

# Assignment 3 - gg

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## Executive Summary

This report investigates whether a U.S. student applying to the Master of Computer Science program at Monash University can afford the associated costs. The student's parents are willing to provide full financial support, with an annual budget of USD 43,593.9. By calculating and comparing tuition, rent, visa, and insurance expenses over two years, we estimate the total cost at approximately USD 84,700. The results indicate that while the budget is sufficient, the choice may still impose noticeable financial pressure on the family.

## Introduction

Pursuing a graduate degree abroad is a major life decision that often comes with substantial financial considerations. This report focuses on a student from the United States who plans to apply for the Master of Computer Science program at Monash University. The student's tuition and living costs will be fully supported by their parents. The family has set a fixed annual budget of USD 43,593.9 for the two-year program. No scholarships, personal savings, or part-time work are assumed in this analysis. The key question is whether this budget allows the student to afford Monash without putting excessive financial pressure on the family. We analyze multiple cost components including tuition, accommodation, visa fees, and insurance. Data is sourced from a standardized international education cost dataset in USD. Monash University, located in Melbourne, is known for its strong computer science program but also

relatively high costs. This report aims to assess affordability under the current assumptions and explore whether the choice is financially sustainable for the student's family.

## Methodology

### Data Source and Preparation

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

The dataset provides program duration, tuition, rent, living-cost index, visa fees and insurance, all standardized to U.S. dollars (mainly from 2023). We filtered for Master of Computer Science programs and confirmed all key cost variables were numeric with no missing values. Duplicates in university names were resolved by averaging affordability ratios.

### Cost Projection and Component Calculation

To estimate 2025 costs:

- Tuition and rent were projected using a 4.75% annual inflation rate (IMF forecast).
- The Other Living Cost baseline (\$17,736) was taken from NYU's 2024–25 Cost of Attendance for a master's student (excluding housing and health insurance), and not projected further. This value was multiplied by each university's living cost index (as a percentage of NYU's baseline).
- **Formulas:**
  - Annual Tuition (2025):  $\text{Tuition\_USD (2023)} / \text{Duration\_Years} \times 1.0475$
  - Annual Rent (2025):  $\text{Rent\_USD (2023)} \times 12 \times 1.0475$
  - Other Living Cost (2025):  $\$17,736 \times (\text{Living\_Cost\_Index} / 100)$
- Visa and insurance fees were excluded from the main analysis as they were minor and variable.

### Income Projection, Budget and Affordability Ratio

The 2023 U.S. median household income (\$80,160), obtained from U.S. Census Bureau data, was projected to 2025 at a 2.8% compound annual growth rate. We assumed 50% of projected income could be allocated to education:

- Student Budget (2025):  $\text{Projected Income} \times 0.5$
- Affordability Ratio:  $\text{Student Budget} / \text{Total Yearly Cost}$   
(Ratio > 1 indicates affordability for a median U.S. household.)

## Analytical Environment

All analyses were performed in R (tidyverse, readr, ggplot2, knitr) using a Quarto-driven workflow, with Git for version control and report rendering via LaTeX.

- Figure 1 shows each university's affordability ratio.
- Table 1 summarizes the five most and least affordable Master of Computer Science programs.

Table 1: Top 5 Most and Least Affordable Master of Computer Science Programs (2025 Budget)

Category	University	AffordabilityRatio	Rank
Most Affordable	Port Said University	4.9253757	1
Most Affordable	University of Tunis	4.1443163	2
Most Affordable	IIT Pune	3.8154140	3
Most Affordable	Bangladesh University of Engineering	3.5525299	4
Most Affordable	University of Subotica	3.4942831	5
Least Affordable	UCLA	0.6169212	107
Least Affordable	MIT	0.5970874	108
Least Affordable	Harvard University	0.5958882	109
Least Affordable	King's College London	0.5454385	110
Least Affordable	University College London	0.5428724	111

## Result

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

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 **0.751** 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** plan to apply a master degree of Computer Science at Monash University in 2025. By analyzing tuition fees, rent, living expenses, visa, and insurance costs for year 2025 (adjust by inflation rate) across global universities which have master program of computer science.

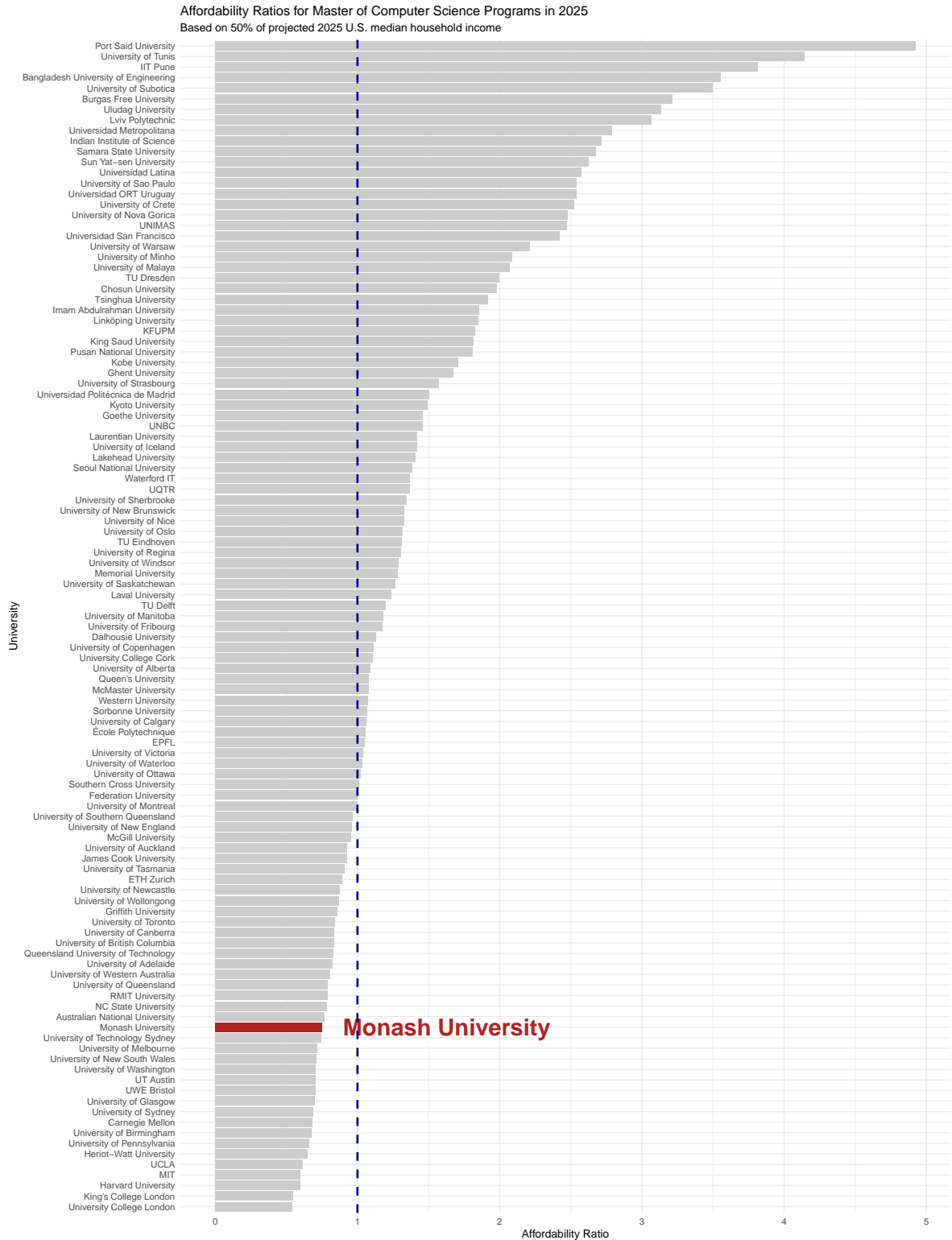


Figure 1: Affordability Ratios for Master of Computer Science Programs by University in 2025

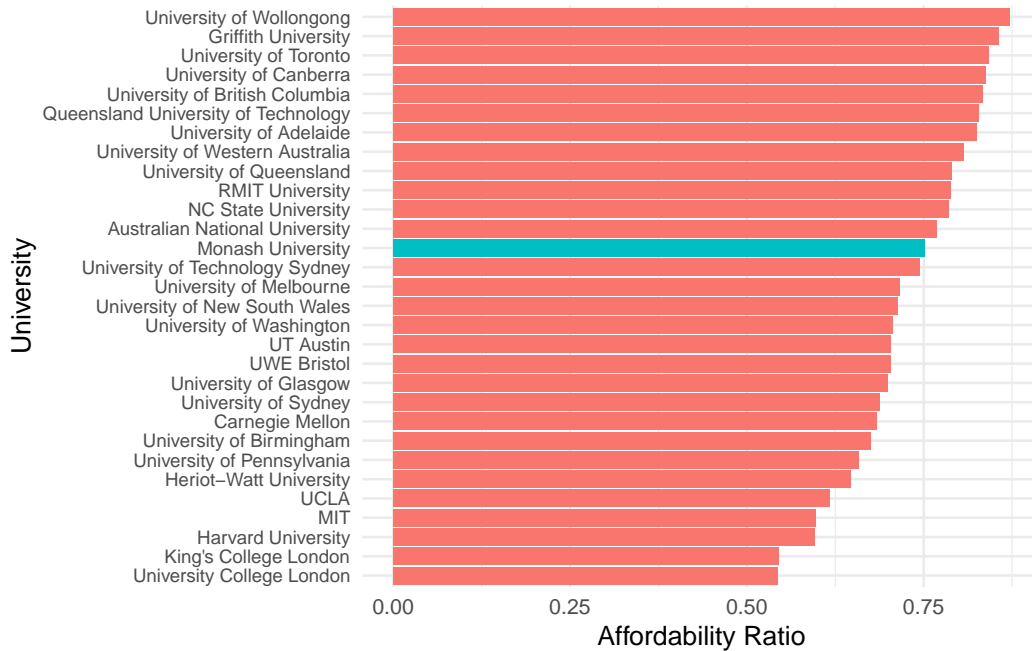


Figure 2: Bottom 30 Estimated Affordability Ratio of Master of Computer Science

Our analysis shows that Monash University's tuition fee of a year is **USD 22,416.5** 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 also relatively moderate compared to U.S. and U.K. universities, though it still acts as a major part of total expense. However, monthly rent of USD 1,780.75 significantly increases the total cost and decreases the affordability ratio which reaching an estimated **USD 21,369** for single living per year. The total cost is **USD 56,697.5** which has a gap **USD 14,341.6** between budget, and the affordability ratio is **0.751**, which is **well above**.

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.