



Use of Chi-Square test and Binary logistic regression to identify factors influencing having saving of 4th year students, Faculty of Science at Chiang Mai University, academic year 2024



Author : Nattakitta Chainun
Department of Statistics, Faculty of Science, Chiang Mai University

Advisor: Asst. prof. Dr. Kamonrat Suphawan
Co-advisor: Dr. Wisunee Puggard

Abstract

This study aimed to study the factors that influence having saving among 4th-year undergraduate students in the Faculty of Science at Chiang Mai University during the 2024 academic year. The factors considered were gender, major, type of residence, highest level of parental education, average monthly income from parents, having income from other sources, average monthly income from other sources, average monthly expenses, and experiencing financial difficulties. Data was collected through questionnaires from a sample group of 189. The data were analyzed using descriptive statistics, Chi-square test of independence, and binary logistic regression analysis with dependent variables having two outcomes (having saving, not saving).

The descriptive statistics showed that 61.90% of the students had savings, with most savings in the form of bank deposits, 39.32% of the students had total accumulated savings of less than 5,000 baht. The Chi-square test revealed no significant relationship between any of the qualitative variables and having saving at a significant level of 0.05. Binary logistic regression analysis revealed that the highest level of parental education, average monthly income from parents, having income from other sources, average monthly income from other sources, and experiencing financial difficulties, are factors that influence having saving of student with the classification accuracy of 66.67%

Introduction

At present, the cost of living is continuously increasing and Thailand has fully entered the aging society in 2022 [1], affecting the quality of life of all groups of Thais. Saving money is a challenge for the new generation who have to bear the burden of debt, whether from education or higher living expenses while their income is still limited. Not having enough savings may cause problems in life in the future, such as not being able to buy a house as planned or having to face difficulties in raising children, etc.

Fourth-year undergraduate students are transitioning into the workforce, a phase where financial responsibilities inevitably increase. With limited family financial support, developing a disciplined approach to saving is essential to prepare for future expenses, such as the cost of a job search, starting a working life, and other financial goals. Although many people may find saving money difficult. Starting small, such as saving change or deducting a fixed percentage of salary, can yield satisfactory results. Consistency, discipline, and clear financial goals are key to building long-term financial security. This study aimed to study the factors that influence having saving among 4th year undergraduate students in the Faculty of Science at Chiang Mai University during the 2024 academic year.

Data

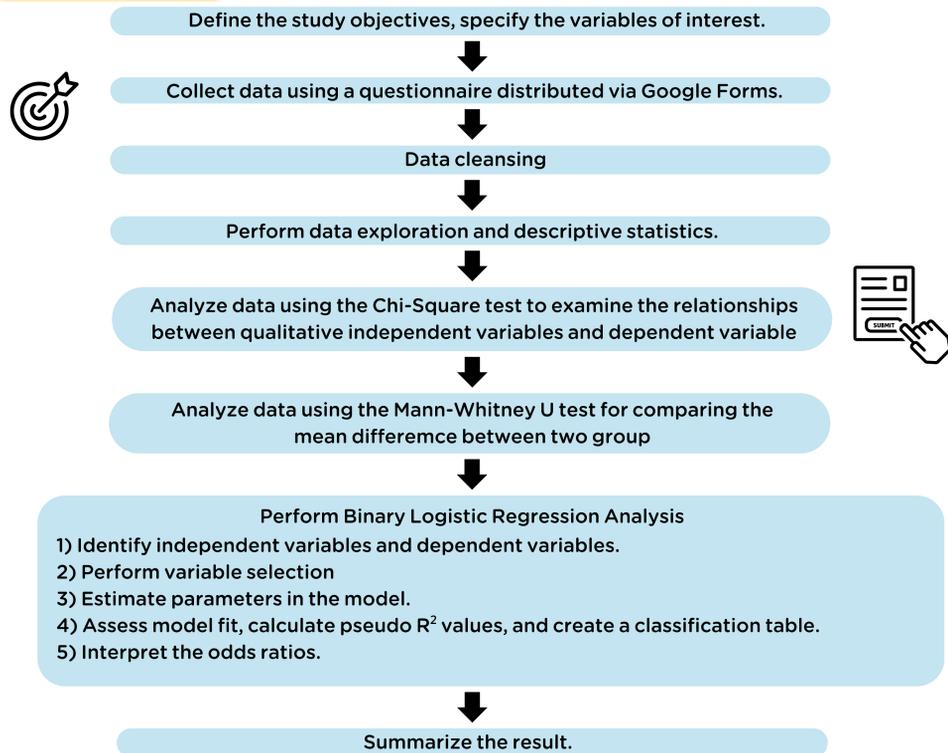
Population : 526 students of 4th year undergraduate students, Faculty of Science, Chiang Mai University, academic year 2024

Sample : 189 students of 4th year undergraduate students, Faculty of Science, Chiang Mai University, academic year 2024

Dependent variable : Saving(having saving, not saving)

Independent variables : gender, major, type of residence, highest level of parental education, average monthly income from parents, having income from other source, average monthly income from other sources, average monthly expenses and experiencing financial difficulties

Methodology



Result : Chi Square test for independence

variable	χ^2	p-value
gender	0.012	0.913
major	13.354	0.499
type of residence	8.23	0.083
highest level of parental education	5.903	0.052
having income from other sources	0.000	0.989
experiencing financial difficulties	2.667	0.102

Note: at the significance level 0.05

Result : Mann-Whitney U

variables	Mean		Test statistic	p-value
	not saving	having saving		
average monthly income from parents	10,298.61	8,402.56	-0.7482	0.4552
average monthly income from other sources	1,672.22	2,768.38	-1.1863	0.2361
average monthly expenses	8,261.11	7,914.10	-1.3856	0.1663

Note: at the significance level 0.05

Result : Binary logistic regression

variables	Coefficient	S.E.	p-value	Exp(B)
Constant	$7.685 \times 10^{(-1)}$	$4.556 \times 10^{(-1)}$	0.0917	2.1565
highest level of parental education(bachelor degree)	$7.724 \times 10^{(-1)}$	$3.372 \times 10^{(-1)}$	0.0220	2.1650
highest level of parental education(higher than bachelor degree)	$-1.688 \times 10^{(-2)}$	$5.252 \times 10^{(-1)}$	0.9744	0.9832
average monthly income from parents	$-2.077 \times 10^{(-5)}$	$1.419 \times 10^{(-5)}$	0.1433	1.0000
having income from other sources (get)	$-6.267 \times 10^{(-1)}$	$4.130 \times 10^{(-1)}$	0.1291	0.5344
average monthly income from other sources	$1.354 \times 10^{(-4)}$	$6.993 \times 10^{(-5)}$	0.0528	1.0001
experiencing financial difficulties (yes)	$-6.063 \times 10^{(-1)}$	$3.726 \times 10^{(-1)}$	0.1037	0.5454

Note: at the significance level 0.05

Classification table

Actual	Prediction		Total
	not saving	having saving	
not saving	29	43	72
having saving	20	97	117
Total	49	140	189

$$\text{Accuracy} = \frac{29 + 97}{189} \times 100 = 66.67\%$$

$$\text{True Positive Rate} = \frac{97}{117} \times 100 = 82.91\%$$

Conclusion

The Chi-square test revealed no significant relationship between any of the qualitative variables and having saving and Mann-Whitney U revealed no significant relationship between any of the quantitative variables and having saving at a significant level of 0.05. Binary logistic regression analysis revealed that the highest level of parental education, average monthly income from parents, having income from other sources, average monthly income from other sources, and experiencing financial difficulties, are factors that influence having saving of student with the classification accuracy of 66.67%

Reference

[1] Thai Health Promotion Foundation. (2022). In 2022, Thailand officially becomes an aging society: ThaiHealth collaborates with partners to promote policies for the well-being of the elderly nationwide.