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Analyzing Consumer Behavior in Responses to Delivery Fees in the Chicken Delivery Market: A Survey-Based Approach

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Abstract

Purpose: This study aims to explore the factors affecting the willingness to pay for chicken delivery services targeting college students. The results of this study provide insights for improving food delivery market services and developing effective marketing strategies. **Research design, data and methodology:** A survey employing a questionnaire was administered to students at Chungbuk National University over a 10-day period from May 15 to May 24, 2023. Out of 232 distributed surveys, 218 were considered suitable for analysis. Binomial logistic regression analysis was conducted with the willingness to pay for delivery fees contingent on chicken price, serving as the dependent variable. **Results:** The main findings are following. First, as the price of chicken increases, the percentage of individuals willing to pay more than 2,000 won for delivery services decreases. Second, regardless of chicken price, males exhibit a lower tendency to bear higher delivery service fees compared to females. Lastly, those who lack awareness of their recent delivery fees or have previously paid charges exceeding 3,000 won demonstrate a greater propensity to pay higher delivery service fees compared to those who have paid fees below 3,000 won. **Conclusions:** It is essential for chicken sellers to identify key customer segments such as single-person households, and offer pricing and services tailored to their needs and preferences.

Keywords: Willingness to Pay, Delivery Fees, Consumer Behavior, Binomial Logistic Model

JEL Classification Code: M31, D49, D90

1. Introduction

The market value of food delivery business has grown by an average of 10 percent annually (Chartchawalitsakul, 2020). In India, the food delivery market is expected to expand at a compound annual growth rate of 28.9% during 2022-2027 (Verma & Mishra, 2023). South Korea is experiencing rapid growth, with online transaction volumes showing a continuous increase. For instance, a sample survey conducted exclusively on individuals aged 20 and above in the first quarter of 2022 revealed that delivery app transactions marked the highest quarterly transaction volume on record (Kim, 2022b). Since the transaction volume was estimated based on only three leading delivery apps including Baedal Minjok, Yogiyo, and Coupang Eats, it was anticipated that the actual transaction volume of delivery apps would be even larger. Since the first quarter of 2018, quarterly transaction volumes for delivery apps have

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consistently increased, starting at 800 billion won. On an annual basis, transaction volumes have seen significant increases, with figures reaching 3.9 trillion won in 2018, 7 trillion won in 2019, 12.9 trillion won in 2020, and 23.4 trillion won in 2021.

However, the ongoing controversy surrounding increased delivery fees remains unabated. In particular, consumers point to the increasing delivery fees as one of the primary reasons for avoiding the use of delivery apps, which poses a potential threat to the future delivery ecosystem (Kim, 2023), the top reason for not using delivery apps was the perception of expensive or wasteful delivery fees, accounting for 42% of responses. Non-users of delivery apps also identified the burden of delivery fees as a major reason for their non-usage (Lee et al., 2022a). Furthermore, 23.3% of individuals under the age of 30 identified "expensive delivery fees" as the main reason for not using delivery services (Lee et al., 2023). Among participants who perceived delivery fees as expensive, more than half (58.5%) had actually stopped using delivery apps, while 41.5% continued due to necessity (Jeon, 2023). Consequently, the anticipated decrease in consumer utility due to expensive delivery fees or potential future fee increases seems inevitable.

Once cherished as a staple among the working class, the chicken is gradually losing its significance due to increasing prices and rising delivery fees. Until 2018, delivery fees did not apply to chicken orders. In 2018, Kyochon Chicken was the first restaurant franchise to impose a delivery fee of 2,000 won on consumers, followed by other restaurant franchises implementing similar fee policies. In 2021, Kyochon Chicken was one of the early adopters in the chicken industry to raise delivery fees by 1,000 won (Park, 2022b). Recently, Kyochon Chicken raised the price of its popular menu item, the "Honey Combo," to 23,000 won. With delivery fees ranging from 3,000 to 5,000 won, consumers are now required to pay close to 30,000 won for a single chicken order. The consumers have expressed dissatisfaction with these price hikes (Im, 2023). Kyochon F&B, the operating company of Kyochon Chicken, recorded an operating profit of 8.8 billion won in 2022. This figure represents a staggering 78.5% decrease compared to the previous year's operating profit of 40.9 billion won, amounting to only about one-fifth of the previous year's level. However, the revenue increased from 5.07 trillion won in 2021 to 5.17 trillion won in 2022 (Financial Supervisory Service, 2023). This is believed to be largely attributed to the increase in delivery fees, leading to a notable surge in operational expenses. Consequently, Kyochon Chicken relinquished its position as the industry leader to BHC after maintaining the top spot for eight years (Jang, 2023). The price increases have led to consumer dissatisfaction and simultaneously resulted in a decline in supplier operating profits. This indicates that increased delivery fees have a negative impact on both consumers and suppliers, potentially reducing the utilization of delivery services.

In South Korea, the transaction volume of the food service industry within the online shopping mall sector increased from 26.1 trillion won in 2021 to 26.5 trillion won in 2022. However, with a slight decrease to 26.4 trillion won in 2023 compared to the previous year, it indicates a stagnation in the business's growth (Statistics Korea, 2024). Therefore, the purpose of this study is to identify the key factors influencing consumers' decisions to order food delivery with a specific focus on chicken. Through this, the research endeavors to offer valuable insights for improving food delivery market services and developing successful marketing strategies.

2. Literature review

Madani and Alshraideh (2021) argued that the revenue of online food delivery market is projected to grow at an annual rate of 7.5% from 2020 to 2024, reaching a market volume of US $182,327 million by 2024. This suggests rapid growth in the online food delivery market, which has led to heightened competition among companies striving for dominance and underscores the importance of identifying the key success factors essential for online food delivery providers. Meemken et al. (2022) asserted that there had been a significant increase in the global usage of third-party delivery services such as Doordash, Grubhub, Wolt, or Uber Eats for meal deliveries. Despite its evident impact, the full consequences and policy implications of this "delivery revolution" remain inadequately understood and warrant increased scrutiny.

Permatasari (2022) emphasized the importance of identifying services that fulfill consumer needs in today's highly competitive business environment. This recognition is vital in the decision-making process for purchases since these services not only impact repeat purchases but also contribute to the overall increase in sales for the company. Nguyen et al. (2019) highlighted the significant influence of delivery fees on consumer purchasing decisions. Wu et al. (2022) examined how delivery fees affect the decision-making process of Chinese users of online food delivery services. Using a logistic regression model, the study analyzed the influence of factors such as age, occupation, income, city tier, usage location and time, and delivery fees on the likelihood of consumers utilizing the service. The findings indicated that delivery fees had the greatest impact on consumers' likelihood of utilizing the service, with notable effects observed particularly for fee fluctuations ranging from 2 to 5 yuan. The results contribute to our

understanding of consumer behavior in online food delivery services and can assist in divising appropriate pricing policies.

Aryani et al. (2022) examined the determinants of consumers' behavioral intention to use the Foodpanda food delivery app, employing a combination of primary and secondary data collection methods, which includes an online survey completed by 100 respondents. The results indicated that factors such as price, information quality, and perceived usefulness of the Foodpanda app had a significant impact on consumers' intention to utilize the food delivery services.

Lathofia and Prasetio (2023) tried to identify the factors that affect consumers' intention to repurchase using the GrabFood online food delivery services in Indonesia. Utilizing a quantitative approach along with descriptive research, the study employed IBM Statistics SPSS 25 and conducted PLS-SEM analysis using SmartPLS 3.0 to test hypothesis. The findings showed generally favorable perceptions of GrabFood, with four hypotheses being confirmed, suggesting that variables such as effort expectancy, perceived usefulness, social influence, and trust have a positive influence on repurchase intention. Nevertheless, information quality and perceived risk did not demonstrate a significant effect. To enhance consumer repurchase intention, it is recommended to focus on improving areas such as effort expectancy, usability, social influence, trust, information quality, and risk prevention.

Yu and Sakurai (2022) concentrated on understanding customer needs and requests in the Chinese online food delivery sector, particularly during the early stage of the COVID-19 pandemic. The study employed a binomial logistic regression model to examine factors influencing food delivery orders. Factors found to have a significant positive impact on purchasing behavior included living expenses ranging from 2001 to 4000 yuan, 4001 to 7000 yuan, and adverse weather conditions. Online food delivery users place a high emphasis on the taste of meals, suggesting the importance of maintaining food quality. In this study, strategies proposed to attract Chinese online food delivery users include improving food safety supervision, maintaining the taste of meals, and improving the credibility of review systems. The study also highlighted the potential security issues encountered by online food delivery riders and their impact on order frequency. Trust in online food delivery riders was analyzed to have a positive impact on the frequency of ordering food delivery.

Kantor and Kubiczek (2022) focused on enhancing the cost-effectiveness of food delivery in response to increased online ordering during the COVID-19 pandemic. They introduced a dynamic delivery valuation model that incorporated factors such as distance, the courier's one-time cost, and opportunity cost. The study highlighted that fixed delivery costs could lead to revenue loss during fluctuations in fuel prices, emphasizing the importance of conducting proper cost evaluations. The study proposed that delivery costs in the food service industry can be optimized by implementing a dynamic pricing model that utilized publicly available data. Furthermore, the authors underscored the importance of considering various factors beyond just distance to accurately assess delivery costs, providing solutions to optimize expenses for both businesses and customers.

Park and Son (2021) investigated the impact of modifying delivery fees according to service quality and customer satisfaction. They suggested that businesses engaged in food delivery services should leverage delivery fees as a marketing tool by reassessing their perception of such fees. They concluded that businesses can expand their customer base by providing a range of delivery fee options that align with customers' budgetary constraints.

Lee et al. (2022b) discovered that sellers are commercializing delivery services as a part of their profit-maximizing strategy using a "fee fence" approach. They transferred the increased operating expenses, including delivery commissions, to consumers. Consequently, they suggested that in order to ensure the sustained growth of O2O (Online to Offline) food delivery platforms, there needs to be a mutually agreed-upon information of market transaction prices between suppliers and consumers.

Kim et al. (2020) indicated that the use of mobile food delivery apps differs across age groups. Their examination of age demographics within food technology applications showed that the age group of 20-29, mainly comprising college students, accounted for the highest proportion (48.5%), followed by the age categories of 30-39 (28.5%), 40-49 (14.4%), and 50 and above (8.6%).

Bae et al. (2020) noted that college students experience greater autonomy in their food and meal selections compared to their high school years. Furthermore, owing to diverse living arrangements and academic commitments, meal schedules and preferences may differ. Additionally, they are also well-acquainted with the culture of food delivery and smartphone usage.

The previous studies have offered valuable insights into various aspects of delivery fees, including their effects on service satisfaction, pricing strategies, and usage patterns of food delivery apps across different age groups. However, there has been a lack of quantitative research on consumers' willingness to pay for delivery fees, which is a significant concern among recent users of delivery services. Therefore, this study aims to fill this gap by quantitatively examining the factors that influence the maximum willingness to pay for delivery fees among college students, who are the primary users of delivery apps, with a focus on chicken prices.

3. Methodology

3.1. Data Collection

This study carried out an online survey using Google Forms and face-to-face interviews with students enrolled at Chungbuk National University, who were the target population. The survey questions were formulated based on the Food Consumption Behavior Survey Questionnaire provided by the Lee et al. (2023), along with insights from the studies conducted by Heo and Bae (2020) and Park and Bae (2020). Convenience sampling was employed to select the survey sample, and respondents completed the survey anonymously through self-administered questionnaires. The survey was conducted over a period of ten days, from May 15th to May 24th, 2023. Out of a total of 232 responses, 14 respondents who were not enrolled at Chungbuk National University and those who selected "Others" as their household type (e.g., military service, living in a boarding house) were excluded. The analysis was conducted using a sample of 218 respondents. To investigate the maximum willingness to pay for delivery fees based on chicken prices, the dependent variable was defined as the maximum amount participants were willing to pay for delivery fees when the chicken prices were set at 15,000, 20,000, and 25,000 won, respectively.

According to the Food Consumption Behavior Survey Report by Kim et al. (2022), consumers' average willingness to pay for delivery fees when ordering a 20,000 won meal was approximately 1,617 won, as surveyed for the appropriate delivery fee level. When analyzing the response distribution by price range, the interval of 1,000 to 2,000 won had the highest percentage at 45.3%. Additionally, based on a survey on perceptions of delivery fees conducted by Park and Lee (2022), delivery app users perceived the average reasonable delivery fee to be 1,943 won. Considering these findings, the dependent variable was divided into two discrete categories: 'Low Delivery Fee' (less than 2,000 won) and 'High Delivery Fee' (2,000 won or more).

The independent variables were determined based on the studies of Kim (2022a), Lee and Ha (2021), and No (2022). Demographic data such as gender and average monthly food expenses were included as independent variables. Additionally, household type was considered an independent variable based on Heo and Bae's (2020) study, which revealed differences in food delivery consumption patterns by household type. The factor of expensive delivery fees as a barrier to using delivery services was included as an independent variable, based on the 2022 Food Consumption Behavior Survey results provided by Lee et al. (2023). Furthermore, dissatisfaction with delivery fee increases was set as an independent variable, following the results of Park and Bae's (2020) study, which demonstrated that satisfaction with delivery fees significantly influences food delivery consumption.

The independent variable 'household type' was categorized into two groups: 'Single-person' for individuals living alone and 'Multi-person' for those residing in shared accommodations such as dormitories or shared residences. Monthly food expenses were classified into three groups: 'Less than 300,000 won', '300,000 to less than 600,000 won', and 'More than 600,000 won', based on the findings of Lee (2022). Monthly chicken consumption frequency was segmented into 'No consumption', 'At least once but less than three times', and 'Three or more times', reflecting consumption patterns. The variable indicating the reduction in chicken consumption in response to a 1,000 won increase in delivery fees was divided into five categories: 'No reduction', 'Once', 'Twice', 'Three or four times', and 'Five or six times', considering the monthly chicken consumption frequency. 'Recently paid delivery fee' was divided into three categories: 'Unknown', 'Less than 3,000 won', and '3,000 won or more'. Barrier factors when using delivery services (such as high delivery fees) were set as an independent variable based on the 2022 Food Consumption Behavior Survey conducted by Lee et al. (2023). The degree of dissatisfaction with delivery fee increases was categorized into 'Very dissatisfied' and 'Slightly dissatisfied.'

3.2. Analytical Model

To analyze the factors influencing the maximum willingness to pay for delivery fees, the study employed a binomial logistic regression model since the dependent variable is binary. Using OLS (Ordinary Least Squares) method with a binary dependent variable is not appropriate due to the assumptions on the distribution of the dependent variable and error structure (Walker & Duncan, 1967). Binary logistic regression uses the logit transformation to linearize the non-linear relationship between the independent variables and the probability of binary outcome. The model used in this study is represented as the following equation (1).

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k \qquad (1)$$

Where p is the probability of the willingness to pay for delivery fees exceeding 2,000 won, and $x_1, x_2, \ldots, x_k$ are the independent variables, and $\beta_0, \beta_1, \ldots, \beta_k$ are the coefficients to be estimated.

The equation (1) represents the log-odds(logit) of the probability p being 1 as a linear combination of the independent variables $x_1, x_2, \ldots, x_k$. To obtain the

probability p, the Equation (1) can be rearranged as the following equation (2).

$$p = \frac{1}{1+e^{-(\beta_0+\beta_1 x_1+\beta_2 x_2+\ldots+\beta_k x_k)}} \quad (2)$$

The coefficients $\beta_0, \beta_1, \ldots, \beta_k$ are estimated using maximum likelihood estimation (Henry & Nielsen, 2007), and they represent the impact of the independent variables on the log-odds of the binary outcome, which is the probability of the willingness to pay for delivery fees exceeding 2,000 won. To easily grasp the impact of independent variables on the probability, it is desirable to examine the marginal effects. When dealing with a binary logistic model with categorical independent variables akin to this study, the method to compute the marginal effects involves transforming the coefficients associated with each category into probabilities.

Assume that there is a categorical independent variable x_i that has J categories x_{ij} where $j = 1, 2, \ldots, J$ in a binary logistic model. The log-odds function of the model is represented as the equation (3).

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots + \beta_J x_{iJ} \quad (3)$$

Where p is the probability of the dependent variable, and $\beta_0, \beta_1, \ldots, \beta_J$ are the coefficients of the model associated with each category of the variable x_i. The marginal effect of each category x_{ij} with respect to the dependent variable can be calculated as the difference in predicted probabilities when x_{ij} changes from 0 to 1, while holding other variables constant. It can be represented as follows:

$$\text{Marginal Effect of } x_{ij} = p(x_{ij} = 1) - p(x_{ij} = 0) \quad (4)$$

Where $p(x_{ij} = 1)$ is the predicted probability when the categorical variable x_i takes the value of category x_{ij}, and $p(x_{ij} = 0)$ is the predicted probability when x_{ij} is absent. To obtain $p(x_{ij} = 0)$ and $p(x_{ij} = 1)$, we can substitute the corresponding values of the coefficients into the logistic function and compute the probabilities. Then, the marginal effect can be calculated by taking the difference between these probabilities.

4. Analysis Result

4.1. Basic statistics

Here is the basic statistics of the data used in the research, as presented in Table 1. One interesting result was observed: as chicken prices increased, the proportion of individuals willing to pay higher delivery fee (2,000 won or more) decreased. This can be interpreted through both cost-related and experiential factors. Firstly, in terms of cost, customers who purchase expensive items tend to minimize delivery fees, considering they are already paying a substantial amount for the product itself. Secondly, customers frequently experience reduced delivery fees when ordering items above a certain price threshold. Therefore, when purchasing expensive items, it is empirically expected that customers would perceive delivery fees as more affordable.

Among demographic independent variables, the data reveals that the proportion of males is approximately 10% higher than that of females, whereas in terms of household type, multi-person households constitute about 13% more than single-person households.

Table 1: Basic Statistics of Survey Data

Variable	Category	%
Chicken Price 15,000 won	Low delivery fee	29.82
	High delivery fee	70.18
Chicken Price 20,000 won	Low delivery fee	33.94
	High delivery fee	66.06
Chicken Price 25,000 won	Low delivery fee	42.20
	High delivery fee	57.80
Gender	**Female**	44.95
	Male	55.05
Household Type	Multi-person	56.88
	Single-person	43.12
Monthly Food Expenses	**Less than 300,000 won**	40.37
	300,000 to less than 600,000 won	48.62
	More than 600,000 won	11.02
Monthly Chicken Consumption Frequency	**No consumption**	11.93
	At least once but less than three times	61.93
	Three or more times	26.15
Reduction in Chicken Consumption in case of a 1,000 won increase in delivery fee	No reduction	21.56
	Once a month	34.86
	Twice a month	24.31
	3 or 4 times a month	12.39
	5 or 6 times a month	6.88
Recently Paid Delivery Fee	Unknown	24.77
	Less than 3,000 won	21.56
	3,000 won or more	53.67
Recently Paid Delivery Fee	**Others**	62.84
	Expensive delivery fee	37.16
Degree of Dissatisfaction with Delivery Fee Increase	**Slightly Dissatisfied**	41.28
	Very Dissatisfied	58.72

Note: Categories highlighted in bold are the reference groups for independent variables.

4.2. Binomial Logistic Regression Analysis

In this study, binomial logistic regression analysis was conducted using Stata 17 software. The analysis results derived from the binomial logistic regression analysis are presented in Table 2. The analysis was conducted to estimate the influence of independent variables on the maximum willingness to pay for delivery fees based on chicken prices. Likelihood ratio tests, Pseudo-R-squared, and hit rates were employed to test the goodness of fit of the binomial logistic regression models, separately analyzed for chicken prices of 15,000 won, 20,000 won, and 25,000 won. The likelihood ratio test statistics were 35.180, 27.190, and 43.770, with corresponding p-values of 0.001, 0.018, and 0.000, indicating statistical significance at the 5% level. Pseudo-R-squared values were 0.132, 0.097, and 0.147, resulting in overall hit rates of 73.85%, 71.56%, and 70.64%, indicating the adequacy of the model.

Regardless of the chicken price, males tend to have a lower maximum willingness to pay for chicken delivery fees compared to females. Single-person households have a positive impact on the maximum willingness to pay for delivery fees when the chicken price is 15,000 won, but they have a negative impact when the chicken price increases to 25,000 won. Moreover, higher monthly food expenses correlate positively with the maximum willingness to pay for delivery fees, indicating that individuals with higher food expenditures are more willing to pay higher delivery fees. Lastly, individuals who are either unaware of their recent delivery fees or have paid delivery fees exceeding 3,000 won exhibit a greater willingness to pay for chicken delivery fees than those who have paid fees below 3,000 won.

For a chicken price of 15,000 won, individuals with a higher frequency of monthly chicken consumption showed a greater maximum willingness to pay. Moreover, dissatisfaction with increases in delivery fees was linked to a reduced maximum willingness to pay for delivery fees. For a chicken price of 20,000 won, individuals facing barriers to using delivery services, such as high delivery fees, were less likely to exhibit a higher maximum willingness to pay for delivery fees. Finally, for a chicken price of 25,000 won, individuals with higher monthly food expenses demonstrated an increase in their maximum willingness to pay for delivery fees.

Table 2: Estimation Results of the Binomial Logistic Regression Model

Variable		Chicken Price					
		15,000 won		20,000 won		25,000 won	
		coef.	SE	coef.	SE	coef.	SE
Gender: Male		-0.641 *	0.354	-0.555 *	0.332	-0.607 *	0.331
Household Type: Single-person		0.882 **	0.363	-0.180	0.333	-0.576 *	0.343
Monthly Food Expenses	30,000 ~ 60,000 won	-0.263	0.367	0.613 *	0.354	1.561 ***	0.369
	Above 60,000 won	0.430	0.666	0.559	0.583	1.488 **	0.588
Monthly Chicken Consumption Frequency	Less than 3 times	1.123 **	0.543	0.241	0.544	-0.190	0.555
	3 times or more	1.297 **	0.605	0.151	0.589	-0.281	0.601
Reduction in Chicken Consumption in case of a 1,000 won increase in delivery fee	No reduction	0.781	0.703	0.654	0.700	0.264	0.735
	Once a month	1.121 *	0.672	0.106	0.655	-0.321	0.694
	Twice a month	0.983	0.684	0.048	0.665	-0.821	0.703
	3 to 4 times a month	0.538	0.740	-0.140	0.733	-1.450 *	0.772
Recently Paid Delivery Fee	Unknown	0.827 *	0.492	1.196 **	0.470	1.042 **	0.479
	Over 3,000 won	0.884 **	0.409	1.223 ***	0.391	1.111 ***	0.407
Barrier Factors in Delivery Use: Expensive Delivery Fee		-0.391	0.334	-0.712 **	0.316	-0.243	0.321
Degree of Dissatisfaction with Delivery Fee increase: Very Dissatisfied		-0.984 ***	0.373	-0.339	0.339	-0.245	0.333

Note: (1) *, **, *** represents significance levels of 10%, 5%, 1% respectively. (2) Reference category for the dependent variable is having the willingness to pay for delivery fees below 2,000 won. (3) Reference category for independent variables are highlighted in bold in Table 1.

4.3. The Analysis of Marginal Effects

The marginal effects derived from the equation (4) are presented in Table 3. The household type has a positive effect on the maximum willingness to pay for chicken delivery fees at a chicken price of 15,000 won, but this effect turns negative as the chicken price rises to 25,000 won. This implies that individuals in single-person households, in contrast to those in multi-person households, have a smaller consumption scale, making them more responsive to price fluctuations (Kang & Lee, 2020).

At the 10% significance level, gender, household type, monthly chicken consumption frequency, recent paid delivery fee, and dissatisfaction with delivery fee increase were found to be statistically significant at a chicken price of 15,000 won. Compared to females, males had a 12.5% lower probability of paying more than 2,000 won for chicken delivery fees, whereas single-person households had a 17.2% higher probability. Moreover, individuals who consumed chicken at least once a month or more showed a higher likelihood of paying over 2,000 won for delivery fees compared to those who did not consume chicken at all. Those who were uncertain about their recent fees or had paid more than 3,000 won had a 17.8% and 18.8% higher probability, respectively, of paying more than 2,000 won for chicken delivery fees. On the contrary, those who were highly dissatisfied with the increase in delivery fee had a 19.1% lower probability of paying more than 2,000 won for chicken delivery fees.

At a chicken price of 20,000 won, gender, recent paid delivery fee, and barriers to using delivery services were statistically significant at the 10% significance level. Compared to females, males had a 12.1% lower probability of paying more than 2,000 won for chicken delivery fees. Those who were uncertain about their recent delivery fees or had paid more than 3,000 won had a 28.0% and 28.6% higher probability, respectively, of paying more than 2,000 won for chicken delivery fees compared to those who had paid less than 3,000 won. Moreover, individuals facing obstacles in using delivery services due to high delivery fees had a 15.5% lower probability of paying more than 2,000 won for chicken delivery fees.

At a chicken price of 25,000 won, gender, household type, monthly food expenses, and recent paid delivery fee were statistically significant at the 10% significance level. Males had a 14.7% lower probability of paying more than 2,000 won for chicken delivery fees compared to females, while single-person households had a 13.9% lower probability. Furthermore, individuals with monthly food expenses of 600,000 won or more had a 35.3% higher probability of paying more than 2,000 won for chicken delivery fees compared to those with monthly food expenses of less than 300,000 won. Additionally, individuals who were uncertain about or paid more than 3,000 won for recent delivery fees had a 25.5% and 27.1% higher probability, respectively, of paying more than 2,000 won for chicken delivery fees.

Table 3: The Results of the Marginal Effects Analysis

Variable		Chicken Price		
		15,000 won	20,000 won	25,000 won
Gender: Male		-0.125 *	-0.121 *	-0.147 *
Household Type: Single-person		0.172 **	-0.039	-0.139 *
Monthly Food Expenses	30,000 ~ 60,000 won	-0.052	0.136 *	0.368 ***
	Above 60,000 won	0.071	0.125	0.353 ***
Monthly Chicken Consumption Frequency	Less than 3 times	0.255 **	0.054	-0.045
	3 times or more	0.286 **	0.034	-0.067
Reduction in Chicken Consumption in case of a 1,000 won increase in delivery fee	No reduction	0.180	0.134	0.053
	Once a month	0.243	0.024	-0.072
	Twice a month	0.218	0.011	-0.195
	3 to 4 times a month	0.128	-0.033	-0.347 **
Recently Paid Delivery Fee	Unknown	0.178 *	0.280 ***	0.255 **
	Over 3,000 won	0.188 **	0.286 ***	0.271 ***
Barrier Factors in Delivery Use: Expensive Delivery Fee		-0.076	-0.155 **	-0.059
Degree of Dissatisfaction with Delivery Fee increase: Very Dissatisfied		-0.191 ***	-0.074	-0.059

Note: (1) *, **, *** represents significance levels of 10%, 5%, 1% respectively. (2) Reference category for the dependent variable is having the willingness to pay for delivery fees below 2,000 won. (3) Reference category for independent variables are highlighted in bold in Table 1.

5. Conclusion and Recommendations

The development of convenient payment systems and the proliferation of delivery apps have fueled the growth of the delivery market in Korea. However, persistent concerns arise over the high cost of delivery fees and frequent fee increases. In the past, delivery fees were not common, but with the introduction of delivery charges by chicken restaurants, other dining franchises followed suit, resulting in the commercialization of delivery fees. Therefore, this study aims to identify the factors influencing consumers' maximum willingness to pay for delivery fees based on

chicken prices, It seeks to provide insights for enhancing service in the delivery food market and proposes marketing strategies to address these challenges.

This study employed a binomial logistic regression model to analyze the factors influencing the maximum willingness of Chungbuk National University students to pay for delivery fees based on chicken prices. The dependent variable was defined as the maximum willingness to pay for delivery fees, while independent variables included gender, household type, monthly food expenses, monthly chicken consumption frequency, reduction in chicken consumption with a 1,000 won increase in delivery fee, recent paid delivery fee, barriers to using delivery services, and the degree of dissatisfaction with delivery fee increases.

The analysis indicated that as chicken prices rise, the proportion of individuals willing to pay over 2,000 won for chicken delivery fees decreases. Specifically, at a chicken price of 15,000 won, males exhibit a lower probability of paying more than 2,000 won for chicken delivery fees, whereas single-person households demonstrate a higher probability. Moreover, there is a positive correlation between monthly chicken consumption frequency and recent paid delivery fee with the probability of paying more than 2,000 won, while dissatisfaction with delivery fee increase shows a negative correlation.

At a chicken price of 20,000 won, males and individuals encountering barriers in delivery services due to expensive delivery fees exhibit a decreased probability of paying more than 2,000 won for chicken delivery fees. Conversely, there is a positive correlation between monthly food expenses and recent paid delivery fee with the probability of paying more than 2,000 won. At a chicken price of 25,000 won, males and individuals living in single-person households demonstrate a reduced probability of paying more than 2,000 won for chicken delivery fees. In contrast, there is a positive correlation between monthly food expenses and recent delivery fee payments with the probability of paying more than 2,000 won.

The impact of independent variables on the maximum willingness to pay for delivery fees varied depending on chicken prices, highlighting the need for differentiated marketing strategies. Henaux and Semal (1998) underscored the significance of providing a range of delivery options, comprehending customer expectations, and efficiently managing performance and costs to improve delivery service capabilities. As a result, distributors can effectively meet the diverse needs of customers.

Outlined below are the marketing strategies devised to enhance delivery food market services. Firstly, targeting single-person households is imperative. Our results suggest that single-person households are sensitive to delivery fees, particularly in relation to chicken prices. Specifically, when the chicken price is 15,000 won, they are more likely to pay over 2,000 won for delivery fees, whereas this probability decreases as the price rises to 25,000 won. Moreover, dining frequency alone is correlated with spending on delivery food (Kang & Lee, 2020). Therefore, tailored menus featuring smaller-sized chicken sets or individual options at affordable prices are essential to address their pricing accessibility concerns.

Secondly, it is crucial to identify the primary customer base and tailor pricing and services to their preferences. Consumers with higher monthly food expenses, particularly when chicken prices reach 25,000 won, are highly inclined to pay over 2,000 won for delivery fees. Those who invest in higher-priced products typically anticipate superior service quality commensurate with the price. Therefore, if companies selling premium chicken offer delivery services of a similar standard, it is likely to satisfy customers, enhancing their perceptions of value in both the product and service and ultimately boosting loyalty. Service quality plays a pivotal role in fostering customer loyalty, highlighting the importance of providing outstanding service to differentiate from competitors and build enduring customer allegiance. (Rahayu & Syafe'i, 2019).

Lastly, implementing a marketing strategy that attracts repeat customers by offering coupon rewards based on their reorder frequency is essential. A previous study (Yu & Sakurai, 2022) highlighted the impact of sales promotions, such as coupons, on consumers' food delivery choices. Pricing discount policies, coupons, and various options contribute to customer satisfaction, which in turn enhances operational performance (Lee, 2016). Thus, offering incentives such as one free delivery for every five orders can incentivize consumer purchasing behavior and secure loyal customers, ultimately increasing order volume and gaining a competitive advantage within the industry. Overall, through the implementation of these strategies, businesses can effectively navigate the complexities of the delivery food market, foster customer loyalty, and simultaneously enhance operational performance.

This study has limitations regarding sample representativeness and generalizability due to its reliance on a survey conducted exclusively among Chungbuk National University students. Future research should broaden the study's scope to encompass a more diverse array of consumers hailing from various demographic backgrounds and geographical regions. Moreover, incorporating the viewpoints of delivery service workers and operators could offer invaluable insights into the operational intricacies and dynamics of the delivery market. Such inclusion would bolster the study's robustness and expand its relevance to a broader population.

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