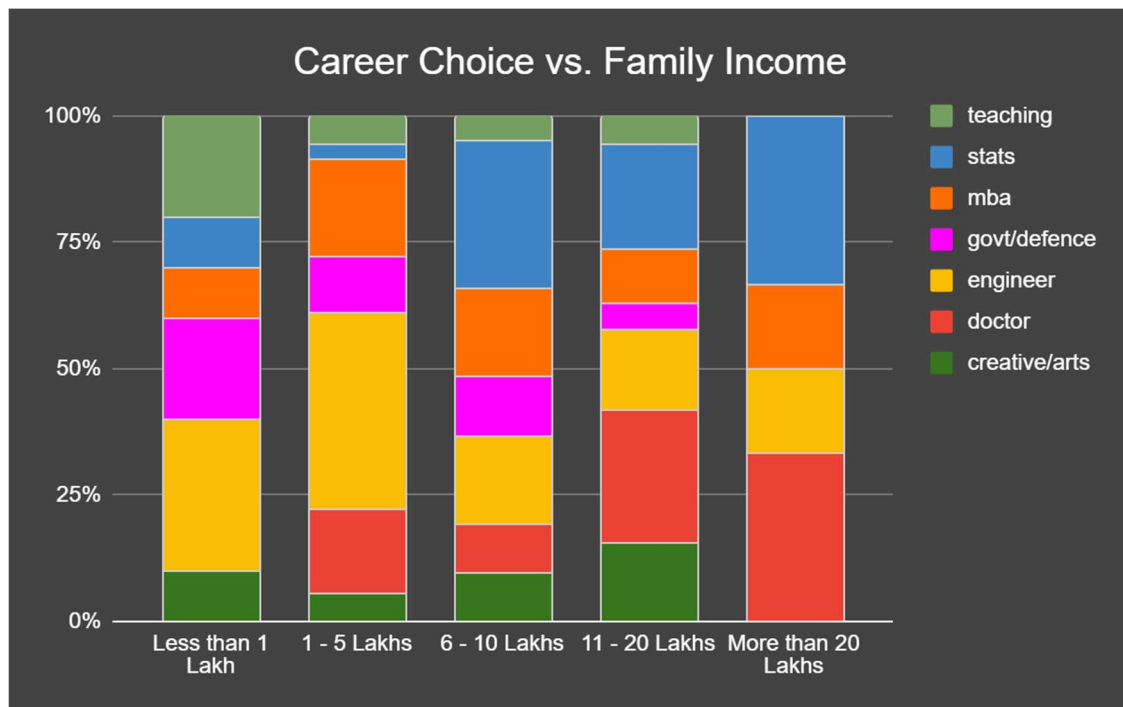
We asked students to give the extent to which the above-mentioned factors affect their career choice. It was in likert scale format with 5 being the most effective and 1 being the least effective. Then we calculated the average of the responses and found out that Personal Interests and Likeability (3.91) is the most effective factor in deciding one's career and Parental Pressure (2.2) is the least effective.

4. Extent of Motivation



The above graph shows the extent of motivation provided by different mediums for career choice of a student with 5 being the most motivating and 1 being the least motivating. The average of these values shows that Family, while being the most motivating among others, has an average of 3.38 which falls just a bit above the mid value of our scale. All the other values are less than or equal to the mid value (i.e., 3). So, not everyone gets motivations from families, teachers, etc.

5. Career Choice based on Family Income



Majority of the respondents whose family income is less than 1 lakh chose engineering as their desired career followed by Govt/Defence. Students with 1-5 lakhs as Family Income also chose Engineering. We can see that as the Income increases, the preference for engineering decreases and that for being a doctor increases. There's also an increase in the amount of people pursuing stats related career (Data Analysis, Data Science, etc).

6. Association between the time of deciding the program area and the preference of a student to select a career in that same field.

H0: There is no association between the time of deciding the program area and the preference of a student to select a career in that same field.

H1: There is an association between the time of deciding the program area and the preference of a student to select a career in that same field.

OBSERVED FREQUENCY			
	The current field of study	Some other aim	Total
During School	27	8	35
After School	24	14	38
During Junior College	29	11	40
After Junior College	36	31	67
Total	116	64	180

EXPECTED FREQUENCY			
	The current field of study	Some other aim	Total
During School	22.56	12.44	35
After School	24.49	13.51	38
During Junior College	25.78	14.22	40
After Junior College	43.18	23.82	67
Total	116	64	180

Since the calculated chi-square value of 6.979 is less than the critical chi-square value of 7.8147, there is a strong evidence to accept the null hypothesis. Therefore, it is inferred that there is no significant association between the between the time of deciding the program area and the preference of a student to select a career in that same field.

SUMMARY

The survey focused on the various factors that affect a student's decision in his/her choices regarding subject/stream selection, and hence career choices. Most of the respondents are pursuing an undergraduate degree in Mumbai.

❖ To estimate how important is the family's opinion and background in deciding one's stream/career.

A test of independence was calculated comparing the mother's education qualification and motivation provided by parents in subject/career choice. $\chi^2(12, N=179) = 12.115$; $p > 0.05$. So, here there is statistically no significant association between the mother's education and the motivation provided by parents. The same conclusion was obtained when we compared the father's education qualification with motivation provided by parents. Thus, we can say that Motivation provided by Parents is independent of their Educational Qualification.

Another test of independence was calculated comparing the gender of the students and the need for selecting a subject/career based on family values or beliefs. $\chi^2(1, N=200) = 0.033$; $p > 0.05$. So, this shows statistically no significant association between the two variables.

A final test of independence for this objective was calculated comparing the gender of the students and the psychological support provided by parents. $\chi^2(1, N=200) = 1.784$; $p > 0.05$. This makes us accept our null hypothesis that there is no significant association between the gender of the students and psychological support provided by parents.

We also found that 20.50% of the students' career choice has been affected by their parents/guardian's profession. And among these 20.5% respondents, 34.15% students are planning to pursue the same career as their parents/guardian's.

❖ To study a student's perspective towards choosing a stream considering different factors such as likeability of the subject, peer influence, and more.

The Responses suggest that the subject students selected is either their own choice or based on their caliber, skills or ability. Majority of the respondents deny peer influence as a major factor in their subject selection. We also found about 10% of the respondents are not certain that they selected the right program area and nearly same percentage of respondents do not enjoy the subject they have selected. Majority believe that they are studying a subject that will benefit them in the future.

According to our survey, future job opportunities in the field (selected by 147 out of 200 respondents) is the main factor influencing subject and stream choice, followed by passion for a particular career and having multiple choices for further studies.

Among the respondents whose family income is less than 1 Lakh, 30% have either opted for an educational loan or have received a scholarship grant and we saw that the percentage of students with financial aids decreases with increase in family income.

- **To find out the relevance of the economic and social conditions of life in selecting one's career choice**

We calculated the average of the Likert scale responses and found that Personal Interests and Likeability (3.91) is the most effective factor in deciding one's career and Parental Pressure (2.2) is the least effective.

We asked for the extent of motivation provided by different mediums for career choice of a student with 5 being the most motivating and 1 being the least motivating. The average of these values shows that Family, while being the most motivating among others, has an average of 3.38 which falls just a bit above the mid value of our scale. All the other values are less than or equal to the mid value (i.e., 3). So, not everyone gets motivations from families, teachers, etc. Counsellors have the lowest value i.e., 2.025.

Majority of the respondents whose family income is less than 1 lakh chose engineering as their desired career followed by Govt/Defence. Students with 1-5 lakhs as Family Income also chose Engineering. We can see that as the Income increases, the preference for engineering decreases and that for being a doctor increases. There's also an increase in the amount of people pursuing stats related career (Data Analysis, Data Science, etc).

A test of independence was calculated comparing the time of deciding the program area and the preference of a student to select a career in that same field. $\chi^2(3, N=180) = 6.979$; $p > 0.05$. So, here there is statistically no significant association between the two variables.

I guess this should be pretty obvious that the majority of our responses chose Money (39% of our total respondents) as their Primary Job Concern followed by likeability (29%) and reputation (24%).

LIMITATIONS

As with the majority of studies, the design of the current study is subjected to many limitations.

Mainly there are 3 major limitations in this study that can be addressed in the future research.

- Respondents may not feel encouraged to provide accurate, honest answers. Respondents may not feel comfortable providing answers that present themselves in an unfavorable manner.
- Due to small sample size, chances of bias are high. What is false (not the majority) may be observed true in the selected sample.
- Lack of prior research studies on the topic.