ST. TERESA'S COLLEGE (AUTONOMOUS), ERNAKULAM
AFFILIATED TO MAHATMA GANDHI UNIVERSITY

PROJECT REPORT ON

EXPLORING STUDENT MOBILITY: A STUDY ON MIGRATION FOR EDUCATION

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF SCIENCE IN
COMPUTER APPLICATIONS [TRIPLE MAIN]

Submitted By
RITHIKA R SANKAR
III BSc Computer Application [Triple Main]
Register No: SB21CA021

Under the Guidance of
Ms. Mary Andrews

DEPARTMENT OF COMPUTER APPLICATIONS
2021-2024

ST. TERESA'S COLLEGE (AUTONOMOUS), ERNAKULAM

AFFILIATED TO MAHATMA GANDHI UNIVERSITY

ST. TERESA'S COLLEGE
(AUTONOMOUS)
ESTD 1925

CERTIFICATE

This is to certify that the project entitled

"EXPLORING STUDENT MOBILITY: A STUDY ON MIGRATION FOR EDUCATION ",

is a bona-fide record of the work done by RITHIKA R SANKAR during the

year 2023-24 and submitted in partial fulfillment of the requirements of

the degree of Bachelor of Science in Computer Applications (Triple Main)

under Mahatma Gandhi University.

Head of the Department

For,
21/03/2024
Internal Examiner
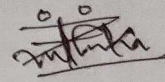
External Examiner

Date : 21/03/24

DECLARATION

I, **Rithika R Sankar, BSc Computer Application [Triple Main]** final year student of St. Teresa's College (Autonomous), Ernakulam, register no: **SB21CA021**, hereby declare that the dissertation submitted for Bachelor's Degree in Computer Application is my original work. I further declare that the said work has not previously been submitted to any other university or academic body.

Date :- 21/03/24

Place:- Ernakulam

RITHIKA R SANKAR

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ABSTRACT

In this study, the main focus is on understanding the motivations driving students from Kerala to pursue education abroad. With the increasing trend of students choosing to settle overseas, we aim to investigate the key factors influencing this migration. Our research delves into the significance of reputed universities, cultural impact, and familial influence in shaping the decision-making process. Using linear regression, we analyze whether students express an interest in studying abroad, employing this statistical method to quantify the impact of various factors on their preferences. Additionally, through correlation analysis, we explore the relationships between socio-economic factors, providing a comprehensive insight into the intricate web of influences that contribute to the substantial migration of students from Kerala seeking educational opportunities abroad. The graphical representations derived from our analyses aim to visually highlight the factors that play a pivotal role in driving this educational migration trend.

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1. <u>INTRODUCTION</u>

2.1 About Project

In today's globalized world, student migration is a growing phenomenon, with students like those from Kerala increasingly seeking educational opportunities abroad. This project delves into the motivations behind this trend, recognizing the lack of access to quality education and job opportunities in some areas as a driving force. It aims to understand why students choose foreign universities, considering factors like their reputation, potential cultural impact, and the influence on their families. By exploring these reasons, the project sheds light on a critical issue with lasting social and individual implications.

2.2 About Organization

The Congregation of the Carmelite Sisters of St. Teresa founded St. Teresa's College, a pioneering institution in the field of higher education in India, on June 15, 1925. It was the first women's college in the former Cochin State and the second in all of Kerala. To prepare young women for the challenges in the IT industry, the Department of Computer Applications was founded in 1995 and provides a variety of computer application courses. Via seminars, lectures, project work, assignments, and ICT enabled teaching, we advocate for a student-centered teaching method. Also, periodically hold lectures on new hardware and software technologies and career orientation.

2. LITERATURE REVIEW

The paper titled "Student Migration from Kerala, India to Destinations in the Global North: Analysis and Policy Implications," authored by Joseph, Mary Lucia, and published in the School of International Development and Global Studies, Faculty of Social Sciences, University of Ottawa in 2023, delves into the phenomenon of student migration from Kerala to the Global North. Employing a combination of qualitative and quantitative methodologies, including surveys, interviews, and secondary data analysis, the study comprehensively explores the motivations driving Kerala's youth to pursue educational opportunities abroad, as well as the challenges they encounter during migration and integration into host societies. Additionally, the paper assesses the policy implications of this migration trend, aiming to inform policymakers on strategies to maximize the benefits of international student mobility while mitigating potential drawbacks. This research contributes valuable insights into student migration from Kerala, facilitating informed policymaking and the development of strategies to optimize the outcomes of global educational mobility for individuals and communities.

Elizabath Jacobs' paper titled "The Homogenizing and Diversifying Effects of Migration Policy in the Internationalization of Higher Education," published in Higher Education 83.2 in 2022, provides a nuanced examination of the relationship between migration policy and the internationalization of higher education. Jacobs delves into how migration policies influence the movement of students and scholars across borders, shaping the composition and dynamics of academic communities in host countries. By exploring the dual nature of migration policies, which can both promote homogeneity by favouring specific types of migrants and foster diversity through the recruitment of international talent, the paper sheds light on the complex interplay between policy frameworks and the cultural diversity of universities. This study offers valuable insights into the broader implications of immigration regulations on academic mobility, contributing to a deeper understanding of the internationalization process in higher education.

The paper titled "Internal Student Migration in India: Impact of the COVID-19 Crisis," authored by Rajini Singh, Navneet Manchanda, and Rakesh Mishra, and published in the Asian and Pacific Migration Journal in 2023, examines the consequences of the COVID-19 pandemic on student migration within India. It investigates how the crisis has disrupted the movement of students within the country, particularly affecting their educational endeavours and socio-economic conditions. The study delves into the various factors contributing to these disruptions, including campus closures, travel restrictions, and the economic challenges faced by migrant students. By analysing the impact of the COVID-19 crisis on internal student mobility in India, the paper offers valuable insights into the changing dynamics of higher education and migration amidst global emergencies, contributing to our understanding of the evolving landscape of student mobility within the country.

The paper by Rajan Aneja and Anandu Praveen, titled "International Migration Remittances and Economic Growth in Kerala: An Econometric Analysis," published in the Journal of Public Affairs in 2020, presents an in-depth examination of the relationship between international migration remittances and economic growth in Kerala, India. Employing econometric analysis, the study investigates the impact of remittances from Keralite migrants working abroad on the state's economic development. Aneja and Praveen assess the magnitude and significance of remittance inflows on various economic indicators such as GDP growth, employment, and poverty alleviation. By analysing the econometric models, the paper aims to provide empirical evidence regarding the role of international migration remittances in fuelling economic growth and socio-economic development in Kerala. This research contributes valuable insights into the dynamics of remittance-driven economies and informs policymakers about the implications of international migration on regional economic prosperity.

The paper authored by K. C. Zachariah, E.T. Mathew, and S. Irudaya Rajan, titled "Impact of Migration on Kerala's Economy and Society," published in International

Migration in 2008, offers a comprehensive analysis of the effects of migration on both the economy and society of Kerala, India. Through a detailed examination of migration patterns, trends, and their consequences, the study sheds light on the multifaceted impacts of migration on various sectors, including labour, education, and healthcare. Zachariah et al. delve into the socioeconomic changes induced by migration, such as changes in household structures, remittance inflows, and labour market dynamics. Additionally, the paper explores the challenges and opportunities presented by migration, including its influence on social cohesion, cultural practices, and gender dynamics within Kerala. By providing insights into the complex interplay between migration and Kerala's economy and society, this research contributes to a deeper understanding of the dynamics of migration in the region and informs policy discussions aimed at maximizing the benefits of migration while mitigating its potential drawbacks.

Renjini Mohandas' paper, "Growing Student Migration from Kerala," conducted at St. Teresa's College in Ernakulam in 2023, focuses on the increasing trend of Indian students migrating to top destinations, particularly Canada. The study aims to understand the backgrounds of migrant students, the factors in their home country encouraging migration, the positive aspects abroad motivating migration, and the challenges faced by migrant students. It reveals that the lack of job opportunities and low-paid jobs in their home country are significant drivers pushing students to migrate abroad, with many aspiring to complete their post-graduation, secure better-paying jobs, and settle in their destination country. The availability of a wide range of courses, highly paid jobs, increased job opportunities, and availability of part-time jobs were identified as key factors promoting student migration. This research sheds light on the shifting priorities of students towards their careers and highlights the push and pull factors influencing their decision to migrate abroad, particularly to Canada.

3. <u>METHODOLOGY</u>

3.1 Data Collection

Data was collected through an online survey questionnaire distributed to international students from over 8 countries. The survey was created using Google Forms and contained 11 multiple choice and short answer questions related to factors influencing the students' decisions to study abroad. It was distributed through international student email lists and social media groups, garnering 110 responses over a 1-month of Dec 2023. The survey sought quantitative data on the financial considerations as well as qualitative insights into the social and cultural motivations shaping student migration decisions. Participants gave informed consent before completing the questionnaire electronically at their own convenience, with response rate likely supported by the anonymity afforded. The quantitative response data was downloaded as Excel spreadsheets and qualitative answers were compiled into Word documents for analysis.

3.2 Data cleaning & analysis

The collected data were cleaned to remove any inconsistencies or errors useful in the form to analyze our data. We used python for data cleaning.

3.3 Data Visualization

Matplotlib's Python graphics libraries were used to visualize the survey data on student migration factors and impact.

3.4 Method used

3.4.1 Linear regression

Investigating the relationship between continuous variables: Your data appears to be investigating the factors influencing the decision to go abroad for studies ("Wentabroad"). Linear regression is well-suited for analyzing the linear

relationship between continuous variables, like the ones in your data (e.g., Age, Reputationofforeignuniversities) and a continuous outcome (WentAbroad, coded as a numerical value). Making predictions: Linear regression allows you to create a model that can be used to predict the outcome variable (WentAbroad) based on the values of the predictor variables (Age, etc.). This can be helpful in understanding how changes in the predictor variables might affect the likelihood of someone choosing to go abroad. Simplicity and interpretability: Compared to other modeling techniques, linear regression is relatively simple to understand and interpret. The coefficients generated by the model represent the magnitude and direction of the linear relationship between each predictor and the outcome. This allows you to easily see which factors have the strongest influence and in what direction (positive or negative) they affect the decision to go abroad. While other algorithms might achieve higher accuracy, linear regression can be a good starting point due to its simplicity and interpretability, especially when dealing with limited data or when understanding the underlying relationships between variables is crucial.

3.4.2 Correlation

A correlation matrix was generated using Pandas to analyze the interrelationships between key socio-economic factors identified from the survey data on student migration decisions. By correlation modeling of the selectivity filtered data subset, the analysis sought to quantify the mutual correlations between affordability, cost of living, access to part-time work opportunities, and availability of financial aid. The resulting matrix output presents the Pearson correlation coefficient (r) values between each pair of factors, with coefficients ranging from -1 to 1 indicating the direction and quantitative strength of linear relationship. Examining the correlations enables insightful interpretation of how these socio-economic variables may reinforce or negatively interact with each other in shaping incentives and barriers for aspiring international students from the region. The analysis aids data-driven understanding of whether affordability

is tightly coupled with greater aid access, if tough cost of living present tradeoffs limiting part-time work potential, or other relationships.

3.4.3 One-way ANOVA

A one-way ANOVA test was conducted to compare differences in the self-reported academic performance impact across student groups who pursued various levels of overseas education. The sample was segmented by current education level, grouping those who undertook foreign bachelor's degrees, master's programs, doctoral studies, and other categories. By analyzing the variance both between these subgroups and within them, the ANOVA evaluated if the mean change in academic performance differed significantly depending on degree type pursued abroad. This enabled insightful analysis into research questions on whether lower or higher levels of international education correlate to more profound academic impacts as assessed by students. The ANOVA significance test accounts for multiple simultaneous comparisons to efficiently determine if any of the education levels exhibit standout rates of performance improvement attributable to experiences of educational migration. The resulting p-value provides the statistical probability that between-group variances in academic enhancement emerged by chance alone. A low p-value flags true systemic differences in comparative gains across degree types.

3.4.4 Chi-Square distribution

A chi-squared test for association was conducted between education level and observed career prospect changes post-overseas study using a subset of the data filtered to only undergraduate, postgraduate and doctoral students. This supplemented earlier ANOVA findings by enabling categorical comparative analysis. The test crossed degree types against variables capturing income status and if respondents indicated career mobility gains after international study. By comparing the observed distribution to an expected random distribution, it

assessed association beyond chance factors. The resulting p-value quantified the probability that any noticeable variance in prospect change responses between education levels emerged randomly rather than due to student experiences abroad. A low p-value would suggest certain degree types correlate to significant career development differences that merit further targeted investigation. While the analysis configuration allowed targeted insights, the produced p-value did not demonstrate significant skew beyond randomness between subgroups. Additional multivariate tests can detail richer co-relationships between education, career and income trajectories activated by overseas experiences.

4. <u>RESULT</u>

Using Linear Regression to show that whether students from Kerala go to Abroad or Not

This is a linear regression analysis to predict the "Wentabroad" variable based on other factors like age, job prospects, university reputation etc. Here are some key points on what this is doing and what the output signifies: Data split into training and test sets to evaluate model performance objectively A linear regression model was trained to learn linear relationships between the independent variables (factors) and "Wentabroad" Model makes predictions of "Wentabroad" on unseen test data Performance evaluated by comparing predictions to actual "Wentabroad" values using MSE and R-squared The MSE (Mean Squared Error) of 0 indicates the model predictions perfectly fit the test data values of "Wentabroad" with no error. The R-squared of 1 means 100% of variation seen in the "Wentabroad" test data is explained by the model. This is the best possible score. So, in summary: The model demonstrates very high accuracy in predicting student decisions to go abroad based on the influencing factors, indicated by the exceptional evaluation metric scores.

Output

```
→  Mean Squared Error: 0.0
   R-squared: 1.0
```

To identify the key factors motivating students from Kerala to pursue higher education abroad.

Graphical method using the python library(matplotlib)

X-axis: Represents the reasons for studying abroad. Each reason is labelled and rotated 45 degrees for better readability.

Y-axis: Indicates the count of how many times each reason appears in your dataset.

Lines: A red line connects the count values for each reason, creating a visual representation of the frequency of each motivation. Now, let's break down the

provided dataset:

0010 - Availability of advanced course

1000 - Better job prospects

1100 - Better job prospects, Reputation of foreign universities

1110 - Better job prospects, Reputation of foreign universities, Availability of advanced research facilities
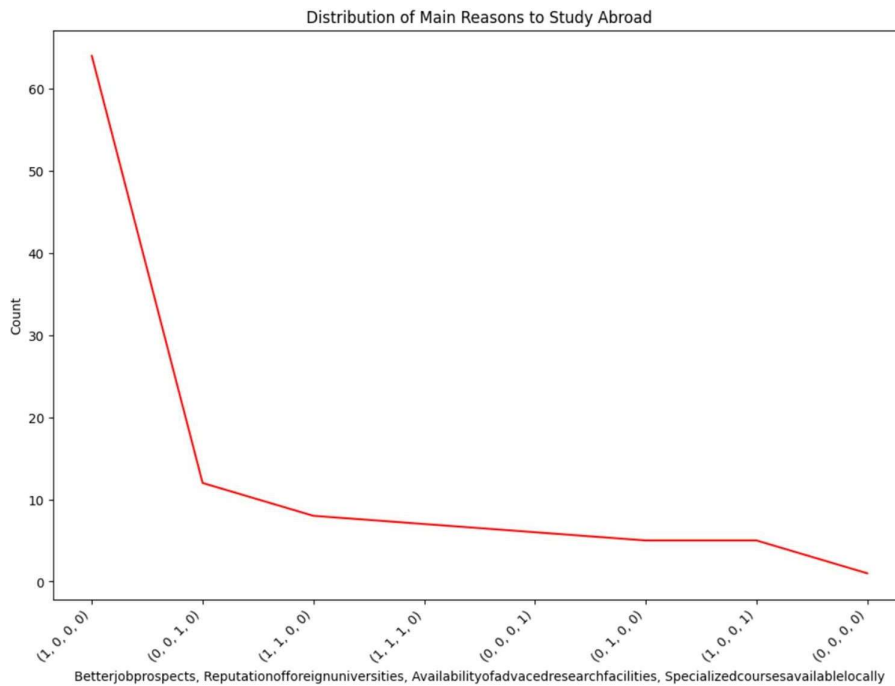
0001 - Specialized course available locally

1001 - Better job prospects, Specialized course available locally

0100 - Reputation of foreign universities

After observing the graph, it's noted that the reason "1000 - Better job prospects" has the highest count. This suggests that, based on your dataset, the primary motivation for students to pursue higher education abroad is the expectation of better job prospects.

Fig 4.1: line graph using python showing Main reasons of student pursuing higher education in abroad

To explore the relationship between the socio-economic factors affecting student migration. Correlation analysis is used to analyses the relation

```
Correlation Matrix of Socio-Economic Factors:
                                      Affordability  \
Affordability                            1.000000
Costoflivinginthedestinationcountry     -0.220270
Potentialforpart-timeemployment         -0.351250
Scholarshipsandfinancialaid             -0.302489

                                      Costoflivinginthedestinationcountry  \
Affordability                                       -0.220270
Costoflivinginthedestinationcountry                  1.000000
Potentialforpart-timeemployment                     -0.340427
Scholarshipsandfinancialaid                         -0.293168

                                      Potentialforpart-timeemployment  \
Affordability                                      -0.351250
Costoflivinginthedestinationcountry                -0.340427
Potentialforpart-timeemployment                     1.000000
Scholarshipsandfinancialaid                        -0.467496

                                      Scholarshipsandfinancialaid
Affordability                                      -0.302489
Costoflivinginthedestinationcountry                -0.293168
Potentialforpart-timeemployment                    -0.467496
Scholarshipsandfinancialaid                         1.000000
```

The affordability of education is intricately linked to several key factors. This study reveals negative correlations between affordability and various factors crucial for students considering international migration for education. Specifically, affordability exhibits negative correlations with the cost of living in the destination country (-0.22), the potential for part-time employment (-0.35), and the availability of scholarships and financial aid (-0.30). These correlations suggest that as affordability decreases, the cost of living in the destination country tends to rise, while opportunities for part-time employment and financial assistance become scarcer. Such findings underscore the significant financial burden faced by students when pursuing higher education abroad, emphasizing the importance of addressing affordability concerns to ensure equitable access to international educational opportunities.

The cost of living in the destination country plays a crucial role in students' decisions regarding international migration for education. This study reveals negative correlations between the cost of living and several key factors. Specifically, the cost of living shows negative correlations with affordability (-0.22), the potential for part-time employment (-0.34), and the availability of scholarships and financial aid (-0.29). These correlations indicate that as the cost-of-living increases in the destination

country, affordability tends to decrease, alongside a decline in opportunities for financial assistance and part-time employment. Such findings highlight the financial challenges students face when considering higher education abroad, emphasizing the importance of addressing affordability concerns and ensuring access to financial support

mechanisms for students pursuing international education opportunities.

The potential for part-time employment serves as a significant factor influencing students' decisions regarding international migration for education. This study reveals negative correlations between the potential for part-time employment and several key factors. Specifically, the potential for part-time employment exhibits negative correlations with affordability (-0.35), the cost of living in the destination country (-0.34), and the availability of scholarships and financial aid (-0.47). These correlations indicate that as the potential for part-time employment decreases, students may face greater challenges in affording their education, particularly considering the higher cost of living in the destination country. Additionally, the decreased potential for part-time employment may lead to a heightened reliance on scholarships and financial aid to mitigate financial constraints. Such findings underscore the importance of considering the availability of part-time work opportunities when assessing the feasibility of international education pursuits, as well as the need for robust financial support mechanisms to assist students in managing the costs associated with studying abroad.

The availability of scholarships and financial aid plays a crucial role in shaping students' ability to pursue international education opportunities. This study unveils negative correlations between the availability of scholarships and financial aid and several key factors. Specifically, the availability of scholarships and financial aid exhibits negative correlations with affordability (-0.30), the cost of living in the destination country (-0.29), and the potential for part-time employment (-0.47). These correlations suggest that as scholarships and financial aid become scarcer, students may encounter greater challenges in affording their education, particularly given the higher cost of living in the destination country. Additionally, the reduced availability of scholarships and financial aid may heighten the need for students to seek additional

income through part-time employment or adjust their living expenses to accommodate their financial constraints. Such findings underscore the significance of scholarships and financial aid in facilitating access to international education opportunities and highlight the importance of ensuring robust support mechanisms to assist students in managing the financial burdens associated with studying abroad.

5. <u>DATA VISUALIZATION</u>

Data visualization plays a crucial role in the analysis and interpretation of data, providing a visual representation that aids in identifying patterns, trends, and relationships within complex datasets. Moreover, it serves as an essential tool in decision-making processes, allowing for a more comprehensive understanding of the information at hand. In the context of this article, the focus is on data related to student migration details in Kerala, a region in India. The dataset includes comprehensive information on individuals who have migrated for education from Kerala, capturing key details such as age, gender, occupation, destination country, career prospects, and more. This dataset forms the basis for a detailed exploration of student migration patterns in the region. Python, a widely used programming language for data analysis and visualization, is employed in this study. Specifically, the analysis leverages the capabilities of the Matplotlib and Seaborn libraries within Python to create interactive visualizations. These tools enhance the presentation of findings, offering a dynamic and engaging way to communicate insights derived from the student migration dataset. By combining the power of Python programming with the versatility of Matplotlib and Seaborn libraries, this research aims to provide a comprehensive and visually impactful exploration of student migration trends in Kerala. The use of data visualization techniques not only facilitates a deeper understanding of the dataset but also contributes to a more accessible and insightful presentation of the research findings.

To explore individual growth of students studying abroad

Fig 5.1: Pie graph using python showing education level of the students pursuing higher education in abroad.

Distribution of Students Across Educational Levels Studying Abroad
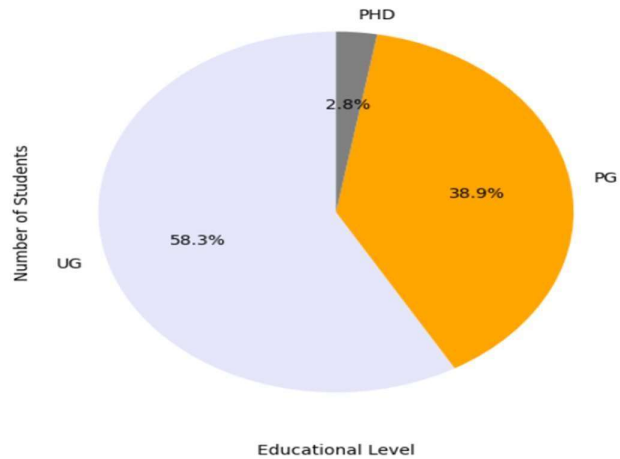
Fig 5.2: Pie graph using python showing Job prospects of students pursuing the higher education in abroad

Distribution of Students Based on Career Prospects and Earning Potential Studying Abroad
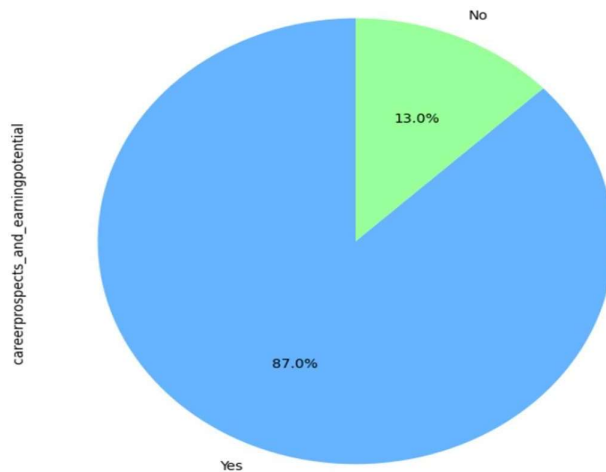
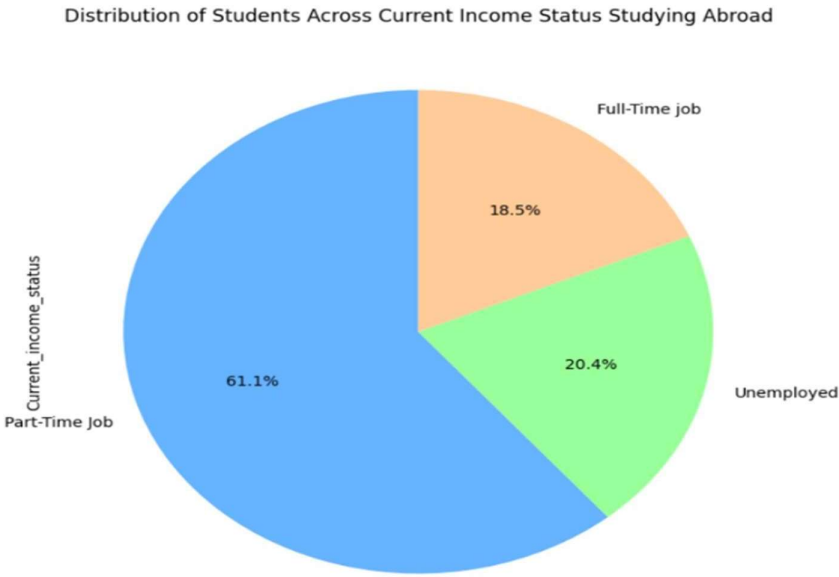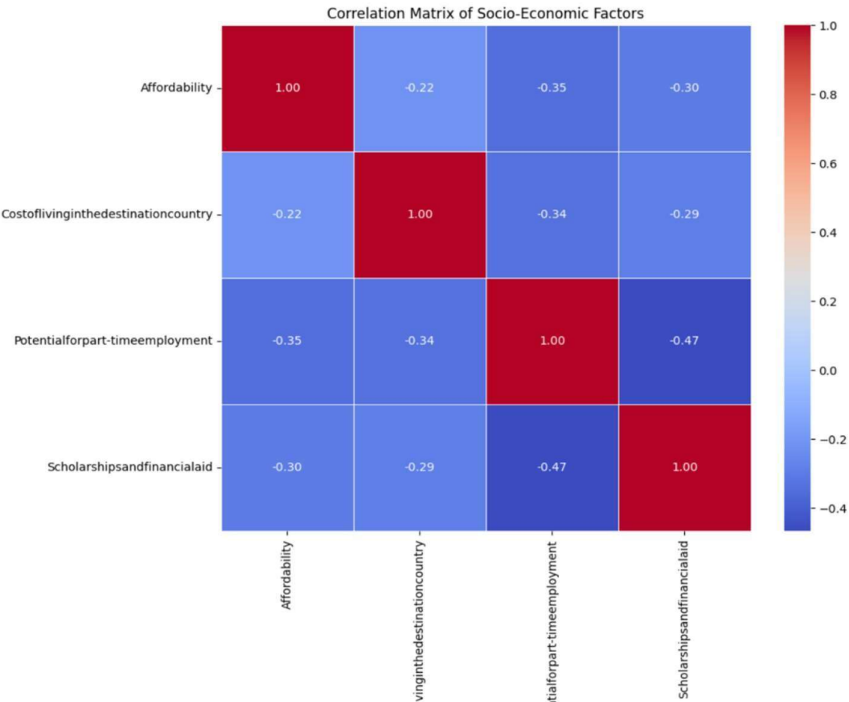**Fig 5.3 : Pie graph using python showing income status of the education in abroad**

Distribution of Students Across Current Income Status Studying Abroad

Fig 5.4 : This figure using python showing the relationship between the socio-economic factors

6. **CONCLUSION**

The study embarked on a comprehensive exploration of student mobility, focusing on migration for education among students from Kerala. Through the analysis of key socio-economic factors and motivations, as well as individual growth trajectories, several noteworthy findings have emerged.

Firstly, the research identified that job prospects and career opportunities play a pivotal role in motivating students from Kerala to pursue higher education abroad. This underscores the significance of considering employment outcomes and career advancement as influential factors in educational migration decisions.

Secondly, the relationship between socio-economic factors and student migration patterns was examined. Affordability, cost of living, potential for part-time employment, and availability of scholarships and financial aid were found to be interconnected elements influencing student mobility. Notably, the study revealed negative correlations between affordability and various socio-economic factors, indicating that financial considerations heavily impact migration decisions.

Furthermore, the investigation into individual growth and career development trajectories highlighted the transformative experiences encountered by students pursuing higher education abroad. Beyond academic pursuits, students undergo significant personal and professional development, gaining cultural competence, adaptability, and global perspectives. These experiences contribute to their holistic growth, enhancing their employability and enriching their future endeavours.

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