



UNIVERSITY OF RUHUNA, SRI LANKA

**ANALYSIS ON THE EMPLOYABILITY OF
GRADUATES
(2013)**

Group no: 4

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Table of Content

List of Tables	5
List of Figures	6
Introduction	7
Background	7
About data	8
Objective 1	9
Objective 2	16
Objective 3	22
Discussion	27
References	28

List Of Tables

Table 1.1: Frequency distribution of Degree Type

Table 1.2: Frequency Distribution of Class

Table 1.3: Frequency distribution of Final Employment Status

Table 1.4: Two-way relative frequency table of Degree Type and Class

Table 1.5: Two-way relative frequency table of Degree Type and Final
Employment

Table1.6: Conditional relative frequency distribution of Final Employment Status
given the Degree Type

Table1.7: Two-way relative frequency distribution of Class and Final Employment

Table1.8: Conditional relative frequency distribution of Final Employment Status
given the Class

Table 1.9: Frequency distribution of Extra-Curricular Activities

Table 2.1: Frequency distribution of Vocational Training

Table 2.2: Frequency distribution of Other Education

Table 2.3: Frequency distribution of Final Employment Status

Table 2.4: Conditional relative frequency distribution of Final Employment Status
given the Extra-Curricular Activities

Table2.5: Conditional relative frequency distribution table of Final Employment
Status given the Vocational Training

Table 2.6: Conditional relative frequency distribution table of Final Employment
Status given the Other Education

Table 2.7: Descriptive Statistics of Jobs Applied and Jobs Called

List Of Figures

Figure 1.1: Bar chart of Degree Type

Figure 1.2: Bar chart of Class

Figure 1.3: Bar chart of Final Employment Status

Figure 1.4: Clustered bar chart of Degree Type and Class

Figure 1.5: Clustered bar chart of Degree Type and Final Employment Status

Figure 1.6: Clustered bar chart of Class and Final Employment Status

Figure 1.7: Bar chart of Extra-Curricular Activities

Figure 1.8: Bar chart of Vocational Training

Figure 1.9: Bar chart of Other Education

Figure 2.1: Bar chart of Final Employment Status

Figure 2.2: Clustered bar chart of Extra-Curricular Activities and Final
Employment Status

Figure 2.3: Clustered bar chart of Vocational Training and Final Employment
Status

Figure 2.4: Clustered bar chart of Other Education and Final Employment Status

Figure 2.5: Histogram of Jobs Applied

Figure 2.6: Histogram of Jobs Called

Figure 2.7: Scatter plot with linear regression line of Jobs Called vs. Jobs Applied

Figure 2.8: Coefficients of the regression equation

Introduction

Background

A key indicator of a nation's development is its level of education. It is also a significant factor in determining a country's wealth and prosperity. Preparing students to pursue a variety of occupations in a nation is one of the fundamental goals of education, especially higher education. The foundation of higher education is university education. In order to provide a community's higher intellectual needs in terms of both academic knowledge and professional training, universities are meant to be social institutions.

Graduates' employability is described as their "ability to get and maintain satisfactory employment." It is commonly known that employability is not the same as getting a graduate job; rather, it refers to a graduate's ability to work at a position and feel pleased with their degree of contribution to a given subject. Graduates' employability is influenced by a number of variables in addition to their degree titles.

This study has been conducted to better understand and acquire insight into the employability factor of the graduates from the University of Colombo's Science faculty. The census was conducted to gather information on a variety of factors that will impact these graduates' employment.

The analysis has been carried out with the intention of achieving several objectives such as,

- Identify the relationship between academic performance and the employment of graduates.
- Examine the other factors apart from academic performance affecting the employment of graduates.
- Identify the relationship between the applied number of jobs by the graduates and the number of offers they received.

The findings of this study can be related to other work in the field as well because it,

- helps graduates in gaining a deeper understanding of corporate issues.
- By providing the essential information, the corporate sector may better shape graduate students to meet the demands of the modern professional work environment.
- informs college students about numerous factors that affect employability so they will be ready when they enter the workforce.

About Data

The main data set is a secondary data set which has been obtained from a survey conducted by the Department of Statistics, Faculty of Science of the University of Colombo for the year 2013.

The following variables have been used for the analysis.

1. Categorical Variables

- a. Degree Type: Type of the degree obtained by a graduate
[General (3 years) /General (4 years) /Special(honors)]
- b. Class: Class of the degree obtained by a graduate
(First Class /Second Upper /Second Lower/ General Pass)
- c. Final Employment Status: Whether a graduate is employed,
unemployed or under-employed.
- d. Extra-Curricular Activities: Whether a graduate has
participated in the extra-curricular
activities within the university or
not.
- e. Vocational Training: Whether a graduate has obtained
vocational training or not.
- f. Other Education: Whether a graduate has obtained
other educational qualifications apart from the
university degree or not.

2. Discrete Numerical Variables:

- a. Jobs Applied: Applied number of jobs by a graduate
- b. Jobs Called: Number of job offers received by a graduate

Objective 1

Identify the Relationship Between Academic Performance and the Employment of Graduates.

Method:

- Following three categorical variables have been used for the analysis.
 - Degree Type
 - Class
 - Final Employment Status
- Univariate analysis of each variable has been performed using the bar chart and frequency distribution table.
- Bivariate analysis between every two pairs of variables has been performed using clustered bar chart and two-way relative frequency distribution.

Analysis:

1. Univariate Analysis

I. Degree Type

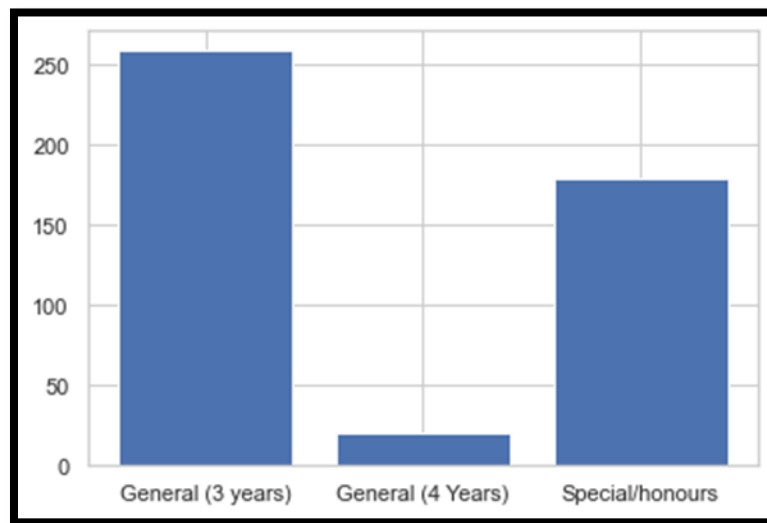


Figure (1.1)

Degree Type	Frequency	Relative Frequency %
General (3 years)	259	56.42701525
General (4 Years)	21	4.575163399
Special/honors	179	38.99782135

Table (1.1)

II. Class

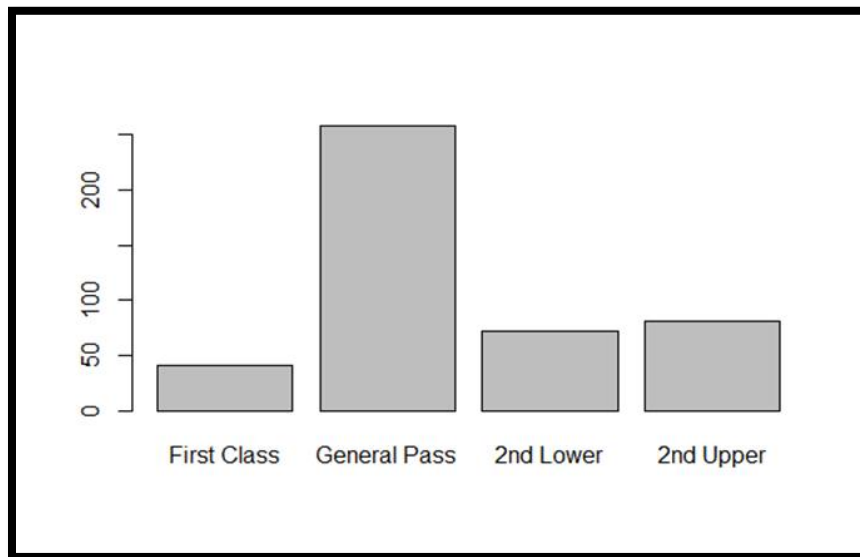


Figure (1.2)

Class	Frequency	Relative Frequency %
First Class	41	8.932461874
General Pass	258	56.20915033
Not mentioned	7	1.525054466
Second Lower	72	15.68627451
Second Upper	81	17.64705882

Table (1.2)

III. Final Employment Status

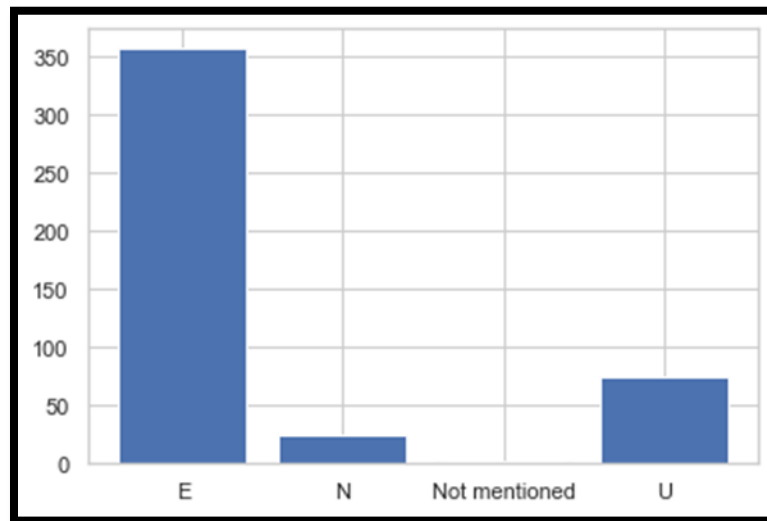


Figure (1.3)

E: Employed

N: Not Employed

U: Under-Employed

Final Employment Status	frequency	relative frequency %
E	357	77.77777778
N	24	5.22875817
Not mentioned	3	0.653594771
U	75	16.33986928

Table (1.3)

2. Bivariate Analysis

I. Degree Type and Class

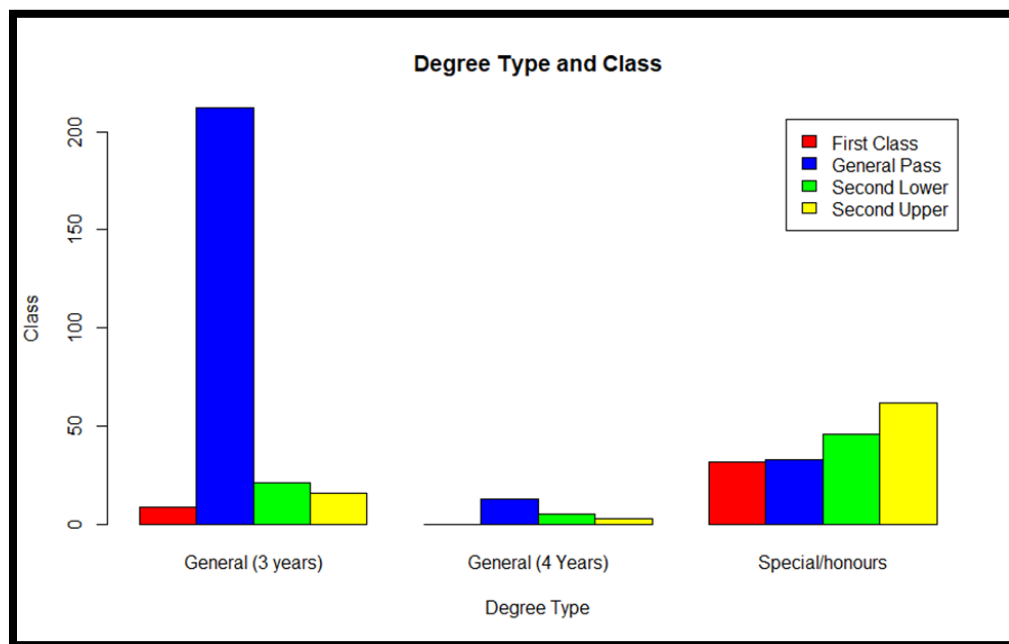


Figure (1.4)

Class	DegreeType		
	General (3 years)	General (4 Years)	special/honours
First class	0.019911504	0.000000000	0.070796460
General Pass	0.469026549	0.028761062	0.073008850
Second Lower	0.046460177	0.011061947	0.101769912
Second Upper	0.035398230	0.006637168	0.137168142

Table (1.4)

II. Degree Type and Final Employment Status

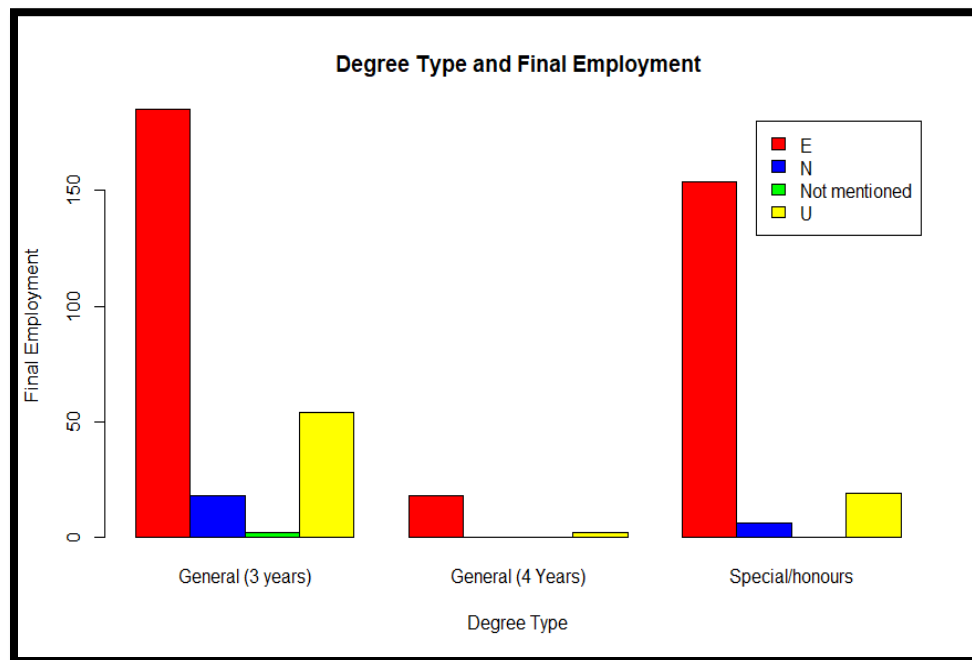


Figure (1.5)

Final Employment Status

E: Employed

N: Not Employed

U: Under-Employed

Final.Emp	DegreeType		
	General (3 years)	General (4 Years)	Special/honours
E	0.403930131	0.039301310	0.336244541
N	0.039301310	0.000000000	0.013100437
Not mentioned	0.004366812	0.000000000	0.000000000
U	0.117903930	0.004366812	0.041484716

Table (1.5)

Final.Emp	DegreeType		
	General (3 years)	General (4 Years)	Special/honours
E	0.714285714	0.900000000	0.860335196
N	0.069498069	0.000000000	0.033519553
Not mentioned	0.007722008	0.000000000	0.000000000
U	0.208494208	0.100000000	0.106145251

Table (1.6)

III. Class and Final Employment Status

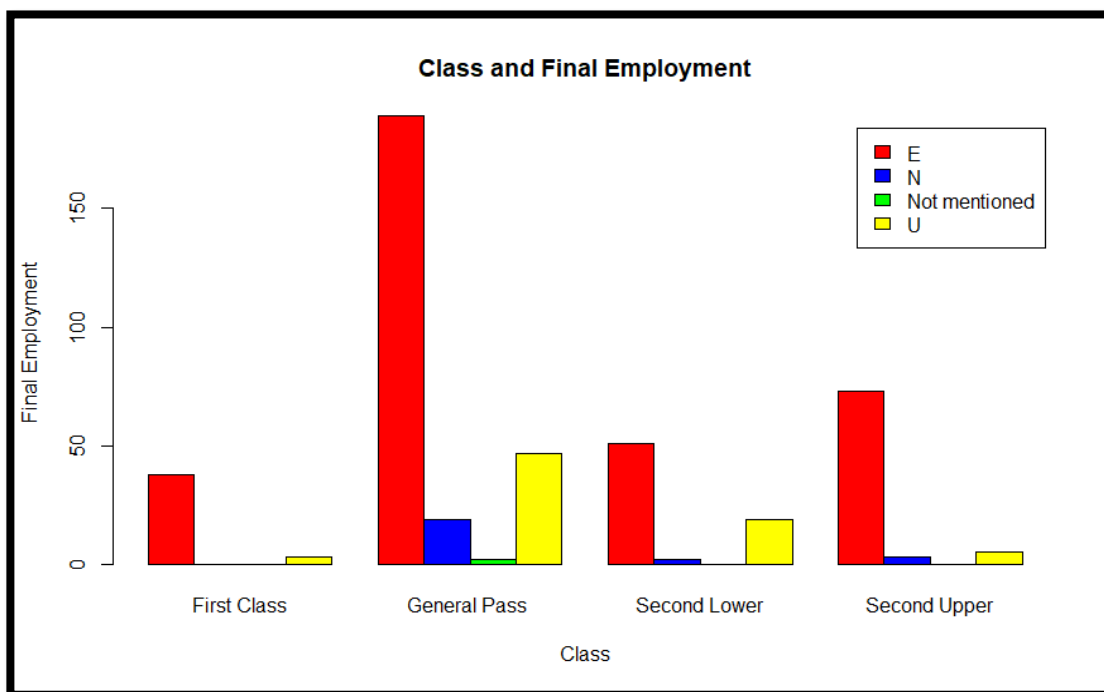


Figure (1.6)

Final Employment Status

E: Employed

N: Not Employed

U: Under-Employed

Final.Emp	Class			
	First Class	General Pass	Second Lower	Second upper
E	0.084257206	0.419068736	0.113082040	0.161862528
N	0.000000000	0.042128603	0.004434590	0.006651885
Not mentioned	0.000000000	0.004434590	0.000000000	0.000000000
U	0.006651885	0.104212860	0.042128603	0.011086475

Table (1.7)

Final.Emp	Class			
	First Class	General Pass	Second Lower	Second upper
E	0.926829268	0.735408560	0.708333333	0.901234568
N	0.000000000	0.073929961	0.027777778	0.037037037
Not mentioned	0.000000000	0.007782101	0.000000000	0.000000000
U	0.073170732	0.182879377	0.263888889	0.061728395

Table (1.8)

Conclusions:

1. Most common degree type is the General (3 years) degree. The least common degree is the General (4 years) degree. The most common class is the General Pass. The least common class is the First Class. About 77.78 % of the graduates are employed.
2. Based on the degree type, General (4 years) graduates have the best final employment status. 90% of them are employed and 10% of them are under-employed. No one of them is unemployed. General (3 years) graduates have the highest unemployment rate about 7%. They have the highest under-employed rate of about 20.85% too.
3. Based on the class, First Class graduates have the best final employment status. Around 92.68% of them are employed and around 7.32% of them are under-employed. None of them is unemployed. General Pass graduates have the highest unemployment rate of about 7.39%. Second Lower graduates have the highest under-employment rate of about 26.39%.

Objective 2

Examine the other factors apart from academic performance affecting the employment of graduates.

Method:

- Following 4 categorical variables have been used for the analysis.
 - Extra-Curricular Activities
 - Vocational Training
 - Other Education
 - Final Employment Status
- Univariate analysis of each variable has been performed using the bar chart and frequency distribution table.
- Bivariate analysis between each of the other variables and the Final Employment status has been performed using clustered bar chart and two-way relative frequency distribution.

Analysis:

1. Univariate Analysis

I. Extra-Curricular Activities

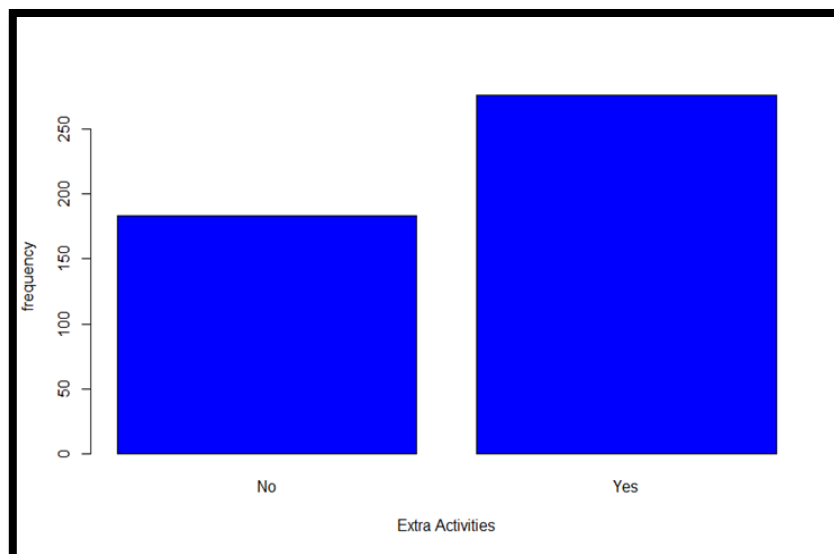


Figure (1.7)

Extra activities	frequency	relative frequency %
No	183	39.86928105
Yes	276	60.13071895

Table (1.9)

II. Vocational Training

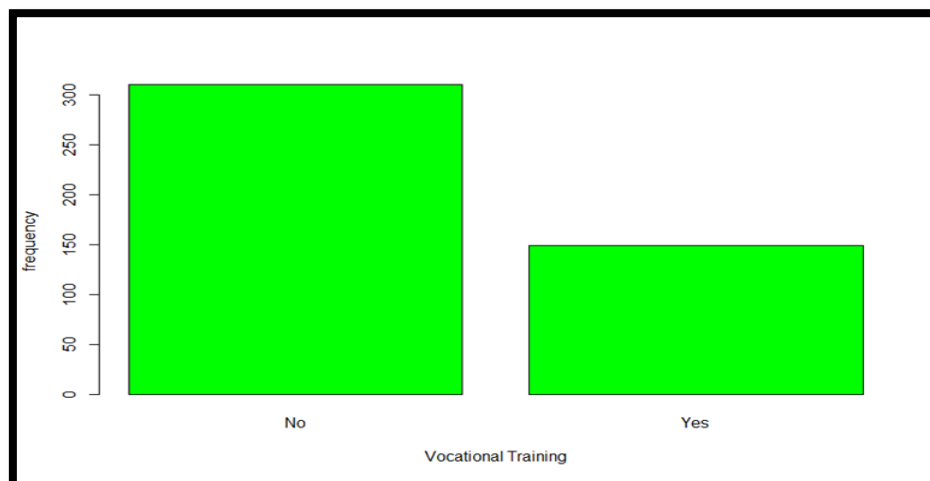


Figure (1.8)

Vocational training	frequency	relative frequency %
No	310	67.53812636
Yes	149	32.46187364

Table (2.1)

III. Other Education

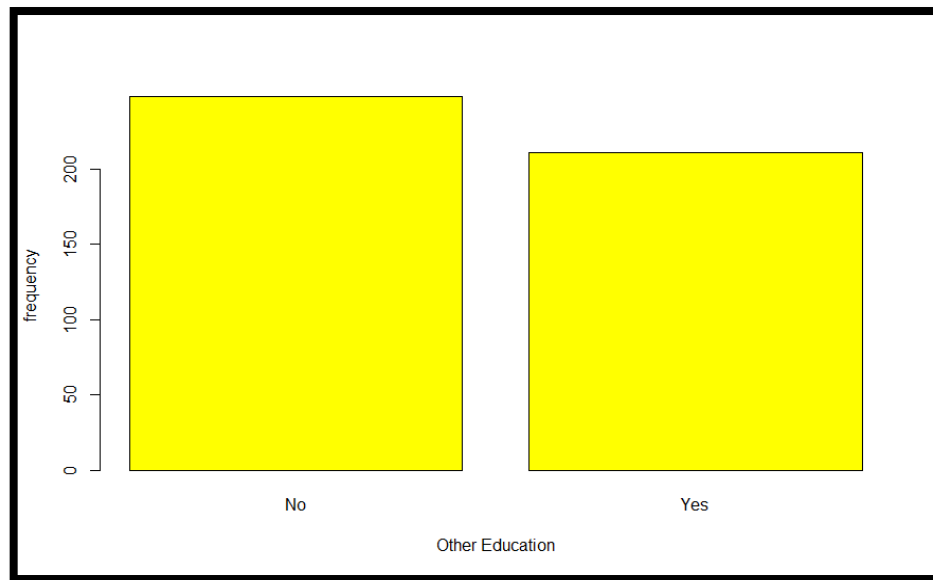


Figure (1.9)

Other Education	frequency	relative frequency %
No	248	54.03050109
Yes	211	45.96949891

Table (2.2)

IV. Final Employment Status

Final Employment Status	frequency	relative frequency %
E	357	77.77777778
N	24	5.22875817
Not mentioned	3	0.653594771
U	75	16.33986928

Table (2.3)

E: Employed

N: Not Employed

U: Unemployed

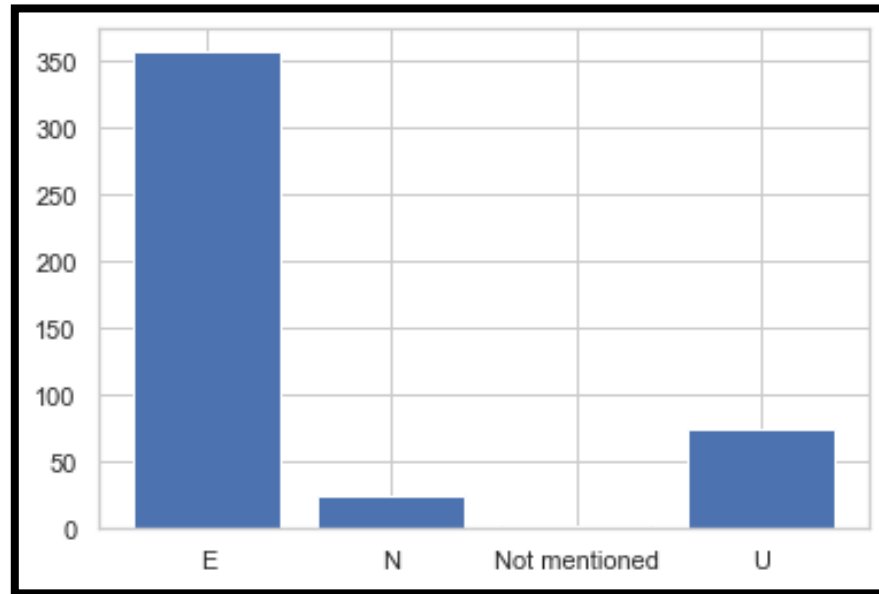


Figure (2.1)

2. Bivariate Analysis

I. Extra-Curricular Activities and Final Employment Status

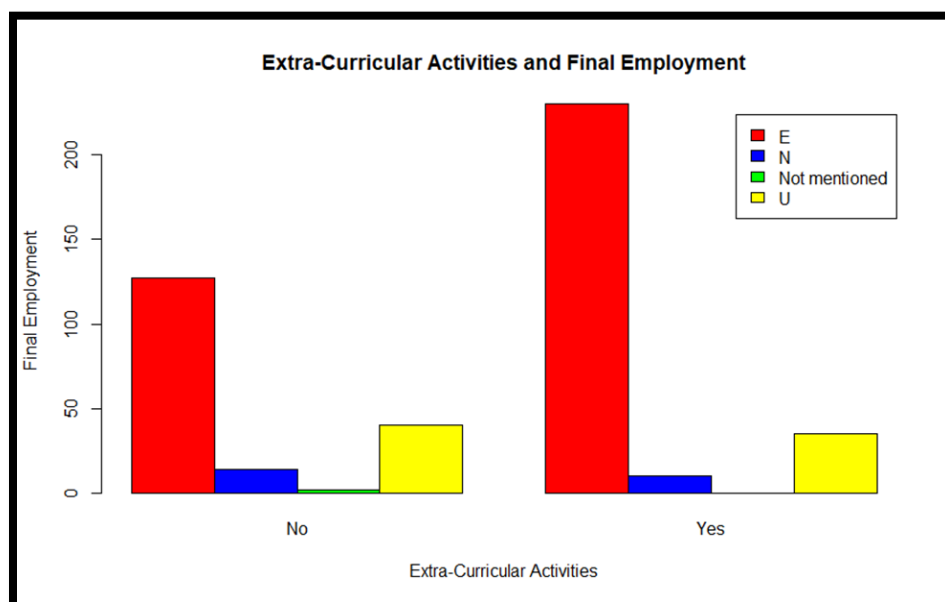


Figure (2.2)

Final.Emp	Extra	
	No	Yes
E	0.69398907	0.83636364
N	0.07650273	0.03636364
Not mentioned	0.01092896	0.00000000
U	0.21857923	0.12727273

Table (2.4)

II. Vocational Training and Final Employment Status

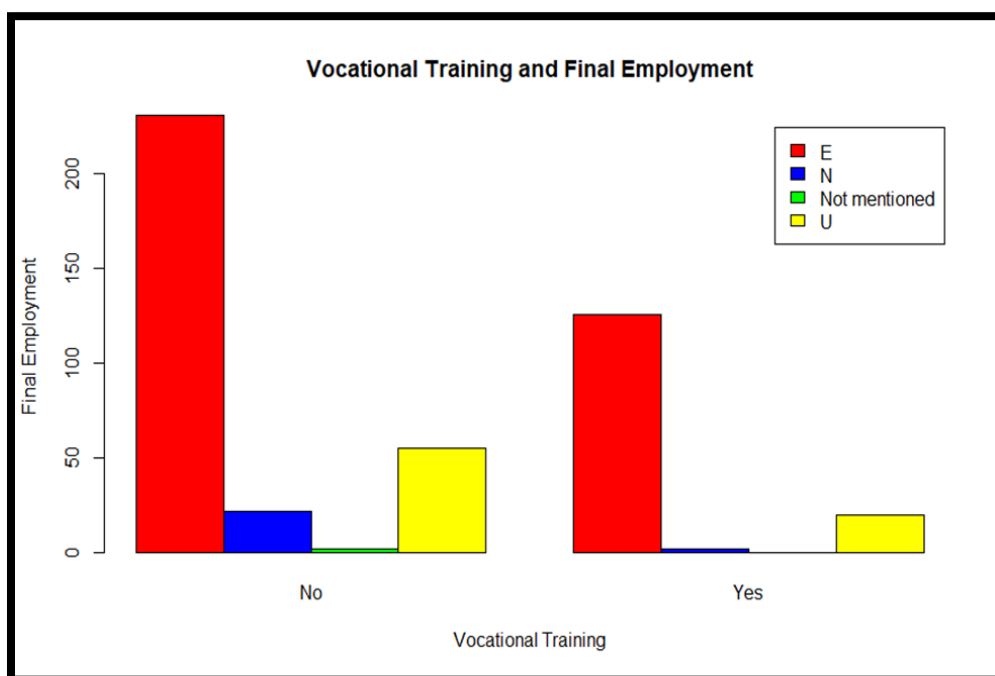


Figure (2.3)

Final.Emp	vocational	
	No	Yes
E	0.745161290	0.851351351
N	0.070967742	0.013513514
Not mentioned	0.006451613	0.000000000
U	0.177419355	0.135135135

Table (2.5)

III. Other Education and Final Employment Status

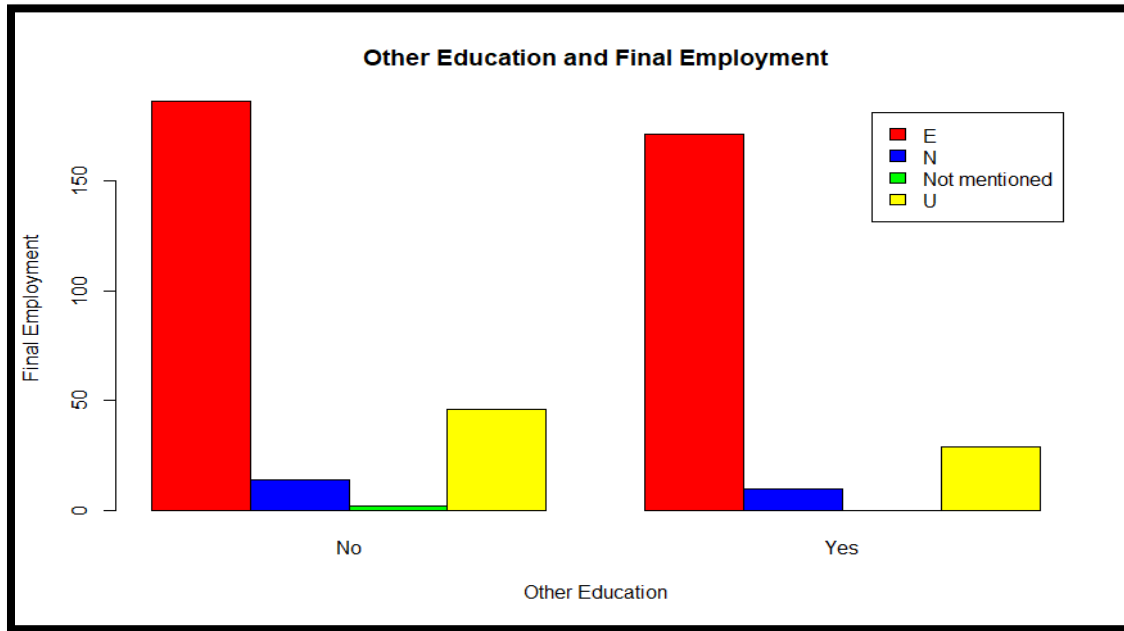


Figure (2.4)

Final.Emp	Other Education	
	No	Yes
E	0.750000000	0.814285714
N	0.056451613	0.047619048
Not mentioned	0.008064516	0.000000000
U	0.185483871	0.138095238

Table (2.6)

Conclusions:

1. Majority of the graduates have participated in extra-curricular activities. (About 60.13%). Only a minority of graduates have obtained vocational training. (About 32.46%). About 45.97% of graduates have received other education. About 77.78% of graduates are employed.
2. Graduates who have participated in extra-curricular activities have a higher employment rate (About 83.63%) compared to those who have not.
3. Graduates who have obtained vocational training have a higher employment rate (About 85.14%) than those who have not.
4. Graduates who have received other education have a higher employment rate (About 81.43%) than those who have not.

Objective 3

Identify the relationship between the applied number of jobs by the graduates and the number of offers they received.

Method:

- Following two discrete numerical variables have been used for the analysis.
 - Jobs Applied: Applied number of jobs by a graduate
 - Jobs Called: Number of job offers received by a graduate
- The distributions of the two variables have been described with the use of histograms and descriptive statistics.
- Pearson correlation coefficient has been used to check whether there is a considerable linear relationship between the two variables.
- The linear relationship between the two variables has been obtained using the linear regression model by taking the Jobs Applied as the independent variable and the Jobs Called as the dependent variable.

Analysis:

1. Distributions

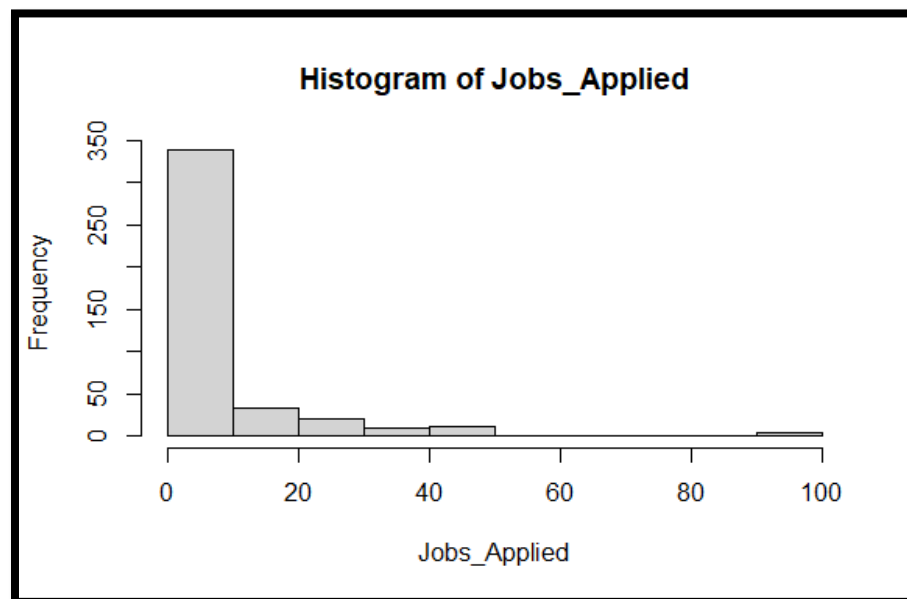


Figure (2.5)

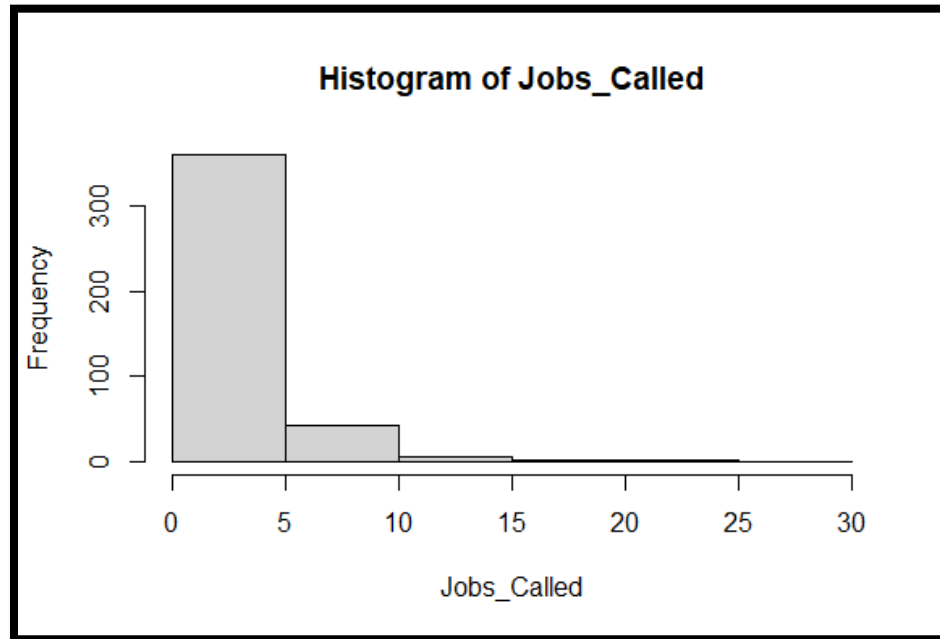


Figure (2.6)

	Jobs_Applied	Jobs_Called
count	416.000000	416.000000
mean	7.906250	2.615385
std	14.007859	3.719198
min	0.000000	0.000000
25%	0.000000	0.000000
50%	3.000000	2.000000
75%	10.000000	4.000000
max	100.000000	30.000000

Table (2.7)

Mode of Jobs Applied = Mode of Jobs Called = 0

About 33% of the Jobs Applied = 0

About 37% of the Jobs Called = 0

2. Pearson Correlation Coefficient = 0.6416544

3. Linear Regression

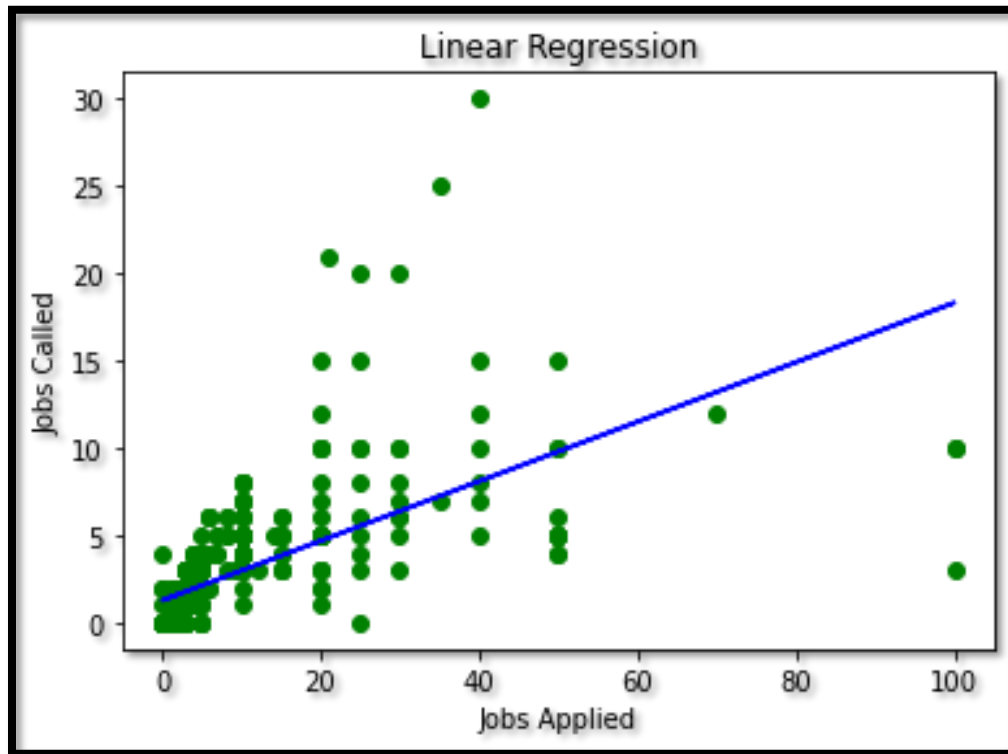


Figure (2.7)

```
Call:
lm(formula = Jobs_Called ~ Jobs_Applied, data = data3)

Coefficients:
(Intercept)  Jobs_Applied
    1.2684      0.1704
```

Figure (2.8)

Multiple R – squared: 0.4117

Conclusions:

1. Pearson correlation coefficient = 0.6416544 is between 0.5 and 0.8.

Therefore, there is a moderate positive linear relationship between the two variables.

- Generally, when the applied number of jobs by a particular graduate increases, then the received number of offers by that graduate also increases and vice versa.

2. The linear regression line between the two variables is,
$$\text{Jobs Called} = 0.1704 (\text{Jobs Applied}) + 1.2684$$

The coefficient of determination = 0.4117

Therefore, about 41% of the variation in Jobs Called is explained by the Jobs

Applied. The rest 59% is due to the error and the other non-correlated independent variables which have been not included in the model.

3. (i) Distribution of Jobs Applied

- Center
 $\text{Mean} = 7.906250 > \text{Median} = 3.000 > \text{Mode} = 0$
- Shape
Not symmetrical: Positively skewed
Unimodal
- Spread
 $\text{Range} = 100$
 $\text{IQR} = 10$
- Outliers exist.

- (ii) Distribution of Jobs Called

- Center
 $\text{Mean} = 2.615385 > \text{Median} = 2 > \text{Mode} = 0$
- Shape
Not symmetrical: Positively skewed
Unimodal
- Spread
 $\text{Range} = 30$
 $\text{IQR} = 4$

- Only a few graduates have applied to more than 10 jobs. (Only 25%)
- Only a few graduates have received offers from more than 4 jobs. (Only 25%)
- The number of jobs applied by a graduate varies more than the number of jobs received by a graduate.

- Since the distributions are positively skewed, the median is used to describe the central tendency. Therefore, the average number of jobs applied by a graduate is 3 and the average number of jobs received by a graduate is 2.
- About 33% of graduates have not applied for a job. About 37% of the graduates have not received a job

Discussion

Good academic performance has improved the employability of a graduate. Apart from academic performance, participating in extra-curricular activities, vocational training and receiving other education have improved employability. On average a graduate has applied for 3 jobs and a graduate has called for 2 jobs. Generally, when the number of jobs applied increases, the number of jobs called also increases. A considerable number of graduates are not ready to enter the job market immediately after the graduation.

References

Group project (CMB 2013).csv: Department of Statistics, Faculty of Science,
University of Colombo.

<https://drive.google.com/file/d/1oQsP2nt923m3uEfemvRkfxNyQgyG7uMU/view>