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Diaspora of Young Minds: A study on BrainDrain and Education in India

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ABSTRACT

Brain drain is a significant challenge for many developing countries, including India. This phenomenon refers to the migration of highly qualified professionals, especially in fields such as science, technology, engineering, and mathematics (STEM), to countries that offer educational opportunities. better jobs and higher salaries for students. While several factors contribute to brain drain, education has been identified as an important contributing factor in the Indian context. On the one hand, where limited access to high-quality education and research opportunities in India may spur talented individuals to seek better opportunities abroad, higher education and career prospects in countries such as the United States, Canada, and the United Kingdom, on other hand, can cause Indian professionals to leave their homeland. This article examines the relationship between education and brain drain in India and explores why educated people choose to leave the country and the impact this has on the Indian economy, such as loss of skilled labour, waste of brainpower, and impact on the education sector. It also looks at the government policies aimed at retaining professionals and promoting reverse brain drain. In summary, this paper argues that education is a major cause of brain drain in India and that addressing this issue requires a holistic approach that addresses the root causes of the problem. The findings of this study have important implications for policymakers, educators, and other stakeholders involved in the brain drain in India.

Keywords: *Brain drain, higher education in India, economic and social impact of youth migration, Reverse brain drain.*

1. Introduction

Throughout history, people have migrated from one place to another for various reasons, including the need for innovation, knowledge, and technology. However, in the 1960s, after World War II, there was a significant influx of skilled laborers from developing countries such as India to developed countries like the USA, UK, Germany, etc. (Pearce, 1994). This migration was prompted by a variety of economic and political factors, and it resulted in a scarcity of skilled professionals in the countries of origin. This phenomenon became known as "Brain Drain," an informal term that describes the flight of talent from one country to another. Brain Drain is defined as the international migration of highly qualified individuals from low-income countries to more developed and prosperous economies. Differences in salaries and research facilities, as well as the oversupply of specialized graduates in less developed countries, have contributed to the increase in the human capital stock of advanced countries.

India has a rich history of intellectual excellence and boasts some of the world's most renowned universities and research institutions. It has a long history of migration, dating back to the times of Nalanda, which attracted scholars and researchers from Korea, Japan, Indonesia, China, Tibet, and other countries. Despite its abundance of intellectual talent, the country has faced challenges in retaining its best minds. Recent data from the World Intellectual Property Organization (WIPO) indicates that India is among the top countries in terms of the number of researchers leaving for other nations. The Ministry of Education reports that more than 30 lakh Indians went abroad for higher education between 2017 and 2022.

The impact of the brain drain phenomenon in India has been significant, with a lack of highly skilled professionals resulting in a talent shortage in key areas such as healthcare, engineering, and technology. As a result, the country's progress in innovation and research has been impeded. However, the effects of the phenomenon are not limited to economic concerns but also extend to India's social and cultural landscape. Brain drain has led to a decline in research and education quality in the arts, humanities, and social sciences. The causes of brain drain in India are intricate and diverse. The diaspora of talent in the country can be attributed to many push and pull factors education being one of them. Although India's education system has produced a large number of highly skilled and educated individuals, unfortunately, the country is unable to provide them with the kind of employment opportunities that match their qualifications and expertise. This situation has led to a growing trend of youth migration from India to other countries in search of better higher educational opportunities, job prospects, higher salaries, and improved quality of life.

The paper looks forward to analyzing education as the incentive for youth migration in India. The paper will delve into the factors that drive the youth to migrate and explore the relationship between education and migration. The research will also examine the impact of youth migration on the Indian economy, the education system, and the country's development.

The education system in India is often cited as a significant factor in youth migration. Despite the government's efforts to expand and improve the education system, the country still struggles to provide quality education to all its citizens. As a result, many of the educated youth in India opt to migrate to other countries to pursue higher education, which often leads to a permanent settlement. Moreover, the quality of education in India is often criticized for its lack of relevance to the job market, which makes it difficult for young graduates to find employment in their field of study. Another factor that contributes to brain drain in India is the lack of opportunities for personal and professional growth. Many of the educated youth in India feel that they are not given the chance to fulfil their potential and develop their skills. This lack of opportunities leads to frustration and dissatisfaction, which, in turn, motivates them to seek better opportunities abroad. As Becker(1964) stated, “Higher Education decision and migration are seen as an investment in human capital since anticipated and cost and future returns are associated with it. A student(person) tends to move out only when expected profit overpasses the cost of moving out.”
The brain drain issue has a significant impact on the Indian economy, as it leads to a loss of human capital and talent. It not only results in economic but also social and cultural loss. The country invests heavily in its education system to produce a skilled and educated workforce, but unfortunately, a significant portion of this workforce ends up leaving the country in search of better opportunities. The situation is very important for the country and addressing it is the need of the hour.

2. Literature Review

1. Rutherfold (1992) defines brain drain as the 'International migration of highly qualified persons, e.g., surgeons, physicians, scientist and engineers, from low-income countries to more prosperous economies, especially the USA. Differences in salaries and research facilities, together with the over-supply of specialized graduates in less developed countries, have brought about this increase in the human capital stock of advanced countries.
2. Geetanjali Chopra (2018) examines the reasons for brain drain in India and its impact on the country's economic growth. The study proposes several solutions to address the issue, including improving the quality of education, providing better job opportunities, and creating a conducive environment for entrepreneurship.
3. Shraddha Joshi (2018) and Swati Singh (2019) through their works provide a comprehensive analysis of the factors contributing to brain drain in India, including political instability, lack of employment opportunities, inadequate pay, and poor working conditions. The study concludes that the Indian government needs to develop policies that can attract highly skilled professionals back to the country.
4. Anju Saini (2019) in her work analyzed the need to invest in research opportunities. It also emphasized the need for better infrastructure and working conditions to retain skilled young minds
5. Rahul Singh (2017) and N Singh (2018) in their works explore the impact of brain drain on the education system and entrepreneurship in India. The study identifies brain drain as a significant challenge for the education system, as it results in a loss of highly skilled educators and researchers. It further results in a loss of entrepreneurial talent, which impacts the country's economic growth and development.
6. Gopinath Datta (2017) and Ruchika Sharma (2019) in their works viewed Brain drain as a boon instead of bane. They stated that while brain drain can be seen as a loss to India, it can also be viewed as an opportunity for the country to create global networks and learn new skills.

3. Objective

The objective of this paper is to analyze education as the incentive for youth migration in India. The paper will examine the factors that contribute to youth migration and explore the relationship between education and migration. The paper further aims to address the impacts of brain drain on the home state or country. Lastly it critically analyses the government's retaining policies. Ultimately, the research will provide policymakers with insights into this critical issue and help them formulate strategies to address the root causes of brain drain in India.

4. Data and methodology

Both primary and secondary data have been used in the paper. Primary data have been collected using questionnaires from youths (15-25 years), who are planning to move out. The data have been interpreted with help of charts using MS excel and Power BI to understand the perspective of migrants. Secondary data from sources like World bank, OECD, Ministry of external affairs are used. Finally, regression analysis is done on secondary data using Stata 14 to understand the relationship between education and migration.

5. Analysis and Discussion

5.1. Major Causes of Brain Drain:

Amongst the several causes of brain drain following are the major contributing factors with respect to India's brain drain:

- ***Higher education :*** Though after Independence higher education in India have changed significantly in terms of numbers and accessibility and it is much more inclusive than before, it has raised concerns about the sufficiency of studies, resources, institutional quality and standards.
- ***Lack of employment opportunities***: Some of the most important push factors of migration are low wages, ineffective working conditions and high structural unemployment. Educated people are trying to migrate to developed countries to get higher salary and better opportunities and higher standard of living.
- ***Lack of research opportunities***: Most scientists and researchers in developing countries lack infrastructural and equipment facilities, and they are more often unable to receive adequate funding. When developed countries offer these facilities, researchers and scientists naturally prefer to move out from their home country. Globalization of knowledge creation and rapid expansion of research and development activities have resulted in brain drain from India.

5.2. Quality and Pattern of Education: A Cause of Brain Drain

The brain drain paradigm is based on human capital theory, which treats skilled workforce as human capital and as a fixed asset that could be manipulated due to economic and socialconditions and is critical for the development of native economy. The phenomenon can be an outcome of various push and pull factors. Education is one such principal factor of migration among the youths.

According to the Ministry of External Affairs, around 2,61,406 students were studying abroad in the year 2020. But what forced such a huge population of students to move overseas for education.To understand this situation, a random sample of 178 individuals was interrogated, of whom150 were between 18 and 25 years old. The group consisted of 110 students and 40 workingprofessionals. The results of the study indicated that 59% of the young population intend to relocate abroad for a further study about the reasons to move out indicated that lack of educational opportunities (54%) and job opportunities/ pay scale (26%) are the main grounds for them to move abroad. (Diagram 1). Among them, 37% prefer the United States as their destination, followed by 19% for the United Kingdom, and 17% for Germany.

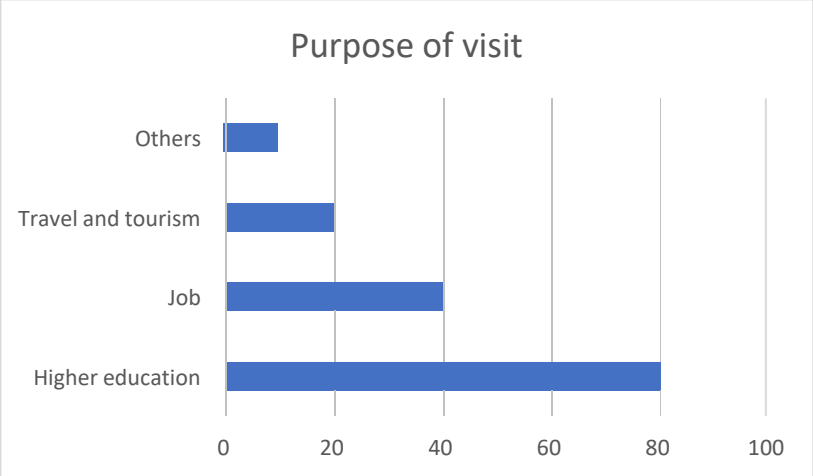


Diagram 1: Purpose of visit to foreign countries of the sample.

The urge to gain more exposure further pushes the youths abroad. The primary survey further data revealed that 91% of the youth agree that they will gain more exposure outside of India than in India, while only 9% disagree. "*I never get any hands-on experience in India, which I am expecting to get abroad*" said one respondent. "*I get little-to-no research opportunity in India, it's not always about the economic incentives but also the surrounding you work in*" said another. These highlight drawbacks such as theoretical over practical knowledge, lack of research opportunities, poor quality of education, and lack of accountability in the Indian education system. India spends only a mere 0.7 % on research and development opportunities which is much lower than the global average of 1.7%. The National Achievement Survey (NAS) 2017 showed that only

43% of students in Class 8 could read a Class 2-level text in English. Another report by NAS in 2018 showed that only 44% of students in Class 10 could solve basic math problems.

Economic prospects and education are closely related and hard to disentangle. Education creates an opportunity to be employable. .89% of the youth believe that studying abroad will increase their chances of bagging a job. (Diagram 2) "*The increasing competition here makes it difficult to get a job*" said respondent 3. "*My skills don't match the demand of labour in here*" said respondent 4. The Indian job market suffers from cut-throat competition due to the huge population. The lack of formal and vocational education adds to the situation.

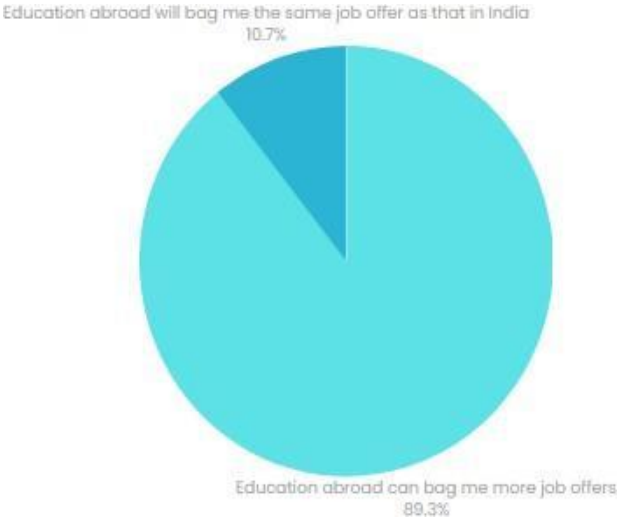


Diagram 2: Sample response on education abroad or in India with respect to job opportunities

When it comes to their plans after studying abroad, 36% of youth who intend to move out for higher education plan to return to India. 64% are determined to stay overseas. This puts forward the alarming rate of brain drain in India. Hence, we can establish education as a push factor for young people to move out.

Education is a significant pull factor for migration. Access to 'right education' attracts a huge number of students. Migration for education also opens many opportunities for personal growth and cultural experiences. Besides, an improved standard of living adds up to the situation.

We have considered youth emigration (15-25 years) as the dependent variable. Quality and pattern of education is the independent or explanatory variable. Education is further divided as Expenditure on Education by the government as a percentage of GDP and the Number of HEIs in the country.

Migration (AOD)	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	sig
% gdp on edu	5598.95	4635.65	1.21	0.22	3562.69	14760.6	
HEI	570.985	157.347	3.63	0.00	260.013	881.956	***
Constant	9869.45	28763.7	0.34	0.73	46977.6	66716.5	

Mean dependent var	97042.168	SD dependent var	237167.575
R-squared	0.576	Number of obs.	149
F-test	6.682	Prob > F	0.002
Akaike crit. (AIC)	3988.218	Bayesian crit. (BIC)	3997.230

*** p<.01, ** p<.05, * p<.1

Source: Author's Calculation

The above table shows the statistical significance (Prob> F is 0.002, less than 0.05) of the model, indicating that the independent variables are able to explain a significant amount of the variation in migration rates. The R-squared value of 0.576 indicated that approximately 58% of the variation in migration rates could be explained by education.

The results also showed that the number of Higher education institutes had a significant positive effect on migration ($\beta = 570.985$, $p < 0.05$), meaning that as HEI increased, migration rates also increased. When other units are held constant, if no. of HEI increases by 1 unit, Youth migration increases by 570.99 units. This suggests that individuals may be more likely to migrate to areas with a greater number of higher education institutes.

Although Government spending on education has a positive effect on the immigration of youths, it is not significant implying that youths are not concerned about the government spending on education. They are attracted to the opportunities provided in the area of destination.

Hence, we can say that pattern and standard of education is one of the major factors influencing Brain drain among the youth. To control the adverse effects of brain drain on the economy, policymakers must identify the loopholes and try to improve the standards and accessibility issues.

5.3. Consequences of Brain Drain: An Indian Experience

Moving out of educated and skilled youths have many adverse impacts on the country. First and foremost, developing countries like India, lose their ability to progress to brain drain. Talented people are born, raised, and given primary education here but when it comes to giving back, they move abroad for better educational and career prospects. The country loses the individuals who can help them develop further. According to one report by Economic Times, more than half of the board toppers, ageing between 21-42 years are in foreign countries. While most of them are employed, more than quarter went overseas is search of 'right education'.

Secondly, Brain drain harms India's education system by causing a lack of proficient teachers and researchers, as well as reducing the standard of education. This cycle can worsen as the lower quality of education prompts more skilled individuals to leave the country, making it difficult to keep talented individuals. India, even after having around 1000+ universities and 42,000+ colleges, suffers from the largest "diaspora" in the world due to lack of educational opportunities.

Lastly, Brain Drain also affects India economically, which hinders its further development. This leads to reduced quality of life for TLB (the left-behind) population. Besides, it also leads to reduced revenues for the country. *"*Moving abroad, as many Indian students choose to do, causes a whopping $17 billion loss in revenues every year in India"- LSE,2015

But as every coin has two sides, Brain drain too has some positive effects. Individuals who move out abroad and return, often come back with developed skills, knowledge, and technology. When these new ideas are applied in the economy it promotes growth and innovation.

Brain drain also develops the individual culturally and promotes international relations. Besides, when the individual sends the high remittances received overseas to his family, it improves the local economies and standard of living. According to the Reserve Bank of India, in the fiscal year 2020-21, Non-Resident Indians (NRIs) sent approximately $83 billion to India. This amount is a substantial contribution to the Indian economy and equals around 3.8% of India's GDP for that year.

6. Conclusion and Policy Recommendations:

India is home to over 1.3 billion population, with an enormous populace of youth between 15 to 29 years. Education is a critical factor in India's development. Inspite of over 42000 HEIs, the country faces the largest migration globally. In 2014, a UN report named India as having the largest "diaspora" population in the world (YIF,2019) with more than 16 million persons of Indian origin living abroad. Lack of organized education opportunities, demand-supply mismatch and lower career prospects force the youth of the nation to move abroad. This further creates a "domino-effect" of migration in the country. However, the government and concerned authorities have realised the need of organized education sector and is taking the required steps. The adapted policies have shown some positive results as well. With continuous effort from the government in improving the quality of education can help address the problem of Brain drain in India and retain highly skilled individuals in the country.

6.1 Government Policies and Reverse Brain Drain

The government of India since the last few decades have adopted a few many policies to control the phenomenon of Brain drain and promote reverse brain drain in India. The term "reverse brain drain" describes the act of highly skilled individuals going back to their home country after having previously moved to another country for purposes such as education, employment, or other opportunities.

Some of these policies are:

- **Skill Development Programs**: The Indian government has initiated several skill development programs to enhance the employability of the Indian workforce by providing education and training in fields that are in high demand, such as healthcare, engineering, and IT. These programs aim to enable skilled individuals to secure appropriate employment opportunities in India. Pradhan Mantri Kaushal Vikas Yojana for Technical Institutes (PMKVY-TI), Employability Enhancement Training Programme (EETP), National Employability Enhancement Mission (NEEM), AICTE-Startup Policy, Skill Assessment Matrix for Vocational Advancement of Youth (SAMVAY), Leadership Development Programs etc are a few skill development programs of GOI.
- **Research Incentives:** The Indian government has put in place several measures to promote research and innovation in the country, including incentives like tax breaks, research grants, and funding for startups. These incentives have been implemented to attract skilled researchers and entrepreneurs to remain in India and contribute to the country's progress. The Overseas Citizenship of India (OCI) scheme has also been introduced by the government, which allows individuals of Indian heritage to keep their Indian citizenship while residing and working abroad. This measure seeks to maintain a connection between India and its skilled diaspora living overseas.
- **Returnee support:** In addition, the government has launched various programs to support those who choose to return to India, such as the Pravasi Bharatiya Kendra

and the India Development Foundation for Overseas Indians. These initiatives aim to assist returnees in finding suitable employment opportunities, starting their own businesses, and integrating back into Indian society.

- **Support for entrepreneurship:** The Startup India program and the Atal Innovation Mission are two examples of the many programs that the Indian government has launched to encourage entrepreneurship. These initiatives aim to support entrepreneurs, including returnees, and create a favourable environment for new businesses.

These policies aim towards creating a favourable environment for the youths to stay in India or return to their motherland. The government retaining policies are also being able to somewhat achieve what they called the "Indian- Dream". As per the Ministry of External Affairs (MEA) report, the year 2020 saw a downfall in the number of students overseas. Only 261,406 Indian students went abroad in that, which was half of the 588,931 students who went abroad in 2019.

The paper considers only quality and pattern of education as a factor of migration. However, migration is affected by several factors which are interrelated and vary from person to person. Moreover, the paper studies only the trends till 2020. The COVID-19 has impacted both the education sector and migration rates extensively later. Studies in the near future can focus on these aspects.

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APPENDIX

Appendix A: Survey Questionnaire

The primary data was collected using a questionnaire with a random sampling method. The sample consisted of 178 individuals from all age groups. 150 individuals belonged to the age group between 18-25 years.

Part 1 (General Questions)

1. Name _____
2. Age:
o Under 12 years
o 12-17 years
o 18-25 years
o Above 25 years
3. Gender:
o Male
o Female
4. Occupation:
o Student
o Working Professional
o Others

Part 2 (Intentions about moving abroad)

1. Do you intend to move abroad?
o Yes
o No
o Maybe
2. If yes, what is your preferred destination?
o USA
o UK
o Germany
o France
o Canada
o Others
3. Purpose of visit:
o Higher Education
o Better job opportunities
o Travel and tourism
o Others
4. I am expecting to get more exposure abroad than that in India.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

5. Education abroad can help me bag more job offers than that in India.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

6. I want to return to India after completing my higher education

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

Appendix B: Questionnaire results:

Table B-1: Age of the respondents

Age	Respondents	Percentage
18-25 years	150	84.26966
Above 25 years	17	9.550562
12-17 years	11	6.179775

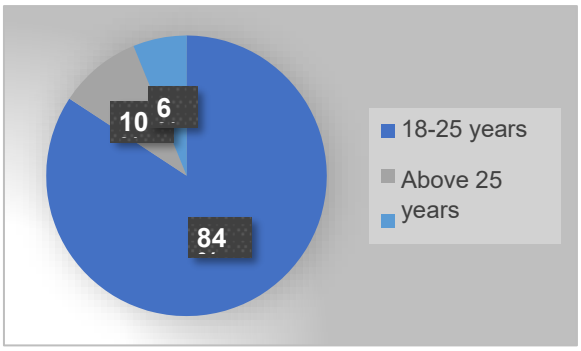


Table B-2: Occupation of the respondents

Occupation	Respondents	Percentage
Student	110	73.33333
Working Professional	40	26.66667

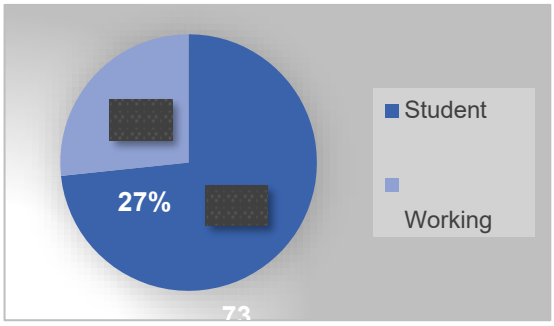


Table B-3: Respondents intention about moving abroad

Do you intend to go abroad?

No	21	14
Yes	89	59.33333
Maybe	40	26.66667

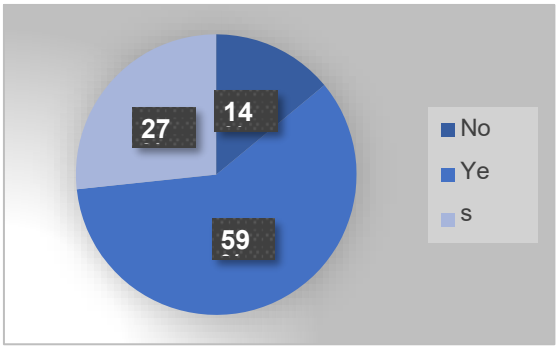


Table B-4: Respondents preferred destination.

Preferred destination Country	Respondents	Percentage
USA	55	36.66667
UK	28	18.666667
Germany	25	16.666667
Canada	16	10.666667
France	7	4.6666667
Japan	4	2.666667
Others	15	10

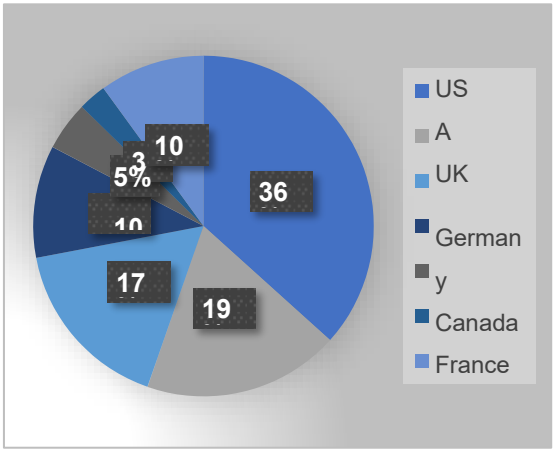


Table-5: Purpose of Visit of the Respondents

Purpose of visit.	Respondents	Percentage
Higher education	81	54
Job	39	26
Travel and tourism	20	13.33
Others	10	6.67

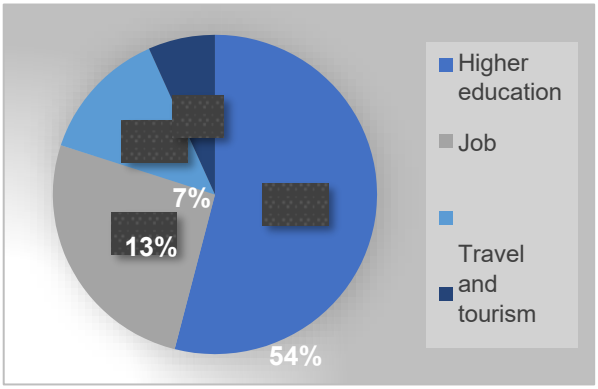


Table B-6:

Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I am expecting to get more exposure abroad than that in India.	58	51	10	19	12
Education abroad can help me bag more job offers than that in India.	49	60	21	17	3
I want to return to India after completing my higher education.	13	41	11	37	47