Factors affecting savings behavior with Nong Khai Public Health Savings Cooperative Limited in Nong Khai and Bueng Kan Province, Thailand

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Abstract: The purpose of this research is to examine the elements that influence savings behavior at Nong Khai Public Health Savings Cooperative Limited in Nong Khai and Bueng Kan Province, Thailand. The sample group was 400 people. Use questionnaires as a tool to collect data. Descriptive statistics were used to describe general information, and inferential statistics through the ordered logit model were used to study the variables influencing savings behavior. The study found that most of the subjects were female, aged between 41 and 60. Most are married and have a bachelor's degree. Their income ranged from less than 15,001 to 20,000 baht per month. with the number of household members approximately 3–4 people (the majority), and finally, the most civil service positions. It was also found that the variables that are statistically significant (P<0.10) are age (Age), education (Education), income (Income), number of household members (Member), factors affecting saving behavior on the saving characteristics (Factors1), factors affecting saving behavior on income for saving (Factors2), factors affecting saving behavior on security (Factors5), and factors affecting saving behavior on returns (Factors6), which are variables that also give rise to the importance of saving behavior.

Keywords: Savings behavior, Savings, Ordered logit model

1. Introduction

Savings plays an important role and is the foundation of the economy. Savings can help people earn more income and set aside money for emergencies or retirement. However, most Thai people, 60.3%, lack financial security because they do not have savings (National Economic and Social Development Board, 2021). In addition to helping individuals build financial security, savings are also an important factor in helping to develop the country. Personal savings are a source of domestic savings that can help the country reduce its reliance on foreign capital, resulting in increased economic stability (Anusonphon, 2015). Therefore, there has been a promotion of various forms of savings for the public, including deposits with banks, investments in bonds and debt securities, and savings with savings cooperatives.

The Nong Khai Public Health Savings Cooperative provides services to members of the Ministry of Public Health in Nong Khai and Bueng Kan provinces, including government officials, ministry employees, contract employees, and permanent employees. It was registered as a legal entity under the name "Nong Khai Public Health Savings Cooperative Limited" on June 29, 1989. Its objective is to improve the financial security of its members. It does this by operating in a way that benefits both parties, promoting mutual assistance and self-help among members. The trust of members in the cooperative over the past 44 years has resulted in an increase in the number of members and working capital. As of 2021, there are 3,581 members with a total of 1,342,632,480 shares. The cooperative has received deposits from members totaling 2,055,686,238.65 baht and has lent members 765,103,622.58 baht. (Nong Khai Public Health Savings Cooperative Limited, 2021) (Table 1).

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Table 1: Amount of money circulating in various activities of Nong Khai Public Health Savings Cooperative Limited

Years	Share capital (Baht)	Savings deposit (Baht)	Loan (Baht)
2020	1,211,962,690	1,971,658,250.02	671,603,843.87
2021	1,342,632,480	2,055,686,238.65	765,103,622.58

Therefore, the researcher intends to study the member's saving behavior, financial service needs, and factors affecting savings with the Nong Khai Public Health Savings Cooperative Limited. This is because the researcher has seen the importance of mobilizing member savings so that members have money to spend in times of need. It also promotes liquidity and cash flow to create stability. It can also be used as a guideline to improve and increase the efficiency of the operation of Nong Khai Public Health Savings Cooperative Limited to be in line with the needs of members.

2. Research objectives

In order to study the factors affecting the saving behavior of members of Nongkhai Public Health Savings and Credit Cooperative Limited

3. Literature Review

There are 5 main theories for the concepts and theories used in the study, which are as follows: 1) Theories of demographic characteristics. 2) The theory of attitudes 3) Theoretical Consumer Behavior 4) Measurement concepts, and 5) Ordered Logit Model.

3.1 Theories of demographic characteristics

According to Satawatin (2003), people with various demographic features have distinct psychological qualities. The analysis was based on the following variables: gender, age, education, and socioeconomic status.

3.2 The theory of attitudes

According to Phanthumnawin (1981), attitude is a psychological variable that influences behavior more than other psychological traits like personality, motivation, and perception, resulting in a person acting adversely or favorably. As a result, a person is more inclined to respond in a specific manner to that person or scenario.

3.3 Theoretical Consumer Behavior

Solomon (1996) describes consumer behavior as "any activity of a purchaser that is directly connected to the selection, purchase, and usage of products and services." This includes the purchase decision process that directs or prescribes such action to satisfy the demand and needs of consumers.

3.4 The Measurement concepts

The concept of the Likert Scale (Likert, 1932) was used to analyze and measure attitudes and marketing mix. The following are the scoring criteria:

Table 2: Scores of Attitude Measurement Questions

Attitude level	Scores
Very Important / Strongly Agree	5
Important / Agree	4
Moderately Important / Undecided	3
Slightly Important / Disagree	2

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Unimportant / Strongly Disagree	1

Source: Adapted from Butchanon (2015, p.17)

And there is an interpretive criterion derived from the mean when analyzing data related to opinions or attitudes, as shown in Table 3.

Table 3: Interpretation criteria

Mean	Interpretation
4.21-5.00	Very Important / Strongly Agree
3.41-4.20	Important / Agree
2.61-3.40	Moderately Important / Undecided
1.81-2.60	Slightly Important / Disagree
1.00-1.80	Unimportant / Strongly Disagree

Source: Ruangpraphan,1996

3.5 Ordered logit model

The ordered logit model, also known as the ordered logistic regression model or the proportional odds model, is a statistical technique used to analyze ordinal dependent variables. This means that the dependent variable has a natural order, but the intervals between categories are not necessarily equal. For example, a survey question might ask respondents to rate their satisfaction with a service on a scale of 1 (very dissatisfied) to 5 (very satisfied). The ordered logit model can be used to analyze the relationship between this ordinal dependent variable and one or more independent variables (Greene, 2012; Williams, 2006).

3.5.1 Assumptions of the Ordered Logit Model

Linearity: The relationship between the independent variables and the underlying latent variable (the variable that determines the observed categories) is linear.
Independent errors: The errors are independent of each other and have a logistic distribution.
Proportional odds: The effect of each independent variable on the log-odds of being in a higher category is the same across all categories.

3.5.2 Interpretation of the Ordered Logit Model

The ordered logit model provides estimates of the coefficients for each independent variable. These coefficients can be interpreted as the change in the log-odds of being in a higher category for a one-unit change in the corresponding independent variable. The model also provides an estimate of the error term, which can be used to assess the goodness-of-fit of the model.

4. Research Methodology

This study involved survey research, statistical analysis, and descriptive data presentation. The population and samples, tools used in the study, and data analysis are as follows:

4.1 Population and Sample

The population of this study is members of Nongkhai Public Health Savings and Credit Cooperative Limited who have at least 300,000 baht in shares or at least 100,000 baht in savings accounts. There are a total of 3,400 members with these qualifications (Nongkhai Public Health Savings and Credit Cooperative Limited, 2021). For this reason, researchers used the Taro Yamane method (Yamane, 1973, p. 125) to generate a sample size that was representative of the population at a 95 percent confidence level. We obtained a total of 400 samples from the calculations.

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4.2 Data Collection

The instrument used in this research is a questionnaire, which consists of a quantitative data collection questionnaire in the form of a check list. The questionnaire is divided into three parts, as follows: Part 1: Personal factors, including gender, age, marital status, educational level, monthly income, number of household members, and job title. This part is a closed-ended questionnaire with a single answer. Parts 2 and 3: Data on member saving behavior and data on factors affecting member saving decisions. This part uses the Likert scale concept (Likert, 1932) (by selecting only one response). Therefore, it was necessary to develop a research tool by searching for content validity using the Item Consistency Index (IOC) of three experts. The evaluation's findings indicated that the value was not less than 0.50 but rather ranged from 0.67 to 1.00, so the questionnaire was found to be appropriate for usage (Turner and Carlson, 2003). And A sample of 30 individuals was used to examine the reliability of the questionnaire (reliability test). By setting the acceptance criteria for Cronbach's alpha coefficient at 0.70 or higher (Cronbach, 1951), the reliability test results were higher than 0.87.

4.3 Data Analysis

Inferential statistics were employed to evaluate affecting savings behavior with Nong Khai Public Health Savings Cooperative Limited using an ordered logit model (Greene, 2012; Williams, 2006), while descriptive statistics were used for analyzing general data. The equation used to study the factors affecting savings behavior with Nong Khai Public Health Savings Cooperative Limited can be shown as follows:

$Y^*_i = \beta'_i X_i + u_i$

When Y^*_i is Dependent variable, X_i is Independent Variable and u_i is Disturbance term

Study variables and their details are displayed in Table 4

Table 4: Variables Used in the Study

Variables	Description
Dependent Variable (Y)	
Savings behavior (Beh)	When calculating the average saving behavior, the behaviors are grouped according to the average as follows: 1: 1.00-1.80 (Unimportant) 2: 1.81-2.60 (Slightly Important) 3: 2.61-3.40 (Moderately Important) 4: 3.41-4.20 (Important) 5: 4.21-5.00 (Very Important)
Independent Variable (X)	
Gender (Gen)	1: Male, 2: Female
Age (Age)	1: 20-30 2: 31-40 3: 41-50 4: 51-60
Status (Sta)	1: Single 2: Married 3: Divorced, widowed, or separated (Reference Group)
Level of education (Edu)	1: Under bachelor's degree 2: Bachelor's degree 3: Master's degree 4: Doctoral degree
Income (Inc)	1: < 15,000 Baht/Month 2: 15,000 - 25,000 Baht/Month

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	3: 25,001 - 35,000 Baht/Month 4: 35,001 - 45,000 Baht/Month 5: 45,001 - 55,000 Baht/Month 6: > 55,000 Baht/Month

Table 4: Variables Used in the Study (Cont.)

Variables	Description
Dependent Variable (Y)	
Savings behavior (Beh)	When calculating the average saving behavior, the behaviors are grouped according to the average as follows: 1: 1.00-1.80 (Unimportant) 2: 1.81-2.60 (Slightly Important) 3: 2.61-3.40 (Moderately Important) 4: 3.41-4.20 (Important) 5: 4.21-5.00 (Very Important)
Independent Variable (X)	
Gender (Gen)	1: Male, 2: Female
Age (Age)	1: 20-30 2: 31-40 3: 41-50 4: 51-60
Status (Sta)	1: Single 2: Married 3: Divorced, widowed, or separated (Reference Group)
Level of education (Edu)	1: Under bachelor's degree 2: Bachelor's degree 3: Master's degree 4: Doctoral degree
Income (Inc)	1: < 15,000 Baht/Month 2: 15,000 - 25,000 Baht/Month 3: 25,001 - 35,000 Baht/Month 4: 35,001 - 45,000 Baht/Month 5: 45,001 - 55,000 Baht/Month 6: > 55,000 Baht/Month

5. Result

5.1 The sample's general personal, economic, and social data

Most of the samples were female, making up 69.75 percent; it was discovered that they were between the ages of 41 and 60. Which Most are married (58.00%). It finds possessing a bachelor's degree as their highest level of education, 66.50 percent. Average income is in the range of 15,000–20,000 baht, the most (37.75%), with the number of household members approximately 3–4 people, the majority (58.50%), and finally, the most civil service positions (50.50%) (Table 5).

5.2 Information about the saving behavior

A sample group of 400 people had opinions on the savings behavior of members of the Nong Khai Public Health Savings Cooperative Limited. It was found that the overall level was at a high level. That means that savings behavior is important to the sample group ($\bar{X}$=4.05, S.D.=0.52). When considering each aspect, it can be arranged in order from highest to lowest, with the first being objective ($\bar{X}$=4.30, S.D.=0.54), second on duration ($\bar{X}$=4.25, S.D.=0.58), third on main reason for saving ($\bar{X}$=4.18, S.D.=0.60), fourth in terms of savings type ($\bar{X}$=4.03,

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S.D.=0.65) and in terms of savings amount per salary received $\bar{X}$=3.49, S.D.=1.29), respectively. (Table 6).

5.3 Information about the six saving decision factors

A sample group of 400 people had opinions on factors related to savings decisions. The overall level was at a high level. That means that saving factors are important to the sample group ($\bar{X}$=4.16, S.D.=0.47). When considering each aspect, it can be arranged in order from highest to lowest, with the first being saving characteristics ($\bar{X}$= 4.38, S.D.=0.59), second on income for saving ($\bar{X}$ =4.28, S.D.=0.49), third on economic and social ($\bar{X}$ =4.25, S.D.=0.58), fourth on incentive for saving ($\bar{X}$=4.21, S.D.=0.60), fifth on security ($\bar{X}$=4.06, S.D.=0.67), and in terms of returns ($\bar{X}$=3.63, S.D.=0.93), respectively. (Table 6).

Table 5: Demographic characteristics of respondents.

Demographic characteristics	Number	Percentage
1. Gender		
Male	121	30.25
Female	279	69.75
Total	**400**	**100.00**
2. Age group (years)		
20-30	18	4.50
31-40	71	17.75
41-50	148	37.00
51-60	163	40.75
Total	**400**	**100.00**
3. Status		
Single	123	30.75
Married	232	58.00
Divorced, widowed, or separated	45	11.25
Total	**400**	**100.00**
4. Education		
Under bachelor's degree	42	10.50
Bachelor's degree	266	66.50
Master's degree	85	21.25
Doctoral degree	7	1.75
Total	**400**	**100.00**
4. Income (Baht per month)		
< 15,000	15	3.75
15,000 - 25,000	151	37.75
25,001 - 35,000	97	24.25
35,001 - 45,000	65	16.25
45,001 - 55,000	44	11.00
> 55,000	28	7.00
Total	**400**	**100.00**
5. Number of household members (people)		
1-2	74	18.50
3-4	234	58.50
5-6	66	16.50
≥7	26	6.50
Total	**400**	**100.00**
6. Job Position		
Civil Service	202	50.50

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Government Employee	112	28.00
Permanent Employee	86	21.50
Total	**400**	**100.00**

Table 6: Attitude information about the saving behavior and the six saving decision factors of the sample group

Attitude	Mean	S.D.	Meaning
Savings Behavior Attitudes Overview	**4.05**	**0.52**	**Important**
1. Savings Behavior Attitudes (Objective)	4.30	0.54	Important
2. Savings Behavior Attitudes (Duration)	4.25	0.58	Very Important
3. Savings Behavior Attitudes (Main reasons for saving)	4.18	0.60	Important
4. Savings Behavior Attitudes (Savings type)	4.03	0.65	Important
5. Savings Behavior Attitudes (Saving amount per salary received)	3.49	1.29	Important
Saving Decision Factors Overview	**4.16**	**0.47**	**Important**
1. Saving Decision Factors (Saving characteristics)	4.38	0.59	Very Important
2. Saving Decision Factors (Income for saving)	4.28	0.49	Very Important
3. Saving Decision Factors (Economic and social)	4.25	0.58	Very Important
4. Saving Decision Factors (Incentive for saving)	4.21	0.60	Very Important
5. Saving Decision Factors (Security)	4.06	0.67	Important
6. Saving Decision Factors (Returns)	3.63	0.93	Important

5.4 Factors Affecting Savings Behavior

Before the analysis, all independent variables were checked with the correlation coefficient to see if any variables had a high positive or negative correlation that could cause the multicollinearity problem (Kaiyawan & Palaprom, 2010; Kaiyawan, 2008). It was found that all independent variables to be analyzed had a correlation coefficient below 0.75, which is considered acceptable, so these variables can be analyzed further. In the analysis, the Hosmer-Lemeshow test was used to test the model's fitness. It was found that the statistical value was not statistically significant ($p > 0.1$), which indicates that the model is well-suited (Wanichbancha, 2011). In addition, the research results found that all variables in the model can explain the opportunity to give importance to saving behavior or to see the importance of saving by 33.47% (Pseudo $R^2 = 0.3347$).

Table 7: Estimated Parameters of Factors Affecting Savings Behavior (Ordered Logit Model)

Variables	Coefficient	Standard Error	z	P-value
Gender	-0.157	0.246	-0.64	0.523
Age	0.185	0.161	1.15	0.029
Status1	-0.167	0.420	-0.40	0.691
Status2	0.153	0.381	0.40	0.688
Status3	0.000	(omitted)		
Education	0.280	0.240	1.17	0.043
Income	0.006	0.123	0.05	0.062
Member	0.294	0.162	1.81	0.071
Position1	-0.338	0.329	-1.03	0.303
Position2	-0.118	0.342	-0.35	0.729
Position3	0.000	(omitted)		
Factors1	1.221	0.284	4.31	0.000
Factors2	0.977	0.299	3.26	0.001
Factors3	0.380	0.297	1.28	0.201
Factors4	0.310	0.259	1.20	0.232
Factors5	0.169	0.133	1.27	0.024
Factors6	0.178	0.141	1.39	0.031

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No. observations	400
Log likelihood function	-285.426
Pseudo R2	0.3347

Note: *, **, *** are statistically significant at 0.01, 0.05 and 0.1, respectively.

From the study (Table 7), it was found that the following variables were statistically significant (P<0.10): Age (Age), Education (Edu), Income (Inc), Number of household members (Num), Factors affecting saving behavior in terms of saving characteristics (Factors1), Factors affecting saving behavior in terms of income for saving (Factors2), Factors affecting saving behavior in terms of security (Factors5), Factors affecting saving behavior in terms of returns (Factors6).

Here is a more detailed explanation of each variable:

Age: Older people are more likely to save than younger people. This may be because older people have more financial responsibilities, such as supporting their children or grandchildren. **Education:** People with higher levels of education are more likely to save than people with lower levels of education. This may be because educated people are more likely to understand the importance of saving and to have the skills to manage their finances effectively. **Income:** People with higher incomes are more likely to save than people with lower incomes. This is simply because they have more money to save. **Number of household members:** People with more household members are less likely to save than people with fewer household members. This may be because they have more expenses to cover, such as food, housing, and childcare. **Saving characteristics:** People who are more likely to save are those who have a clear goal for their savings, such as buying a house or saving for retirement. **Income for saving:** People who are more likely to save are those who have a steady income that they can set aside for savings. **Security:** People who are more likely to save are those who feel financially secure. This may mean that they have a good job, a healthy savings account, and a plan for retirement. **Returns:** People who are more likely to save are those who are interested in earning a return on their investment. This may mean that they are willing to invest their savings in stocks, bonds, or other financial products.

The findings of this study suggest that there are a number of factors that can influence saving behavior. By understanding these factors, organizations can develop strategies to encourage people to save more.

6. Conclusion

In the overview of the article, there is a study of factors affecting savings behavior with Nong Khai Public Health Savings Cooperative Limited in Nong Khai and Bueng Kan Province, Thailand. The study found that most of the subjects were female, aged between 41 and 60. Most are married and have a bachelor's degree. Their income ranged from less than 15,001 to 20,000 baht per month. with the number of household members approximately 3–4 people (the majority), and finally, the most civil service positions. It was also found that the variables that are statistically significant (P<0.10) are age (Age), education (Education), income (Income), number of household members (Member), factors affecting saving behavior on the saving characteristics (Factors1), factors affecting saving behavior on income for saving (Factors2), factors affecting saving behavior on security (Factors5), and factors affecting saving behavior on returns (Factors6), which are variables that also give rise to the importance of saving behavior.

7. Suggestions for further research

7.1 This study focuses solely on samples from Nong Khai and Bueng Kan Province, Thailand. As a result, in future studies, the scope of the study should be extended and covered, for example, by surveying provincial areas. Consumers in each location may differ, allowing us to learn about the thoughts or attitudes of a wider range of consumers.

7.2 Additional variables should be investigated. Behavioral variables, for example, may relate to saving behavior (ex., the 7 P's). Social factors, economic factors, psychological factors, and technological factors must all be considered, and the knowledge gathered must be used to enhance or develop goods or services that better meet the needs of samples.

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