

Determinants of Adoption and Usage Frequency of the 7-Delivery Application among Consumers in the Bangkok Metropolitan Region: A Two-Stage Econometric Modeling Approach

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Abstract

This research aims to analyze the factors influencing consumers' decisions to use and not use the 7-Delivery application in Bangkok and its Metropolitan Region, using a Binary Logit Model, and to analyze the factors affecting the number of times consumers in Bangkok and its Metropolitan Region use the 7-Delivery application per month, using a Negative Binomial Regression Model. Primary data were collected using 400 questionnaires. The research analyzed qualitative data using descriptive statistics and analyzed quantitative data in two aspects. The results of the study found that factors positively affecting the decision to use the service included living in a house, the use of other food delivery applications, and travel time to the storefront. Meanwhile, distance from residence to the storefront, being a student, as well as being employed as a private company employee or government official, negatively affected the likelihood of choosing to use the service. Regarding factors affecting the number of times the service was used per month, it was found that factors with a positive influence included the use of other food delivery applications and living in a house. In contrast, years of education, being a student, as well as being a company employee or government official, and traveling to the storefront on foot negatively affected the number of times the service was used per month. The expected benefits of this research are to develop and improve the quality of products and services to better meet the needs of the target group, thereby maximizing benefits for consumers.

Keywords: Factors influencing service usage, frequency of service usage, 7-Delivery, Bangkok and vicinity, Binary Logit Model, Negative Binomial Regression Model

1. Introduction

The Digital Economy has become a critical mechanism driving global economic growth, with information technology, communication, and digital innovation serving as the primary factors enhancing production and service efficiency across all sectors (Xia et al., 2024). This transformation has led various countries to accelerate their transition into the Data-driven Economy and increase investment in digital infrastructure to accommodate consumer behavior that is increasingly shifting toward online services and cashless payment systems (Khanin et al., 2022). In the case of Thailand, the government established the "Thailand 4.0" policy to drive the country toward a fully digital economy and to promote trade through online channels (Ministry of Digital Economy and Society, 2023). This policy has compelled the Thai business sector to increasingly adapt toward digital operations, encompassing marketing, service provision, and communication with consumers in the digital-age society.

The Digital Economy refers to an economic system that integrates production, distribution, and consumption, relying on digital technology and information as the primary tools for its operations (Barefoot et al., 2018; Bukht & Heeks, 2017). The digital economy also serves as a key mechanism driving Digital Transformation, which helps reduce costs, enhance competitiveness, and promote the sharing economy (Chen & Wang, 2019). Most importantly, the expansion of the digital economy has transformed consumer behavior in modern society; consumers now have the power to search for information, compare prices, and make purchasing decisions independently through online platforms, resulting in the economic system and way of life of Thai people fully adapting to the digital society (Pahasing et al., 2022; Shaengchart et al., 2025).

In the international retail sector, 7-Eleven stands as a prominent example of a business that has adapted to the digital economy era. In Thailand, the 7-Eleven network operates under the franchise rights of CP All, which has adopted digital systems such as the 7-Delivery application to seamlessly connect offline stores with online channels, while Thai consumer behavior has increasingly shifted toward using shopping and delivery service applications in line with the digital economy trend (Driediger & Bhatiasavi, 2019; Khanthahuthee, 2017).

However, despite the continuous implementation of digital strategies by convenience store businesses, research in Thailand focusing specifically on technology acceptance factors and consumers' decisions to use or not use delivery application services in the context of convenience stores remains limited. As a result, the key variables influencing the occurrence or non-occurrence of such usage behavior—which could comprehensively reflect behavioral barriers and technology acceptance—have not yet been clearly identified. Furthermore, issues concerning risk perception and confidence in online payment have not been clearly examined through comparative study.

Therefore, the researcher is interested in studying the factors affecting consumers' decisions to use and not use the 7-Delivery application in Bangkok and its vicinity, in order to understand the differences between user and non-user groups, and to analyze the factors affecting the frequency of 7-Delivery application usage per month among consumers in Bangkok and its vicinity. The findings of this study are expected to help fill the gap in the body of knowledge on digital consumer behavior and serve as a practical guideline for retail businesses in developing marketing strategies that effectively respond to the needs of consumers in the digital era.

2. Objectives

- 1) To analyze the factors influencing consumers' decisions to use the 7-Delivery application in Bangkok and its vicinity.
- 2) To analyze the factors affecting the frequency of 7-Delivery application usage per month among consumers in Bangkok and its vicinity.

3. Literature Review

3.1 Related Concepts and Theories

3.1.1 Concept of the Digital Economy

The Digital Economy refers to economic activities arising from the online connectivity embedded in the daily lives of people, businesses, devices, data, and various processes, based on the rapidly increasing connectivity among individuals, organizations, and machines through the internet, mobile technology, and the Internet of Things (IoT) (World Economic Forum, 2016).

3.1.2 Theoretical Concepts Related to Consumer Behavior

Based on the concept of Leavitt & Bahrami (1988: 46), it is stated that various behaviors that are expressed have a cause or motivation and have a goal. Therefore, the consumer behavior model is a study of the motives that lead to the purchase of products, beginning with the occurrence of a Stimulus, which consists of:

- (1) Inside Stimulus, which may arise internally from within the body.
- (2) Outside Stimulus, which marketers attempt to create by arranging external stimuli in order to generate consumer demand for products. External stimuli consist of two parts:

(2.1) Marketing Stimulus is a stimulus related to the Marketing Mix, which requires these marketing mix elements to be used together in order to satisfy the needs of the target market. The marketing mix consists of:

Product is what is offered for sale to the market or for personal consumption. It is what satisfies the needs and requirements of consumers to create satisfaction. A product consists of both tangible and intangible elements, such as brand, price, packaging, quality, service, and technology (Etzel, Walker, & Stanton, 2001: 59-61).

Price refers to the amount of money or other items that must be paid in order to obtain a product (Etzel et al., 2001: 53). Consumers will compare the value of the product with its price; if the value is higher than the price, the consumer will decide to purchase.

Place consists of the institutions and activities used to move products and services from the organization to the market. This is the stage of considering how to distribute products through intermediaries and how to carry out the distribution mix.

Promotion is a communication tool used to create satisfaction with a brand or service, an idea, or a person. It is used to persuade in order to generate demand and to remind consumers about the product, with the expectation of influencing feelings, beliefs, and purchasing behavior (Etzel et al., 2001: 74).

(2.2) Economic Stimulus refers to stimuli that drive consumer demand, which exist outside the organization and cannot be controlled by the company. These stimuli include:

Economic Stimulus, such as economic conditions and consumer income, which influence consumer demand.

Technological Stimulus, where new technologies can stimulate greater demand for service usage, reflecting the novelty of the service offered.

Law and Political Stimulus, such as laws increasing or decreasing taxes on a particular product, which influence the increase or decrease in consumer demand for the service.

3.1.3 Theory of Service Usage Decision-Making

The consumer purchasing decision-making process can be divided into five stages, as follows (Kotler & Keller, 2006: 181):

(1) Problem Recognition Purchasing behavior originates from the consumer's recognition of a need, which may result from external stimulation, such as intentional advertising media or observing people nearby using the product.

(2) Information Search After the consumer's need arises, searching for or studying information regarding the relevant products and services constitutes the subsequent stage.

(3) Evaluation of Alternatives Once the consumer has gathered information, this leads the consumer to develop understanding and evaluate the various alternatives. This means the consumer must decide which brand or product to purchase. Each consumer's decision-making approach differs depending on the decision-making situation and the alternatives available. Consumers generally evaluate alternatives based on multiple factors, such as the attributes of the product or service and the benefits to be derived from the product.

(4) Purchase Decision Based on the evaluation of alternatives, the consumer is able to prioritize among purchasing choices.

(5) Post-Purchase Behavior After making a purchase, the consumer gains a consumption experience, which may result in either satisfaction or dissatisfaction. If the consumer is satisfied, this will lead to repeat purchases and may result in the consumer recommending the product to others. However, if dissatisfied, the consumer may discontinue purchasing the product, and this dissatisfaction may further propagate through negative word-of-mouth, potentially causing other consumers to reduce their purchases as well.

3.2 Related Studies

Ketchan et al. (2022) studied GrabFood usage behavior and found that consumers with different levels of education and occupations exhibited significantly different service usage behaviors, particularly with regard to technology acceptance and system security.

Nisakorn Sappalert, Peerapat Karntak, and Jintana Onla (2024) studied the factors affecting the selection of the 7-Delivery application through payment via banking applications among 7-Eleven convenience stores in Bangkok. The study found that technology acceptance factors (ease of use and perceived usefulness), together with acceptance of the cashless society system, were the key driving forces behind consumers shifting to delivery services as a substitute for walking to the store. Students and young working professionals were identified as the primary groups significantly driving transaction volume through the application.

Thanyaporn Jaengkrachang (2023) studied application usage behavior affecting consumers' purchasing decisions through the 7-Delivery application, and found that consumers exhibiting behavior "accustomed to embracing technology and smartphones" in daily life were more likely to choose and order products through the 7-Delivery system than other groups. Factors related to housing readiness and pre-existing online purchasing behavior were significant variables that accelerated the completion of the purchasing decision process.

Kawinnat Promprapan, Ubonwan Khunthong, and Boontham Ratcharak (2023) studied the factors influencing the decision to use the 7-Delivery application among 7-Eleven stores in the metropolitan vicinity (Bangkok's surrounding provinces). Although certain physical limitations have diminished, factors related to Digital Lifestyle and the desire to save travel time have become persistent factors positively affecting the choice to use the 7-Delivery application. Furthermore, free-delivery promotions upon reaching a purchase threshold were identified as a key stimulus affecting the usage behavior of consumers residing in private houses and families.

Patchhathai Charutaweephonnukul et al. (2020) studied the factors affecting consumers' selection of mobile applications for ordering food and delivery products in Bangkok. Key findings indicated that factors affecting the intensity of use were strongly associated with "cross-platform usage experience," whereby consumers familiar with ordering from multiple delivery platforms exhibited a significantly higher usage

frequency than average. In addition, occupation-related factors and work-time constraints were identified as the primary determinants of the number of orders placed per month.

Based on related studies, the factors influencing the use of delivery applications can be summarized as follows: technology acceptance factors, including Ease of Use, Perceived Usefulness, and System Security, together with the acceptance of a cashless society system that enhances payment convenience. In addition, housing readiness and pre-existing online shopping behavior also influence usage behavior. Regarding the factors affecting the frequency of delivery application use, cross-platform usage experience or familiarity with multiple delivery platforms was found to be strongly correlated with order frequency, while free-delivery promotions upon reaching a minimum purchase amount serve as a key incentive influencing usage behavior, particularly among consumers residing in private houses and family households. Furthermore, occupation and work-time constraints are major factors determining the number of monthly purchase orders.

4. Research Methodology

This research on the factors affecting consumers' decisions to use and not use the 7-Delivery application in Bangkok and its vicinity was conducted through the collection of primary data via a questionnaire-based survey. This survey was designed to gather responses from both users and non-users of the 7-Delivery application among consumers in Bangkok and its vicinity, and to test the factors affecting the frequency of 7-Delivery application usage per month among consumers in Bangkok and its vicinity. The data obtained from the survey were subsequently analyzed to test the aforementioned hypotheses, which can be summarized in the conceptual research framework presented in Figure 1.

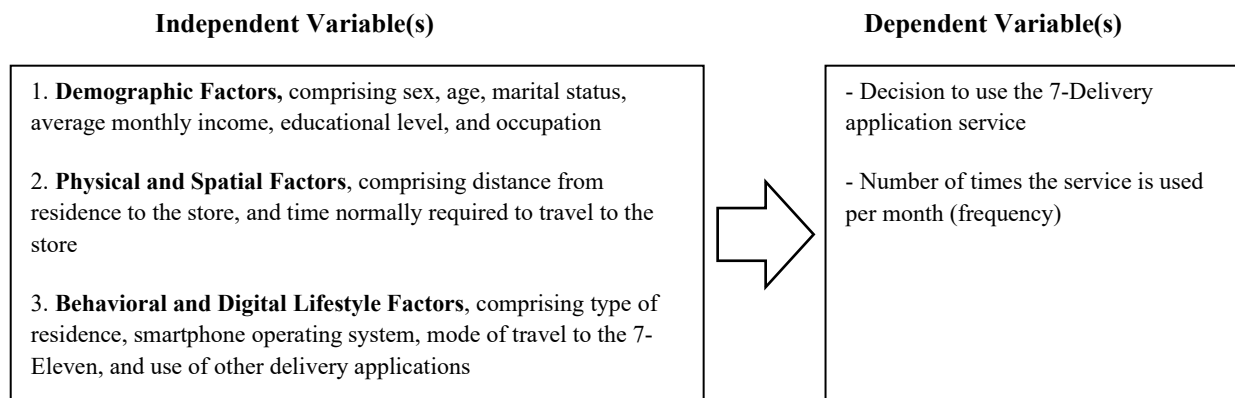


Figure 1 Conceptual Research Framework

4.1 Data Collection

The sample size was calculated for the case in which the population size is unknown, at a 95% confidence level (Boonchom Srisa-ard, 2010), using Cochran's formula (W.G. Cochran) as follows:

$$n = \frac{P(1-P)(Z)^2}{e^2}$$

Where n represents the sample size; P represents the proportion to be sampled from the population (set at P = 0.5); e represents the acceptable margin of error (at the 95% confidence level, e = 0.05); and Z represents the standard normal value obtained from the standard normal distribution table (at the 95% confidence level, Z = 1.96). Substituting these values into the formula yields a sample size of n = 384.16, or approximately 385 samples.

Accordingly, the sample size was set at 385 samples, with an additional 15 samples reserved as a buffer, resulting in a total sample size of 400 samples.

This research collected data through an online questionnaire using convenience sampling from 400 consumers in Bangkok and its metropolitan area. The sample was divided into two groups: 200 respondents who use the 7-Delivery application and 200 respondents who do not use the 7-Delivery application.

4.2 Research Instrument

The instrument used to collect primary data for this research examined the factors influencing consumers' decisions to use and not use the 7-Delivery application, as well as the factors affecting the frequency of 7-Delivery application usage per month among consumers in Bangkok and its vicinity. Data were collected through a questionnaire-based interview, using a questionnaire developed by the researcher, which was divided into four parts as follows:

Part 1: Preliminary Screening Questionnaire, consisting of questions on whether the respondent resided in Bangkok and its vicinity, whether the respondent was familiar with the 7-Delivery application, and whether the respondent used the 7-Delivery application.

Part 2: Demographic Information Questionnaire, consisting of 11 items covering sex, age, marital status, average personal monthly income, educational level, occupation, type of residence, mobile phone operating system, distance to the 7-Delivery store, mode of travel to the 7-Delivery store, and prior use of other food-ordering applications. The questions regarding sex, marital status, average personal monthly income, educational level, occupation, type of residence, mobile phone operating system, mode of travel to the 7-Delivery store, and prior use of other food-ordering applications were formatted as closed-ended questions, while the questions regarding age and distance between residence and the 7-Delivery store were formatted as open-ended questions, measured on a ratio scale.

Part 3: Consumer Behavior Information Questionnaire related to factors affecting the use of the 7-Delivery application, consisting of 6 items covering the type of product most frequently ordered through the 7-Delivery application, the average number of times per month the respondent used the 7-Delivery service, the average expenditure per order (in Thai baht), the payment channel used, the time period during which the application was most frequently used, and the person(s) with whom the respondent used the 7-Delivery application service. The questions regarding the type of product most frequently ordered through the 7-Delivery application, the payment channel used, the time period during which the application was most frequently used, and the person(s) with whom the respondent used the service were formatted as closed-ended questions, while the questions regarding the average number of times per month the respondent used the 7-Delivery service and the average expenditure per order were formatted as open-ended questions.

Part 4: Reasons for Using and Not Using the 7-Delivery Application, consisting of 30 items: 15 items concerning reasons for choosing to use the 7-Delivery application, and 15 items concerning reasons for choosing not to use the 7-Delivery application. These items were structured as a rating scale, employing a 5-point Likert scale, measured on an interval scale, where 5 denotes "strongly agree," 4 denotes "agree," 3 denotes "moderately agree," 2 denotes "slightly agree," and 1 denotes "least agree."

4.3 Data Analysis

Data analysis was divided into two dimensions, as follows:

4.3.1 Qualitative Data Analysis This involved analyzing the characteristics of, and reasons for, choosing to use and not use the 7-Delivery application, employing descriptive statistics to describe the demographic data, including sex, age, marital status, income, educational level, occupation, type of residence, mobile phone operating system, distance to the 7-Delivery store, mode of travel to the 7-Delivery store, and prior use of other food-ordering applications.

4.3.2 Quantitative Data Analysis This was divided into two sub-sections: analysis of the factors influencing consumers' decisions to use and not use the 7-Delivery application in Bangkok and its vicinity, and analysis of the factors affecting the frequency of 7-Delivery application usage per month among consumers in Bangkok and its vicinity, as follows:

(1) Analysis of the factors influencing consumers' decisions to use and not use the 7-Delivery application in Bangkok and its vicinity, employing a Binary Logit Model. The OLS or general linear model cannot effectively analyze a dummy dependent variable (0 or 1), as it would cause the predicted probability values to fall outside the [0,1] range and result in heteroskedasticity. The researcher therefore selected the Binary Logit Model, estimated using Maximum Likelihood Estimation (MLE), with the details of the calculations and test statistics as follows:

Test of significance of individual independent variables (z-test): The probability value (p-value) of the z-statistic was examined to identify which factors (such as income, occupation, or distance) significantly affect the likelihood of choosing to use the application at the 0.01, 0.05, or 0.10 significance level.

Test of overall model fit (LR Test): The Likelihood Ratio (LR) Statistic was used to test the null hypothesis that all independent variables jointly explain the behavior of the dependent variable significantly. If the Prob(LR statistic) is less than 0.05, the model is considered accurate and reliable.

Explanatory power index (McFadden R²): This was used to assess the model's ability to explain variation in the discrete choice model, with values between 0.20 and 0.40 considered to indicate an excellent model fit.

Interpretation of coefficients (Odds Ratio): Since the Logit coefficients (beta) are expressed in log-odds form, the researcher converted these values into Odds Ratios ($= \exp(\beta)$) to indicate that, for a one-unit change in the independent variable, the likelihood of choosing to use the application increases or decreases by a given multiple relative to the reference group.

(2) Analysis of factors affecting the frequency of using the 7-Delivery application per month among consumers in Bangkok and its metropolitan area, using only the sample group of 7-Delivery application users, employing Negative Binomial Regression to test Hypothesis 2. Since the dependent variable, the frequency of service use, is characterized as "count data," analysis using OLS statistics would result in biased Standard Error values. Although the Poisson Regression model is the standard approach for count data, it has a serious limitation regarding the assumption of equidispersion.

Upon examining the actual dataset, it was found that the variance substantially exceeded the mean (Variance > Mean), indicating a condition of overdispersion. The researcher therefore selected the Negative Binomial Regression model to test Hypothesis 2, with the details of the test statistics as follows:

Test of overdispersion (Shape Parameter): This was assessed using the mixture parameter SHAPE:C(18), or the Overdispersion Parameter (alpha). If this statistic is highly statistically significant ($p = 0.0000$), it provides empirical evidence that the Negative Binomial model is appropriate and yields more accurate analytical results than the Poisson model.

Comparison of information criteria: The researcher used the Akaike Information Criterion (AIC) and Schwarz Criterion (BIC), together with the Log-likelihood value, to compare model fit for model selection purposes. The model with the lowest AIC and BIC values and the highest Log-likelihood value was selected as the primary model for discussion of results.

Interpretation of coefficients (Incidence Rate Ratio: IRR): To render the interpretation of order frequency more meaningful in economic and behavioral terms, the researcher converted the coefficients into Incidence Rate Ratios ($IRR = e^{\beta}$) to explain which independent factors significantly increase or decrease, by a given percentage, the expected rate or frequency of monthly service usage.

5. Research Findings

The questionnaire was validated through the Index of Item-Objective Congruence (IOC) by 3 experts, with an average score of 0.73. The survey results are detailed as follows:

5.1 General Characteristics of the Sample

Results of the General Information of the Sample Group from the data collection of 400 respondents, the research findings revealed that the majority of respondents were female, accounting for 52.5%. The age range of the sample was between 16-53 years, with an average age of 29 years, and the most common age was 17 years, accounting for 8.8%. Regarding marital status, the majority were single, accounting for 72.8%. Regarding average monthly personal income, the majority of the sample had an income of 10,000 baht or less, accounting for 30.5%. Regarding education, the majority held a bachelor's degree, accounting for 49.0%. Regarding occupation, the majority were students, accounting for 54.0%. Regarding type of residence, the majority lived in a detached house/private home, accounting for 75.5%. Regarding the mobile phone operating system used, the majority used iOS, accounting for 58.8%. Regarding the distance from residence to the 7-Eleven store, it was found that the majority of respondents lived less than or equal to 500 meters away, accounting for 34.5%. Regarding the method of traveling to the 7-Eleven store, the majority traveled by motorcycle, accounting for 40.3%. Regarding the travel time to the 7-Eleven store, it was found that the majority of respondents used 1–5 minutes, accounting for 71.5%. As for whether respondents also used other food ordering applications, the majority did use other food ordering

applications as well, accounting for 84.3%. The results of the general information of the sample group can be summarized as shown in Table 1.

Table 1 General Characteristics of the Sample

General Information	Number(Persons)	Percentage
Gender		
Female	210	52.5
Male	164	41.0
LGBTQ+	26	6.5
Marital Status		
Single	290	72.8
Married	91	22.8
Divorced	19	4.8
Average Monthly Income		
Less than or equal to 10,000 baht	122	30.5
10,001–15,000 baht	48	12.0
15,001–20,000 baht	80	20.0
20,001–25,000 baht	77	19.3
25,001–30,000 baht	38	9.5
More than 30,000 baht	35	8.8
Education Level		
Junior High School (9 years)	13	3.3
Senior High School/Vocational Certificate/Diploma (12 years)	99	24.8
Bachelor's Degree (16 years)	196	49.0
Higher than Bachelor's Degree (18 years)	92	23.0
Occupation		
Student	216	54.0
Private Company/Government Employee	115	28.8
Self-Employed	69	17.3
Type of Residence		
Detached House /Private Home	302	75.5
Dormitory	73	18.3
Condominium	25	6.3
Mobile Phone		
IOS	235	58.8
Android	165	41.3
Distance from Residence to the 7-Eleven Store		
Less than or equal to 500 meters	69	34.5
501–1,000 meters	63	31.5
1,001–2,000 meters	19	9.5
2,001–3,000 meters	7	3.5
3,001–4,000 meters	14	7.0
More than 4,000 meters	28	14.0
Method of Traveling to 7-Eleven Store		
Motorcycle	161	40.3
Private Car	111	27.8

Note: The sum of percentages may not equal 100.0 due to rounding to one decimal place.

Table 1 (Continued)

General Information	Number(Persons)	Percentage
Walking	99	24.8
Bicycle	29	7.3
Travel Time to the 7-Eleven Store		
1–5 minutes	143	71.5
6–10 minutes	37	18.5
11–15 minutes	7	3.5
More than 15 minutes	13	6.5
Do You Also Use Other Food Ordering Applications		
Yes	337	84.3
No	63	15.8

Note: The sum of percentages may not equal 100.0 due to rounding to one decimal place.

The results regarding the usage behavior of the 7-Delivery application among the sample of 400 respondents revealed that 200 respondents (50.0%) had used the 7-Delivery application, while the remaining 200 respondents (50.0%) had not used the service. The most frequently ordered product category through the 7-Delivery application was frozen food, ready-to-heat food, and cooked food, accounting for 55.0%, followed by beverages at 27.0%, and dried food or instant food at 9.5%, while snacks accounted for 5.5%.

Regarding usage frequency, the majority of the sample used the service 1–5 times per month, accounting for 50.0%. Regarding expenditure per order, the majority spent approximately 101–200 baht per order, accounting for 56.5%. Regarding payment channel, the majority chose to pay via the TrueMoney Wallet application, accounting for 36.5%. Regarding the time period of service usage, the majority used the service during the evening hours between 17:00–21:00, accounting for 18.8%. With respect to the nature of service usage, the majority used the service to order products for themselves, accounting for 32.3%. The usage behavior of the sample regarding the 7-Delivery application can be summarized in Table 2.

Table 2 Usage Behavior of the 7-Delivery Application Among the Sample

Service Usage Behavior	Number(Persons)	Percentage
Type of Product Most Frequently Ordered via 7-Delivery		
Frozen Food, Ready-to-Heat Food, and Cooked Food	110	55.0
Beverages	54	27.0
Dried/Instant Food	19	9.5
Snacks	11	5.5
Fairly Varied	6	3.0
Number of Times Using the Service per Month		
1–5 times	100	50.0
6–10 times	41	20.5
11–15 times	14	7.0
16–20 times	27	13.5
More than 20 times	18	9.0
Expense per Order		
80–100 baht	30	15.0
101–200 baht	113	56.5
201–300 baht	45	22.5
301–400 baht	6	3.0
401–500 baht	6	3.0

Note: The sum of percentages may not equal 100.0 due to rounding to one decimal place.

Table 2 (Continued)

Service Usage Behavior	Number(Persons)	Percentage
Payment Method		
TrueMoney Wallet	146	36.5
Cash	54	13.5
Time Period Most Frequently Used for the Service		
Morning (6:00 AM–8:59 AM)	11	2.8
Late Morning (9:00 AM–10:59 AM)	11	2.8
Noon (11:00 AM–1:59 PM)	39	9.8
Afternoon (2:00 PM–4:59 PM)	64	16.0
Evening (5:00 PM–9:00 PM)	75	18.8
Person Most Frequently Sharing the Service With		
Self	129	32.3
Family	34	8.5
Coworkers	30	7.5
Partner	7	1.8

Note: The sum of percentages may not equal 100.0 due to rounding to one decimal place.

5.2 Findings on Reasons for Using the 7-Delivery Application

The study of the factors related to reasons for using the 7-Delivery application found that, overall, respondents' opinions were at the highest level ($\bar{x} = 4.26$, S.D. = 0.75). Upon examining individual items, it was found that respondents held opinions at the highest level for most factors, particularly regarding the use of the 7-Delivery application being consistent with the digital-age lifestyle ($\bar{x} = 4.55$, S.D. = 0.53), free delivery charges ($\bar{x} = 4.54$, S.D. = 0.72), and the brand's good reputation ($\bar{x} = 4.54$, S.D. = 0.63). Meanwhile, the factor concerning appropriate delivery time ($\bar{x} = 3.36$, S.D. = 1.29) had the lowest mean value and was rated at a moderate level, indicating that service users held relatively lower opinions regarding delivery-time efficiency compared to other factors. The mean and standard deviation values for the factors related to reasons for using the 7-Delivery application among the sample are summarized in Table 3.

Table 3 Mean and Standard Deviation of Factors Related to Reasons for Using the 7-Delivery Application

Item	Factor	Mean	S.D.	Level of Opinion
A1	The 7-Delivery application provides you with convenience	4.21	0.647	Highest
A2	The 7-Delivery application is easy to use	4.07	0.748	High
A3	The 7-Delivery application sells products at the same price as products sold in-store at 7-Eleven	4.17	0.750	High
A4	The 7-Delivery application offers a wide variety of products to choose from	4.30	0.636	High
A5	The 7-Delivery application sells quality products	4.53	0.538	Highest
A6	The 7-Delivery application offers free delivery fees	4.54	0.724	Highest
A7	The 7-Delivery application allows you to track the delivery status	4.36	0.580	Highest
A8	The 7-Delivery application uses an appropriate delivery time	3.36	1.292	Moderate
A9	The 7-Delivery application has delivery staff with good service quality and complete product delivery	4.27	0.775	Highest
A10	The 7-Delivery application offers a variety of sales promotions, such as discounts and free gifts	3.92	1.103	High
A11	The 7-Delivery application is secure	4.48	0.605	Highest
A12	The 7-Delivery application is reliable	4.45	0.573	Highest

Table 3 (Continued)

Item	Factor	Mean	S.D.	Level of Opinion
A13	The 7-Delivery application is a brand with a good reputation	4.54	0.632	Highest
A14	People you know also use the 7-Delivery application	4.13	0.838	High
A15	Using the 7-Delivery application is consistent with your digital-age lifestyle	4.55	0.532	Highest

5.3 Findings on Reasons for Not Using the 7-Delivery Application

From the study of factors related to the reasons for not using the 7-Delivery application, it was found that, overall, the respondents had opinions at a low level ($\bar{x} = 2.55$, S.D. = 1.14).

When considered by individual item, it was found that the factor with the highest mean was that other delivery applications currently in use were more convenient than 7-Delivery ($\bar{x} = 3.70$, S.D. = 1.27), followed by the 7-Delivery application taking a long time for product delivery ($\bar{x} = 3.44$, S.D. = 1.14), and the requirement to register for All Member membership ($\bar{x} = 3.19$, S.D. = 1.32), respectively. The factor with the lowest mean was the lack of confidence in the quality of products ordered through the 7-Delivery application ($\bar{x} = 1.74$, S.D. = 1.08), which was at the lowest level. The results of the study on the mean and standard deviation of the factors related to the reasons for not using the 7-Delivery application among the sample group can be summarized as shown in Table 4.

Table 4 Results of the Study on the Mean and Standard Deviation of Factors Related to Reasons for Not Using the 7-Delivery Application

Item	Factor	Mean	S.D.	Level of Opinion
B1	The 7-Delivery application has steps that are too complicated for you	2.20	1.002	Low
B2	The 7-Delivery application requires registration for All Member membership	3.19	1.321	Moderate
B3	The 7-Delivery application has limited payment channels	3.13	1.180	Moderate
B4	The 7-Delivery application has high delivery fees	2.17	1.162	Low
B5	The 7-Delivery application takes a long time for product delivery	3.44	1.142	High
B6	The 7-Delivery application delivers products incompletely	2.17	1.203	Low
B7	The 7-Delivery application's operating hours do not match the time you want to use the service	2.94	1.388	Moderate
B8	You are not confident in the quality of products ordered through the 7-Delivery application	1.74	1.080	Lowest
B9	The 7-Delivery application has products with purchase restrictions that do not match your needs	2.66	1.447	Moderate
B10	The 7-Delivery application does not cover the user's delivery area	2.28	1.091	Low
B11	Installing the 7-Delivery application requires a large amount of phone storage space	1.92	0.865	Low
B12	The 7-Delivery application does not send information/updates regularly	2.09	0.952	Low
B13	Using the 7-Delivery application carries a risk regarding the security of personal data	2.51	0.952	Low
B14	The 7-Delivery application has a risk of crashing or being unusable	2.04	0.952	Low
B15	Other delivery applications you already use are more convenient than 7-Delivery	3.70	1.273	High

5.4 Factors Influencing Consumers' Decisions to Use the 7-Delivery Application

Results of the Analysis of Factors Influencing Consumers' Decisions to Use and Not Use the 7-Delivery Application in Bangkok and Its Vicinity as shown below:

Table 5 Results of the Binary Logit Model Analysis

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C (Constant)	1.585607	1.694533	0.935719	0.3494
MALE	0.039982	0.580075	0.068926	0.9450
FEMALE	0.027222	0.547079	0.049760	0.9603
AGE	-0.020853	0.021710	-0.960504	0.3368
SINGLE	0.357354	0.395743	0.902996	0.3665
INCOME	-0.109694	0.121551	-0.902454	0.3668
EDU	-0.045804	0.070728	-0.647598	0.5172
OCC_STD	-3.682282	0.573043	-6.425840	0.0000***
OCC_EMPLOYEE	-2.729741	0.546861	-4.991655	0.0000***
RES_HOUSE	0.810516	0.317835	2.550113	0.0108**
IOS	0.212808	0.298199	0.713644	0.4754
DIST	-9.85E-05	4.43E-05	-2.225175	0.0261**
VIH_WALK	-0.048647	0.515761	-0.094320	0.9242
VIH_MOTOR	0.056880	0.511162	0.111276	0.9114
VIH_CAR	0.171283	0.513322	0.333675	0.7386
TIME	0.040470	0.023473	1.724109	0.0847*
OTHER_APP	2.161342	0.440282	4.913083	0.0000***

Note: * denotes statistical significance at the 0.10 level; ** denotes statistical significance at the 0.05 level; *** denotes statistical significance at the 0.01 level.

Model Fit Statistics The model fit statistics were as follows: Log likelihood = -214.5182, LR statistic (16 df) = 125.4814, Prob(LR statistic) = 0.000000, McFadden R-squared = 0.22628, Akaike info criterion = 1.157591, and Schwarz criterion = 1.327228.

Where the symbols are defined as follows:

Symbol	Meaning
USE7DV	Choice of using the 7-Delivery application (1 = use, 0 = do not use)
NOTTIME	Frequency of using the 7-Delivery application per month (number of times using the service per month)
MALE	Male, with the LGBTQ+ or alternative gender variable as the reference variable (1 = male, 0 = other)
FEMALE	Female, with the LGBTQ+ or alternative gender variable as the reference variable (1 = female, 0 = other)
AGE	Age of the consumer (years)
SINGLE	Dummy variable representing single status (1 = single, 0 = other)
INCOME	Average monthly income (1 = less than or equal to 10,000 baht, 2 = 10,001–15,000 baht, 3 = 15,001–20,000 baht, 4 = 20,001–25,000 baht, 5 = 25,001–30,000 baht, 6 = more than 30,000 baht and above)
EDU	Number of years of education (years)
OCC_STD	Dummy variable representing student occupation, with the self-employed variable as the reference variable (1 = student, 0 = other)

OCC_EMPLOYEE	Dummy variable representing private company/government employee occupation, with the self-employed variable as the reference variable (1 = employee, 0 = other)
RES_HOUSE	Dummy variable representing residing in a detached house/private home, with the condominium variable as the reference variable (1 = house, 0 = other)
IOS	Dummy variable representing the use of the iOS operating system (1 = iOS, 0 = other)
DIST	Distance from residence to the 7-Eleven store (meters)
VIH_WALK	Dummy variable representing the main mode of travel by walking to the 7-Eleven store, with the bicycle variable as the reference variable (1 = walking, 0 = other)
VIH_MOTOR	Dummy variable representing the main mode of travel by motorcycle to the 7-Eleven store, with the bicycle variable as the reference variable (1 = motorcycle, 0 = other)
VIH_CAR	Dummy variable representing the main mode of travel by car to the 7-Eleven store, with the bicycle variable as the reference variable (1 = car, 0 = other)
TIME	Time used to travel to the 7-Eleven store (minutes)
OTHER_APP	Dummy variable representing whether the respondent additionally uses other food delivery applications, such as Grab, LINE MAN, Shopee, or others (1 = uses other apps, 0 = does not use)

Based on the results of the data analysis, the equation can be expressed in Log-odds (Logit Form) as follows:

$$\ln\left(\frac{Pr(USE7DVi = 1)}{1 - Pr(USE7DVi = 1)}\right) = 1.5856 + 0.3998(MALE) + 0.0272(FEMALE) \\ - 0.0208(AGE) + 0.3573(SINGLE) - 0.1096(INCOME) - 0.0458(EDU) - 3.6822(OCC_STD) \\ - 2.7297(OCC_EMPLOYEE) + 0.8105(RES_HOUSE) + 0.2128(IOS) \\ - 0.0000985(DIST) - 0.0486(VIH_WALK) + 0.0568(VIH_MOTOR) \\ + 0.1712(VIH_CAR) + 0.0404(TIME)^* + 2.1631(OTHER_APP)$$

The analysis revealed the following variables to be statistically significant determinants of the decision to use the 7-Delivery application:

1) Student status (OCC_STD) showed a statistically significant negative relationship at the 0.01 level ($\beta = -3.682282$, $p = 0.0000$), with an Odds Ratio of 0.025. This indicates that students are 0.025 times less likely to choose to use the 7-Delivery application compared to the self-employed group, or in other words, students show a 97.5% lower likelihood of choosing to use the 7-Delivery application compared to the self-employed group, holding other variables constant. This result reflects the income constraints faced by the student group, as well as lifestyle patterns that allow for purchasing food or products in person while traveling, making the need to use food ordering applications less necessary compared to groups who work from home.

2) Private company and government employee occupation (OCC_EMPLOYEE) showed a statistically significant negative relationship at the 0.01 level ($\beta = -2.729741$, $p = 0.0000$), with an Odds Ratio of 0.065. This indicates that private company and government employees are 0.065 times less likely to choose to use the 7-Delivery application compared to the self-employed group, or in other words, this group shows a 93.5% lower likelihood of choosing to use the 7-Delivery application compared to the self-employed group, holding other variables constant. This result reflects lifestyle patterns that allow for purchasing food or products in person while traveling, consistent with the student group, making the need to use food ordering applications less necessary compared to groups who work from home.

3) Residing in a house (RES_HOUSE) showed a statistically significant positive relationship at the 0.05 level ($\beta = 0.810516$, $p = 0.0108$), with an Odds Ratio of 2.249. This indicates that people residing in a detached house/private home are 2.249 times more likely to choose to use the 7-Delivery application compared to those residing in a condominium, or in other words, they show a 124.9% higher likelihood of choosing to use the 7-Delivery application compared to those residing in a condominium, holding other variables constant.

4) Distance (DIST) showed a statistically significant negative relationship at the 0.05 level ($\beta = -9.85E-05$, $p = 0.0261$, Odds Ratio = 0.999). This indicates that for every 1-meter increase in distance, the likelihood of choosing to use the 7-Delivery application decreases to approximately 0.999 times the original likelihood, holding other variables constant. This finding is consistent with respondents' opinions that the 7-Delivery application requires a relatively long delivery time.

5) Travel time (TIME) showed a statistically significant positive relationship at the 0.10 level ($\beta = 0.040470$, $p = 0.0847$, Odds Ratio = 1.041). This shows that as travel time to the 7-Eleven store increases, the likelihood of choosing to use the 7-Delivery application also increases.

6) Use of other food ordering applications (OTHER_APP) is the variable with the highest Odds Ratio in the model, and is statistically significant at the 0.01 level ($\beta = 2.161342$, $p = 0.0000$), with an Odds Ratio of 8.683. This indicates that people who already use other food ordering applications are 8.683 times more likely to choose to use the 7-Delivery application compared to those who have never used other applications.

5.5 Factors Affecting Frequency of 7-Delivery Application Usage

Results of the Analysis of Factors Affecting the Frequency of 7-Delivery Application Usage Per Month Among Consumers in Bangkok and Its Vicinity as shown below:

Table 6 Results of the Negative Binomial Regression Analysis

Variable	Coefficient	Std. Error	z-Statistic	Prob.	IRR (e^{β})
C (Constant)	1.612623	1.393750	1.157039	0.2473	5.016
MALE	0.263226	0.452185	0.582119	0.5605	1.301
FEMALE	0.544140	0.449659	1.210115	0.2262	1.723
AGE	0.004440	0.016780	0.264589	0.7913	1.004
SINGLE	-0.117275	0.360269	-0.325521	0.7448	0.890
INCOME	-0.138918	0.102580	-1.354242	0.1757	0.870
EDU	-0.112285	0.053030	-2.117377	0.0342**	0.894
OCC_STD	-1.124454	0.390458	-2.879836	0.0040***	0.325
OCC_EMPLOYEE	-0.666788	0.286879	-2.324288	0.0201**	0.513
RES_HOUSE	0.622548	0.253769	2.453207	0.0142**	1.864
IOS	0.096811	0.235968	0.410270	0.6816	1.102
DIST	-5.07E-05	3.35E-05	-1.514851	0.1298	1.000
VIH_WALK	-1.126038	0.467650	-2.407865	0.0160**	0.324
VIH_MOTOR	-0.577634	0.461853	-1.250689	0.2110	0.561
VIH_CAR	-0.396426	0.433633	-0.914196	0.3606	0.673
TIME	0.023925	0.018024	1.327401	0.1844	1.024
OTHER_APP	2.455301	0.340120	7.218919	0.0000***	11.650
Mixture Parameter					
SHAPE:C(18)	0.995227	0.101949	9.761971	0.0000***	-

Note: * denotes statistical significance at the 0.10 level; ** denotes statistical significance at the 0.05 level; *** denotes statistical significance at the 0.01 level.

Based on the results of the data analysis, the equation can be expressed in the Log Link Function form as follows:

$$\begin{aligned} \ln[E(\text{NOTIME} | X)] = & 1.6126 + 0.2632(\text{MALE}) + 0.5441(\text{FEMALE}) + 0.0044(\text{AGE}) \\ & - 0.1172(\text{SINGLE}) - 0.1389(\text{INCOME}) - 0.1122(\text{EDU}) - 1.1244(\text{OCC_STD}) \\ & - 0.6667(\text{OCC_EMPLOYEE}) + 0.6225(\text{RES_HOUSE}) + 0.0968(\text{IOS}) \\ & - 0.0000507(\text{DIST}) - 1.1260(\text{VIH_WALK}) - 0.5776(\text{VIH_MOTOR}) \\ & - 0.3964(\text{VIH_CAR}) + 0.0239(\text{TIME}) + 2.4553(\text{OTHREAPP}) \end{aligned}$$

Incidence Rate Ratio (IRR) and Explanation of Individual Variables

Model interpretation is conducted through the IRR, or Incidence Rate Ratio ($IRR = e^{\beta}$), which represents the proportional change in the expected frequency of monthly service usage. The relationships of the variables that are statistically significant at the 0.05 level can be summarized as follows:

1) Number of years of education (EDU) showed a statistically significant negative relationship ($p = 0.0342$, $IRR \approx 0.894$). This indicates that as the number of years of education of the sample increases by 1 year, the expected number of times using the 7-Delivery application per month decreases by approximately 10.6%, holding other variables constant. However, individuals with higher education levels tend to have higher incomes, and therefore tend to consume higher-quality products or services, or use other food ordering applications with greater variety, even though 7-Eleven offers free delivery on a minimum purchase of 100 baht.

2) Student status (OCC_STD) showed a statistically significant negative relationship ($p = 0.0040$, $IRR \approx 0.325$). This indicates that the expected number of times using the 7-Delivery application per month decreases by approximately 67.5% compared to the self-employed group, holding other variables constant. This result reflects that students face income constraints and have lifestyle patterns that allow for purchasing food or products in person while traveling, making the need to use food ordering applications less necessary compared to groups who work from home.

3) Private company and government employee occupation (OCC_EMPLOYEE) showed a statistically significant negative relationship ($p = 0.0201$, $IRR \approx 0.513$). This indicates that the expected number of times using the 7-Delivery application per month decreases by approximately 48.7% compared to the self-employed group, holding other variables constant. This result reflects lifestyle patterns that allow for purchasing food or products in person while traveling, consistent with the student group, making the need to use food ordering applications less necessary compared to groups who work from home.

4) Residing in a house (RES_HOUSE) showed a statistically significant positive relationship ($p = 0.0142$, $IRR \approx 1.864$). This indicates that the expected number of times using the 7-Delivery application per month increases by 86.0% compared to residing in a condominium, holding other variables constant.

5) The group that walks to the 7-Eleven store (VIH_WALK) showed a statistically significant negative relationship ($p = 0.0160$, $IRR \approx 0.324$). This indicates that the expected number of times using the 7-Delivery application per month decreases by 67.6% compared to the group that travels by bicycle, holding other variables constant. However, the fact that consumers can conveniently walk to use the in-store service reflects living close to the store, allowing them to walk to purchase products in person more conveniently and quickly than waiting for delivery. In this regard, based on the opinions of the respondents in the sample, it was found that the 7-Delivery application takes a long time for product delivery, which results in a decreased tendency to use the 7-Delivery application service.

6) Additional use of other food delivery applications (OTHER_APP) is the variable with the highest IRR in the model, and shows a statistically significant positive relationship ($p = 0.0000$), with an IRR of 11.65. This indicates that the expected number of times using the 7-Delivery application per month is 11.65 times higher compared to the group that has never used other applications.

5.6 Analysis of Consistency of Findings

The results of the analysis reflect consumer behavior that can be meaningfully and academically distinguished into a Two-Stage Decision Process, as follows:

Stage 1: The decision of whether to download or begin using the application (examined via the Binary Logit model). Physical factors, such as distance (DIST) and travel time (TIME), were found to play a significant role in driving the adoption of the application as a substitute for traveling to the physical store.

Stage 2: The decision regarding the frequency of usage per month (examined via the Negative Binomial model). In contrast, distance and travel time were found to no longer affect ordering frequency; instead, the primary determining factors became demographic characteristics, such as educational level (EDU), and traditional behavioral patterns, such as walking to the store (VIH_WALK), which negatively affected the frequency of ordering through the digital system.

Table 7 Comparison of Results and Direction of Statistically Significant Variables

Independent Variable	Effect on Application Usage Decision (Binary Logit: USE7DV)	Effect on Usage Frequency (Negative Binomial: NOTIME)
Years of Education (EDU)	Not significant	Significant (-)
Student status (OCC_STD)	Significant (-)	Significant (-)
Private Company Employees and Government Officials (OCC_EMPLOYEE)	Significant (-)	Significant (-)
Residence in a house (RES_HOUSE)	Significant (+)	Significant (+)
Distance to store (DIST)	Significant (-)	Not significant
Travel time to store (TIME)	Significant (+) at the 0.10 level	Not significant
Walking to the store (VIH_WALK)	Not significant	Significant (-)
Use of other applications (OTHER_APP)	Significant (+)	Significant (+)

Nevertheless, the variables that exhibited a statistically significant positive relationship consistently across both models were residence in a house (RES_HOUSE) and concurrent use of other food delivery applications (OTHER_APP). This indicates that the target group characterized by a preference for convenience and pre-existing familiarity with technology (tech-savvy consumers) is the group best positioned both to decide to adopt the application and to become the most loyal segment, exhibiting the highest frequency of repeat orders.

6. Conclusion and Discussion

(1) Number of years of education negatively affects the frequency of service usage.

The study found that the number of years of education was significantly negatively associated with the frequency of 7-Delivery application usage. That is, individuals with higher levels of education tended to use the service less frequently. This may be explained by the fact that individuals with higher educational attainment have more purchasing alternatives and are better able to plan their shopping, thereby reducing the need for frequent use of delivery services. This finding is consistent with the study by Prasetyo et al. (2021), which examined food delivery service usage behavior during the COVID-19 pandemic and found that demographic factors, particularly educational level, affected service usage frequency through consumption-planning behavior.

(2) Occupation affects the frequency of service usage.

The study found that students and private company employees had a significantly lower frequency of service usage than the reference group. This finding is consistent with Cho et al. (2019), who reported that working-age individuals able to purchase products while commuting home tended to use delivery services less than those working from home.

(3) Residing in a house has a positive effect on service usage.

The study found that individuals residing in a house are approximately 86% more likely to use the 7-Delivery service compared to the reference group. This result is consistent with the study by Sriboonruang, Promchote, and Hirankitti (2022), which found that the key reasons consumers chose to use GrabFood and LINE MAN were the convenience of receiving products and time savings, particularly among those who reside at home or work from home.

(4) Walking as the primary mode of travel has a negative effect.

The study found that individuals who regularly walked to the convenience store had a significantly lower frequency of service usage than the reference group. This finding is consistent with Davis (1989), the developer of the Technology Acceptance Model (TAM), who proposed that consumers adopt technology when they perceive it as increasing benefits and reducing the effort required to carry out an activity; if consumers can conveniently walk to make a purchase, the perceived benefit of delivery service diminishes. This finding is further consistent with Venkatesh et al. (2003), developers of the UTAUT model, who explained that facilitating conditions affect technology usage; if consumers can easily access a store, this reduces the necessity of using delivery services.

(5) Additional use of other food delivery applications has the highest influence.

The study found that individuals who had previously used other food delivery applications had a frequency of using the 7-Delivery service approximately 11.65 times higher than the group that had never used such applications, making this the most influential factor. This result is consistent with the study by Bangyong

and Thanasrivanitchai (2024), which applied the UTAUT2 model and found that habit and performance expectancy were significant factors affecting the acceptance and use of food delivery applications among consumers in Bangkok and its metropolitan area. Furthermore, this is also consistent with the study by Jeerangwanichai and Laksameeaunothai (2023), which found that perceived usefulness and perceived ease of use significantly affected the intention to use GrabFood, supporting the idea that consumers who already have experience using delivery applications tend to more readily adopt other platforms.

(6) Distance and travel time to the 7-Eleven store have no effect on the frequency of service usage.

The study results found that distance and travel time had no significant relationship with the frequency of service usage when analyzed using the Negative Binomial model, even though these variables may influence the initial decision to use the service. This finding is consistent with the study by Sriboonruang, Promchote, and Hirankitti (2022), which found that consumers prioritize service quality, reliability, and speed over distance factors when choosing to use GrabFood and LINE MAN. It is also consistent with Prasetyo et al. (2021), who found that once consumers have used delivery services before, convenience and user experience factors have greater influence than distance. Furthermore, this is consistent with the study by Phothisuntara and Phattananarangsarn (2022), which found that technology acceptance and perceived application quality have greater influence on the decision to use Food Delivery than physical factors such as distance or location. The results of this study therefore reflect that the decision to use the service can be divided into two stages: first, the decision of whether to use the service or not, which is influenced by distance and time factors; and second, once the service has been chosen, the frequency of usage depends on experience, habit, and familiarity with the technology rather than travel-related factors. This is consistent with the results of the Negative Binomial model analysis, which found that distance and travel time to the 7-Eleven storefront were not statistically significant.

7. Research Limitations and Recommendations

7.1 Research Limitations

This study has two notable limitations. First, data collection employed convenience sampling, a non-probability sampling method, which may introduce selection bias and limit the sample's ability to fully represent the target population.

Second, the variable OTHREAPP was measured using cross-sectional data collected at a single point in time, making it impossible to determine whether respondents' use of other delivery applications occurred before or after their decision to adopt the 7-Delivery application. This temporal ambiguity may give rise to a reverse-causality problem. Consequently, the results pertaining to this variable reflect only a correlational relationship rather than a definitive causal relationship.

7.2 Recommendations for Practical Application of the Research Findings

Business operators should focus on retaining their existing customer base while developing sales promotion activities tailored to key target groups, namely students and company employees, as well as offering promotions and products that meet the needs of consumers residing in private houses.

The research findings revealed that the variable VIH_WALK (walking distance to the store) had a significant negative effect on the number of times consumers used the service per month. Specifically, as distance increases, delivery time tends to be longer according to respondents' opinions, which in turn reduces the likelihood of choosing to use the 7-Delivery application, as consumers may switch to other applications that offer faster delivery and broader service coverage. Therefore, business operators should increase delivery rounds and expand the service delivery range in order to reduce delivery-time constraints and better meet the needs of consumers located farther from store branches.

However, when considering the factors influencing the frequency of using the 7-Delivery application, distance and travel time to the store were found to have no significant influence. Business operators should therefore prioritize improving overall service quality and ensuring appropriate delivery times, while also expanding the service delivery range, in order to build customer satisfaction and encourage continued repeat usage of the service.

7.3 Recommendations for Future Research

Future research should employ probability sampling methods and design data collection instruments that clearly capture the temporal sequence of application-usage behaviors, or utilize panel data, in order to address the limitations identified in this study.

In addition, the scope of future studies should be expanded to incorporate attitudinal factors, trust, satisfaction, and service quality alongside demographic factors, while collecting data across multiple areas and time periods to compare differences in consumer behavior.

In terms of methodology, future research should compare the suitability of alternative econometric models, such as the Zero-Inflated Negative Binomial model, the Hurdle Model, and other count data models. Furthermore, the relationship between the decision to use the service (Binary Logit) and the frequency of service use (Negative Binomial) should be examined to provide a more comprehensive and accurate explanation of consumer behavior.

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