

Assignment 3 - gg

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Executive Summary

This report evaluates whether a U.S. student, fully supported by their parents, can afford to study the Master of Computer Science program at Monash University. With an annual budget of **USD 42,355.90**, we analyze tuition, rent, living expenses, visa, and insurance costs for the year 2025. The total estimated cost is **USD 55,262**, significantly exceeding the budget. Therefore, studying at Monash would impose financial pressure unless additional support such as scholarships or shared housing is available.

Introduction

Studying abroad is a significant life decision that also requires thorough financial planning. This report explores whether a U.S. student with a fixed annual budget of **USD 42,355.90** can afford to study the Master of Computer Science at Monash University. We assume no scholarships, savings, or part-time income. Using global datasets on tuition and living costs, we isolate Monash-specific data. Tuition is estimated at **USD 21,400**, while living costs are based on the Cost of Attendance data from NYU and Numbeo's index for Melbourne. Rent is estimated at **USD 1,700** per month, significantly affecting affordability. Combined with visa and insurance, the total estimated cost reaches **USD 55,262**. The budget shortfall suggests financial infeasibility under current conditions. The aim is to offer financial insights for prospective students planning to study at Monash.

Data Import and Validation

This analysis is based on The Cost of International Education dataset which was imported via `read_csv(here("data/International_Education_Costs.csv"))`.

```
-- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
v dplyr      1.1.4      v readr      2.1.5
v forcats    1.0.0      v stringr    1.5.1
v ggplot2    3.5.2      v tibble     3.2.1
v lubridate  1.9.4      v tidyr      1.3.1
```

```

v purrr      1.0.4
-- Conflicts ----- tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become
here() starts at /Users/linian/assignment-3-reproducible-reporting-gg

Rows: 907 Columns: 12
-- Column specification -----
Delimiter: ","
chr (5): Country, City, University, Program, Level
dbl (7): Duration_Years, Tuition_USD, Living_Cost_Index, Rent_USD, Visa_Fee_...

i Use `spec()` to retrieve the full column specification for this data.
i Specify the column types or set `show_col_types = FALSE` to quiet this message.

```

This dataset provides USD-standardized values for tuition, rent, living-cost index, visa fees, and insurance across universities, in 2025 globally. We filtered for the Master of Computer Science program at every university, verified that key cost fields were numeric, and removed any rows with missing values in those columns.

Cost Component Calculation

Each institution's Total yearly Cost was calculated by summing four components:

1. Annual Tuition = $\text{Tuition_USD} \div \text{Duration_Years}$ **2. Annual Rent** = $\text{Rent_USD} \times 12$ **3. Other Living Cost** = $\$15,000 \times (\text{Living_Cost_Index} \div 100)$ **4. One-off Fees** = $(\text{Visa_Fee_USD} + \text{Insurance_USD}) \div \text{Duration_Years}$

Income Projection, Budget and Affordability Ratio

We sourced the 2023 U.S. median household income of \$80,160) and projected it to 2025 using a 2.8% compound growth rate: $\text{Average Household Income in 2025} = \$80,160 * (1 + 0.028)^2$

Assuming that each student will have half of median household income as their budget to make a comparison: $\text{Budget} = \text{Average Household Income in 2025} * 0.5$

Affordability ratio was defined by: $\text{affordability ratio} = \text{student budget} / \text{cost per year ratio} > 1$ will indicate that student budget can cover the annual cost.

Analytical Environment

All calculation and visualization were executed in R using tidyverse package (which includes readr, dplyr, tidyr, ggplot2, tibble, purrr, et c.) and Quarto for reporting.

- Figure 1 represent each university's affordability ratio

- Table 1 represent lists the top five most and least affordable programs.

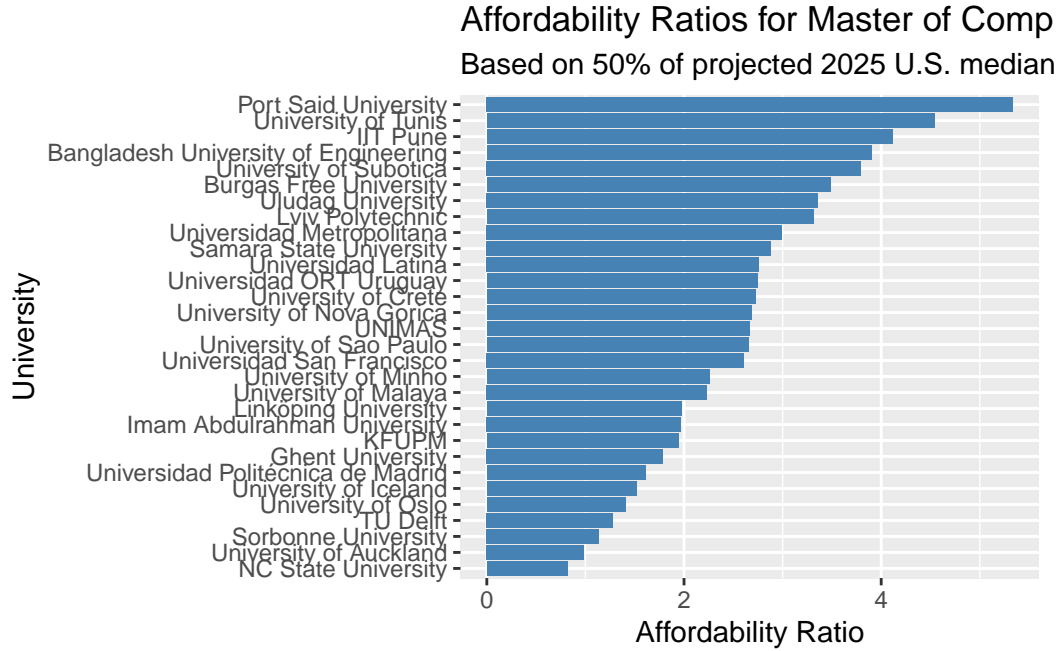


Figure 1

Table 1: Table 1: Top 5 Most and Least Affordable MCS Programs for U.S. Students in 2025

Category	University	AffordabilityRatio
Most Affordable	Port Said University	5.3375538
Most Affordable	University of Tunis	4.5409040
Most Affordable	IIT Pune	4.1133442
Most Affordable	Bangladesh University of Engineering	3.8987349
Most Affordable	University of Subotica	3.7962281
Least Affordable	University College London	0.5700820
Least Affordable	King's College London	0.5726496
Least Affordable	Harvard University	0.6237633
Least Affordable	MIT	0.6247698
Least Affordable	UCLA	0.6450656

Result

The following figure compares the estimated affordability ratio of applying a Master of Computer Science across selected universities

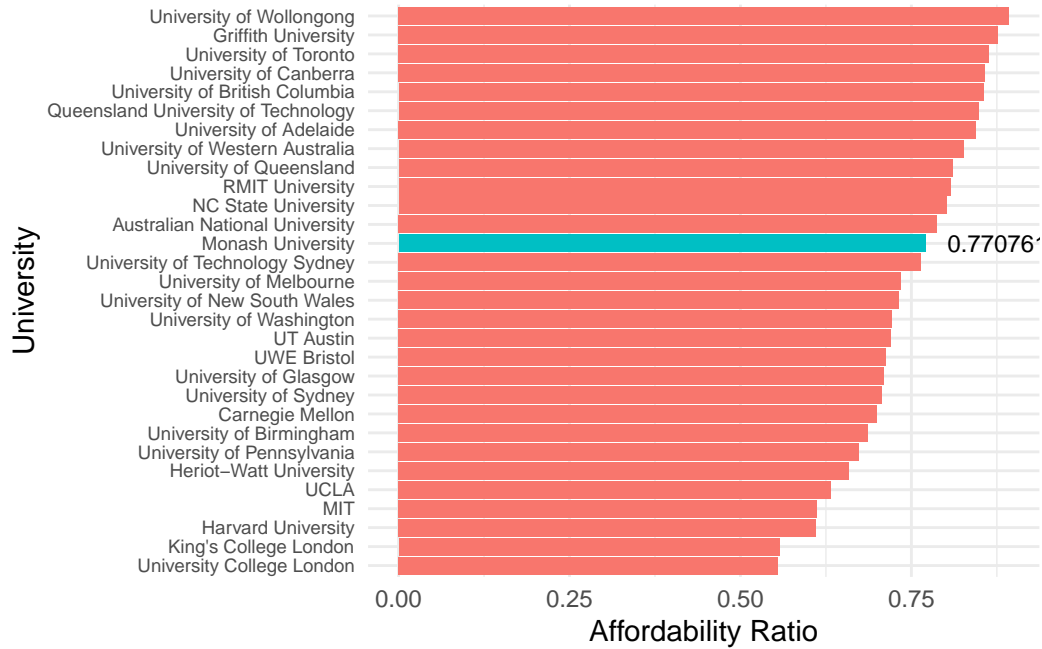


Figure 2: Bottom 30 Estimated Affordability Ratio of Master of Computer Science

Figure 2 shows the bottom 30 universities with the lowest affordability ratio for applying a master degree of Computer Science in 2025. Monash University ranks in the **bottom range**, with a ratio is **0.771** for one academic year. Although its tuition fee is moderate, relatively high rent and living expenses in Melbourne contribute to the overall cost. These results highlight the role of rent and living expenses form the full financial burden of international education.

Conclusion

This report evaluated the total cost of a USA student with a budget of **USD 42,355.90** studying a Master of Computer Science at Monash University. By analyzing tuition fees, rent, living expenses, visa, and insurance costs for year 2025 across global universities which have master of computer science.

Our analysis shows that Monash University's tuition fee of a year is **USD 21,400** which is relatively moderate when compared to U.S. and U.K. universities. Based on the cost of living index in Melbourne (72.8) and the [Cost of Attendance](#) which released by New York University (NYU), the estimated monthly living cost is **USD 1,076** and the annual living cost will be estimated as **USD 12,912**. This is relatively moderate compared to U.S. and U.K. universities. However, monthly rent of USD 1,700 significantly increases the total cost and decreases the affordability ratio which reaching an estimated **USD 20,400** for single living per year. Combined with **visa (USD 225/year)** and **insurance fees (USD 325/year)**,

the total cost is **USD 55,262** and the affordability ratio is **0.771**, which is **well above** the budget.

Therefore, under current assumptions, applying this degree at Monash would **likely impose a financial burden** unless supplementary funding options such as scholarships, shared housing, or part-time employment are secured.

We recommend that international students conduct a detailed cost breakdown when planning to study abroad, considering not only tuition fee but also living and setup costs. University like Monash remain attractive due to their academic reputation and moderate tuition fee, but total affordability depends on each student's financial context.