

Analysis of Household Expenditure in Nakhon Si Thammarat Province, Thailand

Nontawat Chairat¹, Chantawan Noisri¹, Orasa Nunkaw¹ and Preedaporn Kanjanasamranwong^{1*}

¹Faculty of Science and Digital Innovation, Thaksin University, 93210, Paphayom, Phatthalung, Thailand

* Corresponding author : preedaporn@tsu.ac.th

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ABSTRACT

This study analyzes household expenditure patterns in Nakhon Si Thammarat Province, Thailand, by examining data segmented by year, administrative district, and household size. The data, spanning from 2019 to 2022, is derived from the Household Socio-Economic Survey (SES) conducted by the National Statistical Office, representing secondary data. The analysis employs various statistical methods, including descriptive statistics and inferential statistics. The findings indicate that household expenditures vary across different types of expenses. Notably, expenditures in 2022 are significantly higher than in previous years and represent the peak during the study period. A general upward trend in household expenditures is observed each year. When comparing administrative districts, the study finds no significant difference in the monthly average expenditures between municipal and non-municipal areas. However, other categories of expenditures show significant differences at the 0.05 significance level, with municipal areas exhibiting higher average expenditures. Moreover, the study reveals that as the number of household members increases, so do total monthly household expenditures, average monthly consumption expenditures, and average monthly food-related expenditures. These increases are statistically significant at the 0.05 level.

Keywords: Expenditure, Household, Nakhon Si Thammarat Province, Administrative Area

1 INTRODUCTION

The National Statistical Office has conducted surveys on the economic and social conditions of households since 1957, initially every 5 years. However, due to the rapid economic growth and changes in social conditions, the frequency was increased to every 2 years starting from 1987, and annually from 2006 onward. (For income data, surveys are conducted every 2 years, specifically in even-numbered years). The objective of this survey is to collect essential data on the economic and social aspects of households, such as income, expenses, debts, household composition, housing characteristics, and state welfare/assistance received. Data is collected monthly (January - December) from sample households across all provinces in the country, including both municipal and non-municipal areas [1], [2].

Nakhon Si Thammarat is a province in southern Thailand with the largest population in the south and the second-largest land area in the south (after Surat Thani) [3]. The province's economy is predominantly agricultural, with main occupations including rubber plantation, oil palm cultivation, rice farming, crop growing, fruit orchards (mixed gardens), coconut plantations, fishing, coastal aquaculture, and livestock farming. Analyzing household expenses in Nakhon Si Thammarat is therefore of great interest, as such studies help understand household spending patterns in the area. This information can be utilized for effective local social and economic planning. Additionally, household expenditure analysis is a critical indicator for assessing the economic condition of the area and the level of economic development among its population. It also serves as a tool to help researchers and local administrators understand current and future spending trends in society. Thus, the researcher is interested in studying and analyzing household expenses in Nakhon Si Thammarat.

2 MATERIAL AND METHODS

The data used in this study is secondary data obtained from the National Statistical Office's Household Economic and Social Survey for the years 2019 to 2022. This survey employs a sample survey method using stratified two-stage sampling. The stratification is based on provinces, with 77 strata in total, further divided into sub-strata according to administrative boundaries, namely municipal and non-municipal areas. Within municipal areas, enumeration districts are used as the primary sampling unit, while individual households serve as the secondary sampling unit. For non-municipal areas, villages are used as the primary sampling unit, and individual households are the secondary sampling unit. Exceptions to this include diplomatic households, foreign representatives, and individuals residing temporarily in Thailand [4], [5].

Key definitions are as follows: Household expenditure refers to spending on “goods or services” necessary for subsistence, which households either purchase with money or acquire without payment (e.g., self-produced, received as assistance from others/state welfare from work, or provided by an employer). Household consumption and expenditure include spending on goods and services such as housing, household furnishings, miscellaneous household items, services provided by individuals to the household, clothing, education, pharmaceuticals and medical care, food, beverages, and tobacco. Food-related expenditures include all types of food (fresh, dried, ready-to-eat, seasonings, etc.), beverages (alcoholic and non-alcoholic), and tobacco (medicinal herbs, betel quid, snuff, etc.) [5], [6].

Once the data was collected, it was filtered to focus specifically on Nakhon Si Thammarat. The variables used in the study are as follows: The dependent variables are categorized into two main types of expenditure: 1) average monthly total expenses of the household and 2) average total expenses per month per person. Each category is further divided into two subcategories: 1) consumption and living expenses and 2) food, beverages, and tobacco expenses. The independent variables studied include: 1) administrative area (municipal and non-municipal), 2) year (2019–2022), and 3) number of household members (excluding domestic servants). Refer to the conceptual framework in Figure 1 for further details.

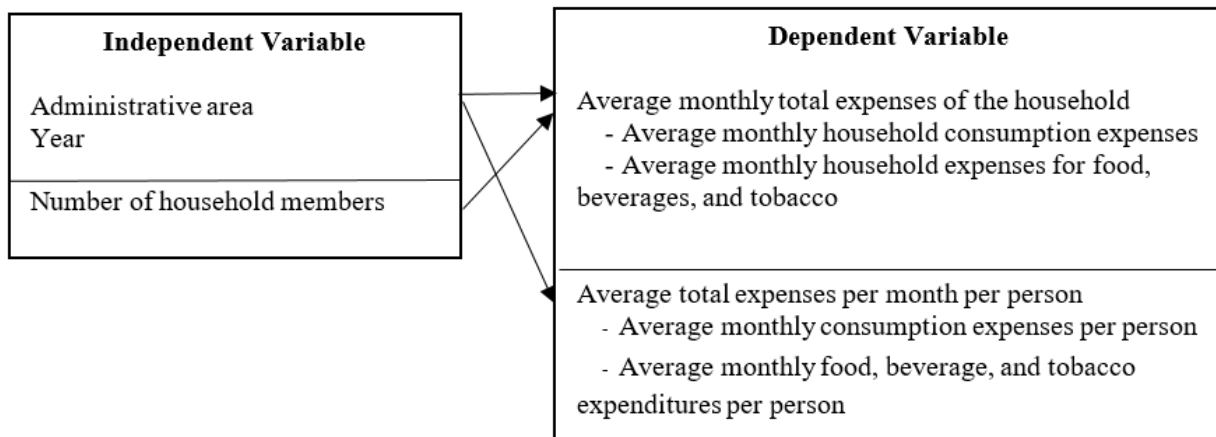


Figure 1 : Conceptual framework for analyzing household expenses in Nakhon Si Thammarat Province

Data analysis in this research paper is used to describe and summarize household spending patterns. Descriptive statistics, such as frequency, percentage, mean, and standard deviation (S.D.), are employed to present the data. To compare household expenditure across independent variables, inferential statistics are also applied:

- ◆ **Comparison of household expenditure by administrative area:** Independent samples t-test was employed. Pooled t-test was used when data was normally distributed with equal variances, while unpooled t-test was used when data was normally distributed but with unequal variances [7], [8].
- ◆ **Comparison of household expenditure by year:** One-way analysis of variance (ANOVA) was used when data was normally distributed with equal variances. Welch's test was used when data was normally distributed but with unequal variances. If the test was significant, post-hoc tests were conducted [9], [10]. If the data was not normally distributed, the Central Limit Theorem was applied, assuming that if the population has any distribution, a large enough sample size would result in an approximately normal distribution.
- ◆ **Relationship between average monthly household expenditure and the number of household members:** Simple linear regression analysis was used [11].

3 RESULTS AND DISCUSSION

The research findings are divided into two parts: 1) a summary of basic statistics on household expenditure in Nakhon Si Thammarat Province, and 2) hypothesis testing related to household expenditure in Nakhon Si Thammarat Province.

3.1 Summary of Basic Statistics

The summary of basic statistics for the number of households in Nakhon Si Thammarat reveals that the largest sample size was in 2020, with 581 households, accounting for 26.1%, while the smallest sample size was in 2019, with 542 households, representing 24.3%. Regarding administrative areas, it was found that the majority of sample households are located outside municipal areas, making up 50.4% of the sample. As for household size (excluding domestic servants), nearly half of the sample households had 1-2 members per household, accounting for 44.5%. Detailed examination shows that household sizes ranged from a minimum of 1 person to a maximum of 12 persons, with an average household size of 3.04 members and a standard deviation of 1.67 members, as shown in Figure 2.

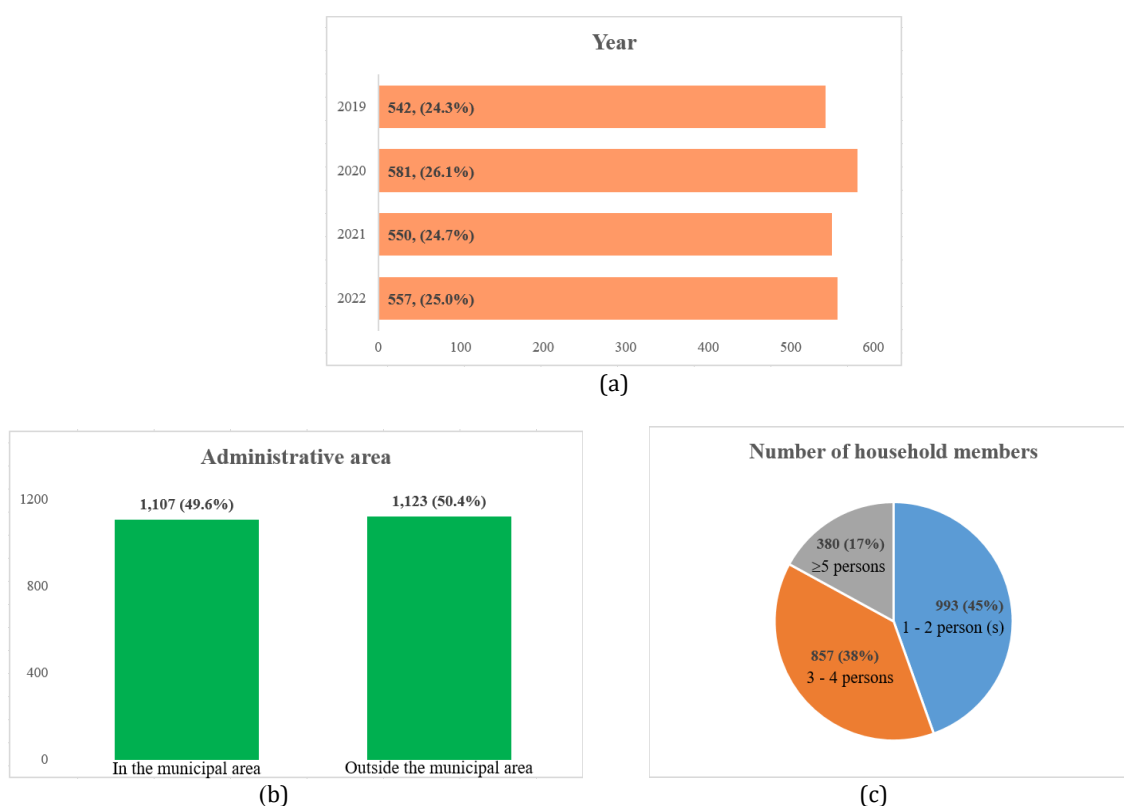


Figure 2 : Number of sample households in Nakhon Si Thammarat Province by year (a), Administrative area (b), Number of household number (c)

3.2 Summary of Household Expenditure Statistics

The average total monthly household expenditure in Nakhon Si Thammarat province is 20,560.24 baht. Within this, the average expenditure on consumption and living expenses (17,958.91 baht) exceeds the average expenditure on food, beverages, and tobacco (7,327.74 baht). Similarly, the average total monthly per person expenditure is 7,971.18 baht, with expenditure on consumption and living expenses (6,872.13 baht) also surpassing expenditure on food, beverages, and tobacco (2,806.64 baht), as detailed in Table 1.

Table 1. Important information on household expenses in Nakhon Si Thammarat Province (n = 2,230)

Dependent variable	Minimum	Maximum	Average	S.D.
Average monthly total expenses of the household	2,589	189,772	20,560.24	15,276.00
Average monthly household consumption expenses	2,464	172,585	17,958.91	13,170.77
Average monthly household expenditure on food, beverages, and tobacco.	1,049	36,344	7,327.74	4,032.52
Average total expenses per month per person	715	94,886	7,971.18	6,719.12
Average monthly consumption expenses per person	708	86,292	6,872.13	5,394.99
Average monthly food, beverage, and tobacco expenditures per person	376	28,445	2,806.64	1,714.50

Testing hypotheses about household expenses in Nakhon Si Thammarat divided into 3 cases according to the independent variable, which is a comparison of household expenses in Nakhon Si Thammarat province. Classified by administrative region as shown in Table 3. Comparison of household expenses in Nakhon Si Thammarat classified by year as shown in Table 2 – 4, and the relationship between average monthly household expenses and the number of household members (not including servants) as shown in Table 5.

Table 2. Comparison of household expenses in Nakhon Si Thammarat province classified by administrative area

Dependent variable	in the municipal area (n = 1,107)		Outside the municipal area (n = 1,123)		Test Statistics	Test Statistics Value	P-value
	Average	S.D.	Average	S.D.			
Average monthly total expenses of the household	21,610.15	15,909.37	19,525.29	14,557.96	Unpooled t-test	3.227	0.001*
Average monthly household consumption expenses	18,885.66	13,765.38	17,045.37	12,496.12	Unpooled t-test	3.304	0.001*
Average monthly household expenditure on food, beverages, and tobacco.	7,494.96	4,252.04	7,162.90	3,798.46	Pooled t-test	1.945	0.052
Average total expenses per month per person	8,935.51	7,328.46	7,020.59	5,909.92	Unpooled t-test	6.787	0.000*
Average monthly consumption expenses per person	7,680.89	5,727.23	6,074.89	4,920.14	Unpooled t-test	7.098	0.001*

Dependent variable	in the municipal area (n = 1,107)		Outside the municipal area (n = 1,123)		Test Statistics	Test Statistics Value	P-value
	Average	S.D.	Average	S.D.			
Average monthly food, beverage, and tobacco expenditures per person	3,052.18	1,899.04	2,564.61	1,471.98	Unpooled t-test	6.770	0.000*

*Statistically significant at the 0.05 level

From Table 2, it is observed that the average household expenditures in Nakhon Si Thammarat across the five categories differ significantly by administrative area at the 0.05 level of significance. Specifically, the average expenditure of households in municipal areas is higher than that in non-municipal areas. This finding aligns with the analysis of poverty and inequality which reports that expenditure disparities between municipal and non-municipal populations are increasing [12]. However, there is no significant difference in the average monthly expenditure on food, beverages, and tobacco between municipal and non-municipal areas at the 0.05 significance level. This may be due to larger household sizes in non-municipal areas compared to municipal areas, leading to similar overall spending on food, beverages, and tobacco. Additionally, food prices are generally consistent nationwide due to market mechanisms controlling prices and transportation systems distributing goods across all areas.

The average household expenditure in Nakhon Si Thammarat across all six categories shows a significant difference by year at the 0.05 level of significance. Specifically, for four categories (average monthly total expenses of the household, average monthly household consumption expenses, average total expenses per month per person, and average monthly consumption expenses per person) there is a significant difference between the years 2019-2021 and 2022. Expenditure on food, beverages, and tobacco per household in 2019 differs from that in 2020, 2021, and 2022, with 2020 differing from 2022. For per person expenditure on food, beverages, and tobacco, 2019 differs from 2020, 2021, and 2022, with 2020 differing from 2022, and 2021 differing from 2022. Overall, there is a trend of increasing average household expenditure in Nakhon Si Thammarat across all six categories. This trend is consistent with research showing that average monthly household expenditure nationwide in 2017 was higher than in 2013 [13]. Additionally, average monthly household expenditure in 2022 was approximately 8% higher than in 2021, and average monthly per person expenditure in 2022 was about 17% higher than in 2021. The substantial increase in average monthly expenditure in 2022 compared to previous years may be attributed to the relaxation of COVID-19 restrictions, which had caused economic disruptions in 2020 and 2021. As restrictions eased in 2022 and normal life resumed, there was an increase in consumer spending, as shown in Tables 3 and 4.

Table 3. Comparison of household expenses in Nakhon Si Thammarat Province classified by year

Dependent variable	Test Statistics	Test Statistics Value	P-value
Average monthly total expenses of the household	F	3.432	0.016*
Average monthly household consumption expenses	F	3.988	0.008*
Average monthly household expenditure on food, beverages, and tobacco.	Welch	15.480	0.000*
Average total expenses per month per person	F	4.260	0.005*
Average monthly consumption expenses per person	F	4.774	0.003*
Average monthly food, beverage, and tobacco expenditures per person	Welch	15.547	0.000*

*Statistically significant at the 0.05 level

Table 4. Pairwise comparison using the Duncan method of household expenses in Nakhon Si Thammarat Province

Dependent variable	Year 2019	Year 2020	Year 2021	Year 2022
Average monthly total expenses of the household	19,397.28 ^b	20,133.11 ^b	20,467.36 ^b	22,229.13 ^a
Average monthly household consumption expenses	16,762.10 ^b	17,622.8 ^b	17,991.85 ^b	19,441.58 ^a
Average monthly household expenditure on food, beverages, and tobacco.	6,515.11 ^c	7,276.55 ^b	7,541.57 ^{ab}	7,960.73 ^a
Average total expenses per month per person	7,771.92 ^b	7,790.82 ^b	7,491.75 ^b	8,826.62 ^a
Average monthly consumption expenses per person	6,639.46 ^b	6,717.12 ^b	6,518.57 ^b	7,609.33 ^a
Average monthly food, beverage, and tobacco expenditures per person	2,511.15 ^c	2,786.29 ^b	2,787.73 ^b	3,134.09 ^a

Note. Average followed by letters (a-c) that vary horizontally mean There is a statistical significant difference at the 0.05 level.

For the study of the relationship between the number of household members (excluding servants) and the average household expenses in Nakhon Si Thammarat, we will consider only the average monthly household expenses. According to Table 5, the average monthly expenses of all three types of households have a positive correlation with the number of household members (excluding servants).

Considering each expense type:

- ◆ The average monthly total expenses of the household are correlated with the number of household members (excluding servants) with a correlation coefficient of 0.361. This relationship can explain 13.1% of the variance in average total monthly household expenses. If the number of household members increases by 1 person, the average total monthly expenses of the household will increase by 3,309.869 Baht, which is statistically significant at the 0.05 level.
- ◆ The average monthly household consumption expenses are correlated with the number of household members (excluding servants) with a correlation coefficient of 0.404. This relationship can explain 16.3% of the variance in average monthly household consumption expenses. If the number of household members increases by 1 person, the average monthly consumption expenses of the household will increase by 3,186.286 Baht, which is statistically significant at the 0.05 level.
- ◆ The average monthly household expenditure on food, beverages, and tobacco are correlated with the number of household members (excluding servants) with a correlation coefficient of 0.52. This relationship can explain 27% of the variance in average monthly household expenses on food, beverages, and tobacco. If the number of household members increases by 1 person, the average monthly expenses on food, beverages, and tobacco of the household will increase by 1,256.366 Baht, which is statistically significant at the 0.05 level.

The results of this analysis are consistent with previous research, which found that an increase in household size leads to an increase in household expenses [4], [14], [15]. This is because an increase in the number of household members naturally leads to an increase in household expenses, which aligns with the concepts and theories of consumption [4].

Table 5. Relationship between average monthly household expenses with the number of household members

Dependent variable	Coefficient		t	P-value
	B	SE.		
1. Average monthly total expenses of the household				
Constant	10,508.926	626.702	16.769	0.000*
Number of household members	3,309.869	180.886	18.298	0.000*
r = 0.361	R ² = 0.131	F = 334.820	P-value = 0.000	S.E. _{est} = 14,246.418
2. Average monthly household consumption expenses				
Constant	8,282.891	530.225	15.621	0.000*
Number of household members	3,186.286	153.040	20.820	0.000*
r = 0.404	R ² = 0.163	F = 433.471	P-value = 0.000	S.E. _{est} = 12,053.284
3. Average monthly household expenditure on food, beverages, and tobacco				

Dependent variable	Coefficient		t	P-value
	B	SE.		
Constant	3,512.443	151.584	23.172	0.000*
Number of household members	1,256.366	43.752	28.716	0.000*
r = 0.520 R ² = 0.270 F = 824.588 P-value = 0.000 S.E. _{est} = 3,445.862				

*Statistically significant at the 0.05 level

4 CONCLUSION

This research is an analysis of household expenditures in Nakhon Si Thammarat Province, conducted as a survey based on the Household Economic and Social Condition Survey by the National Statistical Office. The study utilized province-specific data from Nakhon Si Thammarat, analyzing the data using frequencies, percentages, means, standard deviations, and hypothesis testing. The hypothesis tests included t-tests, Welch's tests, ANOVA F-tests, pairwise comparisons using the Duncan method, and simple linear regression analysis.

The analysis of household expenditures in Nakhon Si Thammarat reveals that the sample households were most numerous in the year 2020, with half being located outside municipal areas. The average number of household members was 3.04 persons. Both average monthly household expenditures and average monthly per person expenditures showed a rising trend each year. Hypothesis testing by administrative zone showed significant differences in the average expenditures across the 5 categories at the 0.05 level. Specifically, average household expenditures in municipal areas were higher than those outside municipal areas, except for expenditures on food, beverages, and tobacco, which did not differ significantly between municipal and non-municipal areas at the 0.05 level.

When testing by year, there were significant differences in average household expenditures across all 6 categories at the 0.05 level. It was found that expenditures in 2022 differed from those in all other years. Correlation analysis showed a positive relationship between average monthly household expenditures and the number of household members (excluding domestic servants), as illustrated in Table 6.

Table 6. Summarizes the results of comparing household expenses in Nakhon Si Thammarat Province

Household expenses Nakhon Si Thammarat province	Administrative area	Year	Number of household members
Average monthly total expenses of the household	✓	✓	+
Average monthly household consumption expenses	✓	✓	+
Average monthly household expenditure on food, beverages, and tobacco.	x	✓	+
Average total expenses per month per person	✓	✓	
Average monthly consumption expenses per person	✓	✓	

Household expenses Nakhon Si Thammarat province	Administrative area	Year	Number of household members
Average monthly food, beverage, and tobacco expenditures per person	✓	✓	
✓ There is a statistical significant difference at the 0.05 level.		+ has a positive relationship	

× There is no statistical significant difference at the 0.05 level

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